

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

Application of San Diego Gas & Electric
Company (U 902 E) for Authority to Update Electric
Rate Design Regarding Residential Default Time-
Of-Use Rates and Fixed Charges

Application 17-12-_____

**PREPARED DIRECT TESTIMONY OF
CHRISTOPHER BENDER
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

CHAPTER 6

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

December 20, 2017



TABLE OF CONTENTS

I.	INTRODUCTION AND PURPOSE	1
II.	PROCEDURAL HISTORY AND BACKGROUND.....	1
III.	MASS TOU DEFAULT TRANSITION PLAN.....	3
IV.	MASS TOU DEFAULT CUSTOMER EXCLUSIONS & BILL PROTECTION.....	5
V.	MASS TOU DEFAULT KEY INTERNAL PROCESSES	7
VI.	MASS TOU DEFAULT CUSTOMER RESEARCH	7
VII.	MASS TOU DEFAULT CUSTOMER SUPPORT	10
	A. Internally-Focused	10
	B. Externally-Focused	10
VIII.	MASS TOU DEFAULT OPERATIONS & PRODUCTION SUPPORT	11
IX.	MASS TOU DEFAULT INFORMATION TECHNOLOGY	13
	A. Energy Billing and Notifications	13
	B. TOU System Enhancements	14
	C. Timing Impact from Customer Information System (“CIS”) Upgrade	14
X.	MASS TOU DEFAULT REPORTING.....	15
XI.	CONCLUSION.....	16
XII.	STATEMENT OF QUALIFICATIONS	17

1 **PREPARED DIRECT TESTIMONY OF CHRISTOPHER BENDER**

2 **I. INTRODUCTION AND PURPOSE**

3 The purpose of this testimony is to present San Diego Gas & Electric Company’s
4 (“SDG&E’s”) Mass Time-of-Use (“TOU”) Default Plan (attached as “Attachment A – Mass
5 TOU Default Transition Plan”). My testimony is organized as follows:

- 6 • **Section II. Mass TOU Default Transition Plan**
- 7 • **Section III. Mass TOU Default Customer Exclusions & Bill Protection**
- 8 • **Section IV. Mass TOU Default Key Internal Processes**
- 9 • **Section V. Mass TOU Default Customer Research**
- 10 • **Section VI. Mass TOU Default Customer Support**
- 11 • **Section VII. Mass TOU Default Operations & Production Support**
- 12 • **Section VIII. Mass TOU Default Information Technology**
- 13 • **Section IX. Mass TOU Default Reporting**
- 14 • **Section X. Conclusion**
- 15 • **Section XI. Statement of Qualifications**

16 **II. PROCEDURAL HISTORY AND BACKGROUND**

17 In Decision (“D.”) 15-07-001, the California Public Utilities Commission (“CPUC” or
18 “Commission”) outlined how SDG&E and the other investor-owned utilities (“IOUs”) were to
19 implement residential rate reform. Among other directives, D.15-07-001 Ordering Paragraph 10
20 also required the submittal of a Mass TOU Default Plan. Consistent with this requirement,
21 SDG&E is submitting its 2019 Mass TOU Default Plan as part of this Rate Design Window
22 (“RDW”) Application.

1 Mass TOU Default builds upon two residential TOU pilots: (1) the 2016-2017 Opt-In
2 TOU Pilot¹ and (2) the 2018 Default TOU Pilot.² These pilots were designed to assess customer
3 experience, evaluate a variety of TOU rate designs to inform future rate design, and test
4 SDG&E's operational readiness. As these pilots are implemented over time, the findings will be
5 used to refine and eventually operate the Mass TOU Default as efficiently and effectively as
6 possible. Any additional lessons learned will be considered for improving the efficiency and
7 effectiveness of SDG&E's operations, communications and messaging, and customer support to
8 foster positive customer experiences.

9 Regarding overall size and timing, the Mass TOU Migration Plan will migrate
10 approximately 750,000 eligible residential customers onto TOU pricing over a ten-month period
11 between March 2019 and December 2019. It is expected that monthly migration totals will range
12 between 50,000 and 100,000 customers, depending on the season and how customers are
13 impacted by TOU pricing.

14 The Mass TOU Migration will offer two new TOU rates:

- 15 • **Schedule TOU-DR-1** – This will be the default TOU rate and will include cost-
16 based peak-to-off-peak price differentials, reflect two seasons (summer/winter),
17 and three TOU periods (on-peak, off-peak, and super off-peak). March and April

¹ The scale of Opt-In TOU Pilot involved defaulting 11,655 customers onto one of two TOU rates in June 2016. There were 4,154 customers assigned to a 3-period TOU rate. There were 7,501 customers assigned a 2-period TOU rate. There were 4,149 customers assigned to a control group. In addition, SDG&E transitioned 68 customers on Rate E3 in November 2017, which had hourly-dynamic pricing based on system and circuit status.

² The scale of Default TOU Pilot will involve defaulting between 100,000 and 150,000 customers during the month of March 2018, while also providing the customers the opportunity to sign up as early as January 1, 2018, at the discretion the customer. The rates are similar to the 3-period and 2-period rates offered in the 2017 Opt-In TOU Pilot, with some changes in the times of the TOU periods and seasons, pursuant to D.17-08-030.

1 will have a unique super off-peak period from 10 a.m. to 2 p.m. This rate will
2 also be the default turn-on rate beginning January 1, 2019.

- 3 • **Schedule TOU-DR-2** – This will be the opt-out TOU rate and will include
4 somewhat milder peak-to-off-peak price differentials and two TOU periods. The
5 peak and off-peak periods along with the summer and winter months for TOU-
6 DR-2 are the same as TOU-DR-1. This will be an alternative TOU rate for
7 customers who do not wish to remain on TOU-DR-1.

8 For those customers who want to opt out of the default TOU rate, in addition to TOU-
9 DR-2, the Standard (DR) plus other eligible rates are available. The available rates are described
10 in more detail in the direct testimony of Cynthia Fang.

11 **III. MASS TOU DEFAULT TRANSITION PLAN**

12 Customer transition groups are defined by those expected to see a bill decrease
13 (benefiters), increase (non-benefiters) or on the shoulder (neutral benefiters and neutral non-
14 benefiters). These four transition groups are further defined as follows with percentages based
15 on the 750,000 Mass TOU Default population.³

- 16 • **Benefiters (2%)** – Customers expected to save an average of at least \$10/month
17 on their electricity bill, based on the last 12 months of energy consumption.
- 18 • **Neutral Benefiters (52%)** – Customers expected to save an average of
19 \$0.01/month to \$9.99/month on their electric bill, based on the last 12 months of
20 energy consumption.

³ Customer transition group quantities are estimated based on the current population and are subject to change based on increases and/or decreases in customer counts and eligibility.

- 1 • **Neutral Non-Benefiter (42%)** – Customers expected to experience an average
2 increase of \$0.01/month to \$9.99/month on their electric bill, based on the last 12
3 months of energy consumption.
- 4 • **Non-Benefiters (4%)** – Customers expected to experience an average increase at
5 least \$10/month on their electric bill, based on the last 12 months of energy
6 consumption.

7 When developing the transition schedule, SDG&E considered the following:

- 8 1. Allow time for default notifications to be sent and understood.
- 9 2. To the extent possible, transition those that benefit the most from TOU pricing
10 first, while gradually increasing the non-benefiting customers.
- 11 3. Transition more customers in the winter months (when energy use and prices are
12 lower) versus the summer months.
- 13 4. Lessen the transitions during the holiday season.
- 14 5. For load research purposes, keep some of the Default TOU Pilot Control Group
15 population off TOU pricing for as long as possible.

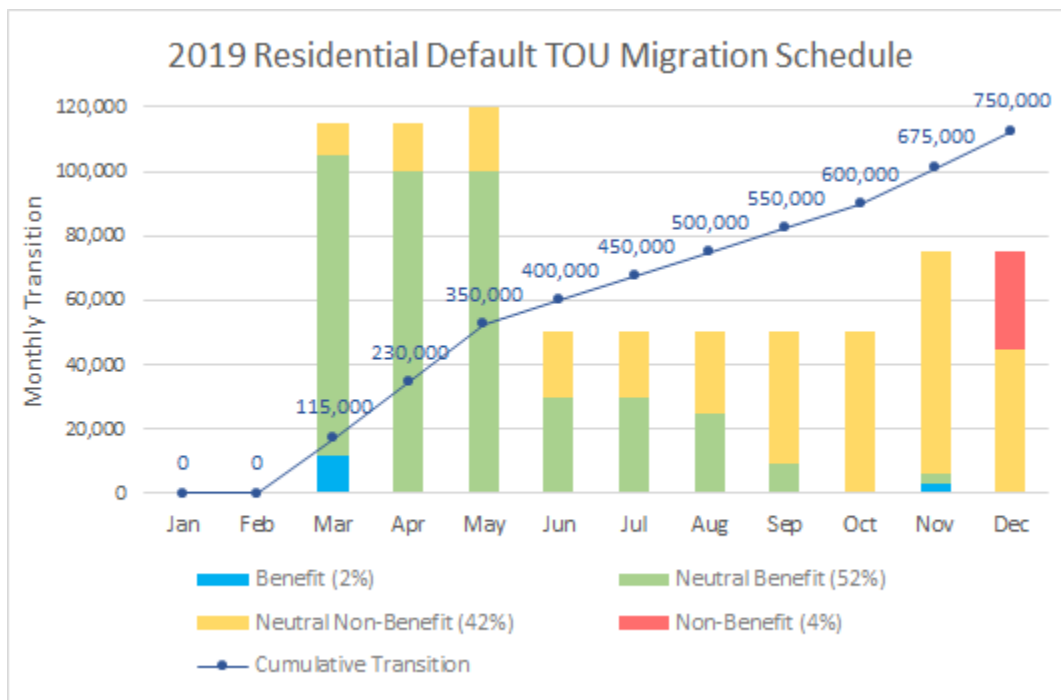
16 Beginning March 2019 (after default notifications have been sent in January and
17 February), SDG&E will transition the customer groupings in order of who benefits the most
18 from being on TOU pricing. About 115,000 customers/month will be transitioned during March
19 and April, and 120,000 in May. Approximately 50,000 customers per month will be transitioned
20 during summer months. Due to holidays, November and December will have a reduced winter
21 transition amount (75,000).

22 SDG&E will try to hold as many of the Default TOU Pilot Control Group until the final
23 months of the Mass TOU Default transition, while balancing the other constraints of not

1 defaulting as many during summer months and transitioning as many beneficiaries as possible, first.
 2 Holding the control group until the end will enable continued load and behavioral analytics to be
 3 performed against the original Default TOU Pilot participants, throughout the Mass TOU Default
 4 transition period.

5 New customers who started service in 2018 will transition to TOU pricing during the
 6 same month in 2019.

7 The following graph illustrates the transition schedule described in this section.



8
 9 **IV. MASS TOU DEFAULT CUSTOMER EXCLUSIONS & BILL PROTECTION**

10 Complying with the rules set forth by California Public Utilities (“P.U.”) Code Section
 11 745 and continuing operational experience from the Default TOU Pilot, some customer groups
 12 will be excluded from the Mass TOU Migration. A list of Default TOU Pilot exclusions and
 13 reasons, and Mass TOU Default exclusionary status, is provided below.

2018 Default TOU Pilot Exclusion Criteria	2018 Default TOU Pilot Reason	2019 Mass TOU Default Exclusion Status
Medical Baseline Customers	P.U. Code Section 745(c)(1)	Exclude
California Alternate Rates for Energy (“CARE”)/Family Electric Rate Assistance (“FERA”) eligible customers in Mountain and Desert climate zones	P.U. Code Section 745(c)(1)	Exclude
Customers requiring an in-person visit prior to disconnection (includes medical baseline)	P.U. Code Section 745(c)(1)	Exclude
Customers requesting third party notification	P.U. Code Section 745(c)(1)	Exclude
Customers who do not have a TOU meter	P.U. Code Section 745(c)(4)	Exclude
Customers with less than 12 months of interval data	P.U. Code Section 745(c)(4)	Exclude
New customers (with or without 12 months of interval data)	P.U. Code Section 745(c)(4)	Include
Existing TOU Customers	Customers are currently on a TOU rate	Exclude from default, but keep on same TOU pricing
Customers on multi-family rate schedules DM, DT, DS, DT-RV	Master meter - resident is not the account holder	Exclude
Non-Interval Bill Capable Meters	Mechanical (legacy) meters - cannot collect interval data	Exclude
Smart Meter Opt-Out Customers	99.9% of these customers do not have meters that collect interval data	Exclude, unless meter capability and/or rate rules do not disqualify the customer
Direct Access & Transition Bundled Service Customers	Non-commodity rates for the customers do not differ based on TOU Period	Exclude

1 Bill protection will be applied to a customer’s bill after remaining on the default TOU
2 rate (TOU-DR-1) for 12 months or within the first 12 months of service upon closing of their
3 account, transferring service to a different location, or changing their rate option.

1 **V. MASS TOU DEFAULT KEY INTERNAL PROCESSES**

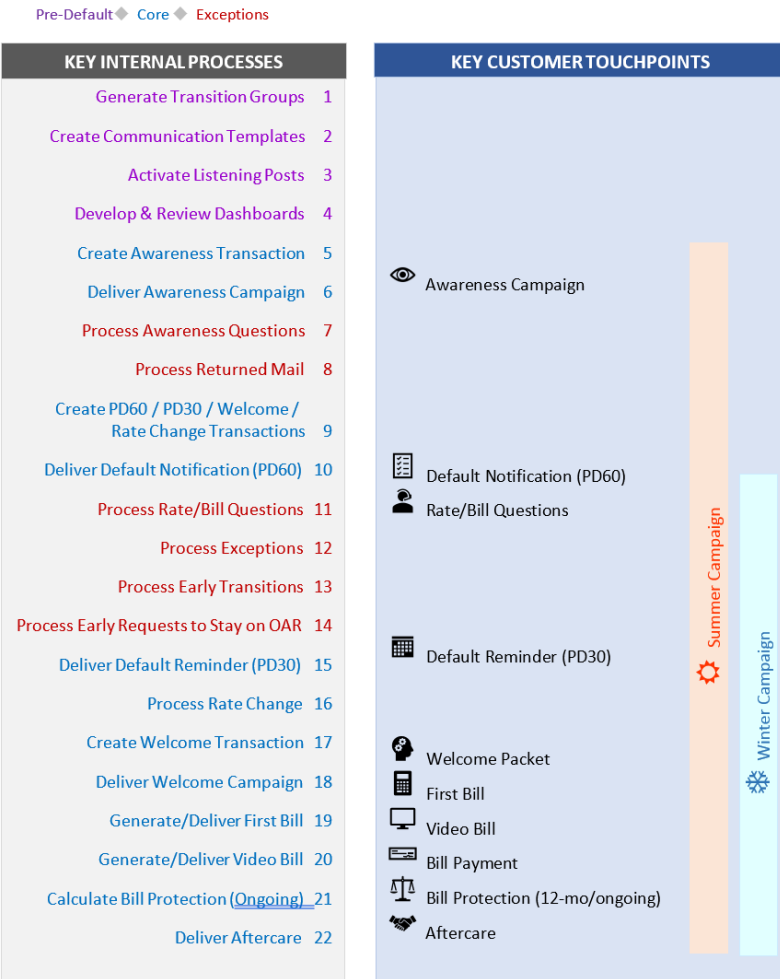
2 Customer touchpoints are the key communications and/or information that will be
3 delivered to the customers during their Mass TOU Default transition. The touchpoints are either
4 calendar-based or journey-based. Calendar-based (i.e., seasonal) communications will be
5 triggered at a specific month/date and therefore will not be received by all customers if they are
6 not yet assigned to TOU pricing when the communication date triggers. Journey-based
7 communications will be sent at specific migration stages, regardless of the calendar date, and
8 therefore all customers will receive them.

