

November 22, 2017

Advice 3881-G-A/5137-E-A

(Pacific Gas and Electric Company ID U 39 M)

Public Utilities Commission of the State of California

Subject: Supplemental: PG&E's 2018 Energy Efficiency Annual Budget Advice Letter in Compliance with Decision 15-10-028, Ordering Paragraph 4

I. Purpose

The purpose of this Supplemental Advice Letter (AL) is to update Pacific Gas and Electric Company's (PG&E's) 2018 Energy Efficiency (EE) Annual Budget Advice Letter submitted on September 1, 2017, in compliance with a request from Energy Division (ED).¹

On October 30, 2017, PG&E received a letter from ED requesting PG&E to file a supplemental to AL 3881-G/5137-E to include new cost effectiveness showings using Cost-effectiveness Tool (CET) version 18.1 with the interim greenhouse gas (GHG) adder adopted in Decision (D.) 17-08-22² and the 2018 goals established in D.17-09-025.³ The letter requested PG&E to include a requested portfolio and budget, plus any "alternative scenarios...to demonstrate possible approaches to improving...portfolio cost-effectiveness."⁴

This Supplemental AL includes PG&E's original portfolio cost-effectiveness showing, updated with the interim GHG adder and D.17-09-025 goals. Additionally, this filing shows alternative illustrative scenarios to demonstrate the types of portfolio changes that could increase PG&E's Total Resource Cost (TRC) cost-effectiveness test results, as requested by ED.

¹ PG&E's AL was submitted in compliance with the *Decision Re Energy Efficiency Goals for 2016 and Beyond* and *Energy Efficiency Rolling Portfolio Mechanics*, D. 15-10-028, Ordering Paragraph (OP) 4.

² *Decision Adopting Interim Greenhouse Gas Adder*

³ *Decision Adopting Energy Efficiency Goals for 2018 – 2030*

⁴ October 30, 2017 Letter from Robert Strauss re: Advice Letter PG&E 3881-G/5137-E.

PG&E requests that the California Public Utilities Commission (CPUC or Commission) approve PG&E's 2018 EE budget as submitted on September 1, 2017.

II. Discussion

A. Budget

PG&E's budget request remains unchanged from its September 1, 2017, AL.⁵ It is included below for reference.

PG&E's 2018 EE Budget of \$400 million is based on PG&E's 2015 portfolio structure approved in *Decision Establishing Energy Efficiency Savings Goals and Approving 2015 Energy Efficiency Programs and Budgets*, the "Funding Authorization" or "FA" Decision (D.14-10-046),⁶ with adjustments to meet 2018 net goals.

⁵ PG&E's budget in the updated California Energy and Data Reporting System (CEDARS) submission is identical with exception of the correction of a \$21k error in EM&V budget. PG&E is not resubmitting Attachment 2 (appendix tables 1-7) because PG&E made no changes.

⁶ D. 14-10-046. As used herein "D.14-10-046" refers to the FA decision as corrected by D.15-01-002 and D.15-01-023. The final Figure 6, "Total Approved Budgets for 2015" appears in D.15-01-023.

Table 1: PG&E Total 2018 Energy Efficiency Budgets⁷

Program Name	2018 Budget (\$)
Residential	55,622,926
Commercial	64,732,629
Agricultural	17,238,326
Industrial	18,155,388
Lighting	11,131,075
Codes & Standards	16,183,839
Financing	17,658,662
Subtotal	200,722,845
Third Party	75,653,627
Government Partnerships	72,368,174
Subtotal	148,021,802
Emerging Technologies	5,629,976
Workforce Education & Training	11,038,180
Statewide DSM	547,921
Subtotal	17,216,076
Subtotal Utility	365,960,723
BayREN ⁸	16,537,000
MCE ⁹	1,586,347
Subtotal Nonutility	18,123,347
Total Programs	384,084,070
Total EM&V¹⁰	16,003,503
Total EE Budget	400,087,573

PG&E's program budget meets the following Commission requirements for EE portfolios: 10% administrative cap, 6% local marketing target, 4% EM&V cap, and the original 20% requirement for third-party programs.¹¹¹²

⁷ Statewide Marketing, Education and Outreach (SW ME&O) funding is requested in a separate Commission proceeding and is not reflected in the Total EE Budget. The portion of SW ME&O allocated to EE is reflected in PG&E's cost-effectiveness calculations.

⁸ BayREN's currently approved 2017 budget of \$16,537,000 is included in PG&E's 2018 EE Budget.

⁹ MCE's currently approved 2017 budget of \$1,586,347 is included in PG&E's 2018 EE Budget.

¹⁰ Total EM&V includes BayREN and MCE EM&V in addition to PG&E EM&V.

¹¹ 10% admin cap requirement based on D. 09-09-047.

¹² Per the *Administrative Law Judges' Ruling Modifying Schedule*, issued June 9, 2017, pp. 5-6, until the adoption of the business plans, the third party requirements previous to D.16-08-019 are in effect.

PG&E's proposed portfolio will meet or exceed its service area goals using a budget below the authorizations approved in the FA Decision. PG&E's 2018 EE budget request is reasonable and should be approved.

