PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

November 20, 2013

Advice Letters:
3410-G/4279-E
3410-G-A/4279-E-A

Brian K. Cherry
Vice President, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

SUBJECT: PG&E's Proposed Long Term Probability Model Framework for the CARE program

Dear Mr. Cherry,

Advice Letters 3410-G/4279-E and 3410-G-A/4279-E-A are effective as of October 3, 2013.

Sincerely,

Edward F. Randolph, Director
Energy Division

Brian K. Cherry
Vice President
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Fax: 415.973.7226

September 3, 2013

Advice 3410-G/4279-E
(Pacific Gas and Electric Company ID U 39 M)

Public Utilities Commission of the State of California

Subject: **PG&E's Proposed Long Term Probability Model Framework for the CARE Program**

Pacific Gas and Electric Company ("PG&E") hereby submits for filing its proposed long term probability model framework for the California Alternate Rates for Energy ("CARE") Program, in compliance with Ordering Paragraph ("OP") 95 of Decision ("D.") 12-08-044.

Purpose

The purpose of this filing is to provide the California Public Utilities Commission ("Commission" or "CPUC") with PG&E's proposed CARE long term probability model framework, as required by OP 95 of D. 12-08-044, which specifically states:

> By September 1, 2013, the Investor Owned Utilities ("IOUs") shall design and propose, via a Tier 2 Advice Letter process, a long term probability model framework that incorporates the basic factors required in the interim probability model, including an optimal Post Enrollment and Post Re-certification Income Verification rate tailored to each utility, to cost-effectively identify California Alternate Rates for Energy Program enrollees who have the probability of being ineligible in the program, while tailoring the model to the Utilities' service territory that take into account the basic probability factors, populations and administration costs.

Background

On August 30, 2012, the Commission issued D.12-08-044, the *Decision on Large Investor-Owned Utilities' 2012-2014 Energy Savings Assistance (ESA) and California Alternate Rates for Energy (CARE) Applications.* OP 89 directed the IOUs to immediately begin the development of an interim targeted post enrollment and post re-certification income verification stratified probability model ("Interim Model") that incorporated basic factors as provided in the Decision, as well as any other territory- specific factors, as appropriate.

OP 90 required the IOUs to implement the Interim Model within 60 days of the Decision and to closely track, monitor and review the data from the implementation of the Interim Model and incorporate lessons learned into the design of its long term probability model for review by the Energy Division ("ED"). In its long term probability model proposal, each IOU must set forth justifications based on the lessons learned during the Interim Model implementation.

Pre-Decision Probability Model

In early 2012, prior to the issuance of D. 12-08-044, PG&E contracted with a consultant to develop a predictive CARE Qualification Probability Model ("Pre-Decision Model") to target customers for both Acquisition and Post Enrollment Verification ("PEV") efforts. The model was constructed using data collected via PEV from January 2010 through December 2011. Over 350 variables were used to predict customer CARE qualification, including customer contact and payment patterns, usage, and geographic, demographic and premise information. Logistic regression was leveraged to compute the predicted scores by regressing the candidate's variables against the predictor of PEV approval. Variables found to be highly predictive of CARE qualification were payment patterns, purchase behaviors, and income/social status. The final Pre-Decision Model included the 15 variables shown in Table 1 below.

Table 1
Pre-Decision Model Variables

Model Variable	Variable Importance	Directional Impact *
Pays by Cash	1	Positive
Uses Pay Stations	2	Positive
Tenure with PG&E	3	Negative
Prizm: Lower Class	4	Positive
Enrolled in LIHEAP	5	Positive
Prizm: Upper Class	6	Negative
Presence of Children	7	Positive
Enrolled in FERA	8	Negative
Purchased Appliance in past 24 Months	9	Negative
Zip Code Median Income	10	Negative
Enrolled in BPP	11	Negative
Prizm: Upper Middle Class	12	Negative
Percent Missed Payments	13	Positive
Uses Rebates	14	Negative
Pays via Auto Pay	15	Negative

* Toward CARE eligibility

An algorithm is used to score customers based on predicted CARE qualification. This score is then used to assign customers to a "decile" grouping for Acquisition or PEV targeting, with Decile 1 customers being the most likely eligible for the CARE program, and Decile 10 customers likely ineligible. Non-enrolled CARE customers in Deciles 1 to 3 are generally targeted for Acquisition, and enrolled CARE customers in Deciles 9 to 10 are targeted for PEV. Initial scoring showed 10.6% of CARE customers in Deciles 9 or 10.

