

## **Pacific Gas and Electric Company**

Pursuant to the requirements of Senate Bill (SB) 695, which was codified into Public Utilities Code Section 748, Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide its annual study and report to the California Public Utilities Commission (CPUC or Commission) on measures PG&E recommends be taken to limit costs and rate increases.

This report includes:

- A summary report and recommendations to the CPUC and Legislature to reduce utility costs and rates;
- A description of PG&E's overall rate policies;
- A discussion of PG&E's management control of rate components;
- A discussion of PG&E's policies and recommendations for limiting costs and rate increases while meeting the state's energy and environment goals for
- reducing greenhouse gases;
- A description of gas and electric rate components; and
- A schedule of PG&E's filings that may affect rates in 2018 and beyond.

### **1. Summary of Report and Recommendations to CPUC and Legislature to Reduce Utility Costs and Rates**

PG&E knows how important it is to our customers that we keep monthly electricity and gas costs affordable while maintaining safe and reliable service. In addition to mitigating cost pressures, within the framework for the allocation of costs and rate design mandated by the California Legislature (Legislature) and the CPUC, PG&E seeks to equitably allocate costs among its customers based on cost-of-service principles. Crafting equitable allocation rules for revenue requirements among and within customer classes poses challenges, in part due to rate designs mandated by law and the need to collect revenues to fund programs that benefit a specific set of customers but are paid for by nonparticipating customers (where that allocation among customers may in some cases also be mandated by law).

Since the issuance of Decision (D.)15-07-001, the energy sector in California has seen rapid changes, including: technology innovations, new market entrants and expanded customer choice. Further, the state has continued to deepen efforts consistent with its vision for a clean electric future for California that may include a path to a 100 percent greenhouse gas (GHG) free electricity future (as evidenced by the near-passage of Senate Bill 100 in 2017). Critical to this future is a robust electric network that enhances reliability and safety, is affordable, and allows all Californians to equitably benefit from and finance this clean energy future.

As California approaches a time in which nearly all electrons are green and the "average" electric customer becomes harder to define, enhancing and maintaining the network that delivers those green electrons to all Californians becomes more and more important. To support this clean electricity future, in which customers have more choice than they had in the past, the rate architecture needs to continue to evolve and ultimately transition to a structure under which customers pay for the network separately

from paying for the electrons. Great progress has been made in California over the past five plus years through the Commission's leadership on residential rate reform. Reducing the emphasis on tiered pricing and beginning the gradual transition toward more cost-based TOU rates are two significant accomplishments thus far in the Commission's Residential Rate Reform proceeding.

However, despite these efforts, current rate design, and particularly residential rate design, is still lagging, as clean energy policy and technology continue to advance and customers have new options and choices for electricity commodity services. As a result, PG&E believes more needs to be done to create a sustainable rate design framework. Appropriate rate designs that ensure (1) that there are ample resources to meet the state's policy and planning goals, (2) that legacy resources still needed on the system are able to remain operational, and (3) that cost recovery guarantees are upheld for resources no longer needed on the system, are all critical to meeting California's energy policy goals. Questions such as "Who receives benefit from a particular resource?", "Who should pay for a particular resource?", and "What level of credit is appropriate for a customer who can offset some (though likely not all) of the services provided by central generation?" are becoming increasingly more complicated to answer.

PG&E sees several fundamental challenges with the current path. First, relying almost exclusively on undifferentiated volumetric rates (specifically, not unbundled rates), even if differentiated by time-of-use, is not sustainable, as it does not reflect the way the actual cost structure scales. Second, rates should not be designed to serve special interests through regulatory arbitrage, but rather should be designed for all customers. Third, relying on undifferentiated rates to ensure cost recovery and send price signals, while also including incentives to promote specific favored technologies, is overly complex and fundamentally contradicts cost of service rate design principles. In short, rates should be designed to charge customers based on the cost to serve them, while any compensation provided to customers that causes rates to differ from cost of service should be independent from the cost based rate to ensure it is both transparent and measurable.

### ***New Rate Architecture Framework***

To address the challenges outlined above, PG&E proposes a future rate architecture that allows unbundled, differentiated rates to enable separation of payment for the grid, customer services, and the actual electrons, while continuing to fund mandated energy policies and ensuring customers pay their fair share of any historic costs PG&E has incurred on their behalf. This rate architecture also incorporates a structure that ensures all customers: (1) pay for the services they receive; (2) are able to access any benefits that should rightfully be allocated to them; (3) have visibility into additional costs or discounts they pay or receive; and (4) cannot arbitrage or bypass certain costs. In sum, to both continue to encourage the current transformation and implement California's clean energy policies, four key issues must be addressed:

- Ensure a safe and reliable electric system through cost recovery and access to financing for electric distribution infrastructure and legacy procurement;
- Offer customers choice through rate options;

- Support and enable new technologies and advance the state's clean energy goals.

To address the four key issues above, PG&E believes the products and services are not differentiated in current rates and considering further differentiation must be considered so that an overarching vision of rate options and pricing structures can be established. The first step is to realign and streamline rate components, which creates consistency of cost and benefit allocation for customer-driven, resilient cost recovery and minimizes, and makes more transparent, any cost shifts or cross-subsidies.

To enable rate design to progress with the changing electric market, PG&E proposes a new rate architecture. This rate architecture is consistent with the CPUC's rate design principles proposed in the Residential Rate Reform proceeding, Rulemaking (R.)12-06-013, and then adopted by the CPUC in D.14-06-029. Objectives of the new rate architecture can be summarized as follows:

- Ensuring transparent and complete cost recovery;
- Making utility services, product lines, and customer segments more understandable to customers; and
- Continuing to enable customer choice.

Separating charges for costs incurred by the utility from compensation to customers for services they provide to the utility is essential to avoid confusing price signals and customer arbitrage.