B. Goals

PG&E expects to exceed the energy savings goals set by the Commission for 2018 in D. 17-09-025.^{13 14} The goals and PG&E's forecasted savings are shown in Table 2 below. PG&E's forecasted savings remain unchanged from its September 1, 2017, filing. PG&E's forecasted savings as originally filed were high enough to meet the updated goals without changing the forecast.

The adopted energy savings goal for each investor-owned utility (IOU) covers the full IOU service territory.¹⁵ PG&E's goals include savings that may be achieved by BayREN and Marin Clean Energy (MCE); however, PG&E includes only its own energy savings forecast in its 2018 targets, below.

Table 2: PG&E Targets Compared to CPUC Goals

	Electric Savings (GWh/Year)	Peak Savings (MW)	Gas Savings with interactive effects (MM Therms/Year)
Programs (goals set on net basis) ^{16 17 18 19}			
CPUC 2018 Goals	448	84	17
PG&E 2018 Targets	624	162	19.3
<i>% of Goal</i>	139%	193%	114%
Codes & Standards Advocacy (goals set on net basis)			
CPUC 2018 Goals	535	120	14
PG&E 2018 Targets	733	141	14.2
<i>% of Goal</i>	137%	118%	101%

¹³ *Decision Adopting Energy Efficiency Goals for 2018 – 2030 (D. 17-09-025)*

¹⁴ PG&E used net goals as required by D. 16-08-019, Finding of Fact 9, p. 96.

¹⁵ D.15-10-028, p. 8.

¹⁶ Goals set per D.17-09-025.

¹⁷ PG&E used net goals as required by D. 16-08-019, Finding of Fact 9, and p. 96.

¹⁸ Energy Savings Assistance (ESA) program savings are included in the program goals.

¹⁹ PG&E targets do not include market effects.

C. Cost-Effectiveness

Using the CET version 18.1, incorporating the interim GHG adder established in D.17-08-022,²⁰ PG&E forecasts a total portfolio TRC of 1.01 and Program Administrator Cost (PAC) of 1.45 without Codes and Standards (C&S), market effects, or Efficiency Savings and Performance Incentive (ESPI) as shown in Table 3 below.

Table 3: PG&E 2018²¹ Cost-Effectiveness Results

Cost-Effectiveness Scenario	2018 TRC Forecast	2018 PAC Forecast
Total Portfolio without C&S, market effects, and ESPI	1.01	1.45
Total Portfolio with C&S, market effects, and ESPI	1.40	3.73

As detailed in the AL filed on September 1, 2017, PG&E faces structural challenges in forecasting a cost-effective EE portfolio. While PG&E will continue to optimize portfolio cost-effectiveness in 2018 and beyond through portfolio modifications detailed in its Business Plan, challenges remain due to certain structural aspects of California's cost-effectiveness framework. These challenges include subjective rulesets for cost-effectiveness inputs (such as participant cost definitions and net-to-gross (NTG) rules for hard-to-reach (HTR) applications), as well as the application of inputs that embody significant uncertainty (such as the application of uncertain NTG estimates in forecasting). Sections D and E provide more detail on these and other challenges. PG&E respectfully requests that the Commission implement the solutions proposed in PG&E's Business Plan, which are reiterated in Section F.²²

D. Alternative Scenarios

Per ED's request,²³ PG&E developed two alternative portfolio scenarios to meet a 1.25 TRC without C&S, market effects, and ESPI costs.

- Alternative Scenario #1 eliminates all non-resource programs and resource programs with a TRC less than 0.55. Specific details on this scenario are included in Section D.ii.

²⁰ D.17-08-022

²¹ The Cost Effectiveness Tool (CET) v.18.1 was released on September 25, 2017 and is being used to produce CE (cost-effectiveness) outputs by California Energy and Data Reporting System (CEDARS).

²² PG&E's Business Plan, Portfolio Overview chapter, pp. 45-47. Response of Pacific Gas and Electric Company (U 39 M) to Comments on Attachment A of the Scoping Memo and Ruling and to Attachment B Questions, pp. 12-13.

²³ October 30, 2017 Letter from Robert Strauss re: Advice Letter PG&E 3881-G/5137-E.

- Alternative Scenario #2 increases the NTG values to 0.85 for all measures with a NTG less than 0.85. Specific details on this scenario are included in Section D.iii.

In considering these two scenarios, it is important to understand key drivers of the TRC cost-effectiveness test.

i. Key Drivers of TRC

TRC is a ratio of net lifecycle benefits to costs. Importantly, the TRC test includes portfolio (program and administrative) costs and participant costs. Generally, participant costs are one of the most significant drivers in the TRC.

Another significant driver in the TRC are NTG values. NTG values are used to estimate the “free ridership” that may be occurring within programs, or, the degree to which customers would have installed the measure or equipment without the program’s financial incentive (i.e., rebate).²⁴ High participant costs and low NTG values, along with other factors such as low savings, short effective useful lives (EULs), and interactive effects (i.e., negative therms), result in low measure TRCs. These types of measures tend to fall under the following categories: appliances; building shell; heating, ventilation and air conditioning (HVAC); light emitting diodes (LEDs), and plug loads. Table 4 below shows the portion of key measures included in PG&E’s 2018 forecasted portfolio submitted in CEDARS with measure TRC values less than 0.85, the threshold utilized in the 2018 Potential and Goals Study to determine eligible measures for inclusion in the economic potential calculation.²⁵

Table 4. 2018 Forecasted Portfolio Submitted in CEDARS

Measure Category	Percentage of Measures with TRC Below 0.85
Appliances	100%
Building Shell	100%
Plug Load	83%
HVAC	67%
LED	79%

Alternative Scenario #1 illustrates the participant cost issue as well as other factors that impact cost-effectiveness such as NTG. It highlights the trade-offs required to achieve higher portfolio cost-effectiveness within the current cost-effectiveness framework.