The Pre-Decision Model was in effect from May to October 2012. During that time, the annual PEV rate[1] was approximately 10% (74,058 customers). Of the 74,058 customers selected, 38,363 (52%) were initially removed from CARE due to non-response,[2] and 13,362 (18%) were removed from CARE due to being verified as no longer eligible.[3] Of those initially removed due to non-response, 10,700 (29%) eventually provided qualifying documentation and were re-enrolled.

The Pre-Decision Model PEV results, by enrollment method (Categorical Enrollment ("CE") or Income), are shown in Table 2 below.

Table 2
Pre-Decision Model – CARE PEV Results

PEV Status	CE	Income	Total	CE %	Income %	Total %
Approved						
Approved	2,823	19,510	22,333	22.2%	31.8%	30.2%
Re-Enrolled *	2,488	8,212	10,700	19.6%	13.4%	14.4%
Total Approved	**5,311**	**27,722**	**33,033**	**41.8%**	**45.2%**	**44.6%**
Dropped						
Over Income	854	7,657	8,511	6.7%	12.5%	11.5%
Request Drop	662	4,189	4,851	5.2%	6.8%	6.6%
No Response	5,882	21,781	27,663	46.3%	35.5%	37.4%
Total Dropped	**7,398**	**33,627**	**41,025**	**58.2%**	**54.8%**	**55.4%**
Total PEV'd	**12,709**	**61,349**	**74,058**	**100%**	**100%**	**100%**

   * Customers who provided qualifying documentation and were re-enrolled following removal due to non-response (as of August 15, 2013).

Significant PEV improvements were gained with the implementation of the Pre-Decision Model. Almost 25% of CARE customers selected for PEV based on

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[1] Annual PEV rate includes customers selected due to high usage, model score, or random. High usage customers selected during this period were subject to the standard PEV process.
[2] These customers are reflected in the "No Response" and "Re-Enrolled" lines in Table 2.
[3] These customers are reflected in the "Over Income" and "Request Drop" lines in Table 2.

model score (Deciles 9 or 10) were verified as ineligible, compared to 9% of those who were randomly selected.

The approximate expenditures for developing and implementing the Pre-Decision Model were as follows:

- Planning and Development: $70,000
- Maintenance and Data Extraction: $45,000
- On-Going Scoring and Model Analysis: $20,000

Interim PEV Model

OP 89 required the development of an interim stratified probability model for PEV selection, incorporating the following basic factors:

- High Energy Use
- Annual Bill Amount
- Household Size
- PRIZM or Zip Codes
- Enrollment Method
- Previous Customer Ineligibility
- Previous CARE De-Enrollment
- Length of CARE Enrollment
- Length of Time Since Previous Income Verification

PG&E's consultant leveraged the Pre-Decision Model and layered on the additional required factors from OP 89 to develop the Interim Model, which was implemented in November 2012. The Interim Model included the variables shown in Table 3 below.

Table 3
Interim Model Variables

Model Variable	Variable Importance	Directional Impact *
Pre-Decision Model Score	1	N/A
Annual Bill Amount / High Energy Use	2	Negative
Length of CARE Program Enrollment	3	Positive
CARE Enrollment Method	4	Varies
Household Size	5	Varies
Length Since Last PEV	6	Negative
Previously Denied PEV Status	7	Negative
Previously Approved PEV Status	8	Positive
Previously CARE Verified (Non-PEV)	9	Positive
Previously ESA Verified	10	Positive

Previously Denied PEV Status	11	Negative
Previously FERA Verified PEV Status	12	Negative
Previously Dropped PEV Status	13	Negative

* Toward CARE eligibility

Initial scoring using the Interim Model showed 7.9% of CARE customers in Deciles 9 or 10. PG&E has completed PEV results using the Interim Model from November 2012 to April 2013. During that time, the annual PEV rate[4] was approximately 8% (58,705 customers).   Of the 58,705 customers selected, 36,364 (62%) were initially removed from CARE due to non-response,[5] and 6,478 (11%) were removed from CARE due to being verified as no longer eligible.[6] Of those initially removed due to non-response, 5,904 (17%) eventually provided qualifying documentation and were re-enrolled.