9 There are several key customer transition processes that are required to deliver, manage
10 and follow up with the customer touchpoints. The following illustration provides a side-by-side
11 comparison of the key customer touchpoints and the internal process that are required to
12 successfully create, deliver and support those touchpoints. The side-by-side comparison
13 provides an overview of the touchpoints and the minimum preparation and follow-up that will be
14 required to deliver the touchpoints.

15 **VI. MASS TOU DEFAULT CUSTOMER RESEARCH**

16 The Mass TOU Default customer research activities will build upon the foundation
17 established within Opt-In TOU Pilot and Default TOU Pilot. The need for this research will be
18 important to assess the success of SDG&E’s outreach and education efforts, customer
19 understanding of TOU pricing and understanding of how to shift and reduce load. The outcome
20 of this research will help inform the design of future messaging and communication pieces,
21 customer outreach, and other educational offerings that could help improve the overall customer
22 experience and TOU rate success.

1



2

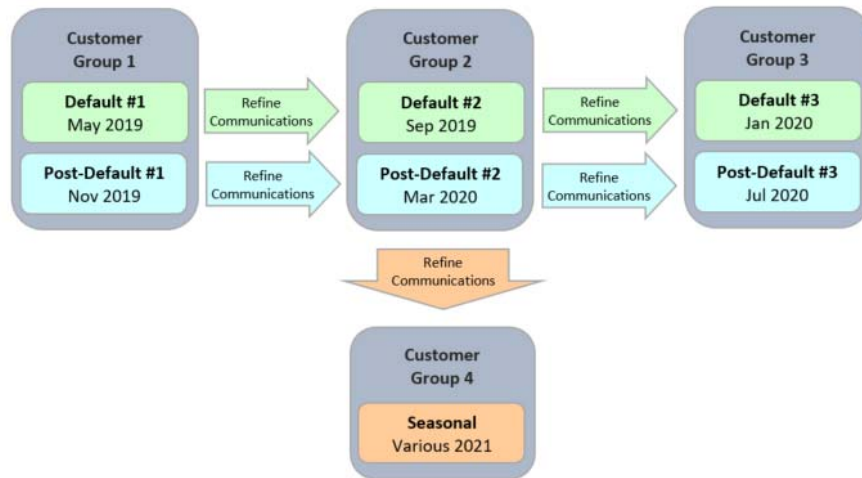
3

4

5

Research may include surveys, focus groups, data analytics or other combinations of qualitative and/or quantitative research. As shown in the following flow chart, the type and timing of the research will be based on the customer journey.

1



2

3

- **Default Research** – Conducted within four months of the customer’s transition to TOU pricing, this research will provide insight into the communication effectiveness and customer experience, specifically around the default notification, default notification reminder and welcome package. A sample of customers will form research groupings. Groupings will be based on their transition schedule. For example, the May 2019 research group will include those customers that transitioned between January 2019 and April 2019 (January and February would be based on those that transitioned prior to default); the September 2019 research group will include those that transitioned between May 2019 and August 2019; and the January 2020 research group will include those that transitioned between September 2019 and December 2019.

4

5

6

7

8

9

10

11

12

13

14

15

- **Post-Default Research** – Conducted six months after the Default Research, the same grouping will be maintained but the focus of the research will be

1 understanding of the rate and ability and/or willingness to shift load. This
2 research will be conducted between November 2019 and July 2020.

- 3 • **Seasonal Research** – Conducted at least one year after the customers transitioned
4 to TOU pricing, this research will focus on communication effectiveness, TOU
5 understanding and ability and/or willingness to shift load, with an emphasis on the
6 impact of seasonal variations.

7 **VII. MASS TOU DEFAULT CUSTOMER SUPPORT**

8 SDG&E will continue it's two-pronged, internally and externally-focused approach to
9 customer support, similar to the approach that was planned for the Default TOU Pilot.

10 **A. Internally-Focused**

11 The Customer and Employee Engagement department prepares SDG&E's internal,
12 customer-facing groups on educating customers about their pricing options. Customer-facing
13 groups include SDG&E's Customer Contact Center, Branch Offices, Energy Innovation Center,
14 Customer Outreach and Engagement, and Credit and Collections. These groups will receive the
15 necessary training to successfully respond to customer inquiries, including questions regarding
16 energy usage, potential savings opportunities, and billing questions. Field service teams will also
17 be equipped with high level information about TOU and will be able to direct customers to the
18 TOU website or SDG&E's CCC for more information.

19 **B. Externally-Focused**

20 External customer support includes both proactive and reactive activities, depending on the
21 nature of the outreach effort.

22 Externally focused activities will be primarily centered around SDG&E's Marketing,
23 Education & Outreach ("ME&O") efforts that are critical to customer awareness and education

1 to provide customers with the information necessary to be successful on TOU rates. In addition
2 to ME&O, SDG&E may proactively reach out to specifically-impacted customer groups. For
3 example, during the preparation for Default TOU Pilot, SDG&E conducted a live-call and letter
4 outreach campaign promoting medical baseline and CARE/FERA programs to these hot climate
5 zone customers. All hot zone campaigns were conducted to inform customers that by enrolling in
6 these programs they will be excluded from the transition to TOU pricing plans.

7 Other activities will be driven by customers making contact with SDG&E, mostly the
8 Customer Contact Center (“CCC”), or by other less frequent communication paths such as
9 branch office visits, email, social media, etc.

10 SDG&E’s CCC will provide support to customers who call SDG&E to ask questions
11 about TOU. In addition, there are two levels of Energy Service Specialists who can assist
12 customers. SDG&E has an existing process whereby an Energy Services Specialist may escalate
13 a call to the 2nd level agent for specialized rate, pricing and billing inquiries, or customer
14 consultation and assistance. As a part of the CCC, SDG&E operates a work group that is
15 specifically tasked with handling escalated calls, when the customer requests or otherwise
16 requires specialized service.

17 **VIII. MASS TOU DEFAULT OPERATIONS & PRODUCTION SUPPORT**

18 In order to execute an effective plan for transitioning residential customers to TOU rates,
19 a TOU Operations Center has been formed and will kick off its full operations during the Default
20 TOU Pilot. The TOU Operations Center will be comprised of individuals who conduct the daily
21 default implementation activities. Toward the end of 2018, the TOU Operations Center will
22 gradually and systematically transition their activities from the Default TOU Pilot to the Mass
23 TOU Default.

1 The Operations Center will include three functional areas that support the day-to-day
2 management of routine transactions and ongoing management of both technical and non-
3 technical exceptions, as described below.

- 4 • **Customer & Business Operations Management Team** – manages the day-to-
5 day non-technical tasks for the Default TOU Migration and partners with the
6 System Operations team functions to handle process exceptions.
- 7 • **System Operations Team** – identifies, analyzes, manages, and resolves any
8 system exceptions that might occur during the Default TOU Migration.
- 9 • **Business Support Team** – tracks and manages daily transactions to ensure that
10 transactions and bills are executed in a timely manner.

11 Outside of the Operation Center, the Mass TOU Migration will be supported by staff
12 from other SDG&E departments, as specific needs arise, including the following:

- 13 • Advanced Metering Operations;
- 14 • Billing Operations Support;
- 15 • Customer Contact Center/Branch Offices;
- 16 • Measurement & Analytics;
- 17 • Customer Communications;
- 18 • Customer & Employee Engagement;
- 19 • Customer Operations Support;
- 20 • Customer Research;
- 21 • Marketing;
- 22 • Mobile Applications and E-Services;
- 23 • Social Media Engagement;

- Systems / IT; and
- Website Management.

IX. MASS TOU DEFAULT INFORMATION TECHNOLOGY

A. Energy Billing and Notifications

SDG&E will develop a system that delivers on the requirements of P.U. Code Section

745.5. In summary, the code requires the system deliver the following:

- Provide energy usage or energy billing information that promotes the customer’s ability to make informed energy usage decisions and to minimize the risk of adverse bill surprises.
- Provide energy usage or energy billing notifications (“notifications”) to customers having a smart meter and have not opted-out of receiving notifications.
- Position customers to make informed decisions as to their electricity usage and avoid experiencing higher than expected energy bills.
- Deliver notifications in the appropriate manner to comply with P.U. Code Section 745.5 and customer preferences and/or intentions.
- Provide the ability to, and inform customers of, their option to opt-in to or opt-out of notifications.
- Provide notifications from the customer’s energy utility at appropriate times (i.e., when the projected periodic bill or rate of associated electricity use exceeds an amount specified by the customer). Notifications may not include specification of taxes, special CPUC-imposed fees, or special discounts.

- 1 • Notifications are not, and shall not be construed to be, a bill forecast, and SD&E
2 shall not be liable if actual bills differ from information provided in the
3 notifications.

4 **B. TOU System Enhancements**

5 The Opt-In TOU Pilot operations identified system enhancements that must be
6 implemented prior to Default TOU Pilot. In addition, Default TOU Pilot planning and
7 requirements development identified additional system upgrades. Prior to the launch of Default
8 TOU Pilot, these system upgrades will be implemented and tested. During the Default TOU
9 Pilot, these systems will be stabilized and hardened prior to the launch of Mass TOU Default.

10 **C. Timing Impact from Customer Information System (“CIS”) Upgrade**

11 SDG&E’s legacy CIS, and its related subsystems, is a twenty-year-old software and
12 hardware system that supports SDG&E’s critical business processes and customer engagement
13 functions, including: billing and payment; credit and collection; meter data; service orders;
14 customer care; outages; rates and programs; and customer information. SDG&E urgently needs
15 to replace its outdated CIS with a new, modernized CIS platform that will enable SDG&E to
16 implement increasingly complex California regulatory requirements, and keep pace with the
17 rapidly changing energy industry and evolving service demands of customers.⁴

⁴ Application of San Diego Gas & Electric Company (U 902 M) for Authority to Implement the Customer Information System Replacement Program, A.17-04-027, April 28, 2017.

1 | proceedings that will impact residential TOU rate design. SDG&E intends to inform at
2 | minimum the Commission and interested parties on the status of its Mass TOU Default,
3 | including actual costs incurred as the pilot progresses, through its quarterly PRRR.

4 | **XI. CONCLUSION**

5 | SDG&E believes its Mass TOU Default plan presents the framework and design that is
6 | needed to guide a successful rollout in 2019. The Opt-In TOU Pilot and Default TOU Pilot
7 | helped to ensure SDG&E's business processes and operational systems are functional and its
8 | ME&O efforts are fine tuned. To ensure sufficient lead time, SDG&E respectfully requests the
9 | Commission for a timely approval of the Mass TOU Default plan to ensure operational and
10 | system readiness.

11 | This concludes my direct testimony.

1 **XII. STATEMENT OF QUALIFICATIONS**

2 My name is Christopher Bender and my business address is 8330 Century Park Court,
3 San Diego, California 92123. I am Project Manager in Residential Rate Reform at SDG&E.

4 For over a year, I have worked on implementing the Opt-In TOU Pilot and designing and
5 preparing for the Default TOU Pilot. Other SDG&E experience I've gained since joining the
6 company in 2006 includes working on business optimization and process improvement efforts,
7 working on strategy for Customer Programs, leading a corporate energy and water conservation
8 program, and developing business requirements for new and improved IT systems.

9 Prior to joining SDG&E, I was employed by Sempra Energy Solutions as a Market
10 Research Analyst from 2004 to 2006, performing customer analytics and identifying new
11 markets and opportunities in energy performance contracting and commodity trading. In 2002, I
12 sold automated demand management systems for Powerit Solutions. Between 2000 and 2002, I
13 managed a commercial building energy modeling practice for Primen (now Itron). I worked on
14 utility energy program analysis for Regional Economic Research (now Itron) between 1999 and
15 2000. From 1994 to 1999 I worked for ICF Consulting on the design, implementation and
16 analysis of EPA/DOE Energy Star Programs (including Commercial Buildings, Homes and
17 product labeling). While obtaining my undergraduate degree, I performed small commercial
18 building energy audits for the Northwestern Pennsylvania Energy Center.

19 In 1994, I graduated from Pennsylvania State University - Behrend College with a
20 Bachelor of Science in Electrical Engineering. In 1997, I graduated from George Mason
21 University with a Master of Science in Urban Systems Engineering.

22 I have not previously testified before the Commission.

ATTACHMENT A
MASS TOU DEFAULT TRANSITION PLAN

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
Background.....	1
Mass TOU Default Plan Overview	2
MASS TOU DEFAULT RATE DESIGN	5
Introduction.....	5
TOU-DR-1 Structure	5
TOU-DR-2 Structure	7
CUSTOMER TRANSITION PLAN	8
Design and Sample Sizes	8
Default TOU Transition Approach and Schedule.....	9
CUSTOMER EXCLUSIONS.....	12
CUSTOMER BILL PROTECTION	14
KEY INTERNAL PROCESSES	15
Key Internal Processes.....	18
CUSTOMER RESEARCH.....	21
CUSTOMER SUPPORT	23
Internally-Focused	23
Externally-Focused	24
OPERATIONS AND PRODUCTION SUPPORT.....	25
Introduction.....	25
TOU Operations Center Structure	25
Customer Operations Management.....	25
Systems Operations.....	26
Business Support.....	26
Metrics	29

COMPLEMENTARY PROGRAMS, PRODUCTS & SERVICES.....	30
INFORMATION TECHNOLOGY	31
Energy Billing and Notifications	31
TOU System Enhancements	32
Timing Impact from Customer Information System (CIS) Upgrade.....	32
REPORTING	34
CONCLUSION.....	34
APPENDIX A: OPT-IN TOU PILOT DESIGN & EARLY FINDINGS	35
Participation Levels	35
Recruitment Letter Focus Groups.....	36
California Statewide Opt-In TOU Pilot – Interim Evaluation	37
Welcome Packet.....	38
Overall Key Findings.....	39
Operational Challenges & Lessons Learned.....	43
California Statewide Opt-In TOU Pilot – Second Interim Evaluation	45
Survey Findings	46
Participation, Load and Billing Impacts	47
Rate Design Study.....	48
APPENDIX B: DEFAULT TOU PILOT DESIGN.....	50

EXECUTIVE SUMMARY

Background

In Decision (“D.”) 15-07-001, the California Public Utilities Commission (“CPUC” or “Commission”) California Public Utilities Commission (“CPUC” or “Commission”) outlined how SDG&E and the other investor-owned utilities (“IOUs”) were to implement residential rate reform. Among other directives, D.15-07-001 Ordering Paragraph #10 also required the submittal of a Mass TOU Use (“TOU”) Default Plan. Consistent with this requirement, SDG&E is submitting its 2019 Mass TOU Default Plan as part of this Rate Design Window (“RDW”) Application.

Some key requirements from D.15-07-001 as it relates to TOU, include the following:¹

- Promptly begin the process of designing TOU pilots (both opt-in and default), as well as study design for TOU opt-in rates.
- The IOUs must evaluate opt-in and pilot TOU rates in preparation for widespread enrollment in TOU.
- The IOUs must file a Residential RDW application no later than January 1, 2018 that proposes default TOU rate structure to begin in 2019, assuming the statutory conditions have been met.
- The IOUs must provide regular updates on progress toward rate reform and the Residential RDW application.

¹ D.15-07-001 Decision of 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, filed on July 3, 2015.

Mass TOU Default builds upon two residential TOU pilots: (1) the 2016-2017 Opt-In TOU Pilot² and (2) the 2018 Default TOU Pilot.³ These pilots were designed to assess customer experience, evaluate a variety of TOU rate designs to inform future rate design, and test SDG&E's operational readiness. As these pilots are implemented, the findings will be used to refine and eventually implement the Mass TOU Default as efficiently and effectively as possible. Any additional lessons learned will be considered for improving the efficiency and effectiveness of SDG&E's operations, communications and messaging, and customer support in order to foster the most positive customer experience.