Alternative Scenario #2 is designed to illustrate the significance of NTG values in impacting the TRC, and demonstrate a possible future state portfolio as we transition to the new third party (3P) program model under the rolling portfolio.

²⁴ Energy Efficiency Policy Manual v5, p. 19

²⁵ Energy Efficiency Potential and Goals Study for 2018 and Beyond, p. 3.

PG&E's alternative scenarios are illustrative. At this time, PG&E does not recommend adoption of the proposed alternative scenarios in their current forms. PG&E does not believe Alternative Scenario #1 is a viable option, as it would create inequities across customer sectors and likely disrupt market innovation. PG&E recommends the concept of addressing NTG values highlighted in Alternative Scenario #2 be considered for all new 3P programs moving forward.

ii. Alternative Scenario #1: Eliminating Non-Resource Programs and Resource Programs with a TRC Less Than 0.55

Description

For this scenario, PG&E removed all non-resource programs, except for emerging technologies (ET) and C&S non-resource programs.^{26 27} Removing non-resource programs increases the TRC from 1.01 to 1.08, and reduces the budget by approximately \$23 million. To meet a 1.25 TRC without C&S, market effects, and ESPI costs, PG&E removed resource programs until the portfolio TRC exceeded 1.25. This resulted in the removal of twenty resource programs with a TRC less than 0.55, bringing the total budget reduction to approximately \$97 million.

This scenario is suboptimal, and should not be adopted. However, it serves to highlight multiple drivers of TRC and issues with cost-effectiveness.

Table 5: Alternative Scenario #1 Cost-effectiveness

Cost-Effectiveness Scenario	TRC	PAC
Total Portfolio without C&S, market effects, and ESPI	1.27	1.86

²⁶ PG&E retains ET (D.09-09-047) and C&S (D.12-11-015) in this scenario.

Table 6: Alternative Scenario #1 Budget

Program Name	2018 Requested Budget (\$)	Alternative Scenario #1 Budget (\$)
Residential	55,622,926	25,292,640
Commercial	64,732,629	51,741,882
Agricultural	17,238,326	13,913,847
Industrial	18,155,388	16,273,305
Lighting	11,131,075	10,711,690
Codes & Standards	16,183,839	16,183,839
Financing	17,658,662	16,641,013
Subtotal	200,722,845	150,758,217
Third Party	75,653,627	62,075,273
Government Partnerships	72,368,174	54,141,112
Subtotal	148,021,802	116,216,385
Emerging Technologies	5,629,976	5,629,976
Workforce Education & Training	11,038,180	0
Statewide DSM	547,921	0
Subtotal	17,216,076	5,629,976
Subtotal Utility	365,960,723	272,604,577
BayREN ²⁸	16,537,000	16,537,000
MCE ²⁹	1,586,347	1,586,347
Subtotal Nonutility	18,123,347	18,123,347
Total Programs	384,084,070	290,727,924
Total EM&V³⁰	16,003,503	12,113,664
Total EE Budget	400,087,573	302,841,588

Table 7 below shows the forecasted savings for this scenario. PG&E would expect to exceed the goals set by the Commission in this scenario.

²⁸ BayREN's currently approved 2017 budget of \$16,537,000 is included in PG&E's 2018 EE Budget.

²⁹ MCE's currently approved 2017 budget of \$1,586,347 is included in PG&E's 2018 EE Budget.

³⁰ Total EM&V includes BayREN and MCE EM&V in addition to PG&E EM&V.

Table 7: Alternative Scenario #1 Forecasted Savings

	Electric Savings (GWh/Year)	Peak Savings (MW)	Gas Savings with interactive effects (MM Therms/Year)
Programs (goals set on net basis) ^{31 32 33 34}			
CPUC 2018 Goals	448	84	17
Alternative Scenario #1 Savings	587	154	18.3
<i>% of Goal</i>	<i>131%</i>	<i>183%</i>	<i>108%</i>

Alternative Scenario #1 Discussion and Tradeoffs

Alternative Scenario #1 requires PG&E to eliminate non-resource programs, which are fundamental to achieving the Commission's EE goals outlined in California's Long-term EE Strategic Plan and required to support the statewide doubling of EE in existing buildings where cost-effective and feasible.

Elimination of all non-resource programs resulted in a TRC improvement of only 0.07. This illustrates that program costs (administrative, marketing, and direct implementation costs) do not move the needle as much as other factors, including participant costs and NTG.