PG&E's conceptual framework for future rate architecture re bundles rates based on specific utility functions:

1. Energy: Generation and supply of the commodity, including capacity and state-mandated renewable attributes, are included in this function;
2. Services: Meter installation, metering and billing services, customer service, conservation and energy efficiency advice and emergency response are examples of services provided by electric utilities to customers and included in this function;
3. Access: Delivery of energy to the customer, including both distribution and transmission level access, and receive energy from customer owned generation or storage sources are both included in this function; and
4. Policy: Implementing state policy for socio-economic justice (e.g., California Alternative Rates for Energy (CARE)), meeting mandates that are not required for all load serving entities but that benefit all electric customers (e.g., Biomass Renewable Auction Mechanism (BioRAM)), and making payments for explicit subsidies the state sets to support achievement of its goals (e.g., Net Energy Metering (NEM) payments) are examples of the types of programs or transactions included in this function.

In addition to the utility functions listed above, there is a fifth function associated with legacy costs incurred by the utilities for previous policy requirements. While some of these costs may come from a bygone era, they have helped California get to where it is today as one of the clean energy leaders in the world. By thinking of these costs in their

own function category, the state can transition to a future while recognizing previous commitments the utilities made to advance California policy. Accordingly, PG&E refers to this function as Transition.

Within each of these functions are costs that are incurred by customers and, potentially, benefits that are paid to customers for services provided. This rate architecture allows for explicit and transparent tracking of actual costs (fixed and variable) that relate to each function. The framework allows for the clearer tracking and allocation of costs incurred by some customers to provide benefits to the utility, as well as any compensation due to customers for benefits or services they provide to the utility. Critical to the success of the rate architecture is categorizing embedded costs associated with each function and ensuring costs recovered for each function only apply to that function. In application, each function effectively becomes a rate and billing component with some components potentially being offered by third parties and not the incumbent utility. In the even a particular function, such as energy, is offered by a third party, the rate architecture framework allows for an apples-to-apples comparison of the third party's and the incumbent IOU's pricing.

At its core, the rate architecture vision outlined here will provide the structure for the state of California to think through the key questions of "Who is benefiting?," "Who should pay?," and "Who should receive a credit?" in the ever-evolving California energy landscape. PG&E recommends adopting this framework in all rate design and rate reform proposals.

To bring this rate architecture to life, PG&E specifically recommends addressing current rate design challenges within the framework of this rate architecture. These challenges are:

1. Rate structure and compensation for Net Energy Metering (NEM) .
2. High Energy Use tier for residential rates.
3. Fixed charges recovered through volumetric rates.
4. Seasonal bill volatility.

### ***Rate structure and compensation for Net Energy Metering (NEM)***

The NEM tariff allows customers with on-site generation (primarily rooftop solar photovoltaic (PV) equipment) to receive a full retail rate credit (for generation plus transmission and distribution rates plus public purpose program and other non-by-passable charges) for the energy they send out to the grid to offset the cost of their consumption within the month and within an annual true-up period.<sup>1</sup> PG&E recommends adopting the rate architecture framework to guide design of future NEM rates. First, customers should pay full retail rates for all energy and capacity consumed. Second, customers should separately be paid the fair value of the generation the sell back to the utility, based on the utility's avoided energy costs. Third, to the extent applicable and warranted, customers should be paid for the long-term value of avoided

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<sup>1</sup> The 2016 NEM successor tariff decision, Decision (D.)16-01-044, required customers to pay certain non-bypassable charges on all usage not offset by on-site generation, reducing some of this cross-subsidization.

grid costs provided by the installation of their system. Lastly, if policy makers choose to continue to incent PV equipment installations beyond the avoided costs savings provided, such compensation should be quantified and separately tracked as a policy cost that is borne by all customers and not by-passable.

***High Energy Use tier for residential rates.***

Over the past two years, PG&E has been implementing a “glide path” trajectory adopted in D. 15-07-001 to get to two tiers with usage for Tier 2 exceeding 100 percent of baseline and declining price ratios between Tiers 1 and 2, reaching a 1.25 to 1 ratio in 2019. Moreover, the Commission’s decision also introduced a “super user of electricity (SUE) surcharge,” (which PG&E has implemented as a “High Usage Surcharge”) applied to usage above 400 percent of baseline beginning March 1, 2017 (with a glide path trajectory between the ratios of the rates charged for usage in this tier versus usage in Tier 1 of 2.19 to 1 in 2019). The High User Surcharge should be revisited after implementation of mandatory Time Of Use rates are implemented.

***Fixed charges recovered through volumetric rates.***

Finally, PG&E believes a critical step to fair and equitable rates is the implementation of a fixed charge to recover fixed costs that do not vary with usage. Such a charge is permitted by Assembly Bill (AB) 327. Work has proceeded on a methodology for developing such a charge in Phase 2 of PG&E’s 2017 General Rate Case (GRC) and PG&E, along with the other two large California investor-owned utilities have recently submitted proposals for implementing a fixed charge in the 2018 Rate Design Window (RDW) Proceeding. PG&E supports having a fixed monthly charge in residential rates, consistent with rate design policies adopted by public utility regulators around the country and similar to the fixed monthly charges that have been in all of PG&E’s non-residential rates for years, as a more cost-based rate design that will spread costs to customers in a more equitable way based on the fixed costs to serve them.

***Seasonal bill volatility***

It should be noted that in addition to working with the Commission toward fair and equitable rates, PG&E has proposed changes to the winter and summer season periods in an effort to mitigate bill volatility. Specifically, in PG&E’s 2017 GRC Phase 2, PG&E proposed narrowing the summer season from six to four months for electric service, effectively raising the Central Valley baseline quantities for both seasons. This reduces bill volatility by decreasing the revenues collected in the high use summer months and increasing them in the lower use winter months. Also, in PG&E’s recent Gas Cost Allocation Proceeding filing, PG&E recommended shortening the gas winter season from five months to three. This, too, reduces bills during the high use winter gas months while increasing them in the lower use off-peak months. These proposals, in part, address concerns outlined in SB 711, which requires the Commission to review baseline quantities to reduce bill volatility.

PG&E believes that residential rate design and NEM reforms can have a beneficial near-term impact on its cost of delivering safe and reliable gas and electric services to its customers, as well as more fairly charging customers rates which better reflect PG&E’s cost to serve them.

