

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE



February 7, 2020

Advice Letter 5711-E

Erik Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

**SUBJECT: Pacific Gas and Electric Company's Revised Proposed Evaluation,
Measurement and Verification Metrics for PG&E's Supply Side II
Demand Response (DR) Pilot and Excess Supply DR Pilot**

Dear Mr. Jacobson:

Advice Letter 5711-E is effective as of January 12, 2020.

Sincerely,

A handwritten signature in cursive script that reads "Edward Randolph".

Edward Randolph
Deputy Executive Director for Energy and Climate Policy/
Director, Energy Division

December 13, 2019

Advice 5711-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Pacific Gas and Electric Company's Revised Proposed Evaluation, Measurement and Verification Metrics for PG&E's Supply Side II Demand Response (DR) Pilot and Excess Supply DR Pilot

Purpose

Pacific Gas and Electric Company (PG&E) hereby submits this advice letter to the California Public Utilities Commission (Commission or CPUC) in order to *replace* Advice Letter (AL) 5256-E, originally submitted on March 21, 2018, pursuant to Ordering Paragraph (OP) 39 of Decision (D.) 17-12-003, requesting submission of evaluation, measurement and verification (EM&V) metrics based on input by the Demand Response Measurement and Evaluation Committee (DRMEC) for both the Supply Side II DR Pilot (SSP II) and Excess Supply DR Pilot (XSP).

Revised Request

This AL is intended to supersede AL 5256-E with respect to the timing of the Evaluation Report for the EM&V associated with the SSP II and XSP.¹ Specifically, this replacement AL is requesting that the Evaluation Report by the Independent Evaluator (IE) be published no later than 9 months² after both pilots conclude.³ The reason for this change

¹ Attachment 1 titled "Measurement and Verification Plan" originally included as part of AL 5256-E has been updated to reflect changes proposed in this new AL. Attachment 2 titled "Redline to Measurement and Verification Plan" identifies the specific revisions in redline format.

² The original EM&V plan had a number of incremental activities leading up to the publication of the evaluation. PG&E now believes it makes more sense to simply commit to a time period by which it reasonably believes the IE can complete the assessment and publish the report. As the field work would not begin until after the pilots conclude, PG&E anticipates that the IE would take no more than 9 months to collect all the necessary data, conduct the assessment and finalize the report.

³ The D. 17-12-003 authorized PG&E to extend the SSP II and XSP for the period 2018-2020 and declined to approve funding for 2021 and 2022 (see, D.17-12-003, p. 89). Although, it left open the possibility to extend funding to 2021 and 2022 at the discretion of the Energy Division.

stems from the uncertainty as to whether the XSP and SSP II pilots will be extended beyond 2020. Consequently, the results of the Evaluation Report would not be utilized to inform the Commission about the possible extension of the XSP and SSP II for 2021 and 2022 as part of the Mid-Cycle Review.⁴ In lieu of the Evaluation Report, PG&E intends to continue working with Olivine, the pilot administrator, to prepare separate annual reports, as it has in the past, that provide a status updates for each pilot that can be used by the Commission to assess whether to extend the pilots. PG&E believes it makes more sense to conduct the assessment after the pilots sunset, whether in 2020 or 2022, in order to obtain a comprehensive evaluation of the full term of the pilots instead of limiting the evaluation to just two years (2018-2019).⁵ Finally, PG&E notes that it had informal discussions with Energy Division staff related to the actions requested in this AL, including acknowledgement of these steps at a December 2, 2019 Mid-Cycle Review briefing.

The *updated* EM&V plan is included as Attachment 1 to this advice letter along with a redline version in Attachment 2.⁶

Original Request (AL 5256-E)

In 2017, PG&E's Application for approval of DR programs for 2018-2022 (A.17-01-012) included a request for PG&E to further continue its SSP II and XSP pilots. On February 3, 2017, PG&E provided additional details, including pilot plans, for the SSP II and XSP pilots.⁷ Subsequently, the Commission approved PG&E's application subject to a mid-cycle assessment occurring in 2020.⁸ As part of this assessment, OP 39 ordered PG&E to develop an EM&V plan, present it to the DRMEC for comment, and submit the plan to Energy Division staff via a Tier 1 advice letter no later than 90 days from the issuance of D. 17-12-003.⁹ In accordance with OP 39, PG&E presented a draft EM&V plan to the DRMEC on February 28, 2018 for review and requested feedback by March 9, 2018. No feedback was received.