Alternative Scenario #1 would not allow PG&E to adequately serve the residential sector, as it results in the elimination of eight out of twelve residential programs. Measures and projects in the residential sector typically have higher participant costs relative to energy savings benefits and have lower savings relative to program implementation costs than the non-residential sector. Energy Upgrade California (PGE21004) and Pay for Performance (P4P) (PGE210010) have especially high participant costs.

Low NTG values also contributed to the low TRCs of most of the eliminated residential programs. The weighted average NTG of six of the eliminated residential programs ranged from 0.45 to 0.54, compared with a weighted average NTG of 0.65 for the total remaining portfolio.

This scenario also requires significant reductions in innovative programs such as P4P (PGE210010) and Industrial Strategic Energy Management (SEM) (PGE21030) programs that use Normalized Meter-based Energy Consumption (NMEC). While these

³¹ Goals set per D.17-09-025.

³² PG&E used net goals as required by D. 16-08-019, Finding of Fact 9, and p. 96.

³³ Energy Savings Assistance (ESA) program savings are included in the program goals.

³⁴ PG&E targets do not include market effects.

programs offer potential for capturing more savings and reducing costs, they are especially challenged within the current cost-effectiveness framework. NMEC programs use existing conditions baselines, which require use of full measure cost (FMC), which can, in some cases, be disproportionately high compared to energy savings, resulting in low TRCs.

Additionally, NMEC programs are burdened with carrying program costs in advance of claiming savings, as these programs claim savings ex post (e.g. a year after installation) rather than ex ante (e.g. weeks after installation). In addition to the above challenges which affect both of these programs, SEM also has a significant additional costs associated with in depth trainings, workshops, and other educational components that span one year or more for each participating customer. While these programs are considered important to meeting the state's EE policy objectives, they must be eliminated under a scenario which requires a TRC of 1.25 without C&S, market effects, and ESPI.

On Bill Financing (OBF) Alternative Pathway (PGE210911), which provides financing in lieu of customer rebates, and one of PG&E's high opportunity projects and programs (HOPPs), faces similarly high forecasted participant costs, and thus a low TRC. While OBF Alternative Pathway is a critical program to effectuate one of PG&E's key Business Plan goals – "to reach a greater proportion of customers without proportional budget increases"³⁵ and thus scale EE – it too is eliminated.

Several other market transformational programs were also eliminated in this scenario, including those that target harder-to-reach customers like small-and-medium business and schools (San Francisco (PGE211024) and San Mateo County (PGE211019) programs, and the School Efficiency Program (PGE210112)). For the School Efficiency Program (PGE210112), high participant costs drive down the TRC.

Many programs' cost-effectiveness was impacted by interactive effects (i.e., negative therms). Negative therms occur, for example, when a customer installs an LED light fixture replacing a less efficient fluorescent light fixture. The LED gives off less heat compared to the fluorescent, theoretically causing the customer to use more heating energy. The theoretical increased energy consumption is then factored in as negative savings. This impacts programs which include lighting, plug loads, and appliance measures. For example, San Francisco (PGE211024) was especially impacted by negative therms.

See Attachment 5 for a full list of programs eliminated under Alternative Scenario #1.

PG&E does not recommend this scenario and is not proposing it as a viable solution. Rather it is intended solely to illustrate the trade-offs required, and the structural challenges under the current cost-effectiveness framework.

³⁵ PG&E EE Business Plan, Portfolio Overview Chapter, p. 4

This scenario was created under significantly tight time constraints. PG&E would require more time to understand the full range of ramifications and operational considerations that would be created by this scenario.

Additionally, in the allotted time for this supplemental filing, PG&E was not able to conclusively and comprehensively determine and verify all of the possible factors that contribute to the low cost-effectiveness for specific programs and measures. Because the TRC is a function of multiple inputs that vary by measure, including gross savings, load shape, climate zone, building type, NTG, measure cost, measure life, installation or realization rates, a comprehensive sensitivity analysis of the relative impact of measure inputs on measure TRC would be required to determine the magnitude of impact on cost-effectiveness of specific inputs.

iii. Alternative Scenario #2: “The Power of NTG” - Increasing NTG Values to 0.85

Description

In this scenario, PG&E’s program portfolio and budget as filed on September 1, 2017, and shown in Table 1 are held constant. Rather, PG&E increased the NTG values for all measures with a NTG less than 0.85 to 0.85. This scenario is designed to illustrate how NTG significantly drives program and portfolio TRC. Additionally, this scenario is meant to demonstrate the need to offer new third party (3P) programs launched under the rolling portfolio a “clean slate” and level playing field to ensure their success under the new EE program model.

Table 8: Alternative Scenario #2 Cost-Effectiveness

Cost-Effectiveness Scenario	TRC	PAC
Total Portfolio without C&S, market effects, and ESPI	1.26	2.00

Table 9: Alternative Scenario #2 Forecasted Savings

	Electric Savings (GWh/Year)	Peak Savings (MW)	Gas Savings with interactive effects (MM Therms/Year)
Programs (goals set on net basis) ^{36 3738 39}			
CPUC 2018 Goals	448	84	17
Alternative Scenario #2 Savings	776	186	25.5
<i>% of Goal</i>	173%	222%	150%

Alternative Scenario #2 Discussion

As discussed above, NTG plays a critical role in the TRC test. PG&E used its current portfolio to demonstrate the impacts of NTG on program and portfolio cost-effectiveness. As shown in Table 8, updating NTG values below 0.85 to 0.85 would increase the TRC of PG&E's proposed portfolio from 1.01 to 1.26, a dramatic increase in cost-effectiveness due solely to the NTG assumptions.