Mass TOU Default Plan Overview

SDG&E will transition approximately 750,000 eligible residential customers to TOU pricing over a ten-month period beginning March 2019 through December 2019. It is expected that monthly transition totals will range between 25,000 and 105,000 customers. The transition plan will be largely based on season, projections of how customers are impacted by TOU pricing, and other tailored customer groupings as deemed necessary by SDG&E for a smooth customer transition.

The Mass TOU Default will offer two new TOU rates:

² The scale of Opt-In TOU Pilot involved defaulting 11,655 customers onto one of two TOU rates in June 2016. There were 4,154 customers assigned to a 3-period TOU rate. There were 7,501 customers assigned a 2-period TOU rate. There were 4,149 customers assigned to a control group. In addition, SDG&E transitioned 68 customers on Rate E3 in November 2017, which had hourly-dynamic pricing based on system and circuit status.

³ The scale of the Default TOU Pilot will involve defaulting between 100,000-150,000 customers during the month of March 2018, while also providing the customers the opportunity to sign up as early as January 1, 2018, at the discretion the customer. The rates are similar to the 3-period and 2-period rates offered in the 2017 Opt-In TOU Pilot, with some changes in the times of the TOU periods and seasons, pursuant to D.17-08-030.

- Schedule TOU-DR-1: Will include cost-based peak-to-off-peak price differentials, reflect two seasons (summer/winter), and three TOU periods (on-peak, off-peak, and super off-peak). March and April will have a unique super off-peak period from 10 a.m. to 2 p.m. This rate will also be the proposed turn-on rate beginning January 1, 2019.
- Schedule TOU-DR-2: Will include somewhat milder peak-to-off-peak price differentials and two TOU periods. The peak and off-peak periods along with the summer and winter months for TOU-DR-2 are the same as TOU-DR-1. This will be another alternative TOU rate for customers who do not wish to remain on TOU-DR-1.

For those customers who want to opt out of default TOU rate, the tiered rate along with other applicable rates (subject to customer eligibility) will be available.

Customer transition groups are defined by those expected to see a bill decrease (benefiters), increase (non-benefiters) or on the shoulder (neutral benefiters and neutral non-benefiters). These four transition groups are further defined as follows with percentages based on the estimated 750,000 Mass TOU Default population.

- Benefiters (2%): Customers expected to save an average of at least \$10/month on their electricity bill, based on the last 12 months of energy consumption.
- Neutral Benefiters (52%): Customers expected to save an average of \$0.01/month to \$9.99/month on their electric bill, based on the last 12 months of energy consumption.
- Neutral Non-Benefiter (42%): Customers expected to experience an average increase of \$0.01/month to \$9.99/month on their electric bill, based on the last 12 months of energy consumption.

- Non-Benefiters (4%): Customers expected to experience an average increase at least \$10/month on their electric bill, based on the last 12 months of energy consumption.

In general, SDG&E will begin its rolling transition to TOU starting with those who benefit most from TOU. SDG&E will transition more customers during the winter months (about 100,000 customers per month) versus summer months (about 50,000 customers per month).

There will likely be circumstances where non-benefitting customers will be transitioned to TOU earlier in the year. For example, some neutral non-benefiters may be transitioned sooner if it is deemed more advantageous to have a geographically-common group to be on TOU pricing (i.e., conducting a TOU outreach event or campaign in a specific community).

Another potential alteration to the general TOU transition plan could be based on a technology and available customer data. If SDG&E can identify a group of customers with a technology that can help them save more on TOU, SDG&E might consider transitioning all of those customers to coincide with an outreach campaign.

No customers will be transitioned to TOU during the months of January and February 2019 due to the timeline of default and default reminder communications. Some customers might request to transition before their scheduled date (via phone or their online My Account profile), and in these cases SDG&E will enable their early transition.

SDG&E will not transition the 2018 Default TOU Pilot Control Group (approximately 150,000 non-TOU customers) until the final months of the Mass TOU Default. This will enable continued load and behavioral analytics to be performed against the original Default TOU Pilot participants, throughout Mass TOU Default.

The remainder of this plan provides more information related to Mass TOU Default and additional details regarding rate structures, bill protection, customer eligibility, customer TOU transition plans, operational structure and plans, customer research, customer support, complementary programs, and IT/System impacts.

MASS TOU DEFAULT RATE DESIGN

Introduction

TOU pricing provides customers with a commodity price signal, and incentivizes behavioral change for conserving or shifting energy use to times of the day when energy costs are low; therefore, providing customers with the ability to lower their bills. Also, TOU pricing presents additional opportunities to reduce bills via technology products and programs within energy efficiency (“EE”), demand response (“DR”), Distributed Energy Resources (“DER”), and energy control/scheduling technologies.

In 2019, SDG&E plans to default its eligible residential customers to a 3-Period Default TOU rate, which is a more cost-based rate and provides more accurate price signals. Customers will be able to opt out of Mass TOU Default, should they wish to do so. As alternatives, SDG&E plans to offer a 2-Period Opt-Out TOU rate and continue to have a Tiered Opt-Out rate available. In both rates, the on-peak period occurs daily and year-round between 4 p.m. and 9 p.m. (including weekends and holidays). Seasons for both rates are the same, with summer occurring between and including May and October.

Both rates are summarized below.

TOU-DR-1 Structure

The following two images show the seasons and TOU periods for TOU-DR-1, however key points of the rates are as follows.

- Three TOU periods (on-peak, off-peak and super-off-peak)
- More cost-based compared to TOU-DR-2
- Off-peak and super-off-peak periods vary between weekdays and weekends/holidays
- There is a super-off-peak (normally off-peak) period during April and May, between 10 a.m. and 2 p.m. on weekdays

Figure 1 - TOU DR-1 (Weekdays)

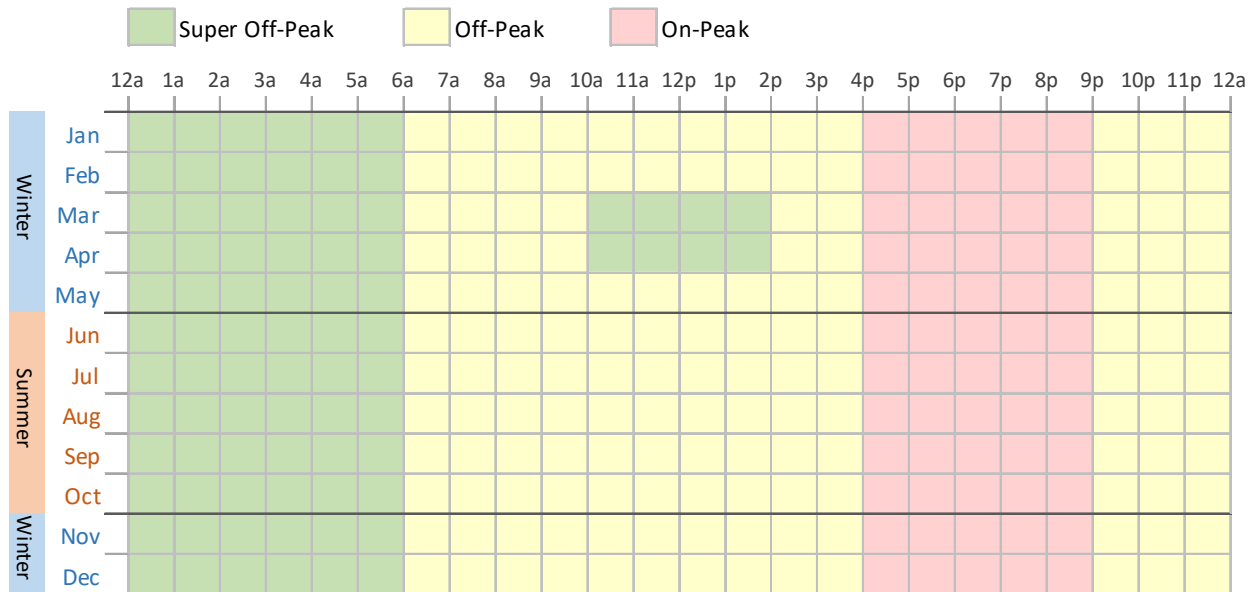
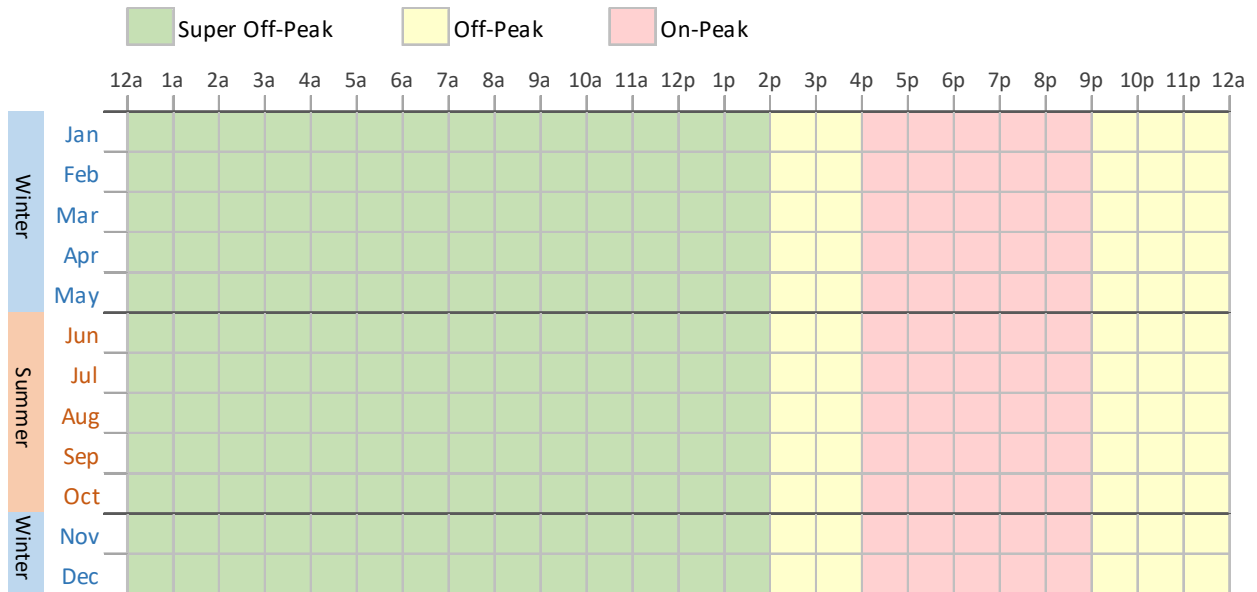


Figure 2 - TOU-DR-1 (Weekends & Holidays)

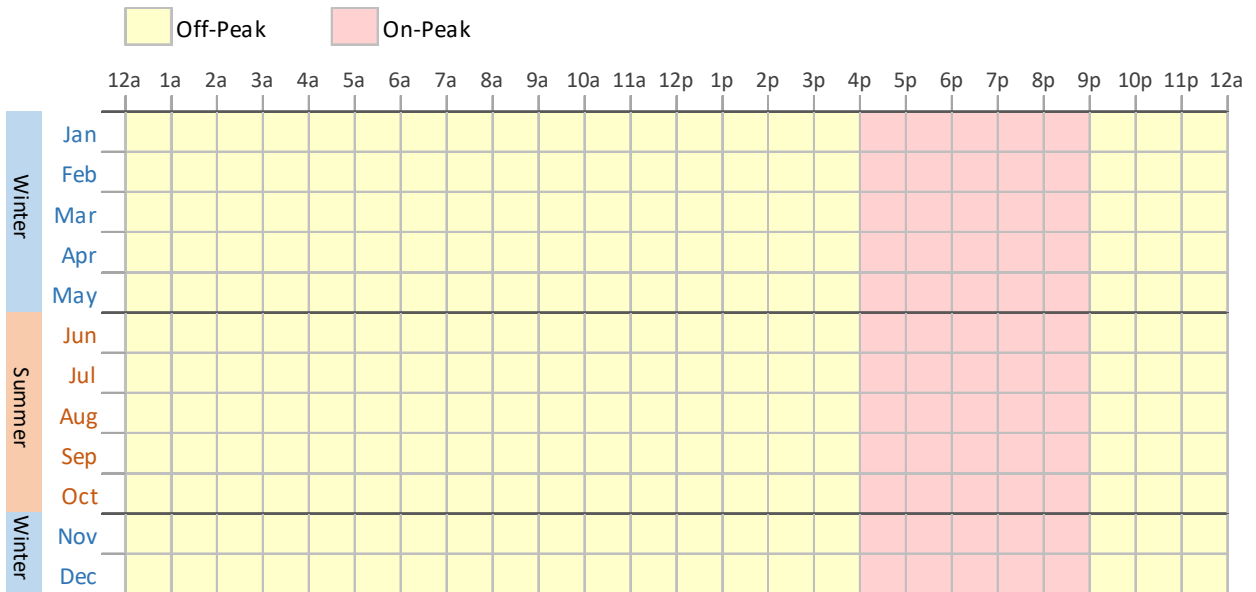


TOU-DR-2 Structure

The following image shows the seasons and TOU periods for TOU-DR-2, however key points of the rates are as follows:

- Two TOU periods (on-peak and off-peak)
- Muted-pricing differentials compared to TOU-DR-1
- No variation between weekdays and weekends/holidays

Figure 3 - TOU-DR-2 (Weekdays, Weekends & Holidays)



CUSTOMER TRANSITION PLAN

Design and Sample Sizes

Mass TOU Default will transition approximately 750,000 customers to TOU pricing over 10 months, starting in March 2019. While, no customers are scheduled to be transitioned to TOU during the months of January and February 2019, in order to begin a March transition, default notifications and default reminder notifications will be sent at this time. Some customers might request to transition before their scheduled date (via phone or their online My Account profile), and in these few cases, SDG&E will enable the early transition.

The transition schedule will be based on month and estimated customer bill impact. Customer transition groups are defined by customers expected to see a bill decrease (benefiters), increase (non-benefiters), or on the shoulder (neutral benefiters and neutral non-benefiters).

The following is a description of each transition group, with percent of total default population.

Benefiters (2%): Customers expected to save an average of at least \$10/month on their electricity bill, based on one calendar year billing period.

Neutral Benefiters (52%): Customers expected to save an average of \$0.01/month to \$9.99/month on their electric bill, based on one calendar year billing period.

Neutral Non-Benefiter (42%): Customers expected to experience an average increase of \$0/month to \$9.99/month on their electric bill, based on one calendar year billing period.

Non-Benefiters (4%): Customers expected to experience an average increase at least \$10/month on their electric bill, based on one calendar year billing period.

Default TOU Transition Approach and Schedule

On August 19, 2016, Greenberg published the RROIR MEO Blueprint.⁴ As it pertains to the Mass TOU Default, the monolithic (“big bang”) January 2019 launch vs. rolling launch was discussed. Greenberg defined both approaches as follows.

- **Big Bang Launch** – migrating all customers to Default TOU in a one-month timeframe.
- **Rolling Launch** – a rolling launch of Default TOU divides the transition of customers into two or more phases and spreads them over a pre-determined time-period.

Greenberg recommended the rolling launch due to (1) media share and candidate backlash during the gubernatorial elections, 2) the diverted attention and potential financial and emotional stress during the holiday season and 3) adverse impacts to operational readiness.

In addition, Greenberg’s findings support a slower transition schedule during the holidays (for the reasons stated above) and during summer months (because higher costs could create an adverse first impression or imbalanced perspective).

⁴ RROIR MEO Blueprint. Integrated Marketing, Measurement and Alignment. Strategic Action Plan for Residential Rate Reform and Default TOU_v2. Greenberg. August 19, 2016. <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M183/K956/183956854.PDF>

Based on the information presented in the Greenberg study, along with SDG&E's TOU pilot experience, the Mass TOU Default approach will be a rolling launch. When developing the transition schedule, SDG&E considered the following.