⁴ In D.17-12-003, OP 37 pertaining to the SSP II and OP 38 pertaining to the XSP, the Decision clarified that "In the mid-cycle review that will occur in 2020, should the Energy Division determine that the objectives of the pilots are not met and they should still be pursued, then the Energy Division shall authorize funding up to the original requested budget for years 2021 and 2022."

⁵ The terms would be 2018-2020 if the pilots are not extended or 2018-2022 if the pilots are extended.

⁶ The updates pertain to the Timelines in Sections 2.4 and 3.4 for the SSP II and XSP, respectively.

⁷ PG&E's Application was approved in D. 17-12-003, issued on December 21, 2017. The Decision authorized PG&E to extend the SSP II and XSP for the period 2018-2020 and declined to approve funding for 2021 and 2022 (see, D.17-12-003, p. 89).

⁸ See, PG&E's Supplemental Testimony titled "Proposed Improvements to Existing PG&E Implemented Programs and Pilots", served on February 3, 2017 (A.17-01-012).

⁹ D.17-12-003, OP 39.

Background

On April 2, 2013, the Commission approved PG&E's Advice 4077-E-B, which included approval of the Intermittent Renewable Management Pilot Phase 2 (IRM2). The IRM2 was designed to study the feasibility of demand-side resources to participate into the California Independent System Operation (CAISO) wholesale market as Proxy Demand Resources (PDR). As part of its 2015-2016 Demand Response (DR) bridge funding Decision, the Commission approved a continuation and expansion of the IRM2 in Decision (D.)14-05-025. This continuation, known as the Supply Side DR Pilot (SSP), ran from 2015 through 2016 and expanded the IRM2 by enabling participation in the wholesale real time energy and non-spinning reserve markets for non-residential customers, moving closer to a Resource Adequacy (RA) construct with four-hour bid block requirements, and expanding participation from large commercial and industrial customers to include smaller commercial customers and residential aggregators. PG&E received approval from the Commission in D.16-06-029 to extend the SSP for an additional year (2017) as the SSP II. In addition to providing CAISO market-based services, the SSP II enables the option for DR resources to be called to address local distribution reliability issues, or simulated issues, for the distribution grid.

In D.14-05-025, the Commission also approved the Excess Supply DR Pilot (XSP). The XSP is meant to explore how customers can help mitigate situations of excess supply, by shifting their load consumption to align with periods of excess supply and assist with renewables integration by improving alignment of supply and demand. The pilot was initiated in 2016, and since the pilot had been active for less than a year, which did not allow much time for testing, PG&E received approval from the Commission to continue the pilot through 2017 in D.16-06-029.

Subsequently, PG&E as part of its 2018-2022 DR Application (A. 17-01-012) received Commission authorization to continue both the SSP II and XSP pilots between 2018 and 2020, with the possibility to further extend both pilots for 2021 and 2022 based on an assessment in the Mid-Cycle Review.¹⁰

Protests

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile or E-mail, no later than January 2, 2020, which is 20 days after the date of this submittal. Protests must be submitted to:

¹⁰ D.17-12-003, Ordering Paragraph 37 for the SSP-II and Ordering Paragraph 38 for the XSP.

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Erik Jacobson
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

PG&E requests that this Tier 2 advice submittal become effective 30 days after submittal, which is January 12, 2020.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties on the service list for A. 17-01-012 et al. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at

Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

/S/

Erik Jacobson
Director, Regulatory Relations

Attachments

- Attachment 1 – Measurement and Verification Plan
- Attachment 2 – Redlines to Measurement & Verification Plan



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39 E)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Annie Ho
 Phone #: (415) 973-8794
 E-mail: PGETariffs@pge.com
 E-mail Disposition Notice to: AMHP@pge.com

EXPLANATION OF UTILITY TYPE
 ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 5711-E

Tier Designation: 2

Subject of AL: Pacific Gas and Electric Company's Revised Proposed Evaluation, Measurement and Verification Metrics for PG&E's Supply Side II Demand Response (DR) Pilot and Excess Supply DR Pilot

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.17-12-003

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? Yes No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 1/12/20

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Erik Jacobson, c/o Megan Lawson
Title: Director, Regulatory Relations
Utility Name: Pacific Gas and Electric Company
Address: 77 Beale Street, Mail Code B13U
City: San Francisco, CA 94177
State: California Zip: 94177
Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx: (415)973-3582
Email: PGETariffs@pge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