## **2. PG&E's Overall Rate Policies**

PG&E strives to provide its customers with reasonable rates for gas and electric service. When proposing rates, PG&E considers cost-based pricing, equity within and among customer classes, simple and understandable rates, and public policy objectives. PG&E's rate policy focuses on providing customers with reasonable rates by minimizing the number of rate changes per year and smoothing the impact of revenue and rate changes for its customers.

PG&E understands that its customers value transparency and stability in the rates they pay for energy. Therefore, PG&E limits the number of rate adjustments made throughout the year. Generally, PG&E attempts to limit requests for electric rate changes to two or three times per calendar year (January and March, and occasionally a change later in the year). For gas rate changes, as required by prior Commission decisions, PG&E files monthly changes to the gas commodity rate and seeks an annual rate change to reflect changes in gas transportation and Public Purpose Program costs.

The Commission and PG&E should work collaboratively to manage the timing of revenue changes to smooth the impact on gas and electric customers by offsetting approved increases in revenues with offsetting decreases in revenues. An example is PG&E's recent request to delay the Annual Electric True-up (AET) given the delay in the Energy Resource Recovery Account (ERRA). Normally PG&E implements AET related rate changes on January 1, and these rates include the changes dictated by the annual ERRA decision. However, the ERRA final decision was delayed until January 2018. PG&E recognized that the remainder of the AET revenue changes would result in a rate decrease while the revenue request and load forecast updates in the ERRA would result in a rate increase. Therefore PG&E requested the delay solely to reduce rate volatility and merged the AET rate change with the March 1 rate changes, which include revenue changes for transmission services approved via the Federal Energy Regulatory Commission (FERC) and further implementation of the "glide path" trajectory adopted in D. 15-07-001.

As illustrated in Figure 1 below, PG&E's system average bundled electric rate over the last 27 years has increased at a lower rate than the service territory's consumer price index (CPI) growth.

**Figure 1: Historic Service Territory CPI<sup>2</sup> vs. System Average Bundled Electric Rate**

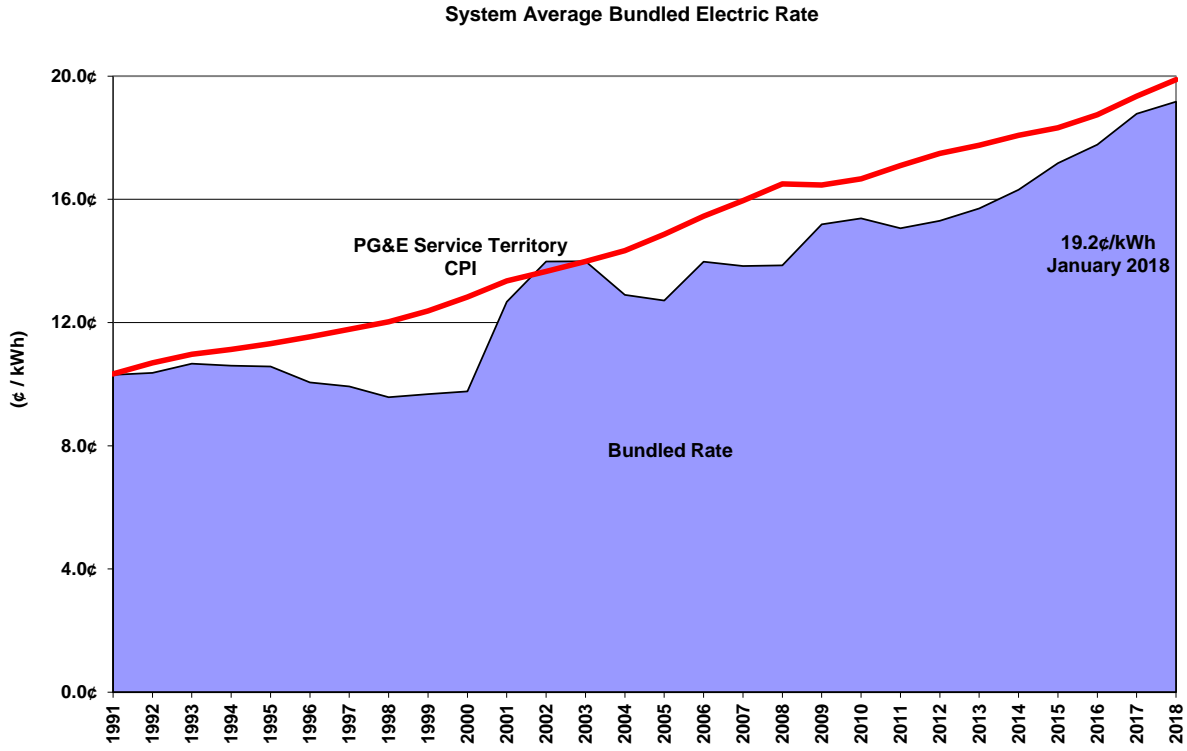
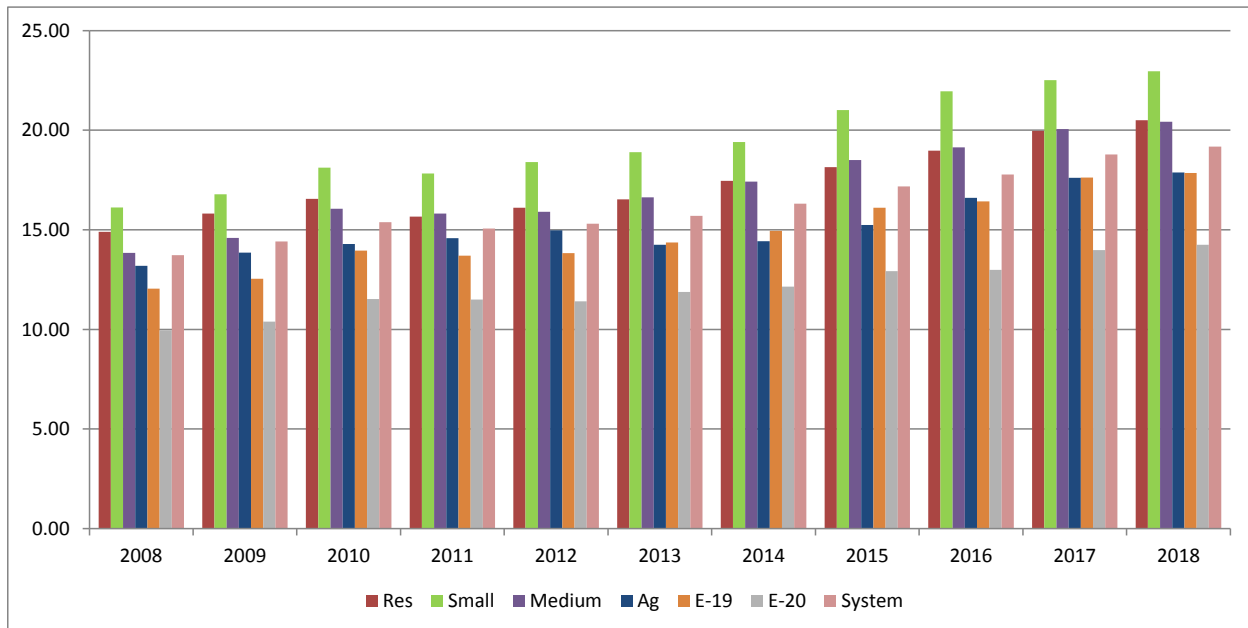