While PG&E is not recommending that all of its current programs be reassigned a default NTG value of 0.85, PG&E requests that the Commission consider applying a default NTG of 0.85 for all new 3P programs launched as part of the forthcoming competitive solicitations under the rolling portfolio. This approach allows new 3P programs a clean slate, unburdened from legacy NTG values that likely are inappropriate for new innovative program designs and out-of-date.

PG&E makes this recommendation because, in most cases, the current application of NTG ratios is based on EM&V impact evaluations done at the measure-level, discounting specific programmatic and/or delivery channel influence. Under the rolling portfolio, PG&E recommends that EM&V impact evaluations focus on specific programs, rather than measures. In this way, all new 3P programs launch with a default 0.85 NTG ratio, which stays constant until such a time that the 3P program undergoes an EM&V impact evaluation. Otherwise, new 3P programs will be saddled with NTG values that are misaligned with their program design, skewing the program's cost-effectiveness and threatening their survival.

Additionally, PG&E requests that the Commission reconsider the application of existing NTG values to new portfolio programs and/or measures as they likely do not reflect the unique program characteristics of new programs.

³⁶ Goals set per D.17-09-025.

³⁷ PG&E used net goals as required by D. 16-08-019, Finding of Fact 9, and p. 96.

³⁸ Energy Savings Assistance (ESA) program savings are included in the program goals.

³⁹ PG&E targets do not include market effects.

Seventy-five percent of measures in PG&E's forecasted 2018 portfolio are based on NTG estimates from 2011 Database for Energy Efficiency Resources (DEER) that were derived from the evaluation of EE activities during the 2006-2008 program cycle.⁴⁰ The application of NTG values for programs and measures offered ten years ago to new 3P programs should be strongly reconsidered.

Indeed, the 2011 DEER Update report narrative acknowledges that the adopted 2006-2008 NTG values would change over the years subsequent to the report's 2011 release. The report suggested changes in policy, codes, business trends, rebate levels, incremental costs, and program design or sales channel would likely impact future NTG values.⁴¹ Many, if not most, of these policy, market, and programmatic changes have occurred since 2011, and will continue to occur throughout the rolling portfolio. Therefore, NTG values should account for varying design elements (e.g., specific efficiency tiers, incentives, outreach strategies etc.), and should be aligned with the relevant program population.

An example of the outdated NTG value is the current residential default of 0.55. According to the 2018 DEER,⁴² the residential default NTG value of 0.55 was sourced from the 2011 DEER Update Report.⁴³ The 2011 DEER Update report indicates that the default residential NTG value of 0.55 was based on the average residential NTG found in the 2006-2008 EE program evaluation.⁴⁴ A key input into the average residential NTG from the 2006-2008 impact evaluation was a NTG estimate of 0.54 for residential upstream CFLs, which are no longer included in the PG&E portfolio.

As such, PG&E finds that program participants sampled for the 2006-2008 impact evaluations, which are foundational to the NTG values still in use today, likely are not representative of today's program participants, and certainly not tomorrow's new 3P program participants. Significant differences exist in measure types, measure efficiency levels, rebate levels, program design, and other factors between current and future programs and the 2006-2008 programs. Thus, PG&E requests the Commission consider the appropriateness of using outdated NTG values for new 3P programs moving forward.

⁴⁰ NTG support table downloaded from READI v.2.4.7 for DEER 2018, file name SupportTable_NTG.csv. The "Documentation" column R cites the source for NTG values, including the 2011 DEER Update Documentation. The NTG ID in column B of this file can be used to identify NTG values associated with measures included in PG&E's 2018 portfolio forecast. The 2011 DEER Update Documentation details the use of 2006-2008 impact evaluation results.

⁴¹ DEER Database: 2011 Update Documentation, accessible at http://deeresources.com/files/DEER2011/download/2011_DEER_Documentation.pdf

⁴² NTG support file for READI v.2.4.7

⁴³ DEER 2018 describes the residential default NTG value of 0.55 as applicable to "all other EEM with no evaluated NTGR; existing EEM with same delivery mechanism for more than 2 years"

⁴⁴ 2011 DEER Update report page ES-9, accessible at http://deeresources.com/files/DEER2011/download/2011_DEER_Documentation.pdf

E. Cost-Effectiveness Challenges

Current Cost-Effectiveness Challenges

Challenges exist in forecasting a cost-effective EE portfolio due to certain structural aspects of California's cost-effectiveness framework. These key structural features of the cost-effectiveness framework include subjective rulesets for cost-effectiveness inputs and the application of inputs that embody significant uncertainty, both of which are within the Commission's control. PG&E respectfully requests that the Commission consider its approach to these aspects of the cost-effectiveness framework in light of their impact on program and portfolio cost-effectiveness, redoubling efforts to use objectivity in developing rulesets for cost-effectiveness inputs. In addition to these structural aspects, there are also market-based challenges (e.g., changes to avoided costs) outside of EE industry control that present challenges in cost-effective forecasting. The structural challenges with the cost-effectiveness framework and market-based challenges are discussed in the following sections.