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December 13, 2019

Attachment 1

Measurement and Verification Plan

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1. Introduction

On January 17, 2017, PG&E filed an application for approval of Demand Response (DR) programs for 2018-2022.¹ Included in this application was a request for PG&E to continue its Supply Side II DR Pilot (SSP II) and Excess Supply DR Pilot (XSP). On February 3, 2017, PG&E filed additional details, including pilot plans, for the SSP II and XSP pilots.² The California Public Utilities Commission (Commission) approved PG&E's application request to continue the SSP II and XSP pilots for 2018 – 2020 (3 years) in D.17-12-003. As a part of that Decision, Ordering Paragraph 39 stated that, "Pacific Gas and Electric Company shall file a Tier 1 Advice Letter no later than 90 days from the issuance of the Decision containing evaluation, measurement and verification metrics based on input by the Demand Response Measurement and Evaluation Committee for both Supply Side II and Excess Supply Side pilots." The evaluation, measurement, and verification metrics for both pilots are outlined below.

2. Supply Side II DR Pilot (SSP II)

2.1. Background

On April 2, 2013, the Commission approved PG&E's Advice Letter 4077-E-B,³ which included approval of the Intermittent Renewable Management Pilot Phase 2 (IRM2). The IRM2 was designed to study the feasibility of demand-side resources to participate into the CAISO wholesale market as Proxy Demand Resources (PDR). Participation in the pilot was limited to larger commercial and industrial customers in the wholesale day-ahead market.

As part of the 2015-2016 DR bridge funding Decision, the Commission approved a continuation and expansion of the IRM2 in D.14-05-025. This continuation, known as the Supply Side DR Pilot (SSP), ran from 2015 through 2016 and expanded the IRM2 by enabling participation in the wholesale real time energy and non-spinning reserve markets for non-residential customers, moving closer to a Resource Adequacy (RA) construct with four-hour bid block requirements, and expanding participation from large commercial and industrial customers to include smaller commercial customers and residential aggregators.

PG&E received approval from the Commission in D.16-06-029 to extend the SSP for an additional year (2017) as the SSP II, and the Commission subsequently approved extending the SSP II for 2018 – 2020 in D.17-12-003. Participants in the SSP II participate in the CAISO wholesale energy market, with an option for smaller participants to participate in a simulated wholesale energy market if they are not able to meet the minimum resource size for a PDR in the wholesale market. In addition to providing CAISO

¹ A. 17-01-012.

² A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS (February 3, 2017).

³ PG&E submitted Advice Letter 4077-E as well as supplemental advice letters, Advice Letter 4077-E-A and Advice Letter 4077-E-B, in compliance with Ordering Paragraph 80 of Decision (D.) 12-04-045.

market-based services, the SSP II enables the option for DR resources to be called to address local distribution reliability issues, or simulated issues, for the distribution grid.

The SSP II is open to non-residential retail customers that want to directly enroll in the pilot as well as third parties that aggregate residential or non-residential retail customer loads (participants). Customers can include PG&E bundled retail customers as well as customers who receive energy procurement services from Community Choice Aggregation or Direct Access providers.

The results from the SSP II, in addition to inputs from the DRP (R. 14-08-013) and IDER (R. 14-10-003) proceedings, may be used to inform a proposal for distribution service offerings in future DR programs.

2.2. Program Objectives

PG&E is committed to the integration of DR resources into the CAISO market as a viable economic resource. PG&E is also committed to developing and expanding the role of DR resources in other operational channels like distribution reliability. As stated in PG&E's 2018 – 2022 DR Application Supplemental Testimony⁴, the objectives of the SSP II are:

1. Determine whether customers are willing to be dispatched frequently enough and over the range of hours necessary to meet both local distribution system needs and the Commission and CAISO requirements for DR RA resources;
2. Determine whether it is technically feasible to dispatch DR resources pursuant to requirements for DR RA resources and the CAISO must-offer obligation, while also being dispatched to meet local distribution system needs;
3. Investigate how to operationalize and automate the interactions between wholesale market availability and distribution services availability, including how to make this information more readily available to distribution operations personnel; and
4. Develop a method for dispatching available DR resources based on distribution operational needs.