1. Allow time for default notifications to be sent and understood.
2. To the extent possible, transition those that benefit the most from TOU pricing first, while gradually increasing the non-benefiting customers.
3. Transition more customers in the winter months (when energy use and prices are lower) versus the summer months.
4. Lessen the transitions during the holiday season.
5. For load research purposes, keep the Default TOU Pilot Control Group population off TOU pricing for as long as possible (especially until summer is over).

Beginning March 2019 (after default notifications have been sent in January and February), SDG&E will transition the customer groupings in order of who benefits the most from being on TOU pricing. About 115,000 customers/month will be transitioned during March and April, and 120,000 in May. Approximately 50,000 customers per month will be transitioned during summer months. Due to holidays, November and December will have a reduced winter transition amount (75,000).⁵

SDG&E will try to hold as many of the Default TOU Pilot Control Group until the final months of the Mass TOU Default transition, while balancing the other constraints of not defaulting as many during summer months and transitioning as many benefiteres as possible, first. Holding the control group until the end will enable continued load and behavioral analytics to be

⁵ Customer transition group quantities are estimated based on the current population and are subject to change based on increases and/or decreases in customer counts and eligibility.

performed against the original Default TOU Pilot participants, throughout the Mass TOU Default transition period.

The following graph and figure illustrates provide the transition schedule that was described in was section.

Figure 4 - Monthly Transition Schedule by Customer Transition Groups

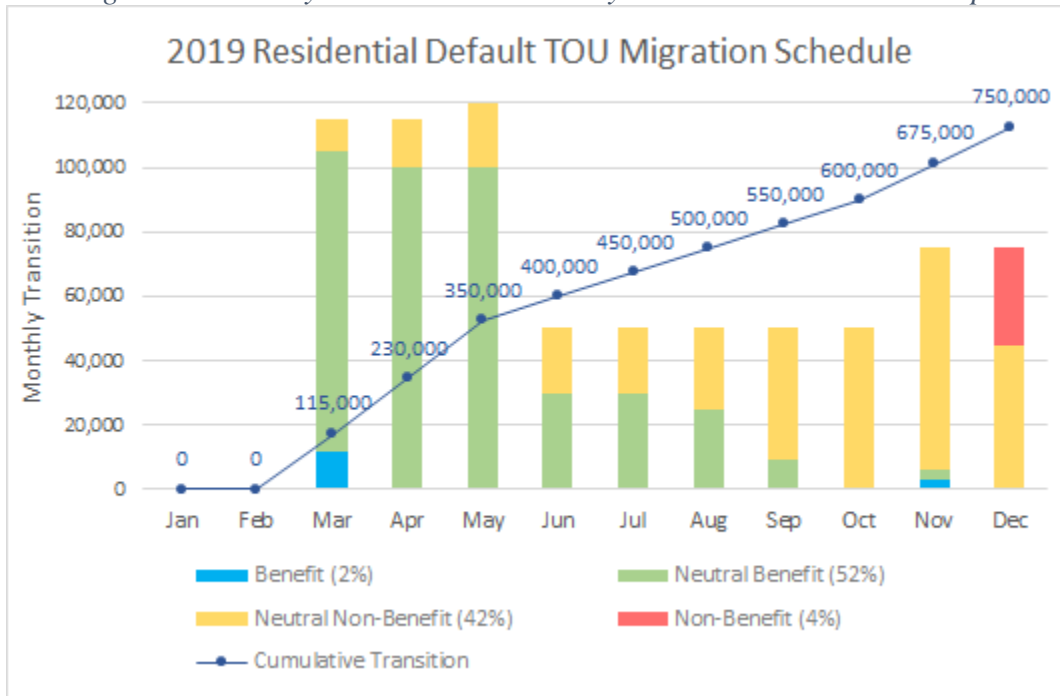


Figure 5 - Monthly & Cumulative Mass TOU Default Transitions by Month

			Black = Standard Transitions ♦ Pink = DTP Control			
2019 Month	Monthly Transition	Cumulative Transition	Benefit (2%)	Neutral Benefit (52%)	Neutral Non-Benefit (42%)	Non-Benefit (4%)
Jan						
Feb						
Mar	115,000	115,000	12,000	93,000	10,000	
Apr	115,000	230,000		100,000	15,000	
May	120,000	350,000		100,000	20,000	
Jun	50,000	400,000		19,000 11,000	20,000	
Jul	50,000	450,000		30,000	20,000	
Aug	50,000	500,000		25,000	25,000	
Sep	50,000	550,000		9,000	41,000	
Oct	50,000	600,000			50,000	
Nov	75,000	675,000	3,000	3,000	46,000 23,000	
Dec	75,000	750,000			45,000	24,000 6,000
Total	750,000		15,000	390,000	315,000	30,000

While the above describes the general plan, some of the neutral non-benefitters or non-benefitters might be transitioned sooner or later than the planned transition if it is determined that it would be advantageous to have a geographically common group to be on TOU pricing. For example, conducting a TOU customer educational outreach event in a specific community.

CUSTOMER EXCLUSIONS

The following is a list of Default TOU Pilot exclusions, reason, and whether they will be included or excluded from default in the Mass TOU Default.

2018 Default TOU Pilot Exclusion Criteria	2018 Default TOU Pilot Reason	2019 Mass TOU Default Exclusion Status
Medical Baseline Customers	California Public Utility (“P.U.”) Code Section 745(c)(1)	Exclude
California Alternate Rates for Energy (“CARE”)/Family Electric Rate Assistance (“FERA”) eligible customers in Mountain and Desert climate zones	P.U. Code Section 745(c)(1)	Exclude
Customers requiring an in-person visit prior to disconnection (includes medical baseline)	P.U. Code Section 745(c)(1)	Exclude
Customers requesting third party notification	P.U. Code Section 745(c)(1)	Exclude
Customers who do not have a TOU meter	P.U. Code Section 745(c)(4)	Exclude
Customers with less than 12 months of interval data	P.U. Code Section 745(c)(4)	Exclude
New customers (with or without 12 months of interval data)	P.U. Code Section 745(c)(4)	Include
Existing TOU Customers	Customers are currently on a TOU rate	Exclude from default, but keep on same TOU pricing
Customers on multi-family rate schedules DM, DT, DS, DT-RV	Master meter - resident is not the account holder	Exclude
Non-Interval Bill Capable Meters	Mechanical (legacy) meters - cannot collect interval data	Exclude
Smart Meter Opt-Out Customers	99.9% of these customers do not have meters that collect interval data	Exclude, unless meter capability and/or rate rules do not disqualify the customer
Direct Access & Transitioned Bundled Service Customers	Non-commodity rates for the customers do not differ based on TOU Period	Exclude

D.17-09-036 found there was no basis to exclude senior citizens in hot climate zones from default TOU rates during Default TOU Pilot, but that economically vulnerable customers in hot climate zones should be excluded from the Default TOU Pilot. In addition, that decision

stated that CPUC will consider IOUs' proposals for the full rollout of Mass TOU Default rates in their January 1, 2018 Rate Design Window Applications.

D.17-09-036 also found that at the start of Mass TOU Default, TOU shall become the “standard turn-on rate” for new customers and IOUs are not required to provide interval usage data or bill protection to new customers starting service after time-of-use becomes the “standard turn-on rate.”

CUSTOMER BILL PROTECTION

Within D.17-09-036 ⁶, CPUC provides findings of fact, conclusions of law and orders directed to SDG&E and/or all IOUs. Those that are specifically related to bill protection are summarized below.

- It is unlikely that customers who opt-in to a more complex TOU rate would benefit from bill protection.
- P.U. Code Section 745(c)(4) requires bill protection such that the amount a customer pays while receiving service on the TOU rate does not exceed they would have paid under their previous rate schedule.
- Bill protection provisions of P.U. Code Section 745(c)(4) do not apply to new TOU customers enrolling during or after IDTM because they do not have a previous rate schedule to which to compare the TOU rate.
- Bill protection provisions of P.U. Code Section 745(c)(4) do not apply to customer accounts that transferred during or after the IDTM because they are treated as new customer accounts.

⁶ Decision Adopting Findings Required Pursuant to Public Utilities Code § 745 for Implementing Residential Time-of-Use Rates, CPUC, Decision 17-09-036, September 28, 2017.

- The IOUs should provide bill protection for a period of 12 months from the customer’s enrollment on the default TOU rate or until the customer unenrolls from the default TOU rate, whichever occurs first.
- P.U. Code Section 745(c)(4) does not require bill protection for customers who opt-in to a TOU rate.
- IOUs must provide one year of bill protection to customers who opt-in to the default time-of-use rate during the initial default transition period, except for customers who are already receiving service on a time-of-use rate, (or) a net energy metering Successor Tariff (“NEM-ST”).

Bill protection will be applied to a customer’s bill after remaining on the default TOU rate (TOU-DR-1) for 12 months or within the first 12 months of service upon closing of their account, transferring service to a different location, or changing their rate option.

KEY INTERNAL PROCESSES

Customer touchpoints are the key communications and/or information that will be delivered to the customers during their Mass TOU Default transition. The touchpoints are either calendar-based or journey-based. Calendar-based (i.e., seasonal) communications will be triggered at a specific month/date and therefore will not be received by all customers if they are not yet assigned to TOU pricing when the communication date triggers. Journey-based communications will be sent at specific migration stages, regardless of the calendar date, and therefore all customers will receive them.

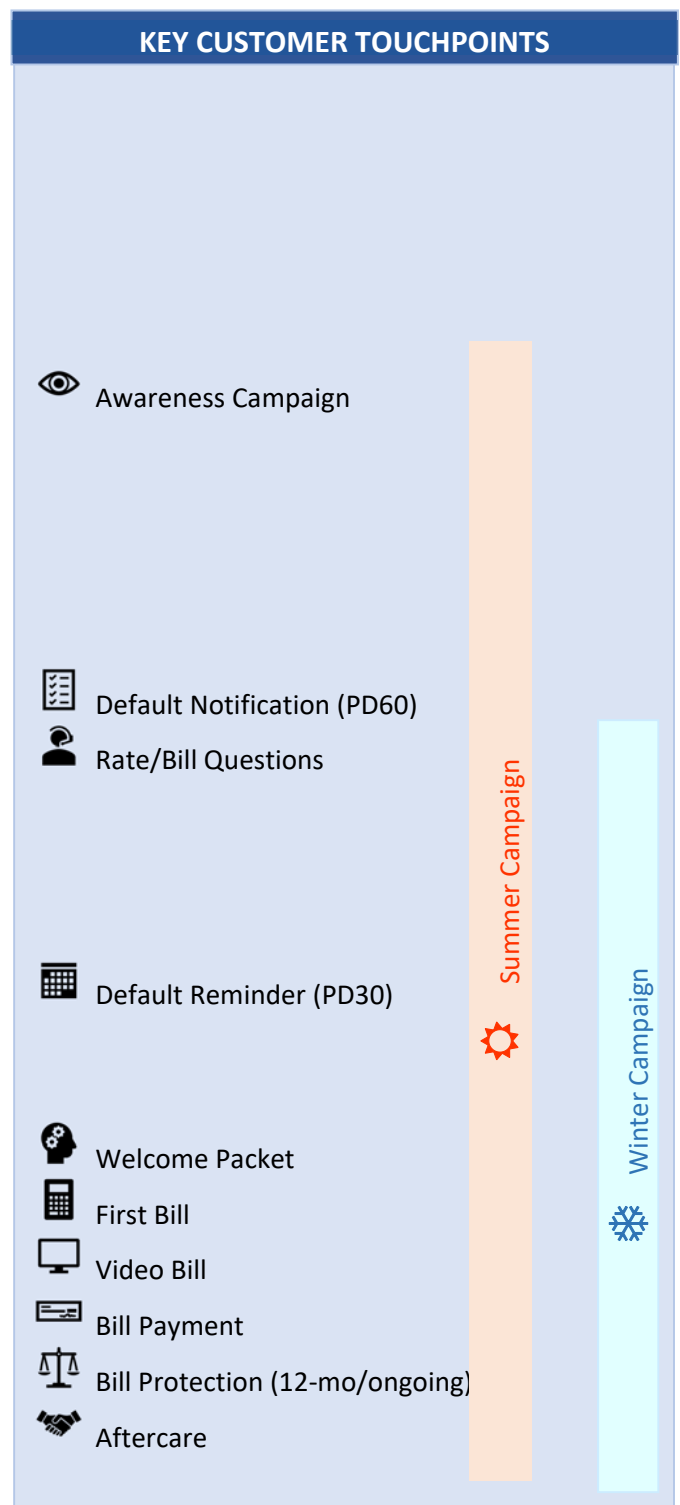
There are several key customer transition processes that are required to deliver, manage and follow up with the customer touchpoints. The following illustration provides a side-by-side comparison of the key customer touchpoints and the internal process that are required to

successfully create, deliver and support those touchpoints. The side-by-side comparison provides an overview of the touchpoints and the minimum preparation and follow-up that will be required to deliver the touchpoints.

Figure 6 - Key Internal Processes and Customer Touchpoints

Pre-Default ♦ Core ♦ Exceptions

KEY INTERNAL PROCESSES	
Generate Transition Groups	1
Create Communication Templates	2
Activate Listening Posts	3
Develop & Review Dashboards	4
Create Awareness Transaction	5
Deliver Awareness Campaign	6
Process Awareness Questions	7
Process Returned Mail	8
Create PD60 / PD30 / Welcome / Rate Change Transactions	9
Deliver Default Notification (PD60)	10
Process Rate/Bill Questions	11
Process Exceptions	12
Process Early Transitions	13
Process Early Requests to Stay on OAR	14
Deliver Default Reminder (PD30)	15
Process Rate Change	16
Create Welcome Transaction	17
Deliver Welcome Campaign	18
Generate/Deliver First Bill	19
Generate/Deliver Video Bill	20
Calculate Bill Protection (Ongoing)	21
Deliver Aftercare	22



Key Internal Processes

The key processes that are required to deliver the customer touchpoints are grouped into the following categories.

- **Pre-default** processes include preparing the customer groupings, and general preparation for launch.
- **Core** processes include the functions that must occur to successfully deliver the touchpoints.
- **Exceptions** are special handlings that might occur if there is a system error, a unique customer request or situation, and or other circumstance that deviates from the planned journey.

SDG&E has identified and mapped 22 key processes to successfully transition each customer to TOU pricing. For each process, various aspects were analyzed and planned around such as process flow and timing, people and systems involved, success factors and the metrics (if applicable). The 22 key processes are below, along with a brief description of the desired outcome.

1. **Generate Transition Groups** – Establish customer groups to ensure they are transitioned at the appropriate time and receive the appropriate communications. Pull the eligible population, organize them into monthly transition groups, and format data to be read by internal systems.
2. **Create Communication Templates** – Create, test and upload the communication templates that will be delivered to the customer at the appropriate time in their journey.
3. **Activate Listening Posts** –Capture the customer experience (actual vs. intended), communicate the status to internal stakeholders to provide a broad awareness of customer

experience and help anticipate customer needs and adjust messaging and communication tactics.

4. **Develop & Review Dashboards** – Utilize dashboards to ensure SDG&E has a near-real-time view into internal processes and external customer impacts.
5. **Create Awareness Transaction** – Setup the system transaction(s) to automatically deliver the campaign. Quality assurance tests are conducted to ensure the correct data has been extracted and included.
6. **Deliver Awareness Campaign** – Communication is sent and Operations analyzes delivery status.
7. **Process Awareness Questions** – Customer Contact Center (“CCC”) manages customer calls via standard processes. Operations center is notified and takes action if the calls are escalated and/or require additional processing.
8. **Process Returned Mail** – Operations team will receive and process returned mail (and/or email).
9. **Create PD60 / PD30 / Welcome / Rate Change Transactions** – Communication is sent and Operations analyzes delivery status.
10. **Deliver Default Notification (PD60)** - Communication is sent and Operations analyzes delivery status.
11. **Process Rate/Bill Questions** – SDG&E receives customer inquiry, most likely via CCC phone call. A CCC Energy Service Specialist (“ESS”) answers the question directly, or escalates through the proper channels. The call is logged and reported.

