

# PG&E Corporation - Climate Change 2018

## C0. Introduction

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### C0.1

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#### **(C0.1) Give a general description and introduction to your organization.**

PG&E Corporation is an energy-based holding company whose core business is Pacific Gas and Electric Company (PG&E). PG&E is one of the largest combined natural gas and electric utilities in the United States. Based in San Francisco, with approximately 23,000 employees, PG&E delivers some of the nation's cleanest energy to nearly 16 million people in Northern and Central California. PG&E Corporation had more than \$68 billion in assets as of December 31, 2017, and generated revenues of more than \$17 billion in 2017.

PG&E has a long history of taking action to combat climate change. Doing so is integral to our ongoing efforts to provide safe, reliable, affordable, and clean energy to customers. We remain focused on reducing our carbon footprint, advancing low-carbon policies for California and the nation, helping customers reduce their energy use with industry-leading tools and incentives, and addressing the need to adapt to changing climate conditions.

In 2017, 33% of our delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy. PG&E reached California's 2020 renewable energy goal three years ahead of schedule and we are well positioned to meet the state's new 60% by 2030 renewable energy mandate set forth in Senate Bill (SB) 100.

Reflecting California's changing energy landscape, PG&E partnered with labor and leading environmental organizations in 2016 on a joint proposal that would increase investment in energy efficiency and renewable energy while retiring our Diablo Canyon Power Plant at the end of its current operating licenses, which expire in 2024 and 2025. In January 2018, the California Public Utilities Commission (CPUC) approved several key elements of the joint proposal agreement, including approval to cease plant operations once the Nuclear Regulatory Commission (NRC) operating licenses expire.

We have surpassed 360,000 interconnected solar systems, representing about 20 percent of all private rooftop solar in America. In addition, one in five electric vehicles (EV) in the United States plugs into PG&E's grid – totaling nearly 150,000 EVs in PG&E's service area at the end of 2017. We also continue to roll out our EV Charge Network program installing up to 7,500 level 2 EV charging stations at multi-family dwellings and workplaces over the next three years.

We have strengthened our commitment to reduce greenhouse gases from our internal operations -- launching the "Million Ton Challenge," a new, voluntary five-year carbon reduction goal for PG&E's operations. The goal is to avoid one million tons of cumulative greenhouse gas emissions from our operations from 2018 through 2022, compared to a 2016 baseline.

At the state level, PG&E supports the decarbonization of California’s economy through timely, durable, effective and affordable policy and energy solutions. We remain committed to climate actions to reduce greenhouse gases and address the impacts of climate change—from deploying clean energy technologies to continuing to lead and innovate on energy efficiency. PG&E is committed to helping the state meet the long-term targets established by Senate Bill (SB) 32, passed in 2016, which requires the state to achieve a 40% reduction in greenhouse gases by 2030 compared to 1990 levels. In 2017, PG&E joined a broad coalition in support of Assembly Bill (AB) 398, which extended California’s cap-and-trade program for reducing greenhouse gas emissions and providing cost protections for energy consumers. PG&E also supported AB 617, which addresses local air quality concerns in affected communities.

Extreme weather events driven by climate change are causing unprecedented and unanticipated wildfires. Years of drought, extreme heat and 129 million dead trees have created a new level of risk for our state, which must continue to adapt to meet these challenges. PG&E’s Community Wildfire Safety Program implements additional precautionary measures intended to reduce wildfire threats and strengthen our communities for the future following the 2017 wildfires. We are bolstering wildfire prevention and emergency response efforts, putting in place new and enhanced safety measures, and doing more over the long term to harden our electric system to help reduce wildfire risks and to keep our customers safe.

**C0.2**

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**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	No	

**C0.3**

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**(C0.3) Select the countries/regions for which you will be supplying data.**

United States of America

**C0.4**

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**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

USD

**C0.5**

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**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

**C-EU0.7**

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**(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.**

**Electric utilities value chain**

Electricity generation

Transmission

Distribution

**Other divisions**

Gas storage, transmission and distribution

Smart grids / demand response

Battery storage

**C-OG0.7**

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**(C-OG0.7) Which part of the oil and gas value chain and other areas does your organization operate in?**

**Oil and gas value chain**

**Other divisions**

Grid electricity supply from gas

Grid electricity supply from renewables

**C1. Governance**

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**C1.1**

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**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

**C1.1a**

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**(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	Climate change-related issues are core to PG&E's business. California's energy policy and climate goals – as well as PG&E's own long-term vision as a company – necessitate that we address the challenge of climate change at both the executive and Board level. Given the strategic nature of climate change to our business, responsibility for climate-related issues rests with PG&E Corporation's Chief Executive Officer (CEO) and President (who also is a member of the PG&E Corporation Board of Directors). The CEO has the overall responsibility for climate change within the company, with input from the Chief Sustainability Officer, among other officers.
Board/Executive board	The Compliance and Public Policy Committee of PG&E Corporation's Board of Directors has primary oversight over PG&E's public policy, climate change, and corporate responsibility policies and practices. This includes the review of climate-related policies and programs, PG&E's disclosure on sustainability practices and performance, as well as an annual review of PG&E's sustainability practices and performance.

**C1.1b**

**(C1.1b) Provide further details on the board's oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> <li>Reviewing and guiding strategy</li> <li>Reviewing and guiding major plans of action</li> <li>Reviewing and guiding risk management policies</li> <li>Reviewing and guiding annual budgets</li> <li>Reviewing and guiding business plans</li> <li>Setting performance objectives</li> <li>Monitoring implementation and performance of objectives</li> </ul>	At an individual level, PG&E Corporation's Chief Executive Officer (CEO) and President, with input from the Chief Sustainability Officer and others, has the overall responsibility for climate change within the company.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
	<p>Overseeing major capital expenditures, acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	
Scheduled – some meetings	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Reviewing and guiding business plans</p> <p>Monitoring implementation and performance of objectives</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>The Compliance and Public Policy Committee of PG&amp;E Corporation's Board of Directors has primary oversight over PG&amp;E's public policy, climate change, and corporate responsibility policies and practices. This includes the review of climate-related policies and programs, PG&amp;E's disclosure on sustainability practices and performance, as well as an annual review of PG&amp;E's sustainability practices and performance.</p>

**C1.2**

**(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Sustainability committee	Both assessing and managing climate-related risks and opportunities	Quarterly
Other committee, please specify (Climate Resilience Officer Committee)	Both assessing and managing climate-related risks and opportunities	Quarterly

**C1.2a**

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.**

PG&E's vision states: "With a sustainable energy future as our North Star, we will meet the challenge of climate change while providing affordable energy for all customers." PG&E Corporation's Chief Executive Officer (CEO) and President is the highest-level executive responsible for climate change-related issues. The CEO actively monitors climate-related issues through regular engagement and communication with senior staff and supporting PG&E team members.

Reporting to the CEO is PG&E Corporation's Senior Vice President of Energy Supply and Policy and Chief Sustainability Officer, who leads PG&E's efforts to address greenhouse gas emissions in the company's operations, as well as related reporting and engagement. This individual leads a team of dynamic and experienced professionals who develop and implement the company's energy strategy and policy through innovative solutions, partnership integration and public advocacy at the national, state and local level. This individual also co-chairs the company's internal Sustainability Leadership Council and Climate Resilience Officer Committee.

Working to further embed sustainability into our operations, PG&E's Sustainability Leadership Council is a cross-departmental committee established in 2017 to set a bold vision for how PG&E can reduce the greenhouse gas footprint of its internal operations, and to spearhead goals and plans toward this objective. Co-chaired by the Chief Sustainability Officer and Chief Customer Officer, the Council brings together leaders from functions such as gas and electric operations, supply chain management, corporate real estate, transportation services, environmental compliance and customer energy solutions to define holistic, long-term targets and strategies to reduce the environmental impact of our operations. The Council adopted a voluntary goal to avoid one million tons of cumulative greenhouse emissions from PG&E's operations from 2018 through 2022, compared to a 2016 baseline. The Council meets quarterly to review environmental performance against annual work plans for the respective business areas contributing towards the goal.

In addition, PG&E's Climate Resilience Officer Committee provides leadership, guidance and governance for climate resilience objectives that meaningfully impact PG&E and the communities we serve and ensure the continued safe, reliable and affordable operation of PG&E's system and

ability to deliver energy to customers in the face of a changing climate. The Committee coordinates work across enterprise risk management, internal culture, integration and planning, and external engagement. Using climate science as a foundation, the Committee is overseeing a multi-year research plan to close gaps in our approach to addressing the impacts of climate change. It is actively supported by a Climate Resilience Working Group, whose members are designated by the Committee.

PG&E's Chief Sustainability Officer also convenes an external Sustainability Advisory Council to seek ongoing feedback and guidance on issues that span our business, including climate change, clean energy, economic development and community vitality. Established in 2016, the group is made up of community and environmental leaders, policy experts and business entrepreneurs, and meets regularly with PG&E leaders to share feedback, identify new areas of opportunity and inspire collaboration with new partners.

### **C1.3**

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**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

Yes

#### **C1.3a**

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**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.**

**Who is entitled to benefit from these incentives?**

Management group

**Types of incentives**

Monetary reward

**Activity incentivized**

Emissions reduction target

**Comment**

Employees at all levels are eligible for monetary rewards based on achievement towards the company's key metrics and targets that relate to climate change, such as achieving greenhouse gas emission reductions, the amount of renewable energy delivered to customers and employees' success in advancing climate change policy in line with PG&E's policy goals. Employee monetary rewards are based on performance against individual and/or departmental operating plans.

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Recognition (non-monetary)

**Activity incentivized**

Behavior change related indicator

**Comment**

All employees may receive non-monetary recognition based on their management of climate change issues. For example, PG&E's Richard A. Clarke Award honors an individual and a team who have demonstrated environmental leadership. The winners receive a \$1,000 or \$5,000 charitable contribution to an environmental non-profit organization of their choice.

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Monetary reward

**Activity incentivized**

Energy reduction target

**Comment**

PG&E has annual customer energy efficiency targets that tie to company earnings, which impacts the variable compensation for all employees. The incentives are authorized under California's decoupled regulatory structure.

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**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Monetary reward

**Activity incentivized**

Emissions reduction target

**Comment**

The variable compensation of all employees is impacted by PG&E's annual target to complete planned gas in-line inspections and pipeline retrofit projects that reduce methane emissions.

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## C2. Risks and opportunities

### C2.1

**(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

	From (years)	To (years)	Comment
Short-term	0	3	PG&E's short-term time horizon is three years. This corresponds to the three-year timeframe of PG&E's General Rate Case filings with the California Public Utilities Commission (CPUC). It also aligns with 2020, the date by which California is required to reduce its greenhouse gas emissions to the 1990 level.
Medium-term	3	13	PG&E's medium-term horizon spans from 2020 to 2030, the date by which California is required to reduce its greenhouse gas emissions 40% below the 1990 level. PG&E is assessing a variety of potential scenarios to meet this objective, including associated risks and opportunities.
Long-term	13	30	PG&E's long-term horizon spans onward after 2030 toward 2050, the date by which California has an Executive Order to reduce its greenhouse gas emissions 80% below the 1990 level. PG&E is assessing a variety of potential scenarios to meet this objective, including associated risks and opportunities.

### C2.2

**(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

#### C2.2a

**(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	PG&E has many integrated processes by which climate-related risks are identified and assessed. The PG&E Corporation Board of Directors and Vice President, Internal Audit and Chief Risk Officer have oversight responsibility for risk management at PG&E. The senior-most executive of each line of business maintains a Risk and Compliance Committee, which has oversight responsibility for all associated activities for risk and

	Frequency of monitoring	How far into the future are risks considered?	Comment
			compliance programs within their organization. As part of the integrated planning process, PG&E's senior executives annually assess our plans to manage risk and compliance, setting the foundation for structured strategy and resource allocation discussions. In addition, in 2017, PG&E established a Climate Resilience Officer Coordination Committee and a Climate Resilience Working Group to manage the company's efforts to build climate resilience.

**C2.2b**

**(C2.2b) Provide further details on your organization’s process(es) for identifying and assessing climate-related risks.**

Climate risks for PG&E are defined as those that have a strategic impact on PG&E’s business of providing safe, reliable, affordable and clean energy to its customers and impact the long-term sustainability of PG&E as a company. As a provider of critical infrastructure services, PG&E faces a variety of risks from a changing climate, including heat waves, more frequent and extreme storms, drought, subsidence, wildfires, wind events, and rising sea levels. In fact, failure to adapt to climate change is one of PG&E’s enterprise risks. Building greater climate resilience involves understanding the impacts of climate change on our business and being prepared to withstand and rapidly recover from major disruptions to service caused by changing climate conditions and weather events.

On an ongoing basis, we proactively track and evaluate climate-related risks. In 2016, PG&E published a Climate Change Vulnerability Assessment that details these processes. The publicly-available report shares our vulnerability to, and strategies to address, a range of climate risks, including flooding from storm events, sea level rise, land subsidence, heat waves, changes in precipitation patterns and wildfires.

PG&E recently refreshed its third-party led materiality assessment, which identified priorities for the long-term sustainability of our business. Developed through a structured process that included interviews with internal and external stakeholders, the assessment identified numerous material issues related to climate change, including PG&E’s GHG emissions, renewable energy, and climate change resilience. PG&E’s Corporate Sustainability team then worked with the Corporate Strategy team to ensure the results of the materiality assessment informed and were appropriately reflected in PG&E’s business strategy.

As another important milestone, in 2017, PG&E submitted our first Risk Assessment Mitigation Phase (RAMP) filing with the California Public Utilities Commission. The RAMP filing examined and improved PG&E’s understanding of near- and long-term climate-related safety risks to assets and to our customers. The filing included a detailed modeling exercise regarding climate impacts on company-wide risks.