2.3. Evaluation, Measurement and Verification Metrics

As the pilot proceeds, new standards and metrics may be developed that may also be relevant, therefore the evaluation may include additional assessments that are not included in this document. However, PG&E expects that the evaluation will include the metrics described below (broken out by objective).

Objective 1 is concerned with participant experience and performance. To assess participant experience, the evaluator will survey participants (directly-enrolled customers and aggregators) and, when feasible, end customers enrolled through aggregators as well as parties that expressed interest in the pilot but ultimately decided not to participate. PG&E will work with the evaluator to come up with specific questions and methods, but the information solicited should include how satisfied are

⁴A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS, Section D, at pp. 2-A1-3 to 2-A1-4 (February 3, 2017).

participants with various aspects of the program as well as what are some potential program design changes that could improve participant enrollment?

To assess participant performance, interval meter data, resource bid and award data, and energy settlement statements will be used to analyze the performance of DR resources versus forecasted response as well as the specific characteristics of each resource (e.g. number of service agreements in each resource, types of customers in the resource, types of technologies used to respond to the events).

Objective 2 centers around demonstrating the operational feasibility of a resource being used for both wholesale and distribution services, and evaluation of this objective would include the impact of distribution awards on CAISO bids and subsequent settlements as well as the impact of CAISO awards on distribution availability.

Objectives 3 and 4 are concerned with automation and full-scale integration of DR resources into distribution operations. As such, assessment of these objectives centers more around operations and platforms internal to PG&E and could include input from distribution operations on how useful the availability of DR resources was for distribution operations and what additional processes would be needed to facilitate integration of a large amount of DR into distribution operations.

2.4. Timeline

PG&E will engage an independent evaluator (IE) for assessing the SSP II and XSP pilots. As the fieldwork would not begin until after the pilots conclude, PG&E anticipates that the IE would take no more than 9 months to collect all the necessary data, conduct the assessment and finalize the report.

3. Excess Supply DR Pilot (XSP)

3.1. Background

The XSP is meant to explore how customers can help mitigate situations of excess supply, by shifting their load consumption to align with periods of excess supply and assist with renewables integration by improving alignment of supply and demand. As part of the 2015-2016 DR funding bridge, the Commission approved the XSP in Decision (D.) 14-05-025, and the pilot was initiated in 2016. Since the pilot had been active for less than a year, which did not allow much time for testing, PG&E received approval from the Commission to continue the pilot through 2017 in D.16-06-029 and then from 2018 – 2020 in D.17-12-003.

There is currently no mechanism for bidding load-increasing DR into the CAISO market, resulting in this pilot being an out-of-market program. PG&E has been working with the CAISO and other stakeholders as part of the Energy Storage and Distributed Energy Resource (ESDER) initiative to expand the PDR product to allow DR to provide load-increasing bids in the CAISO market. As part of that initiative work, results of the XSP so far have been used as a basis for proposing how baselines for load increasing bids could be calculated. In addition, the CPUC is assessing similar load increasing capabilities (i.e., Load Shift) as part of the Load Shift Working Group with a targeted report by the end of January 2019.

The XSP is open to non-residential retail customers that want to directly enroll in the pilot as well as third parties that aggregate residential or non-residential retail customer loads (participants). Participants can include PG&E bundled retail customers as well as customers who receive energy procurement services from Community Choice Aggregation or Direct Access providers. Participants in the XSP have the option of either only electing to respond to load increase events or responding to both load increase and decrease events.

PG&E envisions that the XSP ultimately will be a program offering that will assist during excess supply conditions.

3.2. Program Objectives

As stated in PG&E's 2018 – 2022 DR Application Supplemental Testimony⁵, the primary objectives of the XSP are to:

1. Inform the design of a future program by conducting field testing of the actions required from PG&E, customers, and third-party aggregators so that load can be increased when excess supply conditions exist;
2. Assess what triggers, other than CAISO energy market pricing, can be used to call events as early as possible to allow a sufficient amount of time to notify participants of an event;
3. Experiment with compensation methodologies to participants and the interactions with retail rates;
4. Factor the local distribution constraints systematically in the XSP's operations to ensure that, when situations of excess supply occur at the CAISO's Sub Load Aggregation Point level, the actions taken by participants do not create congestion on the distribution system; and
5. Explore baseline methodologies and evaluate whether they lead to an understanding of the performance of a DR resource that is asked to consume more energy.