12. **Process Exceptions** – In the event that the system or process creates a “fall-out” or technical issues, the exception will be identified and automatically or manually logged for resolution. The issue will be reported to track and monitor trends.
13. **Process Early Transitions** – SDG&E will accommodate eligible customer requests to transition to TOU pricing before their scheduled transition date. The customer can accomplish this via My Account, by speaking to a CCC representative, or via business reply cards (if Default TOU Pilot proves that it is a useful method).
14. **Process Early Requests to Stay on OAR** – If the customer decides to stay on their Otherwise Applicable Rate (“OAR”), they can prevent the default from being initiated via My Account or by speaking to a CCC representative. A reason must be selected and will be captured in the system for reporting. If still eligible, the customer may choose TOU pricing at a later date.
15. **Deliver Default Reminder (PD30)** – Similar to PD60, the PD30 serves as a reminder of the default transition and is likely to have less detail and/or customization.
16. **Process Rate Change** – On rate effective date, systems will process the request to transition the customer to TOU pricing, ensure the meter data is appropriately set up, and bill protection is initiated.
17. **Create Welcome Transaction** – Setup the system transaction(s) to automatically deliver the campaign.
18. **Deliver Welcome Campaign** –Communication is sent and Operations analyzes delivery status.

19. **Generate/Deliver First Bill** – Systems generate and deliver daily jobs that identifies accounts to be billed based on bill cycle. There are existing processes (automated/manual) to handle exceptions.
20. **Generate/Deliver Video Bill** – If the Default TOU Pilot proves that this is a cost-effective method to educate customers, a video bill will be created and made available to customers
21. **Calculate Bill Protection (Ongoing)** – Systems execute daily monitoring and processing of bill protection as needed. In addition, monthly shadow bills will be generated based on the OAR.
22. **Deliver Aftercare** – Ongoing communications to encourage rate retention and provide useful information and tips for success.

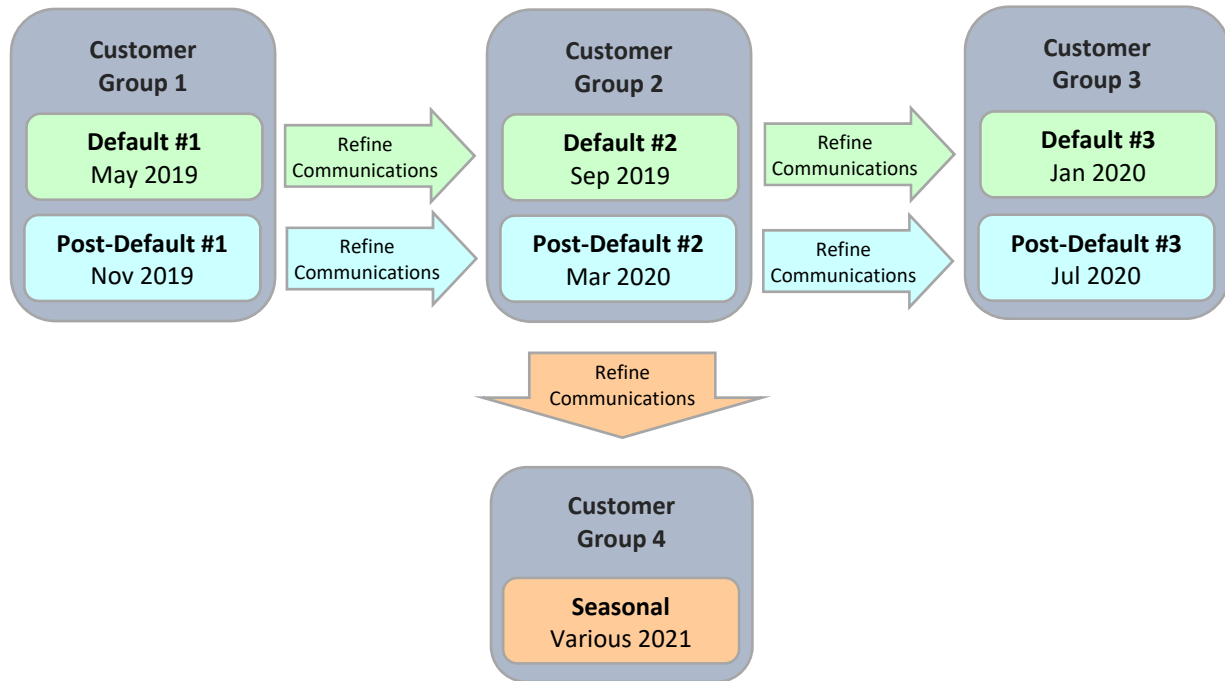
CUSTOMER RESEARCH

The Mass TOU Default customer research activities will build upon the foundation established within Opt-In TOU Pilot and Default TOU Pilot. The need for this research will be important to assess the success SDG&E’s outreach and education efforts, customer understanding of TOU pricing and understanding of how to shift and reduce load. The outcome of this research will help inform the design of future messaging and communication pieces, customer outreach, and other educational offerings that could help improve the overall customer experience and TOU rate success.

Research may include surveys, focus groups, data analytics or other combinations of qualitative and/or quantitative research. As shown in the following flow chart, the type and timing of the research will be based on the customer journey.

- **Default Research** – Conducted within four months of the customer’s transition to TOU pricing, this research will provide insight into the communication effectiveness and customer experience, specifically around the default notification, default notification reminder and welcome package. A sample of customers will form research groupings. Groupings will be based on their transition schedule. For example, the May 2019 research group will include those customers that transitioned between January 2019 and April 2019 (January and February would be based on those that transitioned prior to default); the September 2019 research group will include those that transitioned between May 2019 and August 2019; and the January 2020 research group will include those that transitioned between September 2019 and December 2019.
- **Post-Default Research** – Conducted six months after the Default Research, the same grouping will be maintained but the focus of the research will be understanding of the rate and ability and/or willingness to shift load. This research will be conducted between November 2019 and July 2020.
- **Seasonal Research** – Conducted at least one year after the customers transitioned to TOU pricing, this research will focus on communication effectiveness, TOU understanding and ability and/or willingness to shift load, with an emphasis on the impact of seasonal variations.

Figure 7 - Customer Research Strategy



CUSTOMER SUPPORT

SDG&E will continue its two-pronged, internally and externally-focused approach to customer support, similar to the approach that was planned for the Default TOU Pilot.

Internally-Focused

The Customer and Employee Engagement department prepares SDG&E's internal, customer-facing groups on educating customers about their pricing options. Customer-facing groups include SDG&E's Customer Contact Center, Branch Offices, Energy Innovation Center, Customer Outreach and Engagement, and Credit and Collections. These groups will receive the necessary training to successfully respond to customer inquiries, including questions regarding energy usage, potential savings opportunities, and billing questions. Field service teams will also

be equipped with high level information about TOU and will be able to direct customers to the TOU website or SDG&E's CCC for more information.

Externally-Focused

External customer support includes both proactive and reactive activities, depending on the nature of the outreach effort.

Externally focused activities will be primarily centered around SDG&E's Marketing, Education & Outreach ("ME&O") efforts that are critical to customer awareness and education to provide customers with the information necessary to be successful on TOU rates. In addition to ME&O, SDG&E may proactively reach out to specifically-impacted customer groups. For example, during the preparation for Default TOU Pilot, SDG&E conducted a live-call and letter outreach campaign promoting medical baseline and CARE/FERA programs to these hot climate zone customers. All hot zone campaigns were conducted to inform customers that by enrolling in these programs they will be excluded from the transition to TOU pricing plans.

Other activities will be driven by customers making contact with SDG&E, mostly the Customer Contact Center ("CCC"), or by other less frequent communication paths such as branch office visits, email, social media, etc.

SDG&E's CCC will provide support to customers who call SDG&E to ask questions about TOU. In addition, there are two levels of Energy Service Specialists who can assist customers. SDG&E has an existing process whereby an Energy Services Specialist may escalate a call to the 2nd level agent for specialized rate, pricing and billing inquiries, or customer consultation and assistance. As a part of the CCC, SDG&E operates a work group that is specifically tasked with handling escalated calls, when the customer requests or otherwise requires specialized service.

OPERATIONS AND PRODUCTION SUPPORT

Introduction

In order to execute an effective plan for transitioning residential customers to TOU rates, a TOU Operations Center (“Ops Center”) has been formed, and will kick off its full operations during Default TOU Pilot. The Ops Center is comprised of individuals who conduct the daily operational activities. This ops team, representing various departments across the company will manage the end-to-end business processes, IT systems, and external customer facing tasks. The operational lessons learned during Default TOU Pilot will refine the processes for Mass TOU Default and beyond.

TOU Operations Center Structure

The Mass TOU Default Ops Center structure will closely follow the Default TOU Pilot. Taking lessons from Default TOU Pilot and applying it to Mass TOU Default will maintain a cadence and routine among the supporting team members and keep processes current and refreshed. The Ops Center consists of three functional areas that support the day-to-day management of routine transactions and ongoing management of both technical and non-technical exceptions:

1. Customer Operations Management;
2. Systems Operations; and
3. Business Support.

Customer Operations Management

The Customer Operations Management team manages the operational and process-related tasks to execute the Mass TOU Default plan. The team will consist of the following types of staff:

- Operations Center Leads;
- Documentation & Tracking Specialists; and
- Communications Campaign Leads and specialists.

Systems Operations

The System Operations team identifies, analyzes, manages, and resolves any system exceptions that might occur during Mass TOU Default. The team will consist of the following types of staff:

- Systems Operations Lead(s); and
- System Support Staff.

Business Support

The Business Support team processes daily tasks within several functional areas of SDG&E. While many business support staff will support the Mass TOU Default, the following are types of people will work in the Ops Center:

- Business Support Lead(s); and
- Business Support Staff.

The following departments supported the Opt-In TOU Pilot, and will continue to support Default TOU Pilot. The expertise gained during these pilots will be essential for to provide the support for the much larger Mass TOU Default.

- **Advanced Metering Operations:** Ensures smart meter connectivity, validates the accuracy and completeness of interval data, and processes meter data to support TOU billing.

- **Billing Operations Support (“BOS”):** Conducts billing data validation, exception management, business process documentation, account maintenance and customer billing.
- **Customer Contact Center (“CCC”)/Branch Offices:** CCC comprised of 150 Energy Services Specialists who are trained to answer customer inquiries. Customers may also visit any of SDG&E’s seven Branch Office locations to obtain information or ask questions.
- **Measurement & Analytics:** Examines data to uncover trends and patterns that identify opportunities to optimize marketing, outreach, and the overall customer experience. Data mining aids in the enhancement of existing services, uncovers unmet needs, and helps guide the development of new offers which support the ME&O efforts in delivering targeted, integrated solutions using the most effective communication channels.
- **Customer Communications:** Responsible for the integrated communications planning across SDG&E. Provides oversight and production management of advertising, videos, direct mail, email, collateral, and outreach materials that meet communication objectives and effectively reach the appropriate target audiences.
- **Customer & Employee Engagement (“CEE”):** Connects customers to solutions through a variety of localized tactics, including community and business partnerships, door-to-door canvassing, events, presentations, workshops, and partner-generated activities. CEE also educates and engages SDG&E employees (with an emphasis on customer-facing teams) on changes and choices for TOU customers, and ensures each major functional group has the necessary resources and materials to successfully support the customer experience with TOU rates.

- **Customer Operations Support (“COS”):** Supports business process execution, including data validation, exception management, corrective business process automation, and system troubleshooting. In addition, the team is responsible for the online tools available to customers including SDG&E’s My Account. If an issue arises with the online tools, COS handles the triaging, prioritization, defect management, requirements development, and acceptance testing in coordination with IT/Systems.
- **Customer Research:** Customer Research is responsible for conducting qualitative and quantitative research including quality of performance research on service transactions; using both internal and external resources to measure, evaluate, and anticipate customer information and service needs and preferences; and supports the development of new customer service options, targeted communications, and delivery channels to satisfy those needs. Surveys are conducted through telephone interviews, focus groups, and online survey panels.
- **Marketing:** Analyzes various initiatives to help develop and file marketing plans, coordinates with the other IOUs and various third parties on marketing planning/execution, and participates in marketing-related studies. Local marketing works closely with program advisors, customer communications, research and analytics, outreach, and others to deliver solid strategic planning and coordination for initiatives across the various customer touch points. More details can be found in the direct testimony of Horace Tantum.
- **Mobile Applications and E-Services:** Provides key information and engagement through the development and management of mobile applications across iOS and

Android platforms. Functionality includes Bill Pay, My Energy, Outage Map, Energy Cost Calculator, Payment Locations, Report an Outage, Push Notifications, and more.

- **Social Media Engagement:** Engages customers in a two-way dialogue through various social media channels to communicate service offerings, outage updates, emergency, and safety messages using channels such as Twitter, Facebook, and Pinterest.
- **Systems / IT:** Throughout the TOU pilots, the Systems teams have provided IT support while continuing to gather requirements to build out the system application solutions that support the end-to-end processes of Mass TOU Default.
- **Website Management:** Provides oversight and management of sdge.com and the customer facing aspects for the My Account website.

Metrics

SDG&E will build upon the analysis of key metrics rolled out in the Default TOU Pilot. Metrics will be made available via analytic dashboards, which have default views and drill-down capabilities that reduce the need for significant manual or ad-hoc reporting. These dashboards provide the ability to make stronger business decisions by not only providing rapid access to frequently used reports but also the ability to perform complex analysis within the same system. Dashboard views will include IT/system status, transaction/communication status, enrollment tracking, customer contact, billing and workflow management.

COMPLEMENTARY PROGRAMS, PRODUCTS & SERVICES

SDG&E offers a variety of programs, products and services that are complementary to TOU pricing. These offerings should help customers 1) understand TOU pricing, 2) understand their energy use patterns, 3) identify opportunities to reduce and/or shift loads to off-peak times, 4) develop strategies or install technologies that will help achieve load shifts or reductions, and 5) provide the capability to monitor use and measure their success.

- **Level Pay Plan (“LPP”)** – Currently being offered and evaluated in the Default TOU Pilot, LPP provides residential customers with more predictable bills by averaging their monthly energy bills, resulting in approximately the same amount due each month. Since their total energy cost for 12 months is the same, such a plan may help customers with budget considerations.
- **Marketplace Products** – At marketplace.sdge.com, SDG&E offers include energy efficient equipment such as HVAC and major appliances, as well as controls, programmable thermostats, and other smart devices for the connected home. Many of these products are complementary to TOU pricing and offer the customer ideas for technologies (some with rebates).
- **Customer Programs** – SDG&E offers a variety of energy-efficiency, demand response and assistance programs that provide ideas, rebates and/or discounts to invest and/or participate in programs that are complementary to TOU pricing.
- **Website** – SDG&E’s website will be a key source of detailed TOU information for SDG&E customers. The site will include information on pricing options, links to the online rate comparison and enrollment, and instructions on how to evaluate energy use

and make a rate plan decision. The website will connect customers to energy management solutions and offers such as energy efficiency or assistance programs.