PG&E is using the assessment’s findings to conduct further foundational work to propose additional actions to reduce climate risk. Building off of this work, PG&E plans to design a PG&E-wide climate change risk integration strategy, which will inform resource planning and investment and

operational decisions. It will also result in the potential for additional programs to identify and pursue mitigations that will make PG&E's assets, infrastructure, operations, employees, and customers more resilient to climate change to reduce safety consequences.

For example, PG&E has begun piloting a Climate Resilience Screening Tool, which enables PG&E to explore climate-related risks associated with the development of new major infrastructure projects. PG&E has also begun piloting a Climate Impact Visualization Tool, which displays visualization maps to explore climate risk, including sea-level rise and storm flooding. Relevant PG&E staff are being equipped to use these tools and PG&E is in the process of creating training to accompany the tools. These tools will inform project design and planning.

PG&E is also in the process of utilizing a maturity model approach to establish a baseline of climate resilience and to measure future progress in increasing resilience.

Risks identified in any of the above processes are communicated to employees and inform system-wide management of risks. Risks are also communicated to regulators, shareholders, and other stakeholders through PG&E's Annual Form 10-K, Corporate Responsibility and Sustainability Report, and regulatory reporting requirements.

**C2.2c**

**(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	PG&E's operations are subject to extensive federal, state and local environmental laws and regulations, including climate-related requirements. PG&E uses a series of compliance work processes to manage regulatory compliance and our environmental impacts by each line of business. PG&E's integrated planning process provides a mechanism for managing environmental risk and compliance while driving continuous improvement. For example, PG&E faces the regulatory risk of non-compliance with California's Renewable Portfolio Standard (RPS). The designated Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process.
Emerging regulation	Relevant, always included	PG&E routinely analyzes how potential and emerging regulations, particularly energy and environmental regulations at the state or federal levels, might impact our business. This includes assessing factors such as the extent to which they represent timely, durable, environmentally-effective and affordable policy and energy solutions. We remain committed to climate actions to reduce greenhouse gases -- from deploying clean energy technologies to continuing to lead and innovate on energy efficiency. For example, future regulation could include certain requirements to adapt to changing climate conditions. The designated Risk and Compliance Committee within PG&E integrate these considerations into PG&E's risk management process.

	Relevance & inclusion	Please explain
Technology	Relevant, always included	PG&E routinely monitors how advancements, such as technological breakthroughs, in alternative energy technology might impact business outcomes, such as the economics of power purchase agreements, increased self-generation by customers, and increases in distributed energy resources. For example, one of California's climate goals is to reduce methane emissions by 40% from 2013 levels by 2030. To effectively reduce methane emissions, PG&E uses state-of-the-art detection technology to find and eliminate methane leaks in our natural gas distribution system. In fact, PG&E has pioneered emerging technologies across the board, including becoming the first gas company in the world to employ the Picarro Surveyor, which is 1,000 times more sensitive than traditional leak detection equipment; using infrared technology to pinpoint methane gas leaks; and deploying drones equipped with a methane detection sensor originally developed by NASA to help find evidence of life on Mars. The Risk and Compliance Committee within PG&E's natural gas line of business integrates these considerations into PG&E's risk management process.
Legal	Relevant, sometimes included	The federal administration under President Donald Trump has led to significant uncertainty with regard to what further actions may occur regarding climate change at the federal level. PG&E routinely monitors the likelihood of federal legislative or regulatory action that might impact PG&E's business, although California's environmental laws and regulations typically exceed federal standards. For example, the Trump Administration recently proposed to roll back the Corporate Average Fuel Economy (CAFE) (i.e., motor vehicle fuel economy standards) and GHG standards and withdraw the waiver granted to California for the GHG and Zero Emissions Vehicles (ZEV) components of its vehicle regulations. The designated Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process. Central to our overall approach is engaging at the federal, state and international levels through a variety of coalitions.
Market	Relevant, always included	PG&E is actively engaged in state regulatory and legislative climate change activities, including those around implementing California's cap-and-trade program, to meet the state's greenhouse gas emissions reduction goals at the lowest possible cost to customers. For example, California's cap-and-trade program grants distribution utilities, including PG&E, emissions allowances that are sold into the market, generating proceeds that are returned to customers. The designated Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process.
Reputation	Relevant, sometimes included	PG&E faces reputational risks associated with how our customers perceive our policies, actions, and plans to address climate change. PG&E monitors these perceptions and manages reputational risk by complying with relevant laws and regulations and seeking opportunities to go beyond compliance, sharing our plans and progress in a transparent manner, and proactively engaging with stakeholders to stay abreast of climate change issues facing PG&E and our customers and being a constructive voice in developing solutions. For example, about 1.5 million PG&E residential customers receive easy-to-read Home Energy Reports. They show customers how their energy use stacks up against similar households in their area and provide personalized tips on saving energy.

	Relevance & inclusion	Please explain
		These comparisons encourage customers to manage their energy better. The savings enabled by the reports add up: in 2017, estimated electric savings totaled nearly 121 GWh, enough to power about 10,300 typical homes for a year. Total estimated gas savings came to over four million therms, enough to serve about 2,400 typical homes for a year. The designated Risk and Compliance Committee within PG&E's customer organization integrates compliance with PG&E's portfolio of energy efficiency programs into PG&E's risk management process.
Acute physical	Relevant, always included	In its 2017 RAMP filing, PG&E analyzed how changing climate conditions may create acute physical risks, such as increased risk of wildfires, extreme precipitation, major storm events, droughts, and heat waves, and how these risks may affect PG&E's operations. PG&E is conducting foundational work to help anticipate and plan for extreme weather and climate-change related events. For example, 2017 was one of the wettest water years on record. According to NOAA, precipitation during the 2016-2017 water year exceeded 100 inches across the higher elevations in the Sierra Nevada Mountains, with lesser amounts, 25-50 inches, falling across lower elevations. The designated Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process.
Chronic physical	Relevant, always included	In its 2017 RAMP filing, PG&E analyzed how changing climate conditions may create chronic physical risks, such as sea-level rise, increased frequency of hot summer days, and inconsistent and extreme precipitation, and how these risks may affect PG&E's operations. PG&E is conducting foundational work to help anticipate and plan for extreme weather and climate-change related events. For example, PG&E has identified the risk of damage to substations and other gas and electric infrastructure due to higher inundation and flooding potential at coastal and low elevation facilities due to sea level rise when combined with high tides, storm runoff and storm surges. PG&E evaluated its substations within the nine San Francisco Bay Area counties and identified assets located in areas of likely high-tide inundation by 2050. Because this is a longer-term risk, PG&E is participating in a variety of initiatives to better understand and plan for potential impacts. The designated Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process.
Upstream	Not relevant, explanation provided	Not applicable to PG&E.
Downstream	Not relevant, explanation provided	Not applicable to PG&E.

## C2.2d

**(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

Climate-related risks for PG&E are defined as those that have a strategic impact on PG&E's business of providing safe, reliable, affordable and clean energy to its customers and impact the long-term sustainability of PG&E as a company. PG&E also manages climate-related opportunities through its strategic business planning process, including customer energy efficiency and transportation electrification.

**Board of Directors Oversight:** The Boards of Directors for PG&E Corporation and Pacific Gas and Electric Company generally oversee the companies' policies and programs to manage risks and opportunities and authorize specific oversight responsibilities to Board committees and an executive Risk Policy Committee consistent with the substantive scope of each committee's charter.

**Process Facilitation:** The Vice President, Internal Audit and Chief Risk Officer (CRO) of PG&E Corporation and Pacific Gas and Electric Company is responsible for overseeing the enterprise and operational risk management process, internal audit and insurance functions, market and credit risk management, and reporting to the Audit Committees of the PG&E Corporation and Pacific Gas and Electric Company Boards. The CRO also facilitates and is a voting member of the PG&E Corporation Risk Policy Committee and the Utility Risk Management Committee, both of which include a subset of senior officers of PG&E Corporation and Pacific Gas and Electric Company.

**Line of Business Implementation:** Each PG&E line of business develops and maintains a risk register—an inventory of risks specific to its operations. The risk registers are developed using a consistent methodology to identify, assess and prioritize risks and are refreshed each year to ensure that risk assessments capture any changes to risk levels. Each of these risk registers informs a PG&E-wide risk register that allows senior management to focus on the most significant risks. The senior-most executive of each line of business maintains a Risk and Compliance Committee, which has oversight responsibility for all associated activities for risk and compliance programs within their organization. In addition to these regular oversight committee meetings, senior officers come together annually as part of PG&E's integrated planning process to assess opportunities and review the company's risk portfolio, assess year-over-year progress, conduct deep dives on key risks, engage in "horizon scanning" to identify potentially emerging risks, and to establish the next year's goals for the risk management program.

**Asset-level:** On an ongoing basis, PG&E assesses the potential physical risks of climate change to our system and has identified a number of potential risks, including rising sea levels, major storm events, increasing temperatures and heatwaves, wildfires, drought, wind events and land subsidence. PG&E established an internal Climate Resilience Officer Committee to coordinate work across enterprise risk management; internal culture, integration and planning; and external engagement. To address near-term risks, PG&E has robust emergency response plans and procedures. For longer-term risks, PG&E's risk management program identifies potential impacts to the company and enables business units to evaluate risks to facilities and develop necessary adaptation strategies. Using climate science as a foundation, the Climate Resilience Officer Committee is overseeing a multi-year research plan to close gaps.

Additionally, to further strengthen PG&E's corporate sustainability reporting and focus, and to inform the company's overall corporate strategy, PG&E recently refreshed our "materiality" assessment -- identifying key priority issues and opportunities for the long-term sustainability of PG&E as a company and involved in-depth conversations with company leaders and key external stakeholders.

As an example related to physical risks, PG&E faces the risk of higher inundation and flooding potential at coastal and low elevation facilities due to sea level rise when combined with high tides, storm runoff and storm surges. This could result in the risk of damage to substations and other

gas and electric infrastructure. To address this, PG&E is conducting further foundational work, including piloting various tools to inform project design and planning.

As an example related to transition risks, PG&E faces both regulatory non-compliance risk associated with the California RPS program. PG&E manages these risks through competitive renewable energy solicitations, and works with regulators, environmental organizations and other stakeholders.

### **C2.3**

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**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

#### **C2.3a**

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**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

##### **Risk 1**

**Where in the value chain does the risk driver occur?**

Direct operations

##### **Risk type**

Transition risk

##### **Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

##### **Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

##### **Company-specific description**

In 2017, California's Renewable Portfolio Standard (RPS) required PG&E to increase our renewable energy to 33% of total retail sales by the end of 2020, and 50% by 2030. During 2017, 33% of PG&E's energy deliveries were from renewable energy sources, exceeding the annual RPS target of 27%. PG&E faces the regulatory risk of non-compliance, which invokes financial penalties. There is also a risk of increased procurement and integration costs.

##### **Time horizon**

Short-term

**Likelihood**

Very unlikely

**Magnitude of impact**

Medium-high

**Potential financial impact**

25,000,000

**Explanation of financial impact**

PG&E 's cost of compliance risk for not meeting California's RPS is \$50 per MWh, up to \$25 million per year.

**Management method**

PG&E uses a variety of approaches to achieve California's renewable energy goals, including competitive solicitations to procure renewable energy from third-parties and owning renewables projects ourselves. We work with regulators, environmental organizations and other stakeholders to ensure that we continue to manage our portfolio responsibly and in a way that is affordable for customers. The majority of PG&E's renewable resources come from contracts with third-party renewable energy companies. As of January 2018, PG&E had approximately 6,900 MW of active RPS-eligible contracts, in addition to 471 MW of active PG&E-owned eligible renewable generation.

**Cost of management**

2,400,000,000

**Comment**

To manage regulatory risks, compliance, and costs, PG&E 's renewable energy procurement and administrative costs in 2017 were approximately \$2.4 billion.

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**Risk 2**

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

**Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

**Company-specific description**

In 2011, the California Air Resources Board (ARB) adopted Cap-and-Trade regulations. As of 2015, both electricity and suppliers of natural gas are covered under the regulation, including PG&E and its service area. There is a risk that the design and implementation of the regulation will expose PG&E and our customers to unreasonably high costs. There is also a risk to PG&E of non-compliance with one or more elements of this complex regulation.

**Time horizon**

Short-term

**Likelihood**

Unlikely

**Magnitude of impact**

Medium-high

**Potential financial impact**

**Explanation of financial impact**

The California Air Resources Board's (ARB's) Cap-and-Trade regulation addresses financial implications of non-compliance. Penalties are four times the amount of allowances that an entity is short at the end of each compliance period, plus daily penalties if the 4 to 1 surrender requirement is not met within a certain time frame and \$10,000 per day per violation.

**Management method**

On an ongoing basis, PG&E participates in the ARB's process to amend the Cap-and-Trade Program and advocates for program design features that help mitigate costs to customers in our service area, such as allocating allowances to utilities for the benefit of their customers, access to a robust supply of high quality offsets, linkage to other jurisdictions, and an allowance price containment reserve, as well as many other provisions, including a price ceiling on allowances. PG&E has also conducted independent modeling to better understand Cap-and-Trade market fundamentals under different scenarios given California's ambitious 2030 GHG reduction target.

**Cost of management**

**Comment**

Management costs stem from any incremental full-time equivalent positions created to administer the program and comply with program requirements. The cost would be less than 1% of operating revenue, which was more than \$17 billion in 2017.