3.3. Evaluation, Measurement and Verification Metrics

As the pilot proceeds, new standards and metrics may be developed that may also be relevant, therefore the evaluation may include additional assessments that are not included in this document. However, PG&E expects that the evaluation will include the metrics described below (broken out by objective).

Objective 1 deals with participant performance and satisfaction. Similar methods as those outlined to assess participant satisfaction and resource performance in the SSP II pilot would also be applied for the XSP. This includes participant surveys and analysis of resource performance. In addition, to the analysis outlined in the SSP II section, topics specific to load increase and, when applicable, bi-directional dispatches, will be addressed.

Objective 2 deals with investigating if triggers other than those coming from the wholesale economic market are feasible, including triggers that are out-of-market and do not line up with the timelines for

⁵ A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS, Section D, at pp. 2-A2-2 to 2-A2-3 (February 3, 2017).

the wholesale markets. Evaluation would include assessing any of these alternate triggers, particularly looking to answer the following:

- If any events were triggered on timelines that did not align with the wholesale market, was there an impact in customer satisfaction or performance to receiving event notifications at a different timescale?
- Were there specific technologies or customer types that were better able to respond to later dispatches?

Objective 3 explores the potential interaction with the retail bill and pilot participation as well as what role different compensation methodologies have on a participant's decision to enroll in the pilot:

- How successful were customers in avoiding increased demand charges?
- Were there certain customer types or technologies that were better suited for avoiding demand charges?
- Did participants need to rely on the time-of-use (TOU) demand charge offset⁶ offered by the pilot, and if so, what portion of the total incentive each month was due to TOU demand charge offset?
- Do time-of-use demand charge periods better align with periods of excess supply?

Objective 4 is concerned with developing the process for studying the impact of participation in a load increase program on the distribution network. Evaluation will include outlining the study process used in the pilot and identifying possible areas where the process could be streamlined.

Objective 5 is concerned with analysis of methodologies for calculating participant performance. Evaluation would include assessing the impacts of same-day bidirectional DR awards on current wholesale baseline and performance calculations.

3.4. Timeline

PG&E will engage an independent evaluator (IE) for assessing the SSP II and XSP pilots. As the fieldwork would not begin until after the pilots conclude, PG&E anticipates that the IE would need take no more than 9 months to collect all the necessary data, conduct the assessment and finalize the report.

⁶ Pilot participants that are available to increase load during the day (vs. at night) are eligible to receive an additional incentive amount to offset a portion of the incremental time-of-use demand charges incurred due to responding to a load increase event.

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Attachment 2

Redline to Measurement and Verification Plan

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1. Introduction

On January 17, 2017, PG&E filed an application for approval of Demand Response (DR) programs for 2018-2022.¹ Included in this application was a request for PG&E to continue its Supply Side II DR Pilot (SSP II) and Excess Supply DR Pilot (XSP). On February 3, 2017, PG&E filed additional details, including pilot plans, for the SSP II and XSP pilots.² The California Public Utilities Commission (Commission) approved PG&E's application request to continue the SSP II and XSP pilots for 2018 – 2020 (3 years) in D.17-12-003. As a part of that Decision, Ordering Paragraph 39 stated that, "Pacific Gas and Electric Company shall file a Tier 1 Advice Letter no later than 90 days from the issuance of the Decision containing evaluation, measurement and verification metrics based on input by the Demand Response Measurement and Evaluation Committee for both Supply Side II and Excess Supply Side pilots." The evaluation, measurement, and verification metrics for both pilots are outlined below.

2. Supply Side II DR Pilot (SSP II)

2.1. Background

On April 2, 2013, the Commission approved PG&E's Advice Letter 4077-E-B,³ which included approval of the Intermittent Renewable Management Pilot Phase 2 (IRM2). The IRM2 was designed to study the feasibility of demand-side resources to participate into the CAISO wholesale market as Proxy Demand Resources (PDR). Participation in the pilot was limited to larger commercial and industrial customers in the wholesale day-ahead market.

As part of the 2015-2016 DR bridge funding Decision, the Commission approved a continuation and expansion of the IRM2 in D.14-05-025. This continuation, known as the Supply Side DR Pilot (SSP), ran from 2015 through 2016 and expanded the IRM2 by enabling participation in the wholesale real time energy and non-spinning reserve markets for non-residential customers, moving closer to a Resource Adequacy (RA) construct with four-hour bid block requirements, and expanding participation from large commercial and industrial customers to include smaller commercial customers and residential aggregators.