Figure 2 below shows a breakdown of the system average rate by customer class for the 2008-2018 period. Each class shows the same upward trend as the system average rate over this period, with the residential and small and medium business customers generally having higher average rates than the system average and the large industrial and agricultural customers generally having lower average rates.

<sup>2</sup> CPI provided by Economy.com

**Figure 2: Historic average rates by class (2008 – 2018)**



### 3. Management Control of Rate Components

PG&E is committed to controlling costs and managing rates while providing safe and reliable gas and electric service to its customers. However, many factors that affect customer rates are outside of PG&E’s control. The factors include – but are not limited to - market prices of natural gas and electricity, retail sales volumes, weather (including the impacts on hydroelectric operations), interest rates, and the cost of implementing regulatory mandates. Nonetheless, PG&E diligently seeks to manage its costs across all categories to make efficient and effective use of revenues collected from customers.

In its 2017 GRC, PG&E described its initiatives to improve the efficiency of its operations. Working with other parties to reach a settlement of the overall revenue requirement, PG&E and 14 intervening parties reached a settlement agreement on the 2017 GRC. The settlement agreement proposed to reduce PG&E’s 2017 GRC application increase from \$319 million to \$88 million. This settlement was adopted by the Commission with minor modifications. In recognition of this significant reduction in PG&E’s overall GRC forecast, as well as the desirability of driving efficiencies in the Company’s operations, in late 2016 PG&E announced a goal to reduce overall annual expenses by \$300 million. The areas identified for reduction were focused largely on back office functions that would not adversely affect operational safety and reliability. Areas of focus included:

- Material and contract spending, such as advertising, renegotiating pricing with our top 100 expense vendors, targeted reductions in professional services (i.e., management consulting and legal services), rationalizing spending in various membership fees and in personal Information Technology (IT) devices (cellular



phones and printers), and adjusting service levels for certain types of spend like conference center support and janitorial services;

- Employee-related expenses, including travel and meals;
- Reductions to back office non-employee workers (i.e., contractors) and non-union employees; and
- Elimination of certain vacancies, primarily related to back office functions including administrative and support positions.

PG&E has continued to explore ways to reduce overall costs and in its November 2017 2019 Gas Transmission and Storage (GT&S) rate case made a number of key proposals to reduce costs. Reflected in the GT&S forecasts is a 2017 Gas Operations “Gas Stewardship” initiative, which is a multi-year effort to improve affordability without affecting risk-informed work priorities. Another cost-saving proposal set forth in the 2019 GT&S rate case is the Natural Gas Storage Strategy (NGSS) proposal. PG&E’s NGSS proposal was initiated in response to lower natural gas prices and increasing costs to comply with new safety and environmental regulations that the California Division of Oil, Gas and Geothermal Resources is expected to finalize in 2018. If adopted, PG&E estimates that NGSS will save customers hundreds of millions of dollars in the long-term by changing PG&E’s storage asset holdings, system operations and storage services.

Aside from these major rate cases, certain components of gas and electric rates are largely beyond the direct control of utilities, and instead result from market forces, as well as policy or regulatory mandates (many of which PG&E and the CPUC supported). Among the requirements creating further cost pressures on PG&E’s electric and gas rates are the Renewables Portfolio Standards (RPS) program and greenhouse gas (GHG) emissions restrictions resulting from AB 32.

These legislative and regulatory mandates and policies seek to achieve worthy overall goals. However, to the extent they raise electric and gas rates or restrict the ability of utilities to manage or mitigate costs, the Legislature and Commission should then periodically review these mandates and policies to ensure they appropriately balance the social or customer benefits with the overall cost to customers.

#### **4. PG&E’s Policies and Recommendations for Limiting Costs and Rate Increases While Meeting the State’s Energy and Environment Goals for Reducing Greenhouse Gases**