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**Risk 3**

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Policy and legal: Mandates on and regulation of existing products and services

**Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

**Company-specific description**

Uncertainty around state and federal GHG regulations may result in increased costs to PG&E customers. At the state level, California has aggressive economy-wide GHG reduction goals of 40% below the 1990 level by 2030. For example, ARB's Short-lived climate pollutant strategy (SLCP) was finalized, which includes policies that affect PG&E and its service area, including minimizing pipeline emissions (leaks and venting) and increasing renewable natural gas, among others. The ARB Oil and Natural Gas Regulation impacts PG&E compressor stations and natural gas storage facilities such as McDonald Island. The CPUC Gas Leak Abatement rulemaking minimizes natural gas leaks and advances greenhouse gas reduction goals. At the Federal level, the new administration has proposed to repeal and replace the Clean Power Plan and has withdrawn from international efforts to combat climate change.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-low

**Potential financial impact**

**Explanation of financial impact**

ARB's Oil and Gas Regulation addresses financial implications of non-compliance. If requirements are not met within a certain time frame there is a \$10,000 per day per violation.

**Management method**

Both the ARB Oil and Gas Regulation and the CPUC Gas Leak Abatement rulemaking require that PG&E conduct leak survey and repairs throughout PG&E's natural gas transmission and distribution operations across its service area. This requires investment in both mobile and stationary leak survey technology as well as new research and development into new technologies. For example, PG&E has made several programmatic changes to its leak and emission management practices to reduce methane emissions. PG&E's gas distribution organization moved to a three-year leak survey cycle starting January 1, 2018. Along with changes to the distribution leak management system, PG&E also made improvements to its transmission leak management practices in 2017. Specifically, PG&E implemented new repair timeline requirements for grade 3 leaks such that all grade 3 leaks must be repaired within 12 months of discovery. For the CPUC Gas Leak Abatement rulemaking, PG&E's 2018-2019 Compliance Plan is estimated to cost the company approximately \$61,000,000.

**Cost of management**

61,000,000

**Comment**

Management costs include the implementation of the following best management practices as identified in PG&E's 2018-2019 Methane Abatement Best Practices Compliance Plan: Blowdown reduction; 3-year leak survey cycle; Special leak survey; and Superemitter survey + leak repair.

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**Risk 4**

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Acute: Increased severity of extreme weather events such as cyclones and floods

**Type of financial impact driver**

Other, please specify (Increased operational cost)

**Company-specific description**

PG&E faces the risk of increased electricity demand and loads from its customers due to more extreme and prolonged hot weather events. Higher temperatures, including warmer daytime maximums and nighttime minimums, for prolonged periods, may also mean that certain electrical assets

may fail, become less efficient or less reliable, and may need to be modified or replaced. Higher electrical loads increase stress and management of electricity on the transmission system. There is also the risk of increased PG&E customer outages during extreme heat wave events.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

150,000,000

**Explanation of financial impact**

The July 2006 California heat-wave was estimated to have a \$150-300 million direct impact on PG&E due to costs to repair infrastructure and the increased price of electricity due to peak-demand. While this was a singular event, climate science suggests these events will likely occur more frequently.

**Management method**

For extreme heat events, PG&E's demand-response programs (e.g., SmartRate, Peak Day Pricing, SmartAC) have been implemented to mitigate peak demand. For example, the SmartAc Program allows PG&E to send a signal to a PG&E-provided device on a customer's air conditioner, cycling the air conditioner to use less energy. The program is offered May through October. In 2017, its 123,000 participants provided about 68 MW of potential load reduction that was available if needed. SmartMeter data can also be applied in near real-time for demand-side management during events. More broadly, PG&E has established an internal Climate Resilience Officer Committee, as well as a staff-level Climate Resilience Working Group, to coordinate work across enterprise risk management, integration and planning, and engagement. In 2018, PG&E is conducting a research deep-dive into heat wave impacts on its electric infrastructure. Findings will be considered in the 2019 risk and strategic planning process.

**Cost of management**

65,000,000

**Comment**

PG&E's expenditures for demand response programs in 2017 were more than \$65 million.

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**Risk 5**

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Acute: Increased severity of extreme weather events such as cyclones and floods

**Type of financial impact driver**

Other, please specify (Increased operational cost)

**Company-specific description**

Storm events in PG&E's service area can significantly impact PG&E's operations. This creates the need for emergency response from PG&E crews and require investments in infrastructure to make the system more resilient. There is an additional risk of infrastructure damage, customer outages and operational costs due to weather factors such as flooding, high winds and heavy snow.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

125,000,000

**Explanation of financial impact**

In April, 2015, the Bay Area Council Economic Institute published "Surviving the Storm," a report that finds that a Superstorm and the associated flooding could have a \$10.4 billion impact on the Bay Area economy. Included in the report is PG&E's estimate that disruption to our Bay Area substations could result in an economic impact of up to \$125 million. This estimate represents the associated outage cost—or loss of value—to PG&E customers, not the cost of replacing or repairing equipment.

**Management method**

PG&E meteorologists have implemented a storm model that provides the utility advance forecasts of wind, rain, lightning, and heavy snow event intensities in terms of outage estimates for each local PG&E Division and storm timing. PG&E maintains emergency response plans and procedures to address a range of near-term risks, including extreme storms, and uses its risk-assessment process to assess infrastructure investments for longer-term risks associated with climate change. PG&E also engages with leaders from business, government, academia, and non-profit organizations to share information and plan for the future.

### **Cost of management**

#### **Comment**

The CPUC allows utilities, including PG&E, to recover the reasonable, incremental costs of responding to catastrophic events through a Catastrophic Event Memorandum Account (CEMA). The CEMA authorizes PG&E to recover costs incurred in connection with a catastrophic event that has been declared a disaster or state of emergency by competent federal or state authorities.

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#### **Risk 6**

##### **Where in the value chain does the risk driver occur?**

Direct operations

##### **Risk type**

Physical risk

##### **Primary climate-related risk driver**

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

##### **Type of financial impact driver**

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

##### **Company-specific description**

PG&E faces the risk of reduced hydroelectric output. (PG&E owns and operates one of the nation's largest investor-owned hydroelectric system, which relies on nearly 100 reservoirs located primarily in the higher elevations of California's Sierra Nevada and Southern Cascade mountain ranges.) There is also increased risk to infrastructure from land subsidence that occurs as a result of increased groundwater extraction during extreme drought conditions. Climate scientists predict that climate change will result in varying levels of precipitation in PG&E's service area. This could, in turn, affect PG&E's hydroelectric generation. One of the wettest water years on record was 2017. According to NOAA, precipitation during the 2016-2017 water year exceeded 100 inches across the higher elevations in the Sierra Nevada Mountains, with lesser amounts, 25-50 inches, falling across lower elevations.

##### **Time horizon**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact****Explanation of financial impact**

Annual cost of impacts of climate change on hydroelectric production would vary greatly by year. In 2017, the Pacific Institute released an assessment of the costs to California of lost hydroelectricity during the five years of drought from 2012 to 2016. The report found that the five years of drought led to an increase in electricity costs of more than \$2.45 billion and the additional combustion of fossil fuels for electric generation also led to a 10% increase in the release of carbon dioxide from California power plants.

**Management method**

Development and calibration of new distributed runoff forecasting models are enabling PG&E to improve planning and better manage increased variability and extremes. Possible storage projects that would help mitigate the expected snowpack decline could potentially include the development of pump storage projects, new reservoir capacity, and additional capacity from other energy sources. To better understand precipitation patterns and potential impacts on PG&E's hydroelectric generation, the company is partnering with the University of California, Berkeley and the California Department of Water Resources on a multi-year research project involving PG&E's North Fork Feather River facilities. The research team is installing a next-generation hydrographic data network that integrates satellite remote sensing data with ground-based measurements. This will enable PG&E to better measure and monitor snowpack, climate, soil moisture and other factors to improve monitoring and predictive tools, reduce uncertainty in water forecasts and adapt to climate change. More broadly, PG&E has established an internal Climate Resilience Officer Committee, as well as a staff-level Climate Resilience Working Group, to coordinate work across enterprise risk management, integration and planning, and engagement.

**Cost of management****Comment**

To plan for this potential change in precipitation levels, PG&E is engaging with state and local stakeholders and is also adopting strategies such as maintaining higher winter carryover reservoir storage levels, reducing discretionary reservoir water releases, and collaborating on research and new modeling tools.

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**Risk 7****Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Chronic: Rising sea levels

**Type of financial impact driver**

Increased capital costs (e.g., damage to facilities)

**Company-specific description**

PG&E faces the risk of higher inundation and flooding potential at coastal and low elevation facilities due to sea level rise when combined with high tides, storm runoff, and storm surges. There is the risk of levee erosion or failure, putting assets at risk. PG&E also faces the risk of damage to substations and other gas and electric infrastructure.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Potential financial impact****Explanation of financial impact**

PG&E partnered with researchers at the UC Berkeley Center for Catastrophic Risk Management on a study to better understand how our gas transmission infrastructure may be impacted under the future risk of sea level rise coupled with a storm surge event. Based on a preliminary review of a worst case scenario of 1.4 meters of sea level rise coupled with a 100 year storm event, PG&E estimated the cost of mitigation efforts would be between \$4 and \$7 million annually.

**Management method**

PG&E engineers are evaluating low elevation electric and gas facilities to determine site specific sea level rise risks. Where risks are identified, temporary mitigation measures can be initiated while permanent engineered adaptations are planned. More broadly, PG&E has established an internal Climate Resilience Officer Committee, as well as a staff-level Climate Resilience Working Group, to coordinate work across enterprise risk management, integration and planning, and engagement. In 2018, PG&E piloted beta versions of newly developed Climate Visualization and

Screening tools on a significant transmission tower replacement initiative that is exposed to sea level rise. The results validated asset experts' desire to raise the transmission towers more than immediately necessary in light of future climate impacts. As a result, the transmission towers are being engineered to account for sea level rise projections.

## **Cost of management**

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### **Risk 8**

#### **Where in the value chain does the risk driver occur?**

Direct operations

#### **Risk type**

Physical risk

#### **Primary climate-related risk driver**

Chronic: Other

#### **Type of financial impact driver**

Other, please specify (Increased wildfire risk)

#### **Company-specific description**

PG&E faces the risk of increased wildfire frequency and intensity in its service area. Wildfires pose a threat to customers as well as PG&E assets such as electric transmission and distribution lines, gas infrastructure and hydroelectric assets -- also creating the need for emergency response from PG&E crews. There is an additional risk of increased customer outages and increased risk of erosion and landslides in affected areas, putting assets at risk. In October 2017, a series of wildfires destroyed homes, buildings and other properties across the North Bay within PG&E's service area. An extraordinary confluence of climate-driven conditions helped fuel the fires, including exceptionally high winds, low humidity, trees weakened by years of drought and bark beetle infestation, as well as new vegetation growth from the previous wet winter that provided abundant fuel.

#### **Time horizon**

Long-term

#### **Likelihood**

Likely

#### **Magnitude of impact**

Medium-high

**Potential financial impact**

2,500,000,000

**Explanation of financial impact**

Courts have applied inverse condemnation liability to events associated with investor-owned utility equipment, which means PG&E could be liable for property damages and attorneys' fees even if the company followed established inspection and safety rules. Claims from fall 2017 wildfires could exceed \$2.5 billion.

**Management method**

Increased wildfire risk necessitates comprehensive statewide policy and operational solutions to policy and operations including: (1) Regulatory: updating compliance requirements in high-risk wildfire zones; (2) Legal: engaged in multiple forums to challenge the application of inverse condemnation at the trial, appellate, and state supreme court levels; (3) Legislative: advocating to address impacts of climate change and the need for comprehensive solutions to help the state adapt to meet the challenges of the "new normal"; (4) Operations: taking concrete steps to further reduce future wildfire risk by establishing a Wildfire Safety Operations Center, executing enhanced vegetation management practices, and, longer term, hardening our electric system. PG&E maintains a robust vegetation management program to prevent trees and other vegetation from contacting the company's equipment. Beginning in 2016, the company approximately doubled its previous spending on line clearing and tree removal to respond to the tree mortality crisis in California. The company also enhanced its mitigation efforts with additional patrols of high-risk areas using a combination of aerial surveillance, foot patrols and LiDAR technology. PG&E's Community Wildfire Safety Program implements additional precautionary measures intended to reduce wildfire threats and strengthen our communities for the future following the 2017 wildfires.

**Cost of management****Comment**

Seasonal wildland fire frequencies have increased throughout PG&E's service area. PG&E's strategy is grounded in three pillars: 1) Respond: support the effectiveness of first responders, 2) Rebuild: support fire-impacted communities as they rebuild, and 3) Resilience: Support California in climate and infrastructure resilience.

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**C2.4**

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**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

**C2.4a**

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**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**  
Identifier

**Opp1****Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Resource efficiency

**Primary climate-related opportunity driver**

Use of more efficient production and distribution processes

**Type of financial impact driver**

Reduced operating costs (e.g., through efficiency gains and cost reductions)

**Company-specific description**

PG&E is required by the California Public Utilities Commission to achieve energy efficiency savings targets. In 2017, PG&E set a goal to achieve 1,144 GWh and 18.6 million therms in customer energy savings. PG&E has a strong track record of meeting or exceeding these goals and can earn a financial incentive for achieving the CPUC-approved customer energy efficiency targets.

**Time horizon**

Current

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

21,900,000

**Explanation of financial impact**

PG&E can earn a financial incentive for achieving the CPUC-approved customer energy efficiency targets. PG&E has earned between \$20-25 million per year based on historical averages. In 2017, PG&E was awarded \$21.9 million.

**Strategy to realize opportunity**

PG&E's Customer Care organization, led by the Chief Customer Officer, is responsible for our efforts to deliver the best experience for each and every customer. This includes using data to improve the customer experience, localizing our presence and strategies in the communities we

serve, empowering customers with greater choice and control over how they manage their energy use, and continuously integrating customer feedback to improve our products and services. We reach customers through a variety of channels, from self-service software tools that provide customized energy insights, to PG&E's seasoned business customer account representative, who provide ongoing support for commercial and industrial customers of all sizes. We are proactively giving residential customers Home Energy Reports, which provide information about their energy use, along with personalized tips on how they can save energy. For large business customers, we are using energy management tools that enable us to have strategic discussions and recommend the best mix of our products and services. For example, about 1.5 million PG&E residential customers receive easy-to-read Home Energy Reports. They show customers how their energy use stacks up against similar households in their area and provide personalized tips on saving energy. In 2017 the estimated electric savings totaled nearly 121 GWh and total natural gas savings came to over four million therms.