Cost-Effectiveness Framework Challenges

Three examples within the cost-effectiveness framework demonstrate the subjective rulesets for cost-effectiveness inputs and the application of inputs that embody significant uncertainty. These examples are participant cost definitions, NTG rules for HTR applications, and the application of uncertain NTG estimates in forecasting.

First, participant costs in the TRC analysis are required to include both energy and non-energy benefits. Including measure costs attributable to non-energy benefits such as comfort and other improvements unnecessarily reduces the cost-effectiveness of EE measures and programs. Second, the rules for applying HTR NTG values are subjective and overly restrictive. As noted in Resolution G-3510 Finding 14, the definition of HTR customers and subsequent NTG assumptions for their projects warrants further study.⁴⁵ The current definition of HTR and its application to NTG assignments does not appear to be based on a current nor comprehensive study of the impact of delivery type or customer demographics such as geography, socio-economic status, language, and other factors. Third, the NTG estimates applied in the TRC calculation carry significant uncertainty from insufficient decision-making documentation, unreliable self-report evaluation methods, and other sources. The uncertainty of NTG estimates was discussed extensively at the Informal NTG Workshop (July 19, 2017, CPUC), where panelists and attendees discussed multiple sources of potential measurement bias and uncertainty. Additionally, as noted in Alternative Scenario #2, many of the current NTG estimates date back to 2006-2008, which is problematic as we move to the new rolling portfolio program model.

⁴⁵ Resolution G-3510, Finding 14.

Another noteworthy challenge to forecasting cost-effectiveness within the existing framework is the current forecast duration of a single year instead of multiple years.⁴⁶ Multi-year programs that are currently under development may include forecasted costs but low or no benefits in the first year, which impacts annual cost-effectiveness forecasts. For example, PG&E has multiple subprograms in its 2018 portfolio, including Residential P4P (PGE210010) and Industrial SEM (PGE2103), which are in the development phase, and thus include costs for 2018, but low or no benefits. Once these subprograms ramp up, they will deliver benefits beyond 2018, and contribute positively to cost-effectiveness forecasts. However, since the complete program benefits are not reflected in the first-year view, PG&E's 2018 cost-effectiveness forecast is impacted.

Lastly, the energy savings goals that guide portfolio efforts do not fully reflect the cost-effectiveness standards the utilities are required to meet. The 2018 Potential and Goals Study used a TRC threshold of 0.85 to determine eligible measures for inclusion in the economic potential calculation.⁴⁷ Depending on the average TRC of measures included in the study, the total energy savings potential calculated may not align with portfolio offerings that are both realistic and enable a portfolio TRC of 1.0, let alone a TRC of 1.25. Thus, goals derived from the study may inherently overstate the amount of achievable cost-effective energy savings.

Market-Based Challenges

Two major market-based factors are driving diminished portfolio cost-effectiveness compared with previous years. The first factor is the new, lower avoided generation costs in the CET that have resulted in a substantial decrease in benefits.

The second major market-based factor driving diminished portfolio cost-effectiveness is the transition from highly cost-effective, high-volume deemed "widget-based" measures (e.g. compact fluorescent lights (CFLs)) to more comprehensive and expensive projects leading to higher participant costs. This transition has been fueled by changes in market and energy savings potential. PG&E has capitalized on the most cost-effective "low-hanging fruit" measures in past years that are no longer viable due to market saturation, reduced energy savings potential, and/or other market changes. The remaining savings opportunities are captured through multi-faceted programs with higher implementation and/or measure costs. As noted above, measure costs are a significant driver in the TRC calculation – high measure costs relative to energy savings result in lower TRCs.

PG&E respectfully requests that the Commission act on the opportunities to improve cost-effectiveness that are within the Commission's control, which are detailed in the following section.

⁴⁶ Prior to the Rolling Portfolio, PAs forecasted 3-year portfolio cycles, which allowed for a longer-term view of cost-effectiveness projections.

⁴⁷ Energy Efficiency Potential and Goals Study for 2018 and Beyond, p. 3.

F. Recommended Policy Changes: Opportunities to Improve Portfolio Cost-Effectiveness

PG&E's Business Plan proposes solutions to address the challenges with the cost-effectiveness framework identified above and improve the cost-effectiveness of EE portfolios moving forward.⁴⁸ PG&E recommends the Commission modify its current cost-effectiveness protocols to provide PAs with the ability to accelerate adoption of new technologies, support deep retrofits, and offer a broad portfolio of programs. Specifically, PG&E recommends that the Commission:

1. Review participant cost inputs in the TRC calculations to exclude non-energy related costs in some cases.
2. Allow EULs in excess of the current 20-year limit to encourage long-term measure installations.
3. Include C&S advocacy savings in the evaluation of program portfolio cost-effectiveness, as well as total portfolio cost-effectiveness.
4. Exclude costs from non-resource program areas that most stakeholders would agree provide significant benefits, but for which benefits have not been quantified (e.g., WE&T), as is currently done for Emerging Technologies.
5. Update savings calculations in the DEER to reflect current system peak hours.
6. Revisit the definition of HTR NTG based on a comprehensive study of the impact of delivery type and customer demographics, including geography, socio-economic status, language, and other factors.
7. Revisit the process for adopting NTG estimates to ensure all NTG estimates are rationalized using applicable evaluation data. Unreliable NTG estimates can significantly skew cost-effectiveness results.
8. Assign a default NTG value of 0.85 to all new 3P programs launched under the rolling portfolio

Conclusion

PG&E respectfully requests that the Commission approve PG&E's 2018 EE budget as requested and implement PG&E's proposed policy changes to address the challenges with the cost-effectiveness framework.