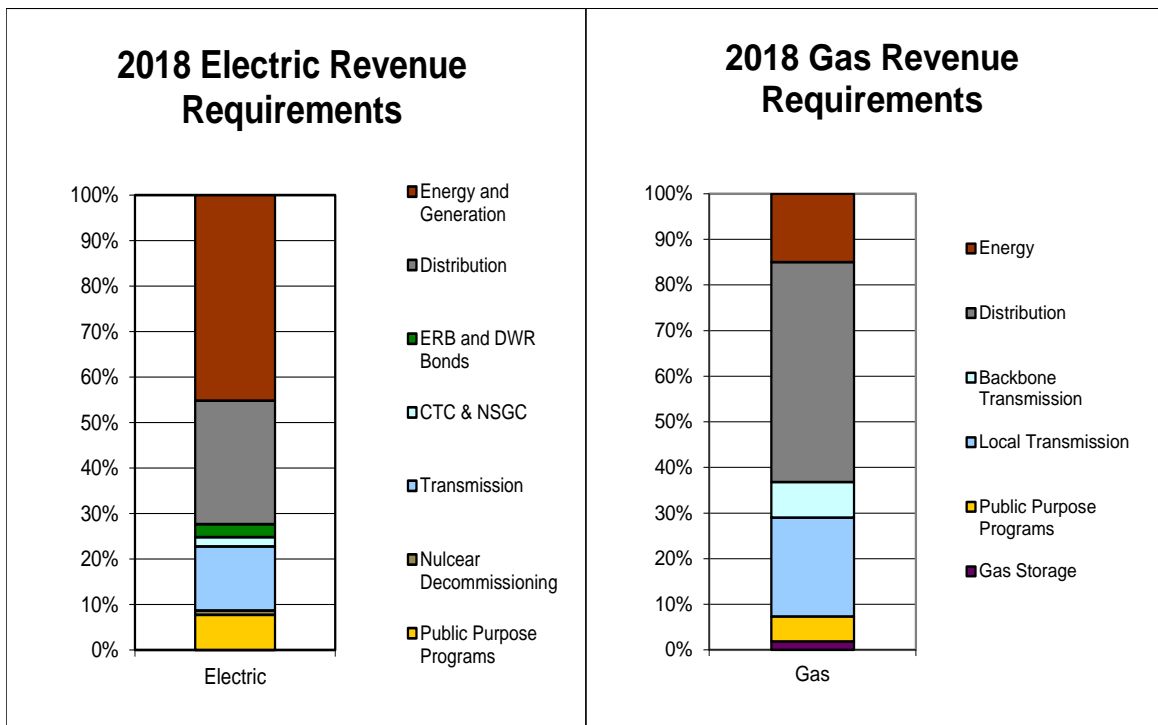
PG&E and the Commission have endorsed rate policies based on cost of service. Such policies encourage efficient decision making by customers. At times, departing from cost-based rates can be appropriate in order to accomplish other public policy objectives. Such objectives may include energy efficiency, benefits to low-income customers, mitigation of rate changes from year to year, promotion of renewable generation, GHG emissions reductions, and encouragement of innovation and developing technologies.

However, each departure from cost-based rates needs to be carefully evaluated to determine whether the rate increases are reasonable in light of the overall benefits to society and the impact on non-benefiting customers.

### 5. Description of Revenue Requirements

A description of PG&E’s authorized electric and gas revenue requirement categories and the percent contribution to the total 2018 revenue requirement is provided separately. The key categories of revenue requirements are based on PG&E’s major rate components.

**Figure 3: 2018 Revenue Requirement Categories**



a. Electric revenue requirements are grouped into the following major rate categories: (1) Energy and Generation, (2) Distribution, (3) Energy Recovery Bonds and Department of Water Resources bonds, (4) Competition Transition Charge and New System Generation Charge, (5) Transmission, (6) Nuclear Decommissioning, and (7) Public Purpose Programs. Below is a description of each electric revenue requirement category:

- 1) Energy and Generation contribute approximately 45 percent to the total authorized electric revenue requirement in 2018. Through the Generation rate component, PG&E recovers the costs of its generation portfolio which include the cost of PG&E’s utility-owned generation (UOG) consisting of the fuel, base Operations and Maintenance (O&M) and capital-related revenue requirements associated with its nuclear, solar, gas, and hydro plants. Energy costs also include amounts related to long-term power contracts entered into by the DWR

on behalf of the state's IOUs. In addition, PG&E recovers all of its purchased power costs required to meet its load. The purchased power costs include the costs of Qualifying Facilities, and all other bilateral contracts that PG&E has entered into when the company was authorized to resume the power procurement function and make purchases and sales through the wholesale markets. The impact of renewable contracts entered into to meet the RPS and GHG costs are also reflected in generation rates.

- 2) Distribution contributes approximately 27 percent to the total authorized revenue requirement in 2018. The electric distribution revenue requirement includes the base distribution O&M costs and capital-related revenue requirement, California Solar Initiative, Demand Response, return of proceeds resulting from the cap-and-trade market, and other programs.<sup>3</sup>
- 3) Energy Recovery Bond (ERB) and Department of Water Resources (DWR) Bond contribute approximately 3 percent to the total authorized revenue requirement in 2018. The ERB is now used to return amounts to customers resulting from settlement agreements with sellers of energy to resolve energy claims related to the Western Energy Crisis of 2000-2001. DWR Bond is a charge that pays for bonds issued by DWR to cover the cost of purchased power during the energy crisis.
- 4) Competition Transition Charge (CTC) and New System Generation Charge (NSGC) contribute approximately 2 percent to the total authorized revenue requirement in 2018. CTC recovers uneconomic (above market) costs resulting from California's electric industry restructuring pursuant to Public Utilities Code Section 367(a). Specifically, costs associated with power purchase contract obligations that were in rates prior to December 20, 1995 continue to be recoverable from non-exempt departing load for the duration of the contract. NSGC recovers the net capacity cost and allocates the resource adequacy benefits associated with resources the Commission has determined provide system and/or local reliability benefits to load serving entities in the IOU's service territory. In addition, net capacity costs associated with new generation authorized under the Qualifying Facility and Combined Heat and Power Settlement are also recovered via the Cost Allocation Mechanism.
- 5) Electric Transmission contributes 14 percent to the total authorized revenue requirement in 2018. Transmission revenue requirements include the following:
  - Base Transmission which recovers the O&M and capital-related revenue requirement associated with transmission assets under ISO operational control and subject to FERC's jurisdiction;

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<sup>3</sup> The CARE discount shifts revenue requirements from the distribution rate component to the Public Purpose Program rate component.