**Cost to realize opportunity**

424,700,000

**Comment**

In 2017, PG&E had an energy efficiency budget of \$424.7 million—a significant investment in energy efficiency by a U.S. utility. This budget is collected from customers via public purpose program charges embedded in gas and electric rates, and is therefore revenue-neutral to PG&E. To increase our impact, we also partner with state and local governments, community partners and third-party energy efficiency specialists.

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**Opp2**

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Participation in carbon market

**Type of financial impact driver**

Other, please specify (Expanded markets)

**Company-specific description**

PG&E has consistently supported the California Air Resources Board's (ARB) efforts to broaden the Cap-and-Trade market to jurisdictions beyond California. PG&E supported linkage with Québec as a critical first step in broadening California's Cap-and-Trade market through linking with other jurisdictions. Larger more diverse markets enhance the prospects for efficient market outcomes, eventually leading to lower-cost emission reduction opportunities. PG&E also supports the memorandum of understanding signed with the Pacific Coast Collaborative (including Oregon, Washington, and British Columbia) and the California Governor's stated intention of pursuing partnership opportunities with Mexico. PG&E's

Climate Policy Principles guide us in our engagement efforts and advocate for policies that “ultimately, create a linked North American multi-sector cap-and-trade program that provides the majority of abatement needed to reach science-based 2030 and 2050 GHG reduction goals for California and the larger linked program area.” For the complete principles, see C12.3f.

**Time horizon**

Short-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium

**Potential financial impact**

**Explanation of financial impact**

If the California Cap-and-Trade program links with other jurisdictions, then additional compliance instruments at a lower cost may become available and enable PG&E to reduce its cost of compliance with the program.

**Strategy to realize opportunity**

PG&E is supporting the California Air Resources Board (ARB)’s efforts to broaden the Cap-and-Trade market to jurisdictions beyond California. For example, to do so, PG&E has engaged with other states, trade associations such as IETA, and programs like the Regional Greenhouse Gas Initiative (RGGI) to discuss cost-effective, politically feasible approaches to promote market-based programs. PG&E engages through public meetings and writing comment letters on design elements.

**Cost to realize opportunity**

0

**Comment**

These costs are integrated into our business model.

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**Opp3**

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of supportive policy incentives

**Type of financial impact driver**

Returns on investment in low-emission technology

**Company-specific description**

The Low Carbon Fuel Standard (LCFS) is a core component of California’s climate change strategy, and is expected to contribute approximately 20% of the greenhouse gas reductions required by AB 32. It requires fuel suppliers to reduce the carbon intensity of certain transportation fuels 10% below 2010 levels by 2020. As a supplier of a low-carbon fuel, the LCFS allows PG&E to generate and sell LCFS credits on behalf of our electric and natural gas vehicle customers. Through this program, PG&E earns credits when customers charge their EVs or purchase compressed natural gas for their vehicles, which we sell to LCFS-regulated parties and then pass on to our customers, as a \$500 Clean Fuel Rebate for electric vehicle owners, and as an on-bill credit for compressed natural gas vehicle drivers.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Potential financial impact**

**Explanation of financial impact**

The LCFS drives additional abatement in the transportation sector beyond the Cap-and-Trade program, which enables PG&E to reduce its cost of compliance with the program.

**Strategy to realize opportunity**

PG&E has the opportunity to participate in the LCFS credit market. In 2016, PG&E sold LCFS credits and returned revenue to residential electric vehicle owners for the first time. The LCFS is also important because it requires fuel suppliers to actively participate in the state’s GHG emission reduction goals under AB 32 and SB 32. PG&E constructively engages with the California Air Resources Board (ARB) on matters relating to the LCFS. Through SB 32 and as part of the Scoping Plan Update process, ARB announced the proposed extension of the LCFS with a carbon-intensity reduction target of 18% below 2010 levels by 2030. ARB’s is currently undertaking a rulemaking process to extend the LCFS to 2030 proposes a carbon-intensity reduction target of 20% below 2010 levels by 2030, along with a number of administrative changes, including

additional opportunities for LCFS credit generation. PG&E filed comments in April 2018 expressing support for the program, but concern about the increased stringency of the 2030 target and applied administrative improvements. Adoption of the amended regulation is expected in late 2018. For example, PG&E's EV Charge Network program is a three-year \$130 million dollar program (2018-2020) designed to install 7,500 Level 2 chargers at multi-unit dwelling and workplaces. PG&E will pay for, maintain, and coordinate all "make ready" infrastructure from the transformer to the parking space.

**Cost to realize opportunity**

130,000,000

**Comment**

PG&E's CPUC- approved EV Charge Network program is a three-year \$130 million dollar program (2018-2020) designed to install 7,500 Level 2 chargers at multi-unit dwelling and workplaces. PG&E will pay for, maintain, and coordinate all "make ready" infrastructure from the transformer to the parking space.

**C2.5**

**(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

	Impact	Description
Products and services	Impacted	PG&E's products and services are shaped by our customers and California's climate and clean energy policies. They range from a portfolio of customer energy solutions such as energy efficiency programs to projects related to grid modernization, renewable integration, energy storage, and electric vehicle infrastructure. For example, PG&E offers the Solar Choice program, which allows customers to purchase up to 100% of their power from solar energy, and the Regional Renewable Choice program, which enables customers to purchase renewable energy from a specific renewable project of their choice within PG&E's service area. In addition, PG&E recently received approval to develop two new, five-year programs aimed at increasing fast charging options for consumers as well as electric charging infrastructure for non-light-duty fleet vehicles. These combine with PG&E's EV Charge Network program for light-duty vehicles to represent a significant effort to spur the adoption of electric vehicles. Generally speaking, risks and opportunities related to products and services have a high impact on our business.
Supply chain and/or value chain	Impacted	In an effort to both reduce risk and maximize leadership opportunities, PG&E has a process for identifying, assessing, mitigating and monitoring environmental, social and governance risks in the company's supply chain. PG&E is working to reduce our environmental footprint through product choices and procurement strategies that measurably improve our environmental profile. We use the "reduce-reuse-recycle" framework to guide our strategies and plans. Examples include working to phase-out SF6 from our electrical equipment as it becomes available, replacing substation lighting with LED units, and recycling end-of-life electric grid assets and computer equipment. Generally speaking, risks and opportunities related to our supply chain can have a high impact on our business.

	Impact	Description
Adaptation and mitigation activities	Impacted	The need to adapt to climate change to protect our assets and maintain service reliability has driven an increased focus on understanding potential vulnerabilities and solutions, which, in turn, is guiding our investments in improvements and operations to enhance short- and long-term resilience. PG&E is also responding to climate-related risks in the communities we serve through the Better Together Resilient Communities grant program. Through the program, PG&E is investing \$2 million over five years to support local climate resilience initiatives. In 2017, PG&E awarded \$100,000 each to the University of California, Merced; the Karuk Tribe of California; Ag Innovations; and Sierra Institute. PG&E's low-carbon transition plan is shaped by California's climate and clean energy policies and is developed through PG&E's strategic planning process and related scenarios. It includes working to reduce our carbon footprint by: integrating more clean and renewable energy onto the grid; continuing to invest in a smarter grid to incorporate new energy technologies as they are introduced, to give customers maximum flexibility, choice and value; and reducing the carbon footprint of internal operations through the deployment of cleaner vehicles and fuels, reduction of natural gas-related emissions, and facility energy efficiency. Generally speaking, risks and opportunities related to climate adaptation and mitigation can have a high impact on our business.
Investment in R&D	Impacted	PG&E's investments in R&D are designed to support core utility operations, emerging California policy goals, and the needs of our customers. Our research aligns with our vision to integrate new energy devices and technologies with the grid, build climate resilience, and enable PG&E's customers to capture greater value from their energy technology investments. For example, PG&E conducts R&D in collaboration with other gas utilities and pipeline operators -- developing, testing and deploying numerous technologies. Applications include: system integrity management, gas leak surveys and repairs, damage prevention, data collection and information processing, monitoring, and construction techniques. PG&E primarily conducts electric emerging technology demonstrations through the Electric Program Investment Charge (EPIC) program, a statewide program designed to prepare PG&E and the utility industry for upcoming challenges of a changing grid landscape. Generally speaking, risks and opportunities related to investment in R&D can have a medium impact on our business.
Operations	Impacted	Extreme weather events driven by climate change are causing unprecedented and unanticipated wildfires. Years of drought, extreme heat and 129 million dead trees have created a new normal for our state, and we must continue to adapt to meet these challenges. PG&E's Community Wildfire Safety Program implements additional precautionary measures intended to reduce wildfire threats and strengthen our communities for the future following the October 2017 wildfires. We are bolstering wildfire prevention and emergency response efforts, putting in place new and enhanced safety measures, and doing more over the long term to harden our electric system to help reduce wildfire risks and to keep our customers safe. Generally speaking, risks and opportunities related to operations can have a high impact on our business.
Other, please specify	Please select	

## C2.6

### (C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Not yet impacted	Pacific Gas and Electric Company (the Utility) generates revenues mainly through the sale and delivery of electricity and natural gas to customers. As a regulated entity, the Utility's rates for electric and natural gas utility services are set at levels that are intended to allow the Utility to recover its costs of providing service and a return on invested capital. The electric power industry is undergoing significant change driven by technological advancements and a decarbonized economy, which could materially impact the Utility's operations, financial condition, and results of operations. Forecasted revenue impacts have a wide range of uncertainty. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Operating costs	Not yet impacted	The Utility owns and operates extensive electricity and natural gas facilities. PG&E Corporation's and the Utility's financial results primarily depend on the outcomes of regulatory and ratemaking proceedings and the Utility's ability to manage its operating expenses and capital expenditures so that it is able to earn its authorized rate of return in a timely manner. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Capital expenditures / capital allocation	Not yet impacted	PG&E undertakes substantial capital investment projects to construct, replace, and improve its electricity and natural gas facilities. PG&E Corporation's and the Utility's financial results primarily depend on the outcomes of regulatory and ratemaking proceedings and the Utility's ability to manage its operating expenses and capital expenditures so that it is able to earn its authorized rate of return in a timely manner. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Acquisitions and divestments	Not impacted	The identified risks and opportunities have not been integrated into this area.
Access to capital	Not yet impacted	The outcome or market perception of the investigations and litigation in connection with the Northern California wildfires, and the outcome or market perception of other litigation and enforcement matters, could reduce or eliminate PG&E Corporation's and PG&E's access to the capital markets and other sources of financing, which could have a material adverse effect on PG&E Corporation and the Utility. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Assets	Not yet impacted	Severe weather conditions, extended drought and shifting climate patterns could materially affect PG&E Corporation's and the Utility's business, financial condition, results of operations, liquidity, and cash flows. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Liabilities	Not yet impacted	PG&E Corporation's and the Utility's financial condition, results of operations, liquidity, and cash flows could be materially affected by potential losses resulting from the impact of the Northern California wildfires. PG&E Corporation and the Utility also expect to be the subject of additional lawsuits and could be the subject of additional

	Relevance	Description
		wildfire-related investigations, citations, fines or enforcement actions. For more information see PG&E's Annual Report to Shareholders Item 1a. Risk Factors, beginning on page 27.
Other	Please select	

### C3. Business Strategy

#### C3.1

##### (C3.1) Are climate-related issues integrated into your business strategy?

Yes

#### C3.1a

##### (C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

##### (C3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

#### C3.1c

##### (C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

PG&E's vision states: "With a sustainable energy future as our North Star, we will meet the challenge of climate change while providing affordable energy for all customers." Climate change is integrated into PG&E's business objectives and strategy in several ways: (1) Reducing our carbon footprint through clean and renewable energy, reducing energy use in facilities, reducing methane and other emissions in operations, investing in lower-emission vehicles and fuels, and building a more sustainable supply chain; (2) Helping customers achieve energy savings and GHG reductions through leading programs for energy efficiency, electric vehicle charging stations, demand response, and solar installation; and (3) Helping communities better understand, plan for and respond to climate change risks through partnerships.

PG&E's business strategy is shaped by California's clean energy goals. For example, AB 32 requires the state to reduce GHG emissions to 1990 levels by 2020 and SB 32 requires 40% below 1990 levels by 2030. PG&E supported the extension of California's Cap-and-Trade program through AB 398 which will continue helping decarbonize the state's economy and provide strong consumer protection. PG&E's earnings are also separated from the amount of gas and electricity we sell through "decoupling," which allows us to focus on pursuing customer energy efficiency;

PG&E follows the state's "loading order," which prioritizes meeting energy demands through demand reduction, renewable energy, and then clean and efficient fossil generation.

Additionally, reflecting California's changing energy landscape, PG&E partnered with labor and leading environmental organizations in 2016 on a joint proposal that would increase investment in energy efficiency and renewables while retiring our Diablo Canyon Power Plant at the end of its current operating licenses, which expire in 2024 and 2025. In January 2018, the CPUC approved several key elements of the joint proposal agreement, including approval to cease plant operations once the operating licenses expire.