- **Alerts**—a variety of notifications to assist them in learning more about how the change may impact their energy use and bills. Notifications may be delivered via the SDG&E mobile app.
- **Bill Ready Notification Email (“BRNE”)** – a monthly email that alerts customers that their bill cycle has ended and provides valuable information in graphic format about cost, usage, historical usage and cross promotion of energy solutions will be updated to include information and education about TOU.
- **Social Media** – SDG&E’s five social media channels (Twitter, Facebook, Pinterest, YouTube, and Instagram) will be leveraged as an interactive and targeted way to engage with customers, monitor the conversation, and respond to feedback. As other web platforms emerge and develop, SDG&E will evaluate those for include as a communication method.

INFORMATION TECHNOLOGY

Energy Billing and Notifications

As customers transition to the default Time of Use Pricing Plan, SDG&E will continue to deliver on the requirements of P.U. Code Section 745.5. In summary, the code requires the following:

- Provide energy usage or energy billing information that promotes the customer’s ability to make informed energy usage decisions and to minimize the risk of adverse bill surprises.

- Provide energy usage or energy billing notifications (“notifications”) to customers having a smart meter and have not opted-out of receiving notifications.
- Position customers to make informed decisions as to their electricity usage and avoid experiencing higher than expected energy bills.
- Deliver notifications in the appropriate manner to comply with P.U. Code Section 745.5 and customer preferences and/or intentions.
- Provide the ability to, and inform customers of, their option to opt-in to or opt-out of notifications.
- Provide notifications from the customer’s energy utility at appropriate times (i.e., when the projected periodic bill or rate of associated electricity use exceeds an amount specified by the customer). Notifications may not include specification of taxes, special CPUC-imposed fees, or special discounts.
- Notifications are not, and shall not be construed to be, a bill forecast, and SD&E shall not be liable if actual bills differ from information provided in the notifications.

TOU System Enhancements

The Opt-In TOU Pilot operations identified system enhancements that must be implemented prior to Default TOU Pilot. In addition, Default TOU Pilot planning and requirements development identified additional system upgrades. Prior to the launch of Default TOU Pilot, these system upgrades will be implemented and tested. During the Default TOU Pilot, these systems will be stabilized and hardened prior to the launch of Mass TOU Default.

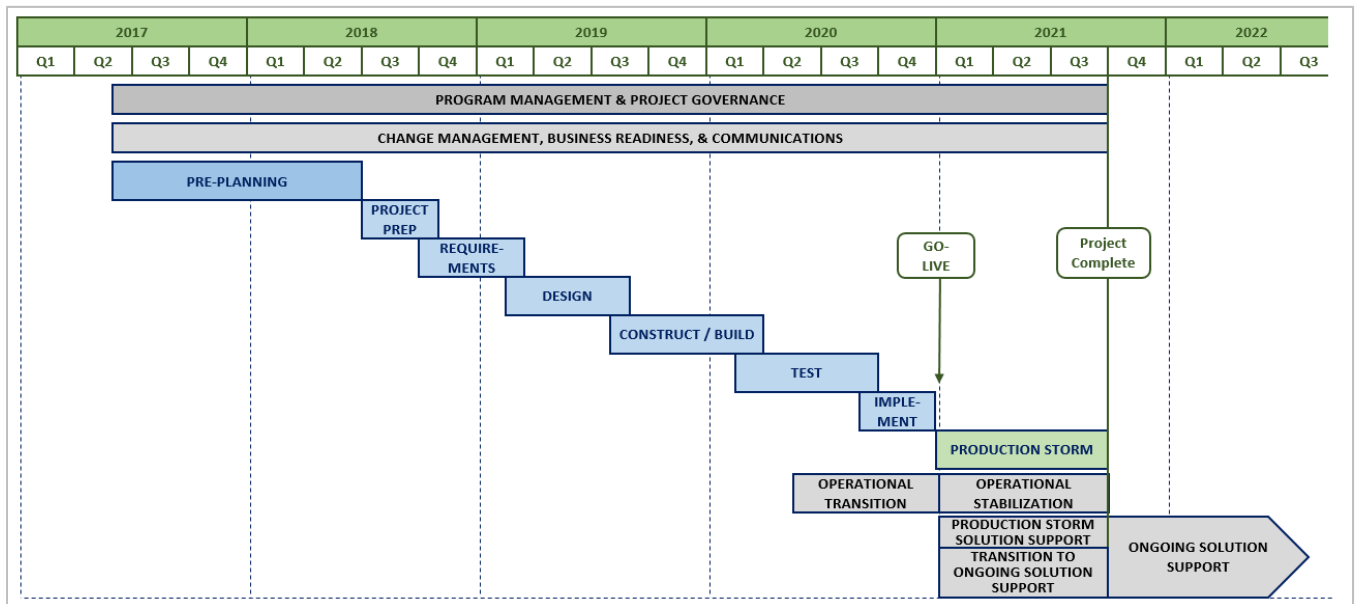
Timing Impact from Customer Information System (CIS) Upgrade

SDG&E’s legacy CIS, and its related subsystems, is a twenty-year-old software and hardware system that supports SDG&E’s critical business processes and customer engagement

functions, including: billing and payment; credit and collection; meter data; service orders; customer care; outages; rates and programs; and customer information. SDG&E urgently needs to replace its outdated CIS with a new, modernized CIS platform that will enable SDG&E to implement increasingly complex California regulatory requirements, and keep pace with the rapidly changing energy industry and evolving service demands of customers.⁷

In the testimony of SDG&E’s Charlie Snyder⁸, he provided a project life cycle for the CIS replacement project, which was designed to be implemented as efficiently as possible, aiming to optimize time, personnel, and other resources, and to ensure a high-quality outcome. The high-level replacement schedule is provided in the figure below.

Figure 8 - CIS Replacement Schedule



⁷ Application of San Diego Gas & Electric Company (U 902 M) for Authority to Implement the Customer Information System Replacement Program, A.17-04-027, April 28, 2017.

⁸ A.17-04-027, Prepared Direct Testimony of Charlie Snyder on Behalf of San Diego Gas & Electric Company, Chapter 3, p. 22 (April 28, 2017).

Based on the CIS replacement schedule, it is critical that the Mass TOU Default transition is completed by December 2019, to ensure there is no overlap into the design phase.

REPORTING

Pursuant to Decision 15-07-001, SDG&E will continue to provide the Commission and interested parties with regular updates on the progress of customers understanding of TOU rates and other rate reform impacts. These updates, or Progress on Residential Rate Reform (“PRRR”) reports, are provided on a quarterly basis. Primary topics covered in the PRRR include outreach strategies, metrics, TOU pilot results, budgets, and updates on other proceedings that will impact residential TOU rate design. SDG&E intends to inform at minimum the Commission and interested parties on the status of its Mass TOU Default, including actual costs incurred as the rollout progresses, through its quarterly PRRR.

CONCLUSION

SDG&E believes its Mass TOU Default plan presents the framework and design that is needed to guide a successful rollout in 2019. The Opt-In TOU Pilot and Default TOU Pilot helped to ensure SDG&E’s business processes and operational systems are functional and its ME&O efforts are fine tuned. To ensure sufficient lead time, SDG&E respectfully requests the Commission for a timely approval of the Mass TOU Default plan to ensure operational and system readiness.

APPENDIX A: OPT-IN TOU PILOT DESIGN & EARLY FINDINGS

In June 2016, SDG&E launched Opt-In TOU Pilot rates Control Your Use E1 (three TOU periods) and Control Your Use E2 (two TOU periods). Control Your Use E3 (hourly dynamic pricing changes based on statewide system and local circuit conditions) was launched in October 2016. The rates will remain in effect through December 2017. Statistics on the original recruitment quantities and current participation status is provided in Figure 9.

Opt-In TOU Pilot was designed to help inform Default TOU Pilot and Mass TOU Default. Specifically, the Opt-In TOU Pilot would identify the following:

- Degree of hardship caused by the TOU rates relative to tiered rates;
- Key population segments most negatively affected by the rate changes;
- Level of customer understanding of TOU rates and reasons for them;
- Effectiveness of the messaging and outreach used during the pilots; and
- Level of satisfaction customers have with the TOU rates.

While early findings helped guide the development of the Opt-In TOU Pilot and the early planning considerations of Default TOU Pilot, a full analysis will not be available until after the conclusion of the Opt-In TOU Pilot.

Participation Levels

The opt-in pilot participation levels (as of 12/01/2017) can be found in Figure 9 below.

Figure 9 - TOU Opt-In Pilot Participation (as of 09/22/17)

Pilot Group	Enrolled Customers	Drop Offs (Ineligibility / Opt Outs)			Active Participants
		Rate E1	Rate E2	Control	
Hot	432	---	82 / 16	---	334
Cool, Non CARE	4008	254 / 29	453 / 46	264 / 2	2,960
Cool, CARE	3808	284 / 18	477 / 26	312 / 4	2,687
Moderate, Non CARE	3946	233 / 45	450 / 70	267 / 1	2,880
Moderate, CARE	3610	283 / 32	474 / 42	264 / 4	2,511
Totals	15,804	1054 / 124	1,936 / 200	1107 / 11	11,372

3,506 of the overall Ineligibility count are Finaled Accounts and 71 are due to NPSO. 72% retention rate.

Rate E1	Rate E2	Control Group	Rate E3
<ul style="list-style-type: none"> 4,154 originally assigned 2,976 currently assigned 72% Retention Rate 	<ul style="list-style-type: none"> 7,501 originally assigned 5,365 currently assigned 72% Retention Rate 	<ul style="list-style-type: none"> 4,149 originally assigned 3,031 currently assigned 73% Retention Rate 	<ul style="list-style-type: none"> 68 originally assigned to E3 53 currently assigned to E3 78% Retention Rate
<ul style="list-style-type: none"> June 2016 – Dec 2017 3 TOU Periods <ul style="list-style-type: none"> On Peak 4pm – 9pm Off Peak Super Off Peak 	<ul style="list-style-type: none"> June 2016 – Dec 2017 2 TOU Periods <ul style="list-style-type: none"> On Peak 4pm – 9pm Off Peak 	<ul style="list-style-type: none"> June 2016 – Dec 2017 Remain on Residential DR or DR-LI rate 	<ul style="list-style-type: none"> Nov 2016 – Dec 2017 Hourly dynamic rate, includes: <ul style="list-style-type: none"> Prices that vary hourly Dynamic rate components Net surplus energy credits

The top 3 reasons for customers opting out of the TOU rate are that: 1) the bill is too high, 2) the Rate is too confusing/difficult to understand, and 3) customers don't want to shift load during peak hours.

Recruitment Letter Focus Groups

In January 2016, SDG&E conducted focus groups on the recruitment letter. While Mass TOU Default will not have a recruitment letter, the findings are valuable for developing the awareness communication. Key findings are as follows:

- Most were unaware of upcoming shifts to TOU in 2019.
- Many have an intuitive understanding of TOU, but opinions differ on the timing of the peak periods.

- Many believe a TOU structure will have a significant impact on customers – favorable or not.
- Seniors believe the transition will have less of an impact on them, since they are in a better position to modify household behavior.
- Overall perceived strengths of TOU:
 - Greater control of the electric bill.
 - Reduced consumption during peak periods reduces brown-outs and need for new power plants.
 - Encourages technical innovation (e.g., smart appliances, home battery storage).
- Overall perceived drawbacks of TOU:
 - Negative impact on working families with less opportunity to shift energy consumption behaviors.
 - Encourages inconveniently-timed activities (e.g., laundry at midnight).
 - Creates confusion as to how best use household equipment (e.g. use during semi-peak so home is cooler during peak or not).

California Statewide Opt-In TOU Pilot – Interim Evaluation

Pursuant to the recommendation of the TOU Working Group, a consultant was hired to design, implement and evaluate two customer surveys to measure the primary objectives of the pilot. Research Into Action (“RIA”) in partnership with Washington State University’s Social and Economic Sciences Research Center conducting the surveys. The first survey began in early October 2016. Customers were asked to complete the survey online. For those who did not complete the survey online, a survey booklet was mailed to their home a few weeks later,

followed by a phone survey at the end of October 2016 for the remaining participants who did not respond.

RIA and Nexant delivered a first evaluation report on April 11, 2017, which summarized by all IOU's as well as detailed SDG&E-specific results.⁹ Due to the timing of the interim report, the evaluation covered only the summer months following shortly after customers were enrolled onto the new rates in June and July of 2016.

Welcome Packet

The report provided the customer opinions of SDG&E's Welcome Packet. Most surveyed customers (between 90% and 97%) reported receiving their TOU welcome packet, and of those between 87% and 94% reported looking through it. The lowest percentages were reported by CARE/FERA customers in the cool climate region but even for this group, 90% reported receiving the welcome packet.

As shown in the figure below, customers who received and looked through their welcome packet agreed that most of the information in the packet clearly explained how the price of electricity varied on their rate plan. Customers also mostly agreed that the items in the packet were easy to understand, that they understood how their rate worked after looking at the packet, and that they used many of the tips included in the packet. Customers somewhat agreed that the decals and stickers were helpful. CARE/FERA customers reported slightly higher average agreement ratings, compared to non-CARE/FERA customers, with two aspects about the welcome packet: that they used many of the tips and that the decals and stickers were helpful.

⁹ California Statewide Opt-in Time-of-Use Pricing Pilot Interim Evaluation, Nexant, Inc. and Research Into Action, April 11, 2017. <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442453144>

CARE/FERA customers reported lower ratings, in general, compared to non-CARE/FERA customers for the other three aspects about the packet.

Figure 10 - Average Level of Agreement with Aspects of Customers TOU Welcome Packet

Climate Region	Segment	Info explained how price of electricity varied		The items were easy to understand		After packet, I understand how the rate works		I used many of the tips		The decals or stickers were helpful	
		R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
Hot	General	-	8.2	-	8.1	-	7.6	-	6.7	-	4.0
Moderate	Non-CARE/FERA	8.2	8.0	8.0	7.9	7.6	7.4	6.8	6.7	4.6	4.4
	CARE/FERA	8.0	8.0	7.7	7.8	7.2	7.3	7.0	7.0	5.8	5.8
Cool	Non-CARE/FERA	8.3	8.1	8.1	7.9	7.7	7.5	6.7	6.4	4.5	4.1
	CARE/FERA	8.0	8.2	7.8	8.1	7.2	7.5	7.1	7.1	5.5	5.9

Ratings based on an 11-point scale (0 means ‘do not agree at all’ and 10 means ‘completely agree’)

Data for rate groups who reported looking through the packet; control group did not receive a welcome packet.

Overall Key Findings

The report’s key overall findings covered 1) load impacts, 2) bill impacts, 3) customer attrition, and 4) survey findings, and are summarized in this section. In addition, SDG&E describes how those key findings will be addressed in the Mass TOU Default.