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- Transmission Revenue Balancing Account Adjustment (TRBAA) is a FERC mechanism that ensures revenues received by PG&E from the ISO are credited to transmission rates for both retail and wholesale customers taking service from PG&E.
  - Reliability Services Balancing Account (RSBA) is a FERC mechanism that ensures participating transmission owners properly recover from customers reliability services costs assessed by the ISO.
  - End-Use Customer Refund Account (ECRBA) is a FERC mechanism that ensures that End-User customers receive accurate and timely refunds based on the difference between the as-filed and as-settled Transmission Owner Revenue Requirements.
  - The Transmission Access Charge Balancing Account Adjustment (TACBAA) is a mechanism that ensures the difference between the costs billed to PG&E as a load-serving entity and the revenues paid to PG&E as a Participating Transmission Owner under the California Independent System Operator Corporation Tariff is recovered from or returned to PG&E's end-use customers.
- 6) Nuclear Decommissioning contributes 1 percent to PG&E's total authorized revenue requirement in 2018. Nuclear Decommissioning pays for the decommissioning/retirement of nuclear power plants.
- 7) Public Purpose Programs (PPP) contribute 8 percent to PG&E's total authorized revenue requirement in 2018. These revenue requirements include funding for Energy Efficiency programs, Electric Program Investment Charge, Statewide Marketing Education and Outreach, and the CARE discount.

b. Natural gas revenue requirements are grouped into the following major categories: (1) Energy, (2) Distribution, (3) Backbone Transmission, (4) Local Transmission, (5) PPP, and (6) Storage<sup>4</sup>. Below is a description of each gas revenue requirement category:

- 1) Energy contributes about 15 percent to the total gas revenue requirement in 2018. These revenue requirements include:
- Gas supply portfolio costs
  - Interstate capacity costs
  - Gas hedging

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<sup>4</sup> The Distribution, Backbone Transmission and Local Transmission and Storage comprise the transportation rate component.

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- 2) Distribution contributes about 48 percent to the total authorized gas revenue requirement in 2018. It includes the base distribution O&M costs and capital-related revenue requirements.<sup>5</sup>
- 3) Backbone Transmission contributes approximately 8 percent to the total gas revenue requirement in 2018 and includes intrastate capacity costs. The Backbone Transmission System includes Lines 2, 300, 400 and 401, is used to transport gas from PG&E's interconnection with interstate pipelines, other local distribution companies, and California gas fields to PG&E's local transmission and distribution system.
- 4) Local Transmission contributes approximately 22 percent to the total authorized gas revenue requirement in 2018. Local Transmission includes the pipelines used to accept gas from the backbone transmission system and transport it to the distribution system. Local transmission costs are included in end-use customer gas rates.
- 5) Storage contributes about 2 percent to the total authorized gas revenue requirement in 2018. It includes core customer gas storage, carrying cost of working gas in storage for core customers, and unbundled storage.
- 6) Public Purpose Programs contribute about 5 percent to the total authorized gas revenue requirement in 2018. The revenue requirements include the CARE discount collected from Non-CARE customers, and Energy Efficiency program costs.

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<sup>5</sup> The Gas Distribution revenue requirement reflects the CARE discount that is recovered through the CARE surcharge in the PPP rate component. Correspondingly, PPP revenue requirement reflects CARE discount revenue.

## 6. Description of Gas and Electric Rate Components

The revenue requirements discussed in the previous section directly align with PG&E's rate components. Generally, rate components are derived by dividing revenue requirements by sales. Therefore, changes in both revenue requirements and sales impact rates for gas and electric service. Rate pressures created by increasing revenue requirements are moderated when sales are also increasing. Adjustments in the allocation of revenue requirements across customer classes and rate tiers also impact the rates paid by individual customers. Table 4 below provides a summary of electric and gas revenue requirements.

**Table 4: Summary of Revenue Requirements and Percentage of Total Revenue as of January 1, 2018**

RATE COMPONENT	Electric Revenue Requirement		Gas Revenue Requirement	
	\$M	%	\$M	%
Energy and Generation	\$6,414	45%	\$682	15%
Competition Transition Charge	293	2%	-	-
Distribution (1)	3,845	27%	2,191	48%
Energy Recovery Bonds and Department of Water Resource Bonds	406	3%	-	-
Gas Transmission / Backbone			355	8%
Electric Transmission	2,001	14%		
Local Transmission (Gas)	-	-	985	22%
Public Purpose Programs (2)	1,104	8%	248	5%
Nuclear Decommissioning	126	1%	-	-
Gas Storage	-	-	86	2%
<b>Total Authorized Revenue Requirement(3)</b>	<b>\$14,189</b>	<b>100%</b>	<b>\$4,548</b>	<b>100%</b>

(1) Includes 2018 CARE discount of approximately \$514 million for electric.

(2) Includes 2018 CARE discount of approximately \$117 million for gas which is collected in PPP rates.

(3) As of January 1, 2018. Values are approximated to the nearest million.

## **7. Load/Demand Forecasts**

Customer sales volatility over time directly impacts rates for gas and electric customers. PG&E updates sales forecasts for its service territory on a regular basis. The updated sales forecasts are typically filed in conjunction with rate change filings with the Commission. In the past, aggregate customer sales typically increased at a pace which partly offset annual increases to the revenue requirement. However, starting with the recession in 2009, and then continuing with the increases in distributed generation, and savings from energy efficiency, PG&E has had flat or declining electric sales. This results in fixed costs having to be spread across lower sales resulting in higher rates for most customers. The following sections discuss the forecast trends for electric and gas sales for 2018.

### **A. Electric**

According to Moody's Analytics economic forecast for PG&E service territory, PG&E service territory's expansion is continuing, with job and wage growth outpacing national averages and fueling consumption. The tech-centric Bay Area continues to be the economic engine of the service territory, while the end of California's historic 2011-2016 drought and an improving global market place portend solid gains for the Agricultural sectors in the Central Valley. Potential downside risks include rising house prices and business costs, both of which exceed national and California averages, and could lead to the first periods of net out-migration seen in quite some time. Despite strong economic growth, PG&E has not experienced the concomitant rise in sales historically associated with a booming economy. Since 2012 PG&E's sales have decreased about 1 percent per year, on both a recorded and weather-normalized basis. This decoupling of energy sales from economic growth is associated with continued gains in energy efficiency from new codes and standards as well as utility programs, and the growth of distributed generation, primarily rooftop solar. In the residential sector, average use per customer has fallen from approximately 575 kWh at its peak in 2006 to 500 kWh per customer today. The small and medium commercial sector has dropped from about 5,350 kWh per customer at its peak in 2007 to approximately 4,700 kWh per customer today. Only the growing number of customers has kept sales from falling more significantly.