Aspects of climate change that influence PG&E's business strategy include: regulatory risks, physical risks, and reputational risks. For example, the need to adapt to climate change to protect our assets and maintain service reliability has driven an increased focus on understanding potential vulnerabilities and solutions, which, in turn, is guiding our investments in facility improvements and operations to enhance short- and long-term resilience. Additionally, PG&E recently refreshed its third-party led materiality assessment, which identified priorities for the long-term sustainability of our business. Developed through a structured process that included interviews with internal and external stakeholders, the assessment identified numerous material issues related to climate change, including PG&E's GHG emissions, renewable energy, and climate change resilience. PG&E's Corporate Sustainability team then worked with the Corporate Strategy team to ensure the results of the materiality assessment informed and were appropriately reflected in PG&E's business strategy.

PG&E recognizes that our resilience to climate change is tied to the resilience of the communities we serve. PG&E launched the Better Together Resilient Communities grant program through which PG&E will invest \$2 million over five years in shareholder-funded grants to support local initiatives to build greater climate resilience. PG&E has chosen extreme heat events as the focus for the 2018 grant program. In 2017, PG&E awarded \$100,000 each to the University of California, Merced; the Karuk Tribe of California; Ag Innovations; and Sierra Institute. Each won for projects designed to help communities prevent and prepare for increasing wildfire risk by building healthy and resilient forests and watersheds. The results of the grants will be made publicly available to help communities better understand, plan for and respond to climate change risks and encourage partnership with others.

In the short-term, climate change has influenced PG&E's business strategy in numerous ways.

Reducing our carbon footprint:

- Integrating more clean and renewable energy onto the grid
- Continuing to invest in a smarter grid to incorporate new distributed energy technologies as they are introduced and adopted by our customers
- Reducing the carbon footprint of internal operations through the deployment of cleaner fleet vehicles, reduction of natural gas-related emissions, and facility energy efficiency
- Continuing to invest in energy storage technology toward requirement of 580 MW by 2020, in order to support the integration of greater levels of intermittent renewable resources
- Pursuing opportunities for low-carbon and renewable natural gas supply

Helping customers achieve energy savings and GHG reductions:

- Offering a full portfolio of programs and options for energy efficiency, demand response and solar energy, including PG&E's Solar Choice program, which allows customers who are unable to install private rooftop solar to buy up to 100% solar power
- Offering choice and control through rate options, financial assistance programs and other resources
- Installing up to 7,500 Level 2 EV charging stations at multi-family dwellings and workplaces over the next three years
- Customer communications to promote energy choices such as energy efficiency, demand response, solar and renewable energy

Helping build sustainable communities:

- Investing in community resilience projects and providing grants to educate and prepare communities to plan and respond to climate change risks
- Helping local governments develop strategies and plans to save energy and reduce emissions, and connecting them with PG&E programs and other resources to help them meet their energy goals
- Empowering customers with near real-time energy usage information, tools leveraging SmartMeters and supporting local community resilience

Key components of our long-term strategy include our multi-year, risk-assessment process to inform infrastructure investments for longer-term climate change risks. We also remain committed to the state's clean energy goals, including SB 32 and SB 350 implementation – and meeting these commitments in a cost-effective manner.

Finally, one substantial business decision that we made in 2017 was to launch the "Million Ton Challenge". This was driven by the importance of PG&E doing its part to address the climate challenge by reducing its own emissions. The Million Ton Challenge is a new, voluntary five-year carbon reduction goal for PG&E's operations. The goal is to avoid one million tons of cumulative greenhouse gas emissions from our operations from 2018 through 2022, compared to a 2016 baseline.

### C3.1d

**(C3.1d) Provide details of your organization's use of climate-related scenario analysis.**

Climate-related scenarios	Details
Other, please specify (PG&E proprietary scenarios )	PG&E conducts proprietary modeling to assess key drivers of change for PG&E's relevant markets and to assess future risks and opportunities for PG&E's business strategy. PG&E's scenarios include its entire electric and natural gas utility business and includes specific assumptions for how climate-related factors could shape key elements of future markets including policy, technology, and customer trends. California's climate policies are a key component of the scenarios and set an overall emissions trajectory in line with 2°C goals. AB 32 requires the state to reduce GHG emissions to 1990 levels by 2020 and SB 32 requires 40% below 1990 levels by 2030. California's policy goals and regulatory structures including energy efficiency, vehicle and building electrification, renewable energy and energy storage factor prominently in the formation of assumptions

Climate-related scenarios	Details
	<p>used in our modeling. As a result, PG&amp;E considered 2030 as the time horizon for its analysis. A range of market conditions, including demographics, household income growth, natural gas and carbon prices are also incorporated. Finally, technology costs are also integrated into the modeling for distributed generation, utility scale solar, energy storage and conventional natural gas fired generation. PG&amp;E's qualitative scenarios are assessed every two years through a modeling exercise to produce insights to inform PG&amp;E's business strategy. The results of the scenario analyses indicate the continued importance of energy efficiency and load control, increased reliance on renewable energy and the need to manage over-generation associated with growth of intermittent generation and the opportunities associated with transportation and building electrification, and renewable natural gas. The findings of the scenario analyses have informed PG&amp;E's business strategy including the transition toward clean transportation. PG&amp;E's continued focus on expanding fueling infrastructure for zero emission vehicles supports state policy and GHG reduction goals and reflects scenario analysis results. For example, PG&amp;E continues to implement its three-year EV Charge Network program, under which we will install up to an additional 7,500 charging stations over the next three years. In June 2018, PG&amp;E received CPUC approval to develop two new, five-year EV programs – the Fast Charge Program and the FleetReady Program. The Fast Charge Program will focus on public fast chargers while the FleetReady Program will focus on charging infrastructure for medium-duty, heavy-duty and off-road fleets.</p>

**(C3.1e) Disclose details of your organization’s low-carbon transition plan.**

PG&E is pursuing a far-reaching, low-carbon transition plan across our electric and natural gas systems and within our own facilities. PG&E’s plan is shaped by California’s climate and clean energy policies and is further developed by PG&E’s strategic planning process and our related scenarios.

In 2017, 33% of our delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy. PG&E reached California’s 2020 renewable energy goal three years ahead of schedule and we are well positioned to meet the state’s new 60% by 2030 renewable energy mandate set forth in Senate Bill (SB) 100. PG&E follows the state’s “loading order,” which prioritizes reducing electricity demand through energy efficiency and demand response -- ahead of renewable and conventional sources of energy. Further, state policy "decouples" gas and electric profits from energy sales -- meaning PG&E does not make money through energy sales -- which enables PG&E to aggressively pursue energy efficiency for customers without the prospect of a financial loss. Other components of our strategy include the following activities.

Reducing our carbon footprint by:

- Integrating more clean and renewable energy onto the grid
- Continuing to invest in a smarter grid to incorporate new distributed energy technologies as they are introduced and adopted by our customers.
- Reducing the carbon footprint of internal operations through the deployment of cleaner fleet vehicles, reduction of natural gas-related emissions, and facility energy efficiency in our buildings and facilities across our service area

- Pursuing opportunities for low-carbon and renewable natural gas supply

Helping customers achieve energy savings and GHG reductions by:

- Offering a full portfolio of programs and options for energy efficiency, demand response and solar energy
- Offering choice and control through rate options, financial assistance programs and other resources
- Expanding fueling infrastructure for zero emission vehicles
- Customer communications to promote decarbonization of their energy choices through energy efficiency, demand response, renewable energy, and zero emission vehicles

Helping build sustainable communities by:

- Investing in community resilience projects and providing grants to educate and prepare communities to plan and respond to climate change risks
- Helping local governments develop strategies and plans to save energy and reduce emissions, and connecting them with PG&E programs and other resources to help them meet their energy goals

We have strengthened our commitment to reduce greenhouse gases from our internal operations -- launching the "Million Ton Challenge," a new, voluntary five-year carbon reduction goal for PG&E's operations. The goal is to avoid one million tons of cumulative greenhouse gas emissions from our operations from 2018 through 2022, compared to a 2016 baseline.

Key elements of our strategy include:

1. Natural gas system: Reducing methane emissions from our operations through leak detection and repair, pipeline replacement, and reducing transmission pipeline blowdowns
2. Vehicle fleet: Adopting cleaner vehicles and fuels as they become commercially available
3. Facilities: Reducing energy usage and installing solar PV on targeted facilities
4. SF6: Integrating SF6-free equipment at electric substations as suppliers bring alternatives to market

Several milestones track the performance of our steps to reduce our carbon footprint, including:

1. Clean energy: In 2017, 33% of our delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy
2. Reduced methane emissions: Avoided the release of nearly 270,000 metric tons of CO<sub>2</sub>e from natural gas-related emissions through gas pipeline/infrastructure upgrades and other gas processes
3. Reduced SF6 emissions: Achieved an SF6 emission rate of 0.5%, exceeding the state target of 1% by 2020
4. Quantified climate risks: Our first Risk Assessment Mitigation Phase filing to the CPUC included a quantitative analysis of how a changing climate may be increasing risk to PG&E and customers

#### **C4. Targets and performance**

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## C4.1

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### (C4.1) Did you have an emissions target that was active in the reporting year?

Both absolute and intensity targets

#### C4.1a

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### (C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

#### Abs 1

#### Scope

Scope 1 +2 (market-based)

*GHG emissions included in this target are: natural gas transmission and distribution fugitive and process methane and carbon dioxide emissions; greenhouse gas emissions from the vehicle fleet; and greenhouse gas emissions associated with the consumption of electricity and natural gas consumption at PG&E owned buildings.*

#### % emissions in Scope

34

#### % reduction from base year

10

#### Base year

2016

#### Start year

2018

#### Base year emissions covered by target (metric tons CO<sub>2</sub>e)

1,668,052

#### Target year

2022

#### Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

#### % achieved (emissions)

0

**Target status**

New

**Please explain**

In 2017, PG&E developed a five-year greenhouse gas emission reduction goal for its operations (including natural gas transmission and distribution, vehicle fleet and PG&E facilities). The voluntary goal entails a 10% reduction from a 2016 baseline by 2022. As part of this goal, PG&E launched a Million Ton Challenge, a five-year strategy to reduce and avoid 1 million tons of cumulative greenhouse gas emissions from 2018-2022. PG&E set and started to phase in the emission reduction goal in 2017; the first year in which the company is tracking progress towards the goal is 2018.

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**Abs 2**

**Scope**

Scope 1+2 (market-based) +3 (downstream)

*The C&T target years include 2020 and 2030. California's 2030 target is consistent with IPCC recommendations. California's 2016 GHG inventory showed that emissions are already lower than 1990 levels.*

**% emissions in Scope**

70

**% reduction from base year**

**Base year**

1990

**Start year**

2012

**Base year emissions covered by target (metric tons CO2e)**

**Target year**

2020

**Is this a science-based target?**

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

**% achieved (emissions)**

**Target status**

Underway

**Please explain**

PG&E's target is to comply with Assembly Bill 32 (AB 32), Assembly Bill 398 (AB 398), and Senate Bill 32 (SB 32) and we are committed to helping the state meet its long-term greenhouse gas (GHG) reduction targets: (1) AB 32 mandates the reduction of California's GHG emissions to the 1990 level of 431 million metric tons of CO<sub>2</sub>e by 2020. Under AB 32, PG&E and other "covered entities" that emit significant amounts of GHG emissions in California are included in a Cap-and-Trade (C&T) program for GHG emissions. The regulation became effective on January 1, 2012, and the program began implementation on January 1, 2013. The C&T program is one of many measures being implemented under AB 32 to meet the 2020 GHG emission reduction goal. More than 70% of PG&E's total Scope 1, 2, and 3 emissions were covered by the C&T program in 2017. The law covers emissions from PG&E's fossil-fuel power plants, natural gas compressor stations, electricity imported into California and emissions from the combustion of natural gas delivered to customers. (2) AB 398, passed in 2017, extended the C&T program out to 2030. (3) SB 32, passed in 2016, requires the state to achieve a 40% reduction in greenhouse gases by 2030 compared to 1990 levels. PG&E is prohibited from disclosing any non-public information concerning allowance auction participation, which could include expected emissions trends.

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**Abs 3****Scope**

Scope 3: Use of sold products

**% emissions in Scope****% reduction from base year****Base year**

2016

**Start year**

2017

**Base year emissions covered by target (metric tons CO<sub>2</sub>e)****Target year**

2017

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**% achieved (emissions)**

**Target status**

New

**Please explain**

In 2017, PG&E had the following customer energy efficiency savings goals: 1,144 GWh electric energy savings, 193 MW of peak electric demand, and 18.6 million therms of natural gas. In 2017, PG&E had an energy efficiency budget of \$424.7 million—a significant investment in energy efficiency by a U.S. utility. This budget is collected from customers via public purpose program charges embedded in gas and electric rates, and is therefore revenue-neutral to PG&E. In 2017, PG&E exceeded its goals: 130% of its gross electric energy savings goal (1,487 gross annual GWh); 166% of its gross electric demand reduction goal (320 gross summer peak MW); and 179% of its gross gas savings goal (33 gross annual million therms). These results helped save customers approximately \$300 million on their energy bills and avoided 802,034 metric tons of CO<sub>2</sub> emissions.

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**C4.1b**

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**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).****Int 1****Scope**

Scope 1

**% emissions in Scope**

1.2

**% reduction from baseline year**

90

**Metric**

Other, please specify (SF6 system wide leak rate)

**Base year**

2011

**Start year**

2011

**Normalized baseline year emissions covered by target (metric tons CO<sub>2</sub>e)**

**Target year**

2020

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**% achieved (emissions)**

99

**Target status**

Underway

**Please explain**

PG&E set and exceeded a voluntary emission reduction target for sulfur hexafluoride (SF6) leaks from our electric transmission and distribution system, as part of our participation in U.S. EPA's SF6 Reduction Partnership. We continue to implement controls and tracking measures to enhance our successful program in compliance with California regulations, which require that the maximum annual SF6 emission rate decline from 10% in 2011 to 1% in 2020 and beyond. In 2017, PG&E's SF6 emission rate dropped to 0.5% in 2017, exceeding the 1% emission rate target for 2020. As part of a multi-year effort, PG&E is piloting the installation SF6-free high-voltage circuit breakers and gas-insulated switchgear.