The Interim Model PEV results, by enrollment method (CE or Income), are shown in Table 4 below.

Table 4
Interim Model – CARE PEV Results

PEV Status	CE	Income	Total	CE %	Income %	Total %
Approved						
Approved	3,059	12,804	15,863	23.2%	28.1%	27.0%
Re-Enrolled *	1,382	4,522	5,904	10.5%	9.9%	10.1%
Total Approved	**4,441**	**17,326**	**21,767**	**33.7%**	**38.0%**	**37.1%**
Dropped						
Over Income	740	4,065	4,805	5.6%	8.9%	8.2%
Request Drop	346	1,327	1,673	2.6%	2.9%	2.8%
No Response	7,641	22,819	30,460	58.0%	50.1%	51.9%
Total Dropped	**8,727**	**28,211**	**36,938**	**66.3%**	**62.0%**	**62.9%**
Total PEV'd	**13,168**	**45,537**	**58,705**	**100%**	**100%**	**100%**

* Customers who provided qualifying documentation and were re-enrolled following removal due to non-response (as of August 15, 2013).

The Interim Model has not performed as well at identifying ineligible customers as the Pre-Decision Model. Only 15% of CARE customers in Deciles 9 or 10 were verified as ineligible for the program, compared to 25% using the Pre-Decision Model. The Interim Model is also yielding more non-responders than the Pre-

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[4] Annual PEV rate includes customers selected due to high usage, model score, or random. High usage customers selected during this period were subject to the standard PEV process.
[5] These customers are reflected in the "No Response" and "Re-Enrolled" lines in Table 4.
[6] These customers are reflected in the "Over Income" and "Request Drop" lines in Table 4.

Decision Model. Customers in Deciles 9 or 10 using the Interim Model had a PEV non-response rate of 63%, compared to 45% using the Pre-Decision Model. It is unknown what is driving the increase in non-response, but the Interim Model appears to target more customers unable or unwilling to respond. Market data shows that, overall, the non-responders look more like qualified customers than ineligible customers. PG&E will work with its consultant to apply a filter on the Long Term Model that will help prevent potentially non-responsive, qualified customers from being selected for the PEV process. PG&E is also working with its Customer Research and Marketing departments to gather insights and improve the PEV forms and processes in an effort to increase the rate and timeliness in which participants respond to PEV requests.

In general, most of the required inputs helped to differentiate qualified customers from ineligible customers. These include:

- High Energy Use
- Annual Bill Amount
- Household Size
- Enrollment Method
- PRIZM or Zip Codes

Inputs that were not as predictive of qualified versus ineligible customers include:

- Previous Customer Ineligibility[7]
- Previous CARE De-Enrollment
- Length of CARE Enrollment
- Length of Time Since Previous Income Verification

The approximate expenditures from implementing the Interim Model were as follows:

- Planning and Development: $79,500
- Maintenance and Data Extraction: $50,000
- On-Going Scoring and Model Analysis: $17,500

Proposed Long Term Probability Model

PG&E's focus is on implementing a model that does the best job at identifying participants who are highly likely to be ineligible in order to verify them through the PEV process. Conversely, the model will also accurately identify those participants who are likely to be eligible in order to exclude them from the PEV process, making continued CARE enrollment as easy as possible. Based on lessons

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[7] Customers who fail the PEV process or are otherwise determined to be ineligible are required to provide qualifying documentation in order to re-enroll in CARE within the next two years.

learned, PG&E proposes to leverage and enhance the prior models to develop the Long Term Probability Model. The Pre-Decision Model yielded a higher rate of customers verified as ineligible, as well as a lower non-response rate. Building off this model, with some new insights and data sources, PG&E anticipates an even stronger performance.