Sales have also been declining in the Industrial and Agriculture sectors. Since the start of the wet winter patterns with El Nino in 2015-2016, PG&E's service territory has experienced well above average rainfall, with the 2016-2017 water year among the highest in recorded history. This has drastically driven down Agriculture sales, as more water is readily available for irrigation and there is less need for energy-intensive well and groundwater pumping. Agriculture sales fell 12.5 percent in 2016 over previous record levels in 2015, and fell by another 20 percent in 2017. The Industrial sector also saw its second straight year of declines, with sales falling 1.5 percent in 2016 over 2015.

Overall, PG&E's electric sales decreased by 1.3 percent in 2017 over 2016, driven primarily by decreases in the commercial, industrial and agricultural sectors. With

continued growth in rooftop solar and a return to historical agricultural sales due to more normal rainfall conditions, the electric sales forecasts declines another 2.1 percent in 2017.

## **B. Gas**

The core customer's average monthly use per customer has been declining at an annual average rate of 2.7 percent from 2010 to 2017 despite a 0.6 percent customer growth rate. Even though PG&E's service territory has a strong economic outlook, natural gas demand is still expected to decrease in the following years. The adoption of energy efficiency products in the utilization of gas within the residential, commercial and industrial buildings has and will continue to slow down that expected increase in gas demand.

In the past three years, California has experienced both slightly warmer than normal winters and a continuation of drought like conditions. However, in the 2016-2017 winter PG&E experienced colder and wetter than normal weather conditions that dramatically increased usage for customers within the service territory. The last two years have still been slightly cooler than 2014 and load has increased due to a demand in space heating and gas water heating. With the combined effect of weather, continued energy efficiency and conservation there has been a slight increase in gas consumption of about 2.7 percent in 2015 and in 2016 over their respective prior year. A return to assumed normal temperatures and precipitation is expected to increase sales by only 7 percent in 2017 and 1 percent in 2018, over their respective prior year, due to the effects of continuing energy efficiency improvements.

In contrast to core customers, the demand for natural gas use in electric generation decreased by 59% from 2015 to 2017 and 12% from 2016. Factors reducing demand includes much better than normal hydroelectric generation and new cleaner energy generation facilities. Demand for natural gas use for electric generation is expected to increase this year as assumed hydroelectric generation conditions return to normal.



**Appendix: Schedule of PG&E's Filings That May Affect Rates in 2018 and Beyond**

See the table below for a listing of PG&E's pending proceedings affecting PG&E's 2018 and 2019 revenue requirements and new proceedings expected to be filed between now and April 30, 2018. This is not an exhaustive list of PG&E's filings; rather it incorporates planned regulatory filings which are known at this time and are expected to have a rate impact for PG&E's electric and/or gas customers. Actual filing dates, amounts of requests, and actual revenue requirements authorized or settled are subject to change through the normal regulatory approval processes of the CPUC and other regulatory agencies.

Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
	<b><u>Q1 2014</u></b>									
1	2013 ERRRA Compliance Review (incl. MRTU, DCSSBA and RPS-related consulting fees)	A.14-02-008	February 28, 2014	January 1 <sup>st</sup> of the year following CPUC Approval	13	N/A	8	Annual proceeding to review the utility-owned generation operations, economic dispatch of electric resources, utility retained generation fuel procurement, and entries to the ERRRA, MRTU and Diablo Canyon Seismic Studies balancing accounts for the 2013 record period.	Electric	Generation
	<b><u>Q3 2016</u></b>									
2	Transmission Owner 18	FERC Docket No. ER16-2320-000	July 29, 2016	3/1/2017	1,718	N/A	N/A	Annual filing to recover transmission costs.	Electric	Transmission
3	Catastrophic Event Memorandum Account (CEMA) 2016	A.16-10-019	October 31, 2016	January 1 <sup>st</sup> of the year following CPUC Approval	195.8	N/A	141.2	The purpose of the CEMA is to recover incremental costs associated with repair and restoration of damaged PG&E facilities in association with declared disasters and complying with government orders associated with a declared disaster.	Electric Gas	Electric Distribution; Electric Generation; Gas Transmission; Distribution

\* Amount is based on adopted funding. The amount to be requested has not been determined.

[N/A] – No RRQ or Rate Impact

[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
	<b><u>Q2 2017</u></b>									
4	2016 ERRRA Compliance Review (incl. DCSSBA and RPS-related consulting fees)	A.17-02-005	February 28, 2017	January 1 <sup>st</sup> of the year following CPUC Approval	6	N/A	6	Annual proceeding to review the utility-owned generation operations, economic dispatch of electric resources, utility retained generation fuel procurement, and entries to the ERRRA and Diablo Canyon Seismic Studies balancing accounts for the 2016 record period.	Electric	Generation
	<b><u>Q3 2017</u></b>									
5	Transmission Owner 19	FERC Docket No. ER17-2154-000	July 26, 2017	3/1/2018	1,792	1,792	N/A	Annual filing to recover transmission costs.	Electric	Transmission
6	CPIM 2016 Annual Report (Yr. 23)	N/A	Q2 2017	Upon CPUC Approval	3	3	N/A	Compliance report for gas core procurement incentive mechanism for November 1, 2015 through October 31, 2016.	Gas	Procurement
	<b><u>Q4 2017</u></b>									
7	2019 Gas Transmission & Storage Rate Case	A.17-11-009	November 17, 2017	1/1/2019		N/A	1,590	The GT&S rate case sets the rates, terms and conditions of service for PG&E's gas transmission	Gas	Backbone Transmission; Local Transmission;