**% change anticipated in absolute Scope 1+2 emissions****% change anticipated in absolute Scope 3 emissions**

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**Int 2****Scope**

Scope 3: Waste generated in operations

**% emissions in Scope**

0

**% reduction from baseline year****Metric**

Other, please specify (waste diversion rate)

**Base year**

2016

**Start year**

2017

**Normalized baseline year emissions covered by target (metric tons CO2e)**

**Target year**

2017

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**% achieved (emissions)**

100

**Target status**

Underway

**Please explain**

In 2017, PG&E achieved a 76% waste diversion rate based upon available waste data from Q3 and Q4, measuring all non-hazardous municipal waste at 115 sites. PG&E also has a five-year goal to achieve top decile performance relative to a benchmark of utility peers. Overall waste emissions are expected to decrease over the long term as PG&E strives towards a higher diversion rate.

**% change anticipated in absolute Scope 1+2 emissions**

**% change anticipated in absolute Scope 3 emissions**

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**C4.2**

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**(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.**

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**(C-OG4.2a) Explain, for your oil and gas production activities, why you do not have a methane-specific emissions reduction target or do not incorporate methane into your targets reported in C4.2; and forecast how your methane emissions will change over the next five years.**

This question is not applicable to PG&E.

**C4.3**

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**(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

**C4.3a**

**(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	10	776
To be implemented*	260	2,500
Implementation commenced*	250	2,800
Implemented*	210	396,380
Not to be implemented	2	221

**C4.3b**

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

**Activity type**

Process emissions reductions

**Description of activity**

Changes in operations

**Estimated annual CO2e savings (metric tonnes CO2e)**

343,560

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

2,046,522

**Investment required (unit currency – as specified in CC0.4)**

0

**Payback period****Estimated lifetime of the initiative****Comment**

As reported through our participation in the U.S. EPA's Methane Challenge Program, PG&E avoided the release of 682 mmcf of natural gas in 2017. These savings were achieved through cross compression/drafting and upgrades to gas pipelines and other infrastructure.

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**Activity type**

Fugitive emissions reductions

**Description of activity**

Other, please specify (SF6 emissions)

**Estimated annual CO2e savings (metric tonnes CO2e)**

25,105

**Scope**

Scope 1

**Voluntary/Mandatory**

Mandatory

**Annual monetary savings (unit currency – as specified in CC0.4)****Investment required (unit currency – as specified in CC0.4)**

0

**Payback period****Estimated lifetime of the initiative****Comment**

PG&E reduced Scope 1 SF6 emissions by implementing SF6 tracking, early detection measures for circuit breakers, and an active breaker replacement program. We continue to implement controls and tracking measures to enhance our successful program in compliance with ARB's regulation for reducing SF6 emission rates. PG&E's SF6 emission rate dropped to 0.5% in 2017.

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**Activity type**

Other, please specify (Environmental remediation sites)

**Description of activity**

<Not Applicable>

**Estimated annual CO2e savings (metric tonnes CO2e)**

1,074

**Scope**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)****Investment required (unit currency – as specified in CC0.4)**

0

**Payback period****Estimated lifetime of the initiative****Comment**

PG&E reduced its emissions in 2017 across 99 environmental remediation sites through the use of alternative fuels; high-tier, lower-emitting remediation/construction equipment; reductions in business travel and mobilizations to remediation sites; sustainable remediation techniques; and increased material reuse and/or recycling of waste. Cumulatively since 2010, we have achieved over 79,000 metric tonnes of CO2e emission reductions.

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**Activity type**

Other, please specify (Waste Diversion)

**Description of activity**

<Not Applicable>

**Estimated annual CO2e savings (metric tonnes CO2e)**

21,481

**Scope**

Scope 3

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

**Investment required (unit currency – as specified in CC0.4)**

0

**Payback period**

**Estimated lifetime of the initiative**

**Comment**

In 2017, we improved recycling, composting, and waste reduction efforts at 115 locations, achieving a 76% diversion rate. Waste emissions are calculated using the U.S. EPA WARM model, which calculates lifecycle emissions and not necessarily annual reductions in emissions.

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**Activity type**

Energy efficiency: Building services

**Description of activity**

Building controls

**Estimated annual CO2e savings (metric tonnes CO2e)**

242

**Scope**

Scope 2 (market-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

**Investment required (unit currency – as specified in CC0.4)**

0

**Payback period**

**Estimated lifetime of the initiative**

**Comment**

In 2017, PG&E targeted our top energy-consuming sites and kicked off a program of energy efficiency upgrades by installing interior and exterior LED lighting with advanced lighting control systems. We also piloted an internal PG&E Step Up and Power Down initiative at three sites, which was a campaign to engage employees around energy efficiency and energy-saving actions, which also contributed to our facility sustainability performance.

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**Activity type**

Other, please specify (Low carbon vehicle fleet)

**Description of activity**

<Not Applicable>

**Estimated annual CO2e savings (metric tonnes CO2e)**

4,918

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

1,125,918

**Investment required (unit currency – as specified in CC0.4)**

0

**Payback period**

**Estimated lifetime of the initiative**

6-10 years

**Comment**

As part of our commitment to reduce our operational footprint, we continue to incorporate innovative new vehicles into our fleet. Of our nearly 9,000 on-road vehicles, we achieved our target with over 30% alternative fueled and high efficiency vehicles powered by compressed natural gas (CNG), electricity, or other alternatives as of 2017. To support the growing number of electric vehicles in our fleet, PG&E has installed more than 670 electric vehicle charging points at 105 locations across our service area. PG&E accrues emission reductions through the life of the vehicles; the average life of PG&E’s light- and heavy-duty vehicles is 8 to 10 years.

**C4.3c****(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Compliance with regulatory requirements/standards	PG&E uses an integrated planning process to link our business strategy with resource planning. Grounded in benchmarking and continuous improvement, the process keeps us focused on our key objectives and helps us deliver results. This process is informed, in part, by an external Sustainability Advisory Council, which regularly engages with PG&E leaders to identify new areas of opportunity, inspire collaboration with new partners, and help elevate issues within and outside the company. As part of PG&E’s integrated planning process, California’s bold climate and energy goals serve as a catalyst for PG&E to assess costs and opportunities for low-carbon investments. AB 32 requires the state to reduce GHGs to 1990 levels by 2020 and includes a Cap-and-Trade Program among other program measures. AB 398 extended California’s Cap-and-Trade program for reducing greenhouse gas emissions and providing cost protections for energy consumers to 2030. California’s Renewable Portfolio Standard (RPS), which requires 33% renewable energy by the end of 2020 and 50% by 2030, drives investment in GHG emission reduction activities such as low- and zero-GHG electricity purchases and installations. SB 32 codified an aggressive economy-wide GHG reduction goal of 40% below the 1990 level by 2030. Compliance with SB 1368, which prohibits any load-serving entity in California such as PG&E from entering into a long-term financial commitment for conventional electricity generation unless it complies with a GHG emission performance standard, also drives investment in lower emissions generation.
Dedicated budget for energy efficiency	In 2017, PG&E had an energy efficiency budget of \$424.7 million—a significant investment in energy efficiency by a U.S. utility. In 2017, PG&E exceeded its energy efficiency goals by achieving 1,487 gross annual GWh; 320 gross summer peak MW; and 33 gross annual million therms. These results avoided the emission of approximately 802,034 metric tons of CO2.
Employee engagement	PG&E has a dedicated budget to engage its employees to contribute towards the Million Ton Challenge.

Method	Comment
Other	PG&E integrates emission reduction activities into business plans and core budgets to reduce our Scope 1 SF6 emissions.
Other	PG&E integrates emission reduction activities into business plans and core budgets to reduce our Scope 1 methane emissions from our natural gas transmission and distribution system.
Other	PG&E integrates activities into business plans and core budgets to improve our fleet's energy efficiency and to incorporate innovative new, low-emissions vehicles into our fleet.
Other	PG&E integrates emission reduction activities into business plans and core budgets to improve our facility energy efficiency and to incorporate leading energy efficiency building designs.

#### C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

#### C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

##### Level of aggregation

Company-wide

##### Description of product/Group of products

PG&E offers customers some of the nation's cleanest energy. In 2017, 33% of our delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy. PG&E reached California's 2020 renewable energy goal three years ahead of schedule and we are well positioned to meet the state's new 60% by 2030 renewable energy mandate set forth in Senate Bill (SB) 100.

##### Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

##### Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (California Renewable Portfolio Standard)

##### % revenue from low carbon product(s) in the reporting year

**Comment**

PG&E is required to deliver an average of ~30% over the 2017 to 2020 period. By the end of 2017, 33% of the electricity PG&E delivered to its customers came from RPS-eligible resources, meeting the state's interim target.

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**Level of aggregation**

Group of products

**Description of product/Group of products**

PG&E's Solar Choice program allows customers to purchase up to 100% of their power from solar energy, locally sourced in Northern and Central California. PG&E's Regional Renewable Choice program enables customers to purchase renewable energy from a specific renewable project of their choice within PG&E's service area.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (Green-e Energy certification)

*Green-e Energy certification (for both Solar Choice and Regional Renewable Choice).*

**% revenue from low carbon product(s) in the reporting year****Comment**

PG&E's Solar Choice program began enrollment in 2016 and allows customers who are unable to install private rooftop solar to buy up to 100% solar power. In 2017, the cost to participate in the program dropped by 30% for residential customers and by nearly 50% for some business customers. This significant cost reduction is thanks in part to PG&E's continued investment in clean energy infrastructure throughout its service area, including eight new solar sites being built for the program by renewable developers in Northern and Central California. PG&E's Regional Renewable Choice program expands clean energy access by enabling customers to work directly with developers of new renewable projects. Through the program, customers may contract with developers and subscribe to a portion of the power produced from a newly developed renewable project based in PG&E's service area. Customers can subscribe to between 25 and 100% of their energy use. Through the program, PG&E will work with local renewable energy developers across Northern and Central California that will build small- and mid-sized renewable projects ranging from 0.5 to 20 megawatts. The energy for these new projects must be from renewable resources including but not limited to solar, wind or biomass.

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**Level of aggregation**

Group of products

**Description of product/Group of products**

PG&E offers customers a comprehensive portfolio of energy efficiency options.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (CPUC approved Energy Efficiency program)

**% revenue from low carbon product(s) in the reporting year**

**Comment**

Serving residential, commercial, agricultural, and other customers across the state, PG&E delivers energy efficiency solutions that empower customers to eliminate unnecessary energy use, reduce their carbon footprint, and save money. In 2017, PG&E continued its role as a leader in EE, delivering a dynamic and cost-effective portfolio of programs. 2017 marked the continuation of ambitious EE partnerships and successful programs. PG&E focused on key initiatives to drive deep energy savings and position the state to meet its ambitious EE and carbon reduction goals.

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**Level of aggregation**

Group of products

**Description of product/Group of products**

PG&E offers customers a comprehensive portfolio of demand response options to reduce consumer electricity use at periods of high demand.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (CPUC approved Demand Response program)

**% revenue from low carbon product(s) in the reporting year**

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**Level of aggregation**

Group of products

**Description of product/Group of products**

EV Charge Network program, Fast Charge Program and FleetReady Program

**Are these low-carbon product(s) or do they enable avoided emissions?**

Low-carbon product and avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (CPUC approved EV Charge Network program)

**% revenue from low carbon product(s) in the reporting year**

**Comment**

In December 2016, the California Public Utilities Commission (CPUC) approved a three-year program to install 7,500 Level 2 electric vehicle (EV) chargers at multi-unit dwelling and workplaces. The chargers will be installed throughout PG&E's service area between 2018 and 2020. One in five electric vehicles in the United States plugs into PG&E's grid – totaling more than 150,000 EVs in PG&E's service area at the end of 2017. In June 2018, PG&E received CPUC approval to develop two new, five-year EV programs – the Fast Charge Program and the FleetReady Program. The Fast Charge Program will focus on public fast chargers while the FleetReady Program will focus on charging infrastructure for medium-duty, heavy-duty and off-road fleets.

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**C-EU4.6**

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**(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your electricity generation activities.**

PG&E's efforts to reduce methane emissions from its natural gas transmission and distribution operations include methane reduction targets, methane reduction projects, and collaborative initiatives to reduce methane emissions through both mandatory and voluntary programs.

PG&E launched the "Million Ton Challenge," a new, voluntary five-year carbon reduction goal for the company's operations (as described in C4.1a). The goal is to avoid one million tons of cumulative greenhouse gas emissions from our operations from 2018 through 2022, compared to a 2016 baseline. PG&E's natural gas transmission and distribution system is included in this carbon reduction goal, specially reducing methane emissions from our operations through leak detection and repair, pipeline replacement, and reducing transmission pipeline blowdowns. Natural gas distribution and transmission methane emissions totaled 1.54 million metric tons CO<sub>2</sub>e in 2016, the baseline year for the Million Ton Challenge.

PG&E continues to use state-of-the-art detection technology to find and eliminate methane leaks in our natural gas distribution system. In fact, PG&E has pioneered emerging technologies across the board, including becoming the first gas company in the world to employ the Picarro Surveyor, which is 1,000 times more sensitive than traditional leak detection equipment; using infrared technology to pinpoint methane gas leaks; and deploying drones equipped with a methane detection sensor originally developed by NASA to help find evidence of life on Mars. We're building on these industry-leading practices by implementing more leak surveys and repairs, replacing pipeline segments and equipment, and improving our operations with a focus on avoiding venting methane emissions when taking a pipeline out of service for inspection or repairs.