Load Impacts

Key Finding	2019 Mass TOU Default Action
<p>Customers can and will respond to TOU rates with peak periods that extend well into the evening hours – peak period load reductions averaged roughly 5.4% for Rate 1 and 4.6% for Rate 2 across the service territory as a whole.</p>	<p>Messaging and tips will be developed to encourage load reductions during peak periods. SDG&E will offer customer education and messaging to help the customer achieve the largest load reduction as possible. Where appropriate, SDG&E will customize this effort based on rate, geography and other factors.</p>
<p>For Rate 2, the pattern of load impacts across rate periods on weekends was very similar to weekdays for all climate regions combined.</p>	<p>SDG&E will continue to offer a 2-period rate as an alternative to the default 3-period rate. Messaging and tips will be developed to encourage load reductions during peak periods for all TOU rates.</p>
<p>There was a small but statistically significant reduction in daily electricity use for both rates – for Rate 1, the average reduction was 2.5% for the moderate/cool regions combined while for Rate 2, it was 2.6% for all three climate regions combined.</p>	<p>SDG&E will offer customer education and messaging to help the customer achieve the largest load reduction as possible. Where appropriate, SDG&E will customize this effort based on rate, geography and other factors.</p>
<p>For Rate 2, load impacts, in both absolute and percentage terms, were largest in the hot climate region, second largest in the moderate region, and lowest in the cool region.</p>	<p>SDG&E will continue to offer a 2-period rate as an alternative to the default 3-period rate.</p>
<p>CARE/FERA customers generally had lower peak period load reductions compared with non-CARE/FERA customers – although not all differences were statistically significant.</p>	<p>SDG&E will use the final results from the Opt-In TOU Pilot and ongoing results from Default TOU Pilot to encourage load reduction for customers as needed.</p>
<p>Differences in load impacts for customers on TOU rates who do and do not receive Weekly Alert Emails were not statistically significant.</p>	<p>SDG&E will discontinue the use of Weekly Alert Emails, in particular how they were designed and sent in the Opt-In TOU Pilot. A similar communication strategy will be assessed at the conclusion of the Default TOU Pilot.</p>

Bill Impacts

Key Finding	2019 Mass TOU Default Action
<p>Bill impacts for SDG&E’s pilot rates were quite small, both before and after behavioral adjustments. For some customer segments and climate regions, customers could fully offset the structural increases in summer bills by shifting usage so that the total bills were slightly lower than they would have been on the Otherwise Applicable Tariff (“OAT”).</p>	<p>SDG&E will offer similar rates, and ensure the shift message is clear, particular during the summer months.</p>
<p>Average monthly structural bill differences ranged from a bill decrease of \$0.59 for CARE/FERA customers in the cool climate region on Rate 1 to a bill increase of \$7.52 for general population customers on Rate 2 in the hot climate region. These bill impacts represent the four summer months from July through October.</p>	<p>Based on results from Default TOU Pilot, SDG&E plans to send communications to promote tools and solutions to help customers manage seasonal bill volatility.</p>
<p>Over the course of a year, many customers would expect to see a very modest increase or decrease in bills – in the moderate and cool regions, between 60% and 85% of customers would see a structural change in their average monthly bill between ±\$3 -- in the hot region, between 35% and 40% of customers would expect to see a bill change of ±\$3</p>	<p>SDG&E will develop a transition schedule such that TOU benefiterers are transitioned first, and that non-benefiterers will be transitioned in the cools months of late-2019. In all cases, messaging will be developed to help the customer to be as successful as possible on TOU pricing.</p>

Customer Attrition

Key Finding	2019 Mass TOU Default Action
Cumulative opt-out rates between the enrollment date and the end of December have been quite low for nearly all rates and customer segments.	SDG&E will continue to improve upon the educational and messaging campaigns, incorporating the learning from the Opt-In TOU Pilot and Default TOU Pilot pilots. In addition, SDG&E will offer two TOU pricing rates, enabling the customer to opt out of the 3-period rate, into a 2-period rate. In addition, customers still have the option to select other applicable non-TOU rates of which they are eligible.
There is no material difference in the cumulative percent of opt-outs across tariffs at SDG&E.	
The number of customers dropping off the TOU rates was highest in the hot region, second highest in the moderate region and lowest in the cool climate region for all tariffs.	

Survey Impacts

Key Finding	2019 Mass TOU Default Action
SDG&E customers in the moderate and cool regions showed no increase in economic index (a measure of economic hardship) scores. Non-CARE/FERA customers for Rate 1 and non-CARE/FERA customers in the moderate region for Rate 2 showed a decrease in economic index scores due to TOU rates. Corroborating this finding, non-CARE/FERA customers in the moderate region also reported less difficulty paying their bills than control customers. Sample sizes to assess health outcomes were too small to reliably detect increases in the proportion of customers who sought medical attention due to excessive heat.	SDGE will take final survey takeaways from Opt-In TOU Pilot and ongoing survey results from Default TOU Pilot to gain a better understanding of overall customer satisfaction while on a TOU rate, as well as challenges or other customer assessments made while on a TOU rate.
Except for CARE/FERA customers in the moderate climate region, customer satisfaction ratings for both a customer’s rate and SDG&E did not differ between the TOU rate and control groups. The differences in ratings for both the rate and SDG&E for CARE/FERA moderate region customers, while statistically significant, are very small.	SDG&E will continue to test and improve its TOU educational campaigns to help drive the highest possible level of understanding for the entire eligible customer base. Educational campaigns will not only target the understanding of the pricing structures, but what actions can be taken to be as successful as possible

Key Finding	2019 Mass TOU Default Action
<p>Though understandability ratings of welcome packet items were high, customer’s understanding of their rates indicate a disconnect between customer’s rating of understandability and actual understanding (with 6% to 18% of customers unable to identify peak hours). Non-CARE/FERA customers were more likely to answer correctly than CARE/FERA customers.</p>	<p>Where applicable, SDG&E may decide to run additional and/or specific educational campaigns to its CARE/FERA population.</p>
<p>When asked if customers agreed that peak and off-peak times were easy to remember, Rate 2 customers provided higher agreement ratings than Rate 1 customers. However, a similar proportion of Rate 1 and 2 customers provided “over half correct” answers to the rate understanding questions.</p>	
<p>Customers on TOU rates were more likely to take time-specific actions than customers in the control condition. For example, while a similar proportion of customers from control and rate groups indicated they turned off their lights to conserve energy, a larger proportion of treatment customers indicated they shifted doing laundry and running the dishwasher during peak hours. This trend suggests that while fewer rate customers understood the nuances of their rates, they did know and act on actions that helped them shift use.</p>	

Operational Challenges & Lessons Learned

In early-2016, SDG&E provided Nexant information on operational challenges and lessons learned experienced in the first few months of the implementation of the TOU Opt-In pilot. These challenges were included in the interim evaluation. Findings primarily centered around customer experience, SDG&E business processes, and rates and products, and are

summarized in the table below. In addition, SDG&E provides the resulting Mass TOU Default action.

Area	Challenge	Lesson(s) Learned	2019 Mass TOU Default Action
Customer Experience	Manually managing customer exceptions consumed project time and resources, while not providing the best possible customer experience.	Pre-identifying any exceptions and developing standardized work plans will allow SDG&E to minimize the impact of exceptions during default enrollment.	The Opt-In TOU Pilot and Default TOU Pilot pilots will identify the most common and critical exceptions. SDG&E will develop system solution and documented process to be followed in the Operations Center.
	Resource constraints necessitated involving third parties to help implement the rollout, increasing risk of customer confusion.	To enroll customers on a much larger scale, additional resources will be required to complete the tasks in-house, or closely manage any third parties.	The rollout will be supported by enhanced systems, tested, and refreshed processes, which will help drive a better customer experience.
	Delays in creating, designing, producing, and approving educational materials led to customer confusion.	Ensure that all educational content is widely available through many channels and allow greater time for the conceptualization and approval of new education and outreach materials.	Educational content drafts will be developed early, customer-tested where possible, approved, and made available through multiple channels.
SDG&E Business Processes	Unanticipated manual processing and billing system issues strained project resources and timelines.	Invest more time and resources in implementing new systems, testing current systems, and designing processes to reduce manual effort.	In support of the Default TOU Pilot, systems were upgraded, clear processes were established and an exception handling system was implemented. In addition, the Operations Center was kicked off, which coordinated the customer support efforts of multiple departments.
	More detail was needed for process design than SDG&E initially anticipated.	A workflow management system, with documented processes, would allow for greater automation, contingency plans, and introduce fewer opportunities for error	

Area	Challenge	Lesson(s) Learned	2019 Mass TOU Default Action
		through the transition’s lifecycle.	
Rates & Products	Some customers did not immediately understand how to manage their energy in response to the TOU concept.	Some customers will require additional educational and personalized attention along with simple energy saving tools and solutions.	The experience from the pilots, including communication test cells, focus groups, surveys and customer and load research, etc. will drive the appropriate outreach efforts that could vary on aspects such as customer demographics, geographic location, communication channel, communication frequency, etc.

California Statewide Opt-In TOU Pilot – Second Interim Evaluation

On October 19, 2017, RIA and Nexant delivered their second interim evaluation results on Opt-In TOU Pilot, and presented the results to the TOU Working Group on October 23, 2017. The final report covering the entire pilot is targeted to be completed by the end of March 2018.

RIA’s results focused on four areas: 1) economic and health hardship, 2) satisfaction and understanding of rates and bill protection, 3) actions taken and attitudes toward Demand Response and Energy Efficiency; and 4) smart technologies and newsletters/websites.¹⁰

Nexant’s results focused on 1) participation rates, 2) load impacts and 3) billing impacts. It covered the first full year of customers on the pilot from July 2016 through June 2017.

¹⁰ TOU Second Interim Report Survey Results: Working Group Q&A Session, Research Into Action, October 23, 2017.

Attrition findings reflect cumulative status at end of the first year. Load impacts focus on the winter, spring, and annual results. Bill impacts focus on winter, spring, and annual impacts.¹¹

Results that are specific to SDG&E and/or specific to all IOUs, along with the 2019 Mass TOU Default actions, are summarized below.

Survey Findings

Key Finding	Applies To
Rate 1 CARE/FERA customers in moderate region had greater economic hardship vs. control group.	SDG&E
Rate 1 CARE/FERA in moderate region reported higher concern about affording electricity bills.	SDG&E
Rate 2 CARE/FERA customers in moderate region reported greater health hardship vs control group.	SDG&E
Rate 1 CARE/FERA customers and SDG&E Rate 2 CARE/FERA customers in the moderate region sought medical attention due to excessive heat.	SDG&E
No significant increases in percentages of customers uncomfortably hot or cold due to trying to save money on bills.	All IOUs
Rate groups had higher satisfaction than control groups (reversal from the first survey).	All IOUs
Low-income segments had higher satisfaction than non-CARE/FERA segments.	All IOUs
Satisfaction ratings higher for most Rate groups compared to first survey results (lower for most control groups).	All IOUs
In understanding the factors that influence the price of electricity, lower percentages of low-income customers selected half correct answers compared to corresponding Control customers and non-CARE/FERA customers – improved for SDG&E customers compared to first survey.	All IOUs
In understanding on-peak hours, 3% to 44% did not select any correct hours vs. 23% to 71% selected more than half the correct hours; low-income customers reported less understanding vs. non-CARE/FERA customers; and understanding improved for SDG&E customers.	All IOUs

¹¹ Presentation: Statewide Opt-in TOU Evaluation Second Interim Report: Load & Billing Impacts, TOU Working Group Q&A, Nexant, October 23, 2017.

Key Finding	Applies To
Customers report understanding bill protection generally, but not specifically.	All IOUs
Most common actions taken are turning off lights and avoiding laundry and dishwasher, followed by turning off office and entertainment equipment, avoiding pool/spa pump, reducing or turning off AC or heating equipment. Least common actions are avoiding cooking and pre-cooling home.	All IOUs
Most common barriers to action are 1) the respondent doing all they can; 2) the household already using very little electricity; 3) someone being home most of the day; and 4) the home getting uncomfortable if less electricity is used. Higher percentage of barriers in low-income and senior customers.	All IOUs
Customers with smart technologies provided moderate to high satisfaction and usefulness for reducing/shifting energy usage (most common technologies are smart thermostats and smart lighting).	All IOUs
Customers without smart technologies reported low to moderate interest in them.	All IOUs

Participation, Load and Billing Impacts

Key Finding	Applies To
The number of customers dropping off the TOU rates was highest in the hot region, second in the moderate and lowest in the cool climate region for all tariffs.	All IOUs
Opt-out rates were slightly lower for CARE/FERA customers vs. non-CARE/FERA.	SDG&E
Opt-out rates were slightly lower for CARE/FERA customers in PG&E and SDG&E’s service territory compared with non-CARE/FERA customers.	All IOUs
Winter day load reductions for Rate 1 and Rate 2 were 2.3% (0.02 kW) and 1.7% (0.01 kW), respectively.	SDG&E
Peak period load reductions on weekends and the pattern of load reductions across rate periods on weekends were generally similar to weekday impacts. That is, customers can and will respond to TOU price signals on weekends.	All IOUs
Load impacts for Rate 2 in both absolute and percentage terms, were largest in the hot climate region, and there was not a statistically significant difference between the moderate and cool climate regions.	SDG&E
CARE/FERA customers had lower average percent and absolute peak period load reductions than non-CARE/FERA customers for all rates for the service territory as a whole for all three utilities	All IOUs

Key Finding	Applies To
SDG&E customers who received Weekly Alert Emails in the moderate climate region had small increases in load reductions, whereas customers in the cool climate region had small declines. In both cases, the difference was negligible.	SDG&E
Winter bill impacts were generally less than 1% in either direction.	SDG&E

Rate Design Study

During the SDG&E conducted in-depth customer research on SDG&E rate design. Specifically, the objectives were as follows.

- To help understand the user’s experience around energy rate plans to more effectively design and communicate the TOU rate plan and/or an alternative which accomplishes the distributed load goals of the time of use plan.
- To bring out the user’s voice in the rate plan redesign process and to make these learnings actionable through key design principles and potential paths forward.

Daylight Design conducted 15 in-home interviews between December 2016 and January 2017. The interviewed customers represented a variety of segments. In addition, Daylight Design conducted four (4) focus groups conducted in January 2017. Each focus group had 8 customers, and represented a mix of demographics and attitudinal segments.

Some of the key themes and/or findings of this research are provided below. Note these are summary findings, and individual responses might have varied. Results and 2019 Mass TOU Default actions, are summarized below.

Key Finding
TOU can be viewed as opportunity for more control and predictability over bills if it can be explained properly.
If TOU is perceived as a costly and unfair burden, customers may be more receptive to changing flexible routines versus inflexible ones.
Customers want the same level of choice in their energy plan as other services they sign up for, but need comprehensive tools for effective decision making that enable prediction and choice.
Small financial incentives and/or penalties might not motivate behavior change under TOU, and combining other messages (ie, environmentalism) can be effective.
Customers are not always sure how or where to reduce use, and therefore would benefit from bills or messaging that are accessible and actionable.
Customers who are negative toward SDG&E or TOU rates might change their perception through in-person involvement.
Overgeneralized information for bill reduction might not be as effective as personalized messaging and feedback.
Customers who think their energy use is “normal” can be inflexible to shift their use.

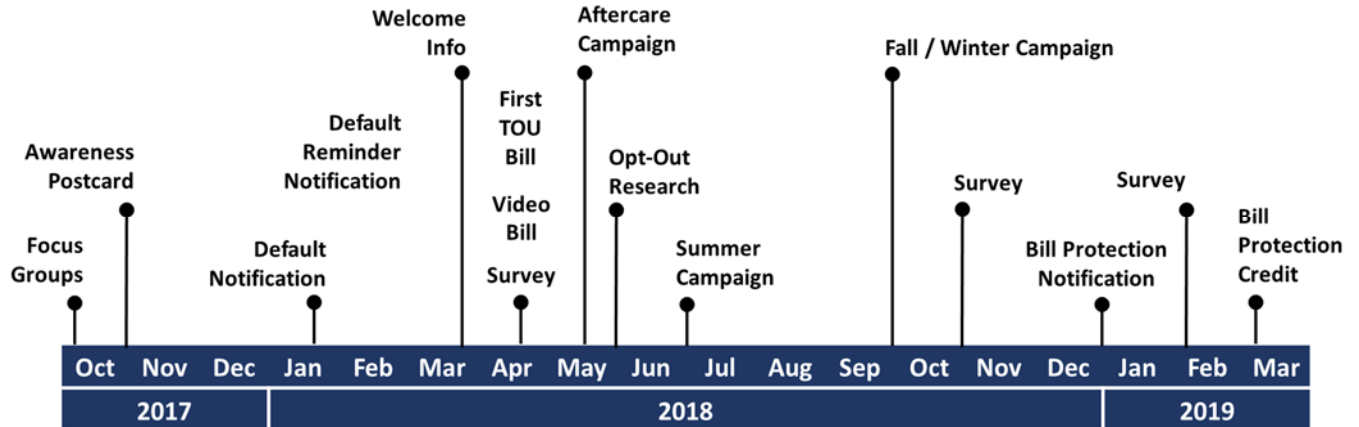
SDG&E will continue to review and analyze these finding to incorporate changes into its 2019 Mass Default Plan as appropriate.