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
	(2019-2020)							(backbone and local transmission) and storage business.		Storage; Customer Access Charge (CAC)
	<b><u>Q1 2018</u></b>									
8	2018 Annual Electric True-Up	TBD	February 16, 2018	3/1/2018	TBD	TBD	N/A	Annual filing to adjust for balancing account over/under collections, and consolidation of electric revenue requirements adopted by the CPUC.	Electric	CTC; Distribution; DWR; ECRA; Generation; NSGC; ND; PPP; PCIA; Transmission
9	2017 ERRRA Compliance Review (incl. DCSSBA and RPS-related consulting fees)	TBD	February 2018	January 1 <sup>st</sup> of the year following CPUC Approval	TBD	N/A	TBD	Annual proceeding to review the utility-owned generation operations, economic dispatch of electric resources, utility retained generation fuel procurement, and entries to the ERRRA and Diablo Canyon Seismic Studies balancing accounts for the 2017 record period.	Electric	Generation
10	Petitions to Modify the 2015 GT&S Rate Case Decision and the 2017 GRC Decision	A. 13-12-012 and A. 15-09-001	March 2018	TBD	TBD	TBD	TBD	Filing to pass along to customers the benefits of the Tax Cuts and Jobs Act of 2017		Electric Distribution, Gas Distribution, Electric Generation, Gas

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
										Transmission and Storage
	<b><u>Q2 2018</u></b>									
11	CPIM 2017 Annual Report (Yr. 24)	N/A	Q2 2018	Upon CPUC Approval	TBD	N/A	TBD	Compliance report for gas core procurement incentive mechanism for November 1, 2016 through October 31, 2017.	Gas	Procurement
12	Catastrophic Event Memorandum Account (CEMA) 2018	TBD	Q2 2018	January 1 <sup>st</sup> of the year following CPUC Approval	TBD	N/A	TBD	The purpose of the CEMA is to recover incremental costs associated with repair and restoration of damaged PG&E facilities in association with declared disasters and complying with government orders associated with a declared disaster.	Electric Gas	Electric Distribution; Electric Generation; Gas Transmission; Distribution
13	ERRA 2019 Forecast	TBD	June 2018	1/1/2019	TBD	N/A	TBD	An annual application that requests approval of PG&E's forecasted procurement related revenue requirement, including Energy Resource Recovery Account (ERRA) and non-bypassable charges – Ongoing Competition Transition Charge (CTC),	Electric	Generation; CTC; NSGC; PCIA

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
								Power Charge Indifference Amount (PCIA) and Cost Allocation Mechanism (CAM) non-bypassable charges.		
	<b><u>Q3 2018</u></b>									
14	Transmission Owner 20	FERC Docket No. TBD	July 2018	3/1/2019	TBD	N/A	TBD	Annual filing to recover transmission costs.	Electric	Transmission
15	2020 General Rate Case (GRC) Phase 1	TBD	August 2018	1/1/2020	TBD	N/A	N/A	Application to request approval of electric and gas distribution and utility-owned electric generation base revenues for the 2020 test year and the 2021-2022 attrition years.	Electric Gas	Electric Distribution; Electric Generation; Gas Distribution
16	Energy Efficiency Risk Reward Incentive Advice Letter	TBD	September 2018	1/1/2019	TBD	N/A	TBD	Annual filing to request Energy Efficiency Savings and Performance Incentive	Electric Gas	Electric Customer Energy Efficiency Incentive; Gas PPP
	<b><u>Q4 2018</u></b>									
17	Nuclear Decommissioning Cost Triennial	TBD	Q4 2018	1/1/2020	TBD	N/A	N/A	The purpose of the NDCTP is to recover costs necessary to adequately fund the nuclear	Electric	Nuclear Decommission

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
	Proceeding (NDCTP)							decommissioning trust funds for Diablo Canyon and Humboldt Bay Power Plant Unit 3 as well as to fund ongoing O&M costs associated with maintaining the current operational license of Humboldt Bay Power Plant Unit 3. PG&E will request a revenue requirement to fund these activities for the period 2020 through 2022.		
18	2019 FERC Rate Filing for Annual Updates to the Transmission Balancing Accounts	FERC Docket No. TBD	October 2018	1/1/2019		N/A	TBD	PG&E annually files with the Federal Energy Regulatory Commission (FERC) requesting a transmission rate change for its retail electric customers, in compliance with Resolution E-3930. The purpose of PG&E's FERC filing is to request the annual update to the Transmission Revenue Balancing Account Adjustment, the Reliability Services rates and the End-Use Customer Refund Balancing Account Adjustment, for an	Electric	Transmission

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined

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Line No.	Filing Name	Proceeding Reference	Filing Date	Requested/ Expected Implementation Date	Requested Amount (\$ millions)			Description	Affected Rate	Affected Rate Component
					Total Cost	2018 RRQ	2019 RRQ			
								effective date on or after January 1 of each year. Similarly, the transmission access charge balancing account is filed in December for an effective date of March 1 of the following year		
19	2019 Public Purpose Programs Surcharge Rate Advice Letter	TBD	October 2018	1/1/2019		N/A	TBD	Annual filing consolidating approved gas public purpose programs, gas research and demonstration, and Board of Equalization administrative funding.	Gas	PPP
20	2019 Annual Gas True-Up (AGT) Advice Letter (Tier 2 Preview) and 2019 AGT Advice Letter (Tier 1 Final)	TBD	November 2018 and December 2018	1/1/2019		N/A	TBD	Annual filing consolidating gas transportation rate changes authorized by the CPUC and true-up of balancing account balances. This filing is supplemented in December.	Gas	Distribution; Backbone Transmission; Local Transmission; Gas Storage; CAC; PPP Surcharge
21	2019 AET Advice Letter and Supplemental Advice Letter filing	TBD	September 2018 and December 2018	1/1/2019		N/A	TBD	Annual filing to adjust for balancing account over/under collections, and consolidation of electric revenue requirements adopted by the CPUC. This filing is supplemental in December.	Electric	CTC; Distribution; DWR; ECRA; Generation; NSGC; ND; PPP; PCIA; Transmission

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined



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					Total Cost	2018 RRQ	2019 RRQ			
22	Transmission Access Charge Balancing Account Adjustment (TACBAA)	FERC Docket No. TBD	December 2018	3/1/2019		N/A	TBD	The TACBAA is a ratemaking mechanism designed to ensure that the difference in the amount of costs billed to PG&E as a load-serving entity and the revenues paid to PG&E as a Participating Transmission Owner under the California Independent System Operator Corporation Tariff is recovered from or returned to PG&E's End-Use customers.	Electric	Transmission

[N/A] – No RRQ or Rate Impact  
[TBD] – To Be Determined