In 2017, PG&E made several programmatic changes to the company's leak and emission management practices in an effort to reduce methane emissions. Most notably, PG&E increased the distribution pipeline system-wide survey frequency from a five-year survey cycle to a four-year survey cycle. To increase survey frequency, PG&E has invested in greater numbers of leak survey personnel and continued its investment in the vehicle-based leak detection system, Picarro. Furthermore, PG&E gas distribution moved to a three-year leak survey cycle starting January 1, 2018. Along with changes to the distribution leak management system, PG&E also made improvements to its transmission leak management practices in 2017. Specifically, PG&E implemented new repair timeline requirements for grade 3 leaks such that all grade 3 leaks must be repaired within 12 months of discovery.

In June 2017 the California Public Utilities Commission adopted 26 best practices related to natural gas leak abatement, which emphasize minimizing methane emissions through changes to policies and procedures, recordkeeping, personnel training, leak detection, leak repair and leak prevention. One of the state's goals is to reduce methane emissions by 40% from 2013 levels by 2030. PG&E's gas leak abatement program includes annual methane emission tracking reporting, and a biennial best practice compliance plan submission. PG&E's two-year plan (2018-2019) includes incremental work that is planned to result in approximately 552 MMscf methane emission reductions, or to reduce PG&E's 2015 reported methane emissions by 17%.

In 2017, the California Air Resources Board began implementation of the Oil & Gas Regulation. This regulation covers PG&E's compressor stations and gas storage facilities. The regulation directs compressors and storage facility operators to perform quarterly leak surveys, to repair leaks quickly after discovery and to install stationary ambient methane detectors at storage facilities.

The Environmental Protection Agency's (EPA) Methane Challenge was launched in 2016 with PG&E as one of its 41 founding partners. The challenge is designed to give oil and gas companies, including utilities, a voluntary platform to make specific and transparent commitments to reduce methane emissions, including through the investment in technology. PG&E's commitments include adopting the EPA identified best management practices in the following categories: excavation damages, transmission pipeline blowdowns, centrifugal compressor venting, pneumatic controllers, and reciprocating compressor venting. More information on PG&E's participation is available on EPA's Methane Challenge website.

#### **C-OG4.6**

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**(C-OG4.6) Describe your organization's efforts to reduce methane emissions from oil and gas production activities.**

#### **COG4.7**

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**(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?**

No, this is not relevant to our operations

#### **C-OG4.7b**

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**(C-OG4.7b) Explain why you do not conduct LDAR or use other methods to find and fix fugitive methane emissions, and whether you have a plan to do so from your oil and gas production activities.**

**C-OG4.8**

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**(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.**

**C5. Emissions methodology**

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**C5.1**

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**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

**Scope 1**

**Base year start**

January 1, 2009

**Base year end**

December 31, 2009

**Base year emissions (metric tons CO<sub>2</sub>e)**

3,218,256

**Scope 2 (location-based)**

**Base year start**

January 1, 2009

**Base year end**

December 31, 2009

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,060,153

**Scope 2 (market-based)**

**Base year start**

January 1, 2009

**Base year end**

December 31, 2009

**Base year emissions (metric tons CO<sub>2</sub>e)**

997,983

**C5.2**

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**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

The Climate Registry: Electric Power Sector (EPS) Protocol

The Climate Registry: General Reporting Protocol

Other, please specify (California and EPA protocols)

**C5.2a**

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**(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

In 2015, the California Public Utilities Commission required all natural gas utilities to report yearly natural gas emissions from all sources pursuant to the Order Instituting Rulemaking to Adopt Rules and Procedures Governing Commission-Related Natural Gas Pipelines and Facilities to Reduce Natural Gas Leakage Consistent with Senate Bill 1371 (R.15-01-008). PG&E's report was used to determine releases (both intentional and unintentional) from PG&E's natural gas system. The California Climate Action Registry (CCAR) Draft Natural Gas Transmission & Distribution (T&D) Protocol, (April 2009) and the U.S. EPA and California Air Resources Board Subpart W reporting protocols were used to derive estimates for the majority of PG&E's fugitive and process emissions from our natural gas T&D system. For certain emission sources in our natural gas T&D system for which we had more accurate methodologies and available data, PG&E used our own system-specific calculation methodologies to estimate emissions, which in general were more accurate. Emission factors obtained from past measurement studies, such as the 1996 GRI/EPA report, were used to calculate emissions where actual measurement values are not available and there is insufficient data to provide engineering estimates.

**C6. Emissions data**

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**C6.1**

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**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?****Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

4,281,599

## C6.2

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**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

## C6.3

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**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Scope 2, location-based**

650,527

**Scope 2, market-based (if applicable)**

359,241

**Comment**

PG&E calculates Scope 2 emissions as the portion of our electricity use attributed to purchased electricity. We use an adjustment of our own emission rate (136 pounds CO2/MWh in 2017), which is still undergoing third-party verification.

## C6.4

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**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

No

## C6.5

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**(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

1,000,000

**Emissions calculation methodology**

In collaboration with UC Berkeley and Climate Earth, PG&E mapped its 72,000+ line item expenditures (2007-2009) to product categories in the Comprehensive Environmental Data Archive for Economic and Environmental Systems Analysis (CEDA 3.0). CEDA uses economic input-output tables and industry-level environmental data to construct a top-down database of environmental impact per dollar of sales from an industry for all 430 sectors of the U.S. economy. This mapping exercise helped PG&E quantify greenhouse gas emissions associated with goods and services procured in our supply chain. This study was based on 2007-2009 procurement data. At this time, PG&E does not plan to conduct this study on a regular basis given the lack of expected variation in results, year over year.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Capital goods**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

As a supplier of electricity and natural gas, PG&E capital goods consist primarily of energy infrastructure and purchased electricity and natural gas. The emissions associated with our energy production and natural gas transmission and distribution are accounted for in our Scope 1 and Scope 2 emissions, and there are no other material emissions from our capital goods.

**Fuel-and-energy-related activities (not included in Scope 1 or 2)**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

5,298,114

**Emissions calculation methodology**

Reported to The Climate Registry in accordance with the Electric Power Sector (EPS) protocol. For energy deliveries, PG&E refers to the Power Source Disclosure Report (PSDR), a report that PG&E submits annually to the California Energy Commission. This report details the name, identification numbers, fuel types, and net kWh purchased for every power plant (renewable and non-renewable) from which PG&E purchases electricity. PG&E reports the CO2 emission rates for its owned power plants to the United States Environmental Protection Agency (U.S. EPA)

annually. These rates, multiplied by the amount of electricity sourced from each of its owned power plants each year (from the PSDR), total the CO2 emissions from PG&E's owned generation. To determine CO2 emissions for purchased power, PG&E refers to the U.S. EPA eGRID database for CO2 emission rates, and multiplies these by the net MWh sourced by facility.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

**Upstream transportation and distribution**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E's supply chain primarily consists of upstream purchased electricity and natural gas. Energy use and losses in transporting electricity and natural gas is accounted for in our Scope 1 and Scope 2 emissions, and there are no other material transportation and distribution emissions upstream.

**Waste generated in operations**

**Evaluation status**

Not relevant, calculated

**Metric tonnes CO2e**

1,162

**Emissions calculation methodology**

PG&E measures volumes and weights of waste generated at all facilities, and inputs this data to the U.S. EPA WARM Model Lifecycle GHG comparison. PG&E uses industry standard volume-to-weight conversions to generate tonnages for each weight type in instances where haulers do not provide primary weight data.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

20

**Business travel**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

3,829

**Emissions calculation methodology**

These figures represent the emissions associated with flights booked through any of the travel agencies that PG&E employs. These figures do not include emissions from flights booked by employees on personal or company credit cards as those emissions are difficult to track and quantify. Miles traveled are multiplied by emission factors from Department for Environment, Food, and Rural Affairs (DEFRA), Updated: October 5, 2010, Version 1.2.1.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Employee commuting**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

2016

**Emissions calculation methodology**

Employees were surveyed on miles traveled and mode of transport as part of PG&E's General Office LEED survey. Passenger miles traveled were input to the GHG Protocol Mobile Combustion GHG Emission Calculation Tool, v2.3 with custom emission factors for light rail from the U.S. Department of Transportation (0.3 pounds CO2/passenger mile traveled), and San Francisco BART (0.13 pounds CO2/passenger mile traveled).

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Upstream leased assets**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E has entered into capital lease agreements to purchase energy and capacity with independent power producers that own generation facilities that meet the definition of a QF under federal law. Emissions from these sources are included in PG&E's Scope 3 emissions for electricity delivered to customers, included above.

**Downstream transportation and distribution**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E delivers electricity and natural gas directly to customers. There are no downstream operations to account for emissions in this category.

**Processing of sold products**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E delivers electricity and natural gas directly to customers. Any emissions from the processing of natural gas we deliver are included in Fuel-and-Energy-related activities above.

**Use of sold products**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

36,288,903

**Emissions calculation methodology**

Reported to the California Air Resources Board (ARB) in accordance with the AB 32 Mandatory Reporting Regulation (MRR) and to The Climate Registry. Excludes natural gas used by generating stations to generate electricity delivered to customers (Scope 3 Electricity Purchased for Customers). This category includes CO2e from purchased natural gas that is delivered to customers. The figure represents the emissions from the combustion of natural gas delivered to all entities on PG&E's distribution system, with the exception of gas delivered to other natural gas local distribution companies, as well as gas delivered to PG&E facilities such as power plants, compressor stations, and offices, the emissions of which are reported separately.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**End of life treatment of sold products**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

The use of electricity and natural gas does not have a significant source of emissions related to disposal of the products.

**Downstream leased assets**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E did not lease assets during the reporting year.

**Franchises**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E did not operate any franchises during the reporting year.

**Investments**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E did not have significant emissions due to investments that are not captured in Scopes 1 and 2, or listed elsewhere on this table.

**Other (upstream)**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E did not operate any upstream assets during the reporting year.

**Other (downstream)**

**Evaluation status**

Not relevant, explanation provided

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

PG&E did not operate any downstream assets during the reporting year.

**C6.7**

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**(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?**

No

**C6.10**

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**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

0.00027

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

4,640,840

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

17,138,000,000

**Scope 2 figure used**

Market-based

**% change from previous year**

3.3

**Direction of change**

Decreased

**Reason for change**

Overall Scope 1 and Scope 2 emissions decreased approximately 6.2% due to emission reduction activities and reduced electricity generation from company-owned natural gas power plants in 2017. PG&E's revenue also decreased 3%. Emission reduction activities include cross compression/drafting and upgrades to gas pipelines and other infrastructure (natural gas processing); SF6 tracking, early detection measures for circuit breakers, and an active breaker replacement program; alternative fuels, high-tier & lower-emitting remediation/construction equipment, reductions in business travel and mobilizations to remediation sites, sustainable remediation techniques, and increased material reuse and/or recycling of waste at remediation sites; improved recycling, composting, and waste reduction efforts; energy efficiency upgrades at top energy-consuming sites; and alternative fuel-or electric-powered vehicles into our fleet.

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**Intensity figure**

0.81

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

4,640,840

**Metric denominator**

Other, please specify (Net MWh, owned natural gas generation)

**Metric denominator: Unit total**

5,712,489

**Scope 2 figure used**

Market-based

**% change from previous year**

6.1

**Direction of change**

Decreased

**Reason for change**

PG&E's emissions per MWh of owned natural gas generation decreased in 2017. Absolute Scope 1 and 2 emissions decreased approximately 6.2% and MWh generation from Scope 1 natural gas-fired electricity generation decreased by 0.1%.

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**C-OG6.12**

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**(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.**

**C-OG6.13**

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**(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.**

**C7. Emissions breakdowns**

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**C7.1**

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**(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

Yes

**C7.1a**

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**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

<b>Greenhouse gas</b>	<b>Scope 1 emissions (metric tons of CO2e)</b>	<b>GWP Reference</b>
CO2	2635964	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	1619138	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	1469	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	851	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	24169	IPCC Fifth Assessment Report (AR5 – 100 year)

**C-EU7.1b**

**(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.**

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	1,318	500,29	1.03	1,427,147	
Combustion (Electric utilities)	2,528,425	48	0	2,531,013	
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)					
Emissions not elsewhere classified					

**C-OG7.1b**

**(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.**

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives (Oil:Total)				
Fugitives (Oil: Venting)				
Fugitives (Oil: Flaring)				
Fugitives (Oil: E&P, excluding venting and flaring)				
Fugitives (Oil: All Other)				
Fugitives (Gas: Total)				
Fugitives (Gas: Venting)				

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives (Gas: Flaring)				
Fugitives (Gas: E&P, excluding venting and flaring)				
Fugitives (Gas: Midstream)				
Fugitives (Gas: All other)				
Combustion (Oil: Upstream, excluding flaring)				
Combustion (Gas: Upstream, excluding flaring)				
Combustion (Refining)				
Combustion (Chemicals production)				
Combustion (Electricity generation)				
Combustion (Other)				
Process emissions				
Emission not elsewhere classified				

### C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	4,281,599

### C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

#### C7.3c

**(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

Activity	Scope 1 emissions (metric tons CO2e)
Sulfur Hexafluoride (SF6) from Electrical Equipment	24,169
Facility Natural Gas Use	7,444
Gas Compressor Stations	229,900
Owned Fossil Electric Generation	2,294,169
Process and Fugitive Emissions from Natural Gas System	1,619,263
Fleet (transportation emissions)	104,467
Other Emissions (e.g., propane use, stationary equipment gas and diesel use)	2,187

**(C7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions, metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	4,281,599	<Not Applicable>	
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	0	<Not Applicable>	
Oil and gas production activities (downstream)	0	<Not Applicable>	
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

**C7.5**

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United States of America <i>PG&amp;E consumed approximately 289,607 MWh of electricity in 2017. Of this consumption, approximately 142,064 MWh was purchased; the remaining 147,543 MWh was generated by PG&amp;E-owned facilities.</i>	650,527	359,241	289,607	200,807