Enhancements would include:

- Using the annual CARE eligibility estimates to incorporate eligibility and penetration rate data at the zip code level
- Incorporating PG&E credit score data
- Accounting for customers with little Acxiom data through a specialized filter to reduce the non-response rate among potentially qualified customers

The proposed Long Term Probability Model would include the variables shown in Table 5 below.

Table 5
Proposed Long Term Probability Model Variables

Model Variable[8]	Directional Impact *
Pays by Non-Automatic Methods	Positive
Pays in Person	Positive
Zip Code CARE Eligibility Rate	Varies
Zip Code CARE Penetration Rate	Varies
Household Income Below $50k	Positive
# of Late Payment Notices	Positive
Household Income Above $100k	Negative
Pays by Cash	Positive
Education: Graduate School	Negative
Presence of Children	Positive
Home Ownership	Negative
# of Payment Methods	Positive
Age	Positive
PG&E Credit Rating	Negative
Annual Bill Amount / High Energy Use	Negative
CARE Enrollment Method	Varies
Enrolled in BPP	Negative
Household Size	Varies
Tenure with PG&E	Negative
Uses Rebates	Negative
Previous Ineligibility / De-Enrollment	Negative
Length of CARE Enrollment	Positive
Length Since Last PEV	Varies

* Toward CARE eligibility

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[8] The degree of importance for each variable will not be known until the model is implemented.

PG&E will continue to monitor the Long Term Probability Model performance and requests the flexibility to make future enhancements based on lessons learned.

PG&E proposes an annual PEV rate[9] of approximately 9% (around 120,000 customers). The overall rate would be comprised of customers selected as follows:

- Model Score in Deciles 9 or 10 (4% of CARE population)
- Random (1% of CARE population)
- High Usage – above 400% of baseline in any monthly billing cycle (4% of CARE population).

PG&E has determined this rate to be reasonable for the following reasons:

- Model Score – the rate of customers verified to be ineligible is high among those scored in Deciles 9 and 10, and PG&E anticipates that to continue
- Random – a small percentage of randomly selected customers is necessary for model validation, as well as tracking overall program health
- High Usage[10] – as required in D.12-08-044 (OP 101), customers with usage above 400% of baseline in any monthly billing cycle must undergo the high usage PEV process and agree to participate in the Energy Savings Assistance program

Under the proposed PEV rate, PG&E estimates that approximately 6% (around 80,000) of CARE customers would be removed from the program over the course of the first year, and that they are appropriately targeted as likely to be ineligible. A rough estimate of annual subsidy savings under the proposed PEV rate is $130 million over the course of the first year.

The estimated expenditures to implement the proposed Long Term Model are as follows:

- Planning and Development: $25,000
- Maintenance and Data Extraction: $60,000
- On-Going Scoring and Model Analysis: $20,000

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[9] PG&E requests flexibility to adjust the PEV rate over time based on ongoing results and lessons learned.
[10] PG&E began gradual deployment of the new high usage PEV requirements in July 2013.

Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than September 23, 2013, which is 20 days after the date of this filing. Protests must be submitted to:

> 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:

> Brian K. Cherry
> Vice President, Regulatory Relations
> Pacific Gas and Electric Company
> 77 Beale Street, Mail Code B10C
> P.O. Box 770000
> San Francisco, California 94177
>
> Facsimile: (415) 973-7226
> 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 filing become effective on the first day of the month following 30 days from the date of approval.