PG&E received approval from the Commission in D.16-06-029 to extend the SSP for an additional year (2017) as the SSP II, and the Commission subsequently approved extending the SSP II for 2018 – 2020 in D.17-12-003. Participants in the SSP II participate in the CAISO wholesale energy market, with an option for smaller participants to participate in a simulated wholesale energy market if they are not able to meet the minimum resource size for a PDR in the wholesale market. In addition to providing CAISO market-based services, the SSP II enables the option for DR resources to be called to address local distribution reliability issues, or simulated issues, for the distribution grid.

¹ A. 17-01-012.

² A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS (February 3, 2017).

³ PG&E submitted Advice Letter 4077-E as well as supplemental advice letters, Advice Letter 4077-E-A and Advice Letter 4077-E-B, in compliance with Ordering Paragraph 80 of Decision (D.) 12-04-045.

The SSP II is open to non-residential retail customers that want to directly enroll in the pilot as well as third parties that aggregate residential or non-residential retail customer loads (participants). Customers can include PG&E bundled retail customers as well as customers who receive energy procurement services from Community Choice Aggregation or Direct Access providers.

The results from the SSP II, in addition to inputs from the DRP (R. 14-08-013) and IDER (R. 14-10-003) proceedings, may be used to inform a proposal for distribution service offerings in future DR programs.

2.2. Program Objectives

PG&E is committed to the integration of DR resources into the CAISO market as a viable economic resource. PG&E is also committed to developing and expanding the role of DR resources in other operational channels like distribution reliability. As stated in PG&E's 2018 – 2022 DR Application Supplemental Testimony⁴, the objectives of the SSP II are:

1. Determine whether customers are willing to be dispatched frequently enough and over the range of hours necessary to meet both local distribution system needs and the Commission and CAISO requirements for DR RA resources;
2. Determine whether it is technically feasible to dispatch DR resources pursuant to requirements for DR RA resources and the CAISO must-offer obligation, while also being dispatched to meet local distribution system needs;
3. Investigate how to operationalize and automate the interactions between wholesale market availability and distribution services availability, including how to make this information more readily available to distribution operations personnel; and
4. Develop a method for dispatching available DR resources based on distribution operational needs.

2.3. Evaluation, Measurement and Verification Metrics

As the pilot proceeds, new standards and metrics may be developed that may also be relevant, therefore the evaluation may include additional assessments that are not included in this document. However, PG&E expects that the evaluation will include the metrics described below (broken out by objective).

Objective 1 is concerned with participant experience and performance. To assess participant experience, the evaluator will survey participants (directly-enrolled customers and aggregators) and, when feasible, end customers enrolled through aggregators as well as parties that expressed interest in the pilot but ultimately decided not to participate. PG&E will work with the evaluator to come up with specific questions and methods, but the information solicited should include how satisfied are participants with various aspects of the program as well as what are some potential program design changes that could improve participant enrollment?

⁴A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS, Section D, at pp. 2-A1-3 to 2-A1-4 (February 3, 2017).

To assess participant performance, interval meter data, resource bid and award data, and energy settlement statements will be used to analyze the performance of DR resources versus forecasted response as well as the specific characteristics of each resource (e.g. number of service agreements in each resource, types of customers in the resource, types of technologies used to respond to the events).

Objective 2 centers around demonstrating the operational feasibility of a resource being used for both wholesale and distribution services, and evaluation of this objective would include the impact of distribution awards on CAISO bids and subsequent settlements as well as the impact of CAISO awards on distribution availability.

Objectives 3 and 4 are concerned with automation and full-scale integration of DR resources into distribution operations. As such, assessment of these objectives centers more around operations and platforms internal to PG&E and could include input from distribution operations on how useful the availability of DR resources was for distribution operations and what additional processes would be needed to facilitate integration of a large amount of DR into distribution operations.