Protests

PG&E asks that the Commission, pursuant to GO 96-B, General Rule 7.5.1, maintain the original protest and comment period designated in Advice 3881-G/5137-E and not reopen the protest period as the information in this advice letter reflects the direction of Energy Division.

⁴⁸ PG&E's Business Plan, Portfolio Overview chapter, pp. 45-47. Response of Pacific Gas and Electric Company (U 39 M) to Comments on Attachment A of the Scoping Memo and Ruling and to Attachment B Questions, pp. 12-13.

Effective Date

PG&E requests that this Tier 2 advice filing become effective on January 1, 2018.

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 shown on the attached list and the parties on the service lists for R.13-11-005, A.17-01-013 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/>.

_____/S/

Erik Jacobson
Director, Regulatory Relations

Attachments

- Attachment 1 – CEDARS Filing Confirmation
- Attachment 5 – List of Eliminated Programs in Alternative Scenario #1

cc: Peter Franzese, Energy Division
Service List R.13-11-005
Service List A.17-01-013 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:

ELC

GAS

PLC

HEAT

WATER

Contact Person: Yvonne Yang

Phone #: (415) 973-2094

E-mail: QXY1@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

(Date Filed/ Received Stamp by CPUC)

ELC = Electric

GAS = Gas

PLC = Pipeline

HEAT = Heat

WATER = Water

Advice Letter (AL) #: **3881-G-A/5137-E-A**

Tier: 2

Subject of AL: **Supplemental: PG&E's 2018 Energy Efficiency Annual Budget Advice Letter in Compliance with Decision 15-10-028, Ordering Paragraph 4**

Keywords (choose from CPUC listing): Compliance, Energy Efficiency

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

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.15-10-028

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: _____

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

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: January 1, 2018

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 proposed: N/A

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

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

Energy Division

EDTariffUnit

505 Van Ness Ave., 4th Flr.

San Francisco, CA 94102

E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company

Attn: Erik Jacobson

Director, Regulatory Relations

c/o Megan Lawson

77 Beale Street, Mail Code B13U

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

Advice 3881-G-A/5137-E-A
November 22, 2017

Attachment 1

CEDARS Filing Confirmation

CEDARS FILING SUBMISSION RECEIPT

The PGE portfolio filing has been submitted and is now under review. A summary of the filing is provided below.

PA: Pacific Gas & Electric (PGE)

Filing Year: 2018

Submitted: 10:56:02 on 20 Nov 2017

By: Wilson Wong

Advice Letter Number: 3881-G/5137-E

* Portfolio Filing Summary *

- TRC: 1.4038
- PAC: 3.7347
- TRC (no admin): 1.8296
- PAC (no admin): 9.8101
- RIM: 0.5685
- Budget: \$367,709,086.30

* Programs Included in the Filing *

- PGE21001: Residential Energy Advisor
- PGE210010: Pay for Performance Pilot
- PGE210011: Residential Energy Fitness program
- PGE21002: Plug Load and Appliances
- PGE21003: Multifamily Energy Efficiency
- PGE21004: Energy Upgrade California
- PGE21005: Residential New Construction
- PGE21006: Residential HVAC
- PGE21007: California New Homes Multifamily
- PGE21008: Enhance Time Delay Relay
- PGE21009: Direct Install for Manufactured and Mobile Homes
- PGE21011: Commercial Calculated Incentives
- PGE210112: School Energy Efficiency
- PGE210119: LED Accelerator
- PGE21012: Commercial Deemed Incentives
- PGE210123: Healthcare Energy Efficiency Program
- PGE21013: Commercial Continuous Energy Improvement