<u>Notice</u>

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 shown on the attached list and the parties on the service list for A.11-05-017 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 filings can also be accessed electronically at: http://www.pge.com/tariffs

Brian Cherry /KHC

Vice President, Regulatory Relations

cc: Service List A.11-05-017 et al

CALIFORNIA PUBLIC UTILITIES COMMISSION
ADVICE LETTER FILING 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 M)**

Utility type:	Contact Person: <u>Kingsley Cheng</u>
☑ ELC ☑ GAS	Phone #: <u>(415) 973-5265</u>
☐ PLC ☐ HEAT ☐ WATER	E-mail: <u>PGETariffs@pge.com and k2c0@pge.com</u>

EXPLANATION OF UTILITY TYPE	(Date Filed/ Received Stamp by CPUC)
ELC = Electric GAS = Gas PLC = Pipeline HEAT = Heat WATER = Water	

Advice Letter (AL) #: **3410-G/4279-E**   **Tier: 2**

Subject of AL: **PG&E's Proposed Long Term Probability Model Framework for the CARE Program**

Keywords (choose from CPUC listing): <u>Compliance, CARE</u>

AL filing type: ☐ Monthly ☐ Quarterly ☐ Annual ☑ One-Time ☐ Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: <u>D.12-08-044</u>

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

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

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for:

Confidential information will be made available to those who have executed a nondisclosure agreement: ☐ Yes ☐ No

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: _____

Resolution Required? ☐Yes ☑No

Requested effective date: **First day of the month following 30 days from the**   No. of tariff sheets: <u>N/A</u>

date of approval

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

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

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: <u>N/A</u>

Service affected and changes proposed: <u>N/A</u>

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

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

California Public Utilities Commission	**Pacific Gas and Electric Company**
Energy Division	**Attn: Brian Cherry**
EDTariffUnit	**Vice President, Regulatory Relations**
505 Van Ness Ave., 4th Flr.	**77 Beale Street, Mail Code B10C**
San Francisco, CA 94102	**P.O. Box 770000**
E-mail: EDTariffUnit@cpuc.ca.gov	**San Francisco, CA 94177**
	E-mail: PGETariffs@pge.com

PG&E Gas and Electric
Advice Filing List
General Order 96-B, Section IV

1st Light Energy	Division of Ratepayer Advocates	Occidental Energy Marketing, Inc.
AT&T	Douglass & Liddell	OnGrid Solar
Alcantar & Kahl LLP	Downey & Brand	Pacific Gas and Electric Company
Anderson & Poole	Ellison Schneider & Harris LLP	Praxair
BART	G. A. Krause & Assoc.	Regulatory & Cogeneration Service, Inc.
Barkovich & Yap, Inc.	GenOn Energy Inc.	SCD Energy Solutions
Bartle Wells Associates	GenOn Energy, Inc.	SCE
Bear Valley Electric Service	Goodin, MacBride, Squeri, Schlotz & Ritchie	SDG&E and SoCalGas
Braun Blaising McLaughlin, P.C.	Green Power Institute	SPURR
California Cotton Ginners & Growers Assn	Hanna & Morton	San Francisco Public Utilities Commission
California Energy Commission	In House Energy	Seattle City Light
California Public Utilities Commission	International Power Technology	Sempra Utilities
California State Association of Counties	Intestate Gas Services, Inc.	SoCalGas
Calpine	Kelly Group	Southern California Edison Company
Casner, Steve	Linde	Spark Energy
Cenergy Power	Los Angeles Dept of Water & Power	Sun Light & Power
Center for Biological Diversity	MAC Lighting Consulting	Sunshine Design
City of Palo Alto	MRW & Associates	Tecogen, Inc.
City of San Jose	Manatt Phelps Phillips	Tiger Natural Gas, Inc.
Clean Power	Marin Energy Authority	TransCanada
Coast Economic Consulting	McKenna Long & Aldridge LLP	Utility Cost Management
Commercial Energy	McKenzie & Associates	Utility Power Solutions
County of Tehama - Department of Public Works	Modesto Irrigation District	Utility Specialists
Crossborder Energy	Morgan Stanley	Verizon
Davis Wright Tremaine LLP	NLine Energy, Inc.	Water and Energy Consulting
Day Carter Murphy	NRG Solar	Wellhead Electric Company
Defense Energy Support Center	Nexant, Inc.	Western Manufactured Housing Communities Association (WMA)
Dept of General Services	North America Power Partners	