APPENDIX B: DEFAULT TOU PILOT DESIGN

Some of the primary objectives of the Default TOU Pilot were to assess 1) operational readiness, 2) the customer experience and 3) key systems and processes.

To support the assessment of operational readiness, SDG&E designed the Default TOU Pilot to stress test its business processes and system capabilities to support transitioning a large number of customers to TOU pricing over a relatively short period of time. Default TOU Pilot plans included transitioning at least 100,000 customers to TOU pricing in March 2018. To account for customers who opt-out, close their account, or transfer service, SDG&E sent default notifications to approximately 150,000 customers. The initial notification was sent in October 2017, six months in advance of the customer transition to TOU pricing plans. The primary default notification, including rate comparisons and other TOU information will occur in January 2018, 60 days prior to transitioning customers in March 2018. Reminder communications are sent 15 to 30 days prior to the customer transitioning. Default pilot customers receive ongoing communications, as appropriate, including but not limited to summer and winter pricing information and end of bill protection communication. Figure 11 below illustrates the timing of customer touchpoints and major milestones from awareness notification in late 2017, through the end of 2018, and rolling into Mass TOU Default.

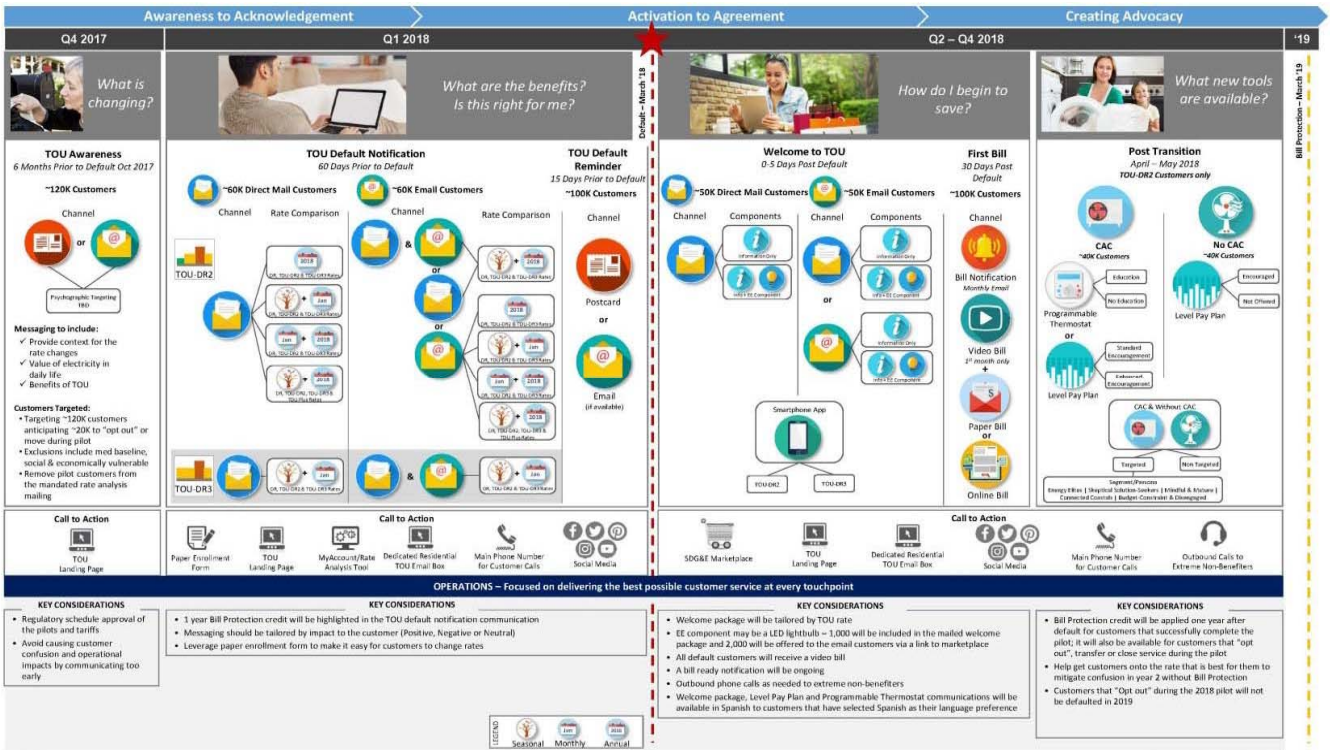
Figure 11 - Default TOU Pilot Customer Touchpoints & Milestones



Many of these touchpoints are tailored to promote education and engagement while and the messaging, tactics, and strategies evolve as a customer moves through the journey. The following Figure 12 illustrates the customer journey and the associated ME&O campaigns, and at a high level are described below.

- Awareness to Acknowledgement – postcard, default notification and default notification reminder;
- Activation to Agreement – welcome packet and first bill; and
- Creating Advocacy – post-transition, ongoing TOU customer retention.

Figure 12 - Default TOU Pilot Customer Journey

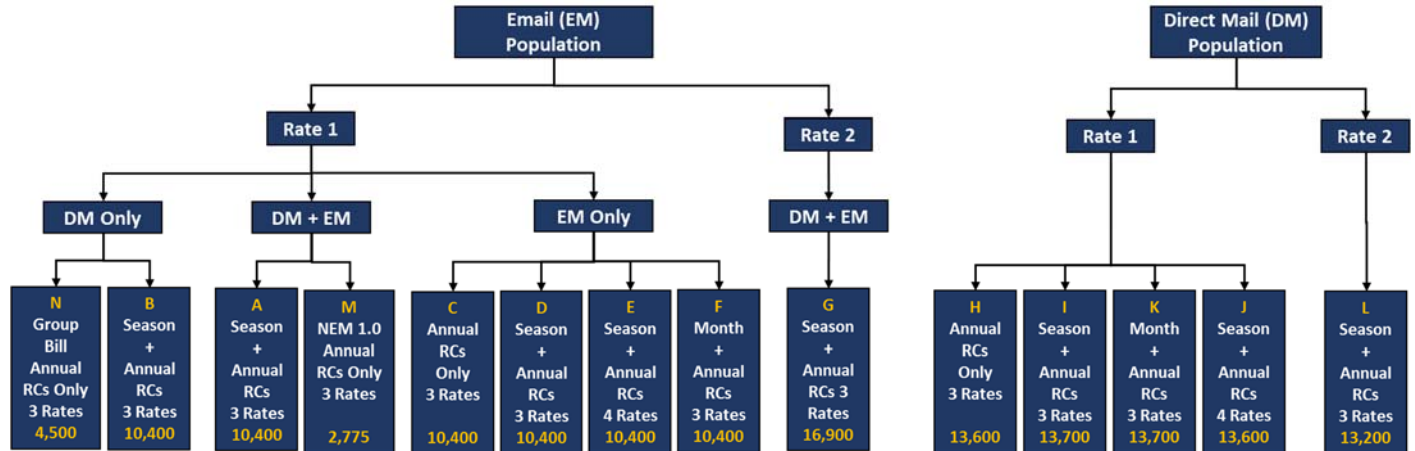


SDG&E’s default notification communications test is comprised of variations across communication channels, rate schedules, and the amount of information provided in the rate comparisons that will be included with the default notification. The variations are provided in the following figure. The rate comparison information varies with respect to the granularity of the information. SDG&E will compare: 1) the standard residential tiered rate to the two default TOU pilot rates; and 2) the standard residential tiered rate with the two default TOU pilot rates along with SDG&E’s TOU-Plus rate which includes a critical peak pricing component. In addition, the rate comparison information will be presented three different ways: 1) annual comparison; 2) annual and monthly comparison; and 3) annual and seasonal comparison.

Due to the unique structure and additional messaging required for SDG&E’s Net Energy Metering (“NEM”) and group bill customers, SDG&E worked with Nexant to create cells ‘M’ and cell ‘N’.

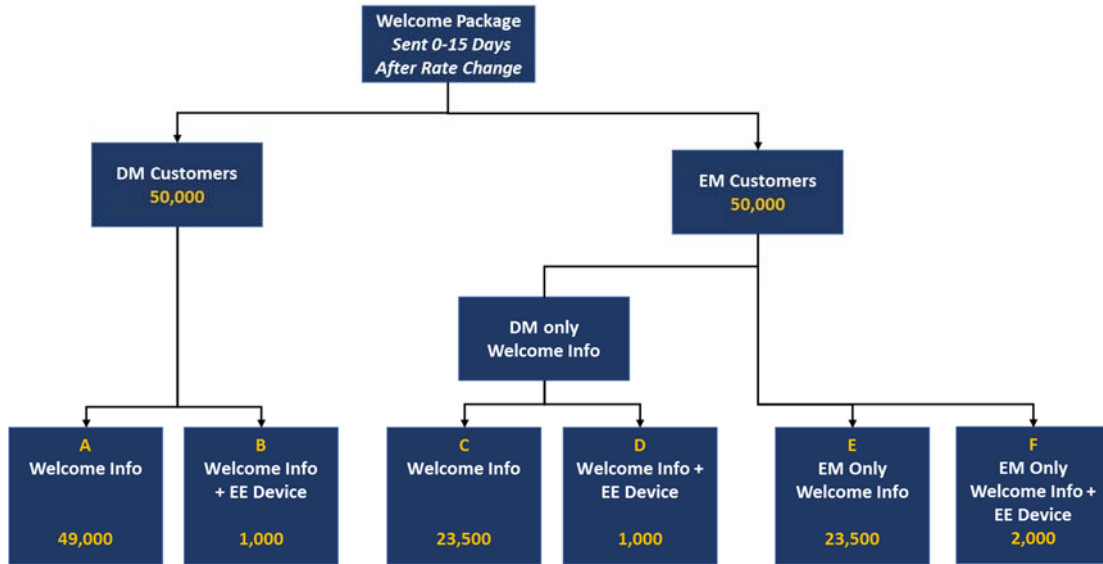
Cells ‘B’ and ‘I’ represent customers receiving seasonal plus annual rate comparisons for three rates. In addition to testing channel and content, SDG&E will test how messaging layout and style will impact customer awareness and acceptance of TOU.

Figure 13 - Default TOU Pilot Transition Notification Test Cell (PD60/30)



Building on the customer journey in the first two phases, the Activation phase will emphasize what customers can do while enrolled in a TOU pricing plan. Following TOU enrollment, SDG&E will send all customers welcome information material. The welcome materials will be tailored to each plan option and will provide information to help customers succeed on TOU. The welcome information will be sent via email or direct mail across 6 unique test cells. The following Figure 14 shows a map of those test calls.

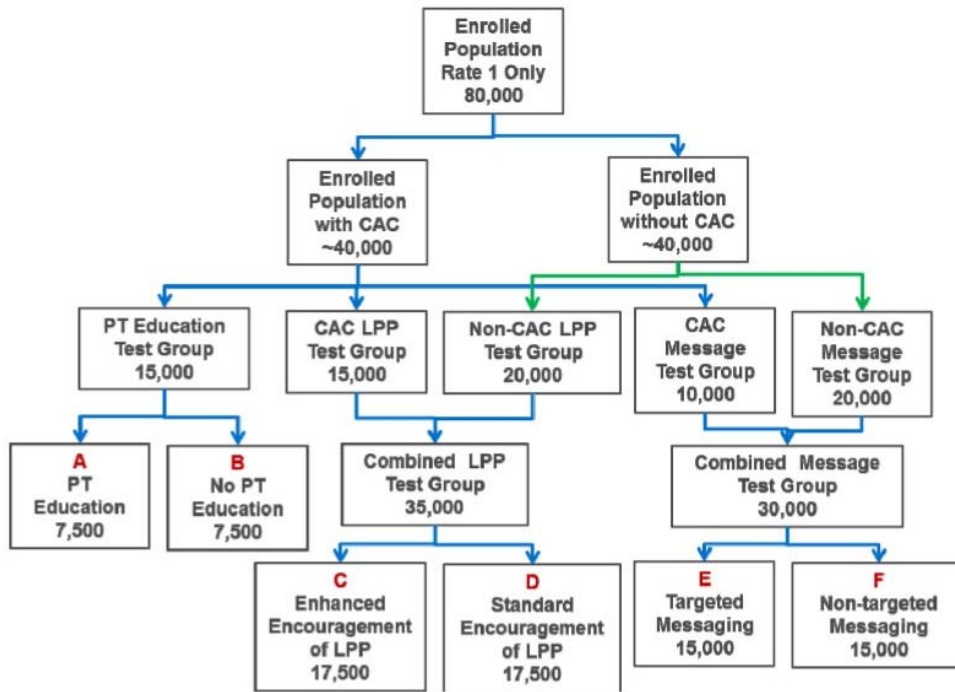
Figure 14 – Default TOU Pilot Welcome Materials



The Advocacy phase of the customer journey moves customers from Agreement to actual promotion and support of TOU pricing plans. The initial aftercare messaging will be an educational campaign aimed at customer households with central air conditioning (“CAC”), to encourage the use of programmable thermostats. A second wave of aftercare messaging will promote SDG&E’s Level Pay Plan.

SDG&E plans to test enhanced messaging based on customer segments. SDG&E will seek to understand the effectiveness of a more enhanced, personalized and targeted message on LPP enrollment compared to standard, non-persona specific messaging. Each aftercare message is strategically designed to promote customer retention on the TOU pricing plans, and continue to strengthen the connection between SDG&E and its residential customers. In addition to prescribed aftercare campaigns, the seasonal communications will also be tailored based on customer segmentation. A summary of each campaign can be found in the Figure 15 below.

Figure 15 – Default TOU Pilot Aftercare Treatments



Operational readiness will largely be assessed through the tracking and monitoring of transactions and issues that arise during the pre-transition notification process, during the customer’s transition to the new rate, and during the post-transition period. Performance metrics (customer-focused and operationally-focused) were developed and will be tracked throughout the Default TOU Pilot.

SDG&E will assess the customer experience by 1) determining how best to maximize customer awareness of the fact that they will be transitioned onto a TOU rate unless they opt-out; and 2) informing customers about options they have if they want to opt-out or choose a TOU rate that is different from the default pilot rate. Closely related objectives are to determine cost-effective ways of educating customers about how to manage their energy use and to provide tools for managing seasonal bill volatility in order to control costs and retain customers on TOU

pricing over time. These objectives will be met by testing a wide array of ME&O options that vary with respect to communication channel, content, frequency, and other factors across audiences. ME&O options will be tested at various stages including the delivery of the default notification, welcome information, and ongoing seasonal support.

SDG&E will assess key systems and processes including those that enable customers to easily select an alternate TOU rate or opt-out of the default pilot rate; technology to support rate change and customer communications; new billing system requirements; first-year bill protection; exception processing; tracking and monitoring systems; and outputs and outcomes to ensure compliance with all regulatory requirements including Commission mandated exclusions.

SDG&E will test two default tariffs, which are structurally the same as the two rates tested in its 2017 Opt-In TOU Pilot. The majority of customers will be transitioned onto the 3 TOU period TOU-DR-1 which is cost-based, with higher peak-to-off-peak price differentials. A smaller group of customers will be transitioned to the two-period Schedule TOU-DR-2, with somewhat milder peak-to-off-peak price differentials.

Customers receiving service under these rates shall be provided with bill protection which ensures that a customer will not pay more under this Schedule than they would have if they had remained on the OAT. Bill Protection will be computed on a cumulative basis at the end of the first twelve months or at the time the customer elects to change to another applicable rate schedule, transfer service to another address, or close service whichever comes first. If at that time, the customer's bill total under this Schedule is higher than the customer's bill total would have been under their OAT, the customer shall receive a credit for the difference.