- PGE210135: Water Infrastructure and System Efficiency
- PGE210139: SEI Energize Schools Program
- PGE21014: Commercial Energy Advisor
- PGE210143: Hospitality Program
- PGE21015: Commercial HVAC
- PGE21018: EnergySmart Grocer
- PGE21021: Industrial Calculated Incentives
- PGE210210: Industrial Recommissioning Program
- PGE210211: Light Industrial Energy Efficiency
- PGE210212: Compressed Air and Vacuum Optimization Program
- PGE210213: Small Petrochemical Energy Efficiency
- PGE21022: Industrial Deemed Incentives
- PGE21023: Industrial Continuous Energy Improvement
- PGE21024: Industrial Energy Advisor
- PGE21025: California Wastewater Process Optimization
- PGE21026: Energy Efficiency Services for Oil Production
- PGE21027: Heavy Industry Energy Efficiency Program
- PGE21029: Refinery Energy Efficiency Program
- PGE21030: Industrial Strategic Energy Management
- PGE21031: Agricultural Calculated Incentives
- PGE210311: Process Wastewater Treatment EM Pgm for Ag Food Processing
- PGE210312: Dairy and Winery Industry Efficiency Solutions
- PGE21032: Agricultural Deemed Incentives
- PGE21033: Agricultural Continuous Energy Improvement
- PGE21034: Agricultural Energy Advisor
- PGE21036: Industrial Refrigeration Performance Plus
- PGE21039: Comprehensive Food Process Audit & Resource Efficiency Pgm
- PGE21041: Primary Lighting
- PGE21042: Lighting Innovation
- PGE21043: Lighting Market Transformation
- PGE21051: Building Codes Advocacy
- PGE21052: Appliance Standards Advocacy
- PGE21053: Compliance Improvement
- PGE21054: Reach Codes
- PGE21055: Planning and Coordination
- PGE21056: Code Readiness
- PGE21061: Technology Development Support
- PGE21062: Technology Assessments
- PGE21063: Technology Introduction Support
- PGE21071: Centergies
- PGE21072: Connections
- PGE21073: Strategic Planning

- PGE21081: Statewide DSM Coordination & Integration
- PGE21091: On-Bill Financing (excludes Loan Pool)
- PGE210911: On-Bill Financing Alternative Pathway
- PGE21091LP: Financing Loan Pool Addition
- PGE21092: Third-Party Financing
- PGE21093: New Financing Offerings
- PGE2110011: California Community Colleges
- PGE2110012: University of California/California State University
- PGE2110013: State of California
- PGE2110014: Department of Corrections and Rehabilitation
- PGE2110051: Local Government Energy Action Resources (LGEAR)
- PGE2110052: Strategic Energy Resources
- PGE211007: Association of Monterey Bay Area Governments (AMBAG)
- PGE211009: East Bay
- PGE211010: Fresno
- PGE211011: Kern
- PGE211012: Madera
- PGE211013: Marin County
- PGE211014: Mendocino/Lake County
- PGE211015: Napa County
- PGE211016: Redwood Coast
- PGE211018: San Luis Obispo County
- PGE211019: San Mateo County
- PGE211020: Santa Barbara
- PGE211021: Sierra Nevada
- PGE211022: Sonoma County
- PGE211023: Silicon Valley
- PGE211024: San Francisco
- PGE211025: Savings by Design (SBD)
- PGE211026: North Valley
- PGE211027: Sutter Buttes
- PGE211028: Yolo
- PGE211029: Solano
- PGE211030: Northern San Joaquin Valley
- PGE211031: Valley Innovative Energy Watch (VIEW)
- PGE_EMV: Evaluation Measurement and Verification
- PGE_ESA: Energy Savings Assistance
- PGE_ESPI: Energy Savings Performance Index
- PGE_SWMEO: Statewide Marketing Education and Outreach

Attachment 5

List of Eliminated Programs in Alternative Scenario #1

Attachment #5: List of Eliminated Programs in Alternative Scenario #1

Sector	Program ID	Description	Resource/Non-Resource
Residential	PGE210010	Pay for Performance Pilot	Resource
Residential	PGE210011	Residential Energy Fitness Program	Resource
Residential	PGE21003	Multifamily Energy Efficiency	Resource
Residential	PGE21004	Energy Upgrade California	Resource
Residential	PGE21005	Residential New Construction	Resource
Residential	PGE21006	Residential HVAC	Resource
Residential	PGE21007	California New Homes Multifamily	Resource
Residential	PGE21008	Enhance Time Delay Relay	Resource
Commercial	PGE210112	School Energy Efficiency	Resource
Commercial	PGE21014	Commercial Energy Advisor	Resource
Commercial	PGE21015	Commercial HVAC	Resource
Agricultural	PGE21034	Agricultural Energy Advisor	Resource
Industrial	PGE210211	Light Industrial Energy Efficiency	Resource
Industrial	PGE21024	Industrial Energy Advisor	Resource
Industrial	PGE21029	Refinery Energy Efficiency Program	Resource
Industrial	PGE21030	Industrial Strategic Energy Management	Resource
Financing	PGE21092	Third-Party Financing	Resource
Financing	PGE210911	On Bill Financing Alternative Pathway	Resource
Government Partnerships	PGE211019	San Mateo County	Resource
Government Partnerships	PGE211024	San Francisco	Resource
Commercial	PGE21013	Commercial Continuous Energy Improvement	Non-Resource
Commercial	PGE210139	SEI Energize Schools Program	Non-Resource
Commercial	PGE21042	Lighting Innovation	Non-Resource
Commercial	PGE21043	Lighting Market Transformation	Non-Resource
Agricultural	PGE21033	Agricultural Continuous Energy Improvement	Non-Resource
Industrial	PGE21023	Industrial Continuous Energy Improvement	Non-Resource
Government Partnerships	PGE2110052	Strategic Energy Resources	Non-Resource
Statewide Demand-side Management	PGE21081	Statewide DSM Coordination & Integration	Non-Resource
Workforce Education and Training	PGE21071	Centergies	Non-Resource
Workforce Education and Training	PGE21072	Connections	Non-Resource
Workforce Education and Training	PGE21073	Strategic Planning	Non-Resource

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

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