2.4. Timeline

PG&E will ~~engage issue a competitive solicitation to select~~ an independent evaluator (IE) for ~~assessing~~ the SSP II and XSP pilots. ~~As the fieldwork would not begin until after the pilots conclude, PG&E anticipates that the IE would take no more than 9 months to collect all the necessary data, conduct the assessment and finalize the report. For this evaluation to be included in PG&E's mid-cycle review, the evaluation would be targeted for completion by the end of Q2 2020. PG&E expects the evaluation to take at least 6 months to complete, so PG&E anticipates running the solicitation and selecting the evaluator in Q3 2019 so that the evaluation can be started in Q4 2019. PG&E plans to continue operating the pilots during the evaluation period and will incorporate those results, where feasible, into the final analysis.~~

~~The table below summarizes the tentative timeline:~~

Task	Timeline
Solicitation for and Selection of Independent Evaluator (IE)	Q3 2019
IE Evaluation of Pilot	Q4 2019—Q2 2020
IE Releases Evaluation Report	Q2 2020

3. Excess Supply DR Pilot (XSP)

3.1. Background

The XSP is meant to explore how customers can help mitigate situations of excess supply, by shifting their load consumption to align with periods of excess supply and assist with renewables integration by improving alignment of supply and demand. As part of the 2015-2016 DR funding bridge, the Commission approved the XSP in Decision (D.) 14-05-025, and the pilot was initiated in 2016. Since the

pilot had been active for less than a year, which did not allow much time for testing, PG&E received approval from the Commission to continue the pilot through 2017 in D.16-06-029 and then from 2018 – 2020 in D.17-12-003.

There is currently no mechanism for bidding load-increasing DR into the CAISO market, resulting in this pilot being an out-of-market program. PG&E has been working with the CAISO and other stakeholders as part of the Energy Storage and Distributed Energy Resource (ESDER) initiative to expand the PDR product to allow DR to provide load-increasing bids in the CAISO market. As part of that initiative work, results of the XSP so far have been used as a basis for proposing how baselines for load increasing bids could be calculated. In addition, the CPUC is assessing similar load increasing capabilities (i.e., Load Shift) as part of the Load Shift Working Group with a targeted report by the end of January 2019.

The XSP is open to non-residential retail customers that want to directly enroll in the pilot as well as third parties that aggregate residential or non-residential retail customer loads (participants). Participants can include PG&E bundled retail customers as well as customers who receive energy procurement services from Community Choice Aggregation or Direct Access providers. Participants in the XSP have the option of either only electing to respond to load increase events or responding to both load increase and decrease events.

PG&E envisions that the XSP ultimately will be a program offering that will assist during excess supply conditions.

3.2. Program Objectives

As stated in PG&E's 2018 – 2022 DR Application Supplemental Testimony⁵, the primary objectives of the XSP are to:

1. Inform the design of a future program by conducting field testing of the actions required from PG&E, customers, and third-party aggregators so that load can be increased when excess supply conditions exist;
2. Assess what triggers, other than CAISO energy market pricing, can be used to call events as early as possible to allow a sufficient amount of time to notify participants of an event;
3. Experiment with compensation methodologies to participants and the interactions with retail rates;
4. Factor the local distribution constraints systematically in the XSP's operations to ensure that, when situations of excess supply occur at the CAISO's Sub Load Aggregation Point level, the actions taken by participants do not create congestion on the distribution system; and
5. Explore baseline methodologies and evaluate whether they lead to an understanding of the performance of a DR resource that is asked to consume more energy.

3.3. Evaluation, Measurement and Verification Metrics

As the pilot proceeds, new standards and metrics may be developed that may also be relevant, therefore the evaluation may include additional assessments that are not included in this document.

⁵ A. 17-01-012, Supplemental Testimony titled PROPOSED IMPROVEMENTS TO EXISTING PG&E-IMPLEMENTED PROGRAMS AND PILOTS, Section D, at pp. 2-A2-2 to 2-A2-3 (February 3, 2017).

However, PG&E expects that the evaluation will include the metrics described below (broken out by objective).

Objective 1 deals with participant performance and satisfaction. Similar methods as those outlined to assess participant satisfaction and resource performance in the SSP II pilot would also be applied for the XSP. This includes participant surveys and analysis of resource performance. In addition, to the analysis outlined in the SSP II section, topics specific to load increase and, when applicable, bi-directional dispatches, will be addressed.

Objective 2 deals with investigating if triggers other than those coming from the wholesale economic market are feasible, including triggers that are out-of-market and do not line up with the timelines for the wholesale markets. Evaluation would include assessing any of these alternate triggers, particularly looking to answer the following:

- If any events were triggered on timelines that did not align with the wholesale market, was there an impact in customer satisfaction or performance to receiving event notifications at a different timescale?
- Were there specific technologies or customer types that were better able to respond to later dispatches?

Objective 3 explores the potential interaction with the retail bill and pilot participation as well as what role different compensation methodologies have on a participant's decision to enroll in the pilot:

- How successful were customers in avoiding increased demand charges?
- Were there certain customer types or technologies that were better suited for avoiding demand charges?
- Did participants need to rely on the time-of-use (TOU) demand charge offset⁶ offered by the pilot, and if so, what portion of the total incentive each month was due to TOU demand charge offset?
- Do time-of-use demand charge periods better align with periods of excess supply?

Objective 4 is concerned with developing the process for studying the impact of participation in a load increase program on the distribution network. Evaluation will include outlining the study process used in the pilot and identifying possible areas where the process could be streamlined.

Objective 5 is concerned with analysis of methodologies for calculating participant performance. Evaluation would include assessing the impacts of same-day bidirectional DR awards on current wholesale baseline and performance calculations.

⁶ Pilot participants that are available to increase load during the day (vs. at night) are eligible to receive an additional incentive amount to offset a portion of the incremental time-of-use demand charges incurred due to responding to a load increase event.

3.4. Timeline

PG&E will ~~engage~~~~issue a competitive solicitation to select~~ an independent evaluator (IE) for ~~assessing~~ the SSP II and XSP pilots. ~~As the fieldwork would not begin until after the pilots conclude, PG&E anticipates that the IE would take no more than 9 months to collect all the necessary data, conduct the assessment and finalize the report. For this evaluation to be included in PG&E's mid-cycle review, the evaluation would be targeted for completion by the end of Q2 2020. PG&E expects the evaluation to take at least 6 months to complete, so PG&E anticipates running the solicitation and selecting the evaluator in Q3 2019 so that the evaluation can be started in Q4 2019. PG&E plans to continue operating the pilots during the evaluation period and will incorporate those results, where feasible, into the final analysis.~~

The table below summarizes the tentative timeline:

Task	Timeline
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**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T	Downey & Brand	Pioneer Community Energy
Albion Power Company	East Bay Community Energy	Praxair
Alcantar & Kahl LLP	Ellison Schneider & Harris LLP	
	Energy Management Service	
Alta Power Group, LLC	Engineers and Scientists of California	Redwood Coast Energy Authority
Anderson & Poole	Evaluation + Strategy for Social Innovation	Regulatory & Cogeneration Service, Inc.
	GenOn Energy, Inc.	SCD Energy Solutions
Atlas ReFuel	Goodin, MacBride, Squeri, Schlotz & Ritchie	
BART	Green Charge Networks	SCE
	Green Power Institute	SDG&E and SoCalGas
Barkovich & Yap, Inc.	Hanna & Morton	
P.C. CalCom Solar	ICF	SPURR
California Cotton Ginners & Growers Assn	International Power Technology	San Francisco Water Power and Sewer
California Energy Commission	Intestate Gas Services, Inc.	Seattle City Light
California Public Utilities Commission	Kelly Group	Sempra Utilities
California State Association of Counties	Ken Bohn Consulting	Southern California Edison Company
Calpine	Keyes & Fox LLP	Southern California Gas Company
	Leviton Manufacturing Co., Inc. Linde	Spark Energy
Cameron-Daniel, P.C.	Los Angeles County Integrated Waste Management Task Force	Sun Light & Power
Casner, Steve	Los Angeles Dept of Water & Power	Sunshine Design
Cenergy Power	MRW & Associates	Tecogen, Inc.
Center for Biological Diversity	Manatt Phelps Phillips	TerraVerde Renewable Partners
	Marin Energy Authority	Tiger Natural Gas, Inc.
Chevron Pipeline and Power	McKenzie & Associates	
City of Palo Alto		TransCanada
	Modesto Irrigation District	Troutman Sanders LLP
City of San Jose	Morgan Stanley	Utility Cost Management
Clean Power Research	NLine Energy, Inc.	Utility Power Solutions
Coast Economic Consulting	NRG Solar	Utility Specialists
Commercial Energy		
County of Tehama - Department of Public Works	Office of Ratepayer Advocates	Verizon
Crossborder Energy	OnGrid Solar	Water and Energy Consulting Wellhead Electric Company
Crown Road Energy, LLC	Pacific Gas and Electric Company	Western Manufactured Housing Communities Association (WMA)
Davis Wright Tremaine LLP	Peninsula Clean Energy	Yep Energy
Day Carter Murphy		
Dept of General Services		
Don Pickett & Associates, Inc.		
Douglass & Liddell		