**C7.6**

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By activity

**C7.6c**

**(C7.6c) Break down your total gross global Scope 2 emissions by business activity.**

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
T&D Line Losses	580,652	340,936
Facility Electricity Use	34,542	9,026
Compressor Station Electricity Use	35,181	9,240

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Electricity Use by Fleet	153	40

### C7.9

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Decreased

### C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities	373,825	Decreased	7.6	Total Scope 1 and Scope 2 emission reductions due to emissions reduction activities include 1) energy efficiency (building services): 242 MT CO2e, 2) natural gas process and fugitive emissions savings: 343,560 MT CO2e, 3) alternative fuel use in fleet vehicles: 4,918 MT CO2e, and 4) fugitive SF6 emissions: 25,105 MT CO2e. Because PG&E's total Scope 1 and Scope 2 emissions in 2016 were 4,946,730 MT CO2e, emissions reductions activities were responsible for reducing emissions by approximately 7.6% [100*(373,825/4,946,740) = 7.6%]
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Mergers		<Not Applicable>		
Change in output	30,293	Increased	1.3	PG&E produced less electricity from its own natural gas power plants in 2017 and produced 4.6% more electricity from its greenhouse gas-free resources, including large hydro and nuclear. However, the emissions rate of natural gas generation increased and resulted in an increase in output-related emissions.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

### C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Market-based

### C8. Energy

#### C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

**C8.2**

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

**C8.2a**

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	3,795	13,929,075	13,932,870
Consumption of purchased or acquired electricity	<Not Applicable>	60,137	229,470	289,607
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	63,932	14,158,545	14,222,477

**C8.2b**

**(C8.2b) Select the applications of your organization's consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

**C8.2c**

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

**Fuels (excluding feedstocks)**

Biodiesel

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

3,795

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Compressed Natural Gas (CNG)

**Heating value**

**Total fuel MWh consumed by the organization**

15,423

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Fuel Oil Number 2

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

237,669

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Jet Kerosene

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

9,722

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Motor Gasoline

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

184,314

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Propane Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

1,899

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

13,611,471

**MWh fuel consumed for the self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**C8.2d**

---

**(C8.2d) List the average emission factors of the fuels reported in C8.2c.**

**Biodiesel**

**Emission factor**

9.45

**Unit**

kg CO2 per gallon

**Emission factor source**

Climate Registry Default Emission Factors

**Compressed Natural Gas (CNG)**

**Emission factor**

110

**Unit**

lb CO2 per 1000 cubic ft3

**Emission factor source**

Climate Registry Default Emission Factors

**Comment**

Converted to 110 lb CO2/1000 ft3 from 0.05 kg CO2/standard cubic foot (factor given in source)

**Fuel Oil Number 2**

**Emission factor**

73.96

**Unit**

kg CO2 per million Btu

**Emission factor source**

EPA Part 98

**Jet Kerosene**

**Emission factor**

9.75

**Unit**

kg CO2 per gallon

**Emission factor source**

Climate Registry Default Emission Factors

**Motor Gasoline**

**Emission factor**

70.22

**Unit**

kg CO2 per million Btu

**Emission factor source**

EPA Part 98

**Natural Gas**

**Emission factor**

53.02

**Unit**

kg CO2 per million Btu

**Emission factor source**

EPA Part 98

**Propane Gas**

**Emission factor**

61.46

**Unit**

kg CO2 per million Btu

**Emission factor source**

EPA Part 98

---

**(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	34,800,037	147,543	1,224,263	16,120
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

**C-EU8.2e**

**(C-EU8.2e) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.**

**Coal – hard**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Lignite**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Oil**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Gas**

**Nameplate capacity (MW)**

1,605

**Gross electricity generation (GWh)**

5,712

**Net electricity generation (GWh)**

5,712

**Absolute scope 1 emissions (metric tons CO2e)**

2,291,847

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

401.2

**Biomass**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Waste (non-biomass)**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Nuclear**

**Nameplate capacity (MW)**

2,323

**Gross electricity generation (GWh)**

17,951

**Net electricity generation (GWh)**

17951

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Geothermal**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Hydroelectric**

**Nameplate capacity (MW)**

2,342

**Gross electricity generation (GWh)**

9,912

**Net electricity generation (GWh)**

9,912

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Wind**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Solar**

**Nameplate capacity (MW)**

162

**Gross electricity generation (GWh)**

298

**Net electricity generation (GWh)**

298

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Other renewable**

**Nameplate capacity (MW)**

294

**Gross electricity generation (GWh)**

926

**Net electricity generation (GWh)**

926

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Other non-renewable**

**Nameplate capacity (MW)**

0

**Gross electricity generation (GWh)**

0

**Net electricity generation (GWh)**

0

**Absolute scope 1 emissions (metric tons CO2e)**

0

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

**Total**

**Nameplate capacity (MW)**

6,726

**Gross electricity generation (GWh)**

34,800

**Net electricity generation (GWh)**

34,800

**Absolute scope 1 emissions (metric tons CO2e)**

2,291,847

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

65.86

**C8.2f**

---

**(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.**

**Basis for applying a low-carbon emission factor**

Grid mix of renewable electricity

**Low-carbon technology type**

Solar PV

Concentrated solar power (CSP)

Wind

Hydropower

Nuclear

Biomass (including biogas)

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**

200,807

**Emission factor (in units of metric tons CO2e per MWh)**

0

After accounting for consumed electricity through the Solar Choice program, nearly 68% of delivered electricity was delivered by zero-emitting resources  $[(\% \text{ zero-emitting}) * (\text{electricity consumption} - \text{Solar Choice MWh}) + \text{Solar Choice MWh}] = \sim 68\% * (289,607 - 13,749) + 13,749 = 200,807$ .

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#### **C-EU8.4**

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**(C-EU8.4) Does your electric utility organization have a global transmission and distribution business?**

Yes

#### **C-EU8.4a**

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**(C-EU8.4a) Disclose the following information about your global transmission and distribution business.**

**Country/Region**

United States of America

**Voltage level**

Transmission (high voltage)

**Annual load (GWh)**

**Scope 2 emissions (basis)**

Market-based

**Scope 2 emissions (metric tons CO2e)**

**Annual energy losses (% of annual load)**

2.9

**Length of network (km)**

30,899

**Number of connections**

**Area covered (km2)**

**Comment**

As of December 31, 2017, PG&E owned approximately 19,200 circuit miles of interconnected transmission lines operating at voltages ranging from 60 kV to 500 kV. The Utility also operated 92 electric transmission substations with a capacity of approximately 64,700 MVA. The Utility's

electric transmission system is interconnected with electric power systems in the Western Electricity Coordinating Council, which includes many western states, Alberta and British Columbia, and parts of Mexico.

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**Country/Region**

United States of America

**Voltage level**

Distribution (low voltage)

**Annual load (GWh)**

82,226

**Scope 2 emissions (basis)**

Market-based

**Scope 2 emissions (metric tons CO2e)****Annual energy losses (% of annual load)**

6.5

**Length of network (km)**

172,522

**Number of connections****Area covered (km2)****Comment**

PG&E's electric distribution network consists of approximately 107,200 circuit miles of distribution lines (of which approximately 20% are underground and approximately 80% are overhead), 59 transmission switching substations, and 605 distribution substations, with a capacity of approximately 31,800 MVA. PG&E's distribution network interconnects with its transmission system, primarily at switching and distribution substations, where equipment reduces the high-voltage transmission voltages to lower voltages, ranging from 44 kV to 2.4 kV, suitable for distribution to PG&E's customers.

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**C9. Additional metrics**

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**C9.1**

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

**C-EU9.5a**

**(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.**

Primary power generation source	CAPEX planned for power generation from this source	Percentage of total CAPEX planned for power generation	End year of CAPEX plan	Comment
Please select				

**C-EU9.5b**

**(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).**

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan

**C-EU9.6**

**(C-CO9.6/C-EU9.6/C-OG9.6) Disclose your investments in low-carbon research and development (R&D), equipment, products, and services.**

**C-OG9.7**

**(C-OG9.7) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid/ share buybacks.**

**C10. Verification**

**C10.1**

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

## C10.1a

---

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.**

**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year-previous statement of process attached

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

[Verification Statement.pdf](#)

**Page/ section reference**

Entire document

**Relevant standard**

The Climate Registry's General Verification Protocol

**Proportion of reported emissions verified (%)**

100

---

**Scope**

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year-previous statement of process attached

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

[Verification Statement.pdf](#)

**Page/ section reference**

Entire document

**Relevant standard**

The Climate Registry's General Verification Protocol

**Proportion of reported emissions verified (%)**

100

---

**Scope**

Scope 2 market-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year-previous statement of process attached

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

[Verification Statement.pdf](#)

**Page/ section reference**

Entire document

**Relevant standard**

The Climate Registry's General Verification Protocol

**Proportion of reported emissions verified (%)**

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**C10.1b**

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**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

**Scope**

Scope 3- all relevant categories

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Attach the statement**

**Page/section reference**

Entire document

**Relevant standard**

California Mandatory GHG Reporting Regulations (CARB)

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**C10.2**

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**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

**C10.2a**

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**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C7. Emissions breakdown	Year on year emissions intensity figure	The Climate Registry	PG&E reports its carbon dioxide emissions rate annually to The Climate Registry. In 2017, this rate, which is still undergoing third-party verification, was 136 pounds of CO2 per megawatt-hour of delivered electricity, taking into account both PG&E-owned power generation and power purchased from third parties.

## C11. Carbon pricing

### C11.1

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

Yes

#### C11.1a

**(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.**

California CaT

#### C11.1b

**(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

**California CaT**

**% of Scope 1 emissions covered by the ETS**

60

**Period start date**

January 1, 2017

**Period end date**

December 31, 2017

**Allowances allocated**

42,000,000

## Allowances purchased

## Verified emissions in metric tons CO<sub>2</sub>e

### Details of ownership

Facilities we own and operate

### Comment

Under California Air Resources Board (ARB) rules, PG&E is prohibited from disclosing any non-public information concerning auction participation. PG&E is required under the regulation to consign all of its allocated electric distribution utility (EDU) allowances for sale in ARB-run auctions. In 2017, PG&E was required to consign at least 35% of its allocated allowances as a natural gas supplier for sale in ARB-run auctions. This amount will increase by 5% each year through 2020. PG&E has been authorized by the CPUC to procure allowances needed to meet its GHG compliance obligations.

## C11.1d

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### **(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

PG&E has a compliance obligation under ARB's C&T program for emissions from: Our electric generation units that exceed the inclusion threshold; Imported electricity; Natural gas compressor stations; and Natural gas delivered to customers that are not separately covered by the C&T program. Each year, PG&E receives an allowance allocation for the following calendar year. PG&E's obligations with respect to the allocation differ based on whether the allowances are associated with its business as an EDU, or its business as a natural gas supplier. Under the C&T program, allowances are allocated to EDUs at no cost for the benefit of their customers. PG&E is required under the regulation to consign its EDU allowances in ARB-managed auctions. PG&E then purchases the allowances needed to meet its own physical or contractual GHG compliance obligations through these auctions or in the secondary market. Starting in 2015, allowances are also allocated to natural gas suppliers at no cost for the benefit of their customers. Only a portion of these allowances are required to be consigned to auction with the remainder being used directly for compliance. The ARB requires the consignment minimum to increase by 5% per year. Compliance entities can also purchase offset credits from certified parties that develop projects that reduce GHG in sectors not regulated under the cap, such as forest management, destruction of ozone depleting substances, and methane capture projects. Compliance entities can then use the ARB-issued offset credits to satisfy up to 8% of their compliance obligations up to 2020. On specified deadlines, entities must surrender compliance instruments (i.e., allowances and offset credits) in an amount equal to their GHG emissions during the period, to the ARB. To manage regulatory risks, compliance, and costs, PG&E developed a GHG procurement strategy as part of its Bundled Procurement Plan that was approved by the CPUC. This strategy allows PG&E to employ several procurement mechanisms such as: (a) participation in ARB's quarterly allowance auctions and its Allowance Price Containment Reserve, (b) bilateral transactions via a Request for Offers process, and (c) transacting via exchanges. In December 2014, PG&E received GHG procurement authority to cover PG&E's compliance obligation as a natural gas supplier. More broadly, PG&E's approach to climate change policy is managed by a cross-functional team comprised of representatives from across the company. The team meets regularly and actively coordinates with PG&E's leadership to share developments at the state and national levels and seek approval on policy positions.

**C11.2**

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**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

Yes

**C11.2a**

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**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

**Credit origination or credit purchase**

Credit purchase

**Project type**

Forests

**Project identification**

Improved Forest Management: City of Arcata-Barnum Track Project

**Verified to which standard**

CAR (The Climate Action Reserve)

**Number of credits (metric tonnes CO2e)**

182

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

182

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

---

**Credit origination or credit purchase**

Credit purchase

**Project type**

Forests

**Project identification**

Improved Forest Management: City of Arcata-Lucchesi Tract Project

**Verified to which standard**

CAR (The Climate Action Reserve)

**Number of credits (metric tonnes CO2e)**

20

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

20

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

---

**Credit origination or credit purchase**

Credit purchase

**Project type**

Forests

**Project identification**

Improved Forest Management: City of Arcata-Sunnybrae Tract Project

**Verified to which standard**

CAR (The Climate Action Reserve)

**Number of credits (metric tonnes CO2e)**

234

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

234

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

---

**Credit origination or credit purchase**

Credit purchase

**Project type**

Landfill gas

**Project identification**

Landfill gas capture/combustion: Recology– Hay Road

**Verified to which standard**

CAR (The Climate Action Reserve)

**Number of credits (metric tonnes CO2e)**

5,186

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

5.186

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

---

**Credit origination or credit purchase**

Credit purchase

**Project type**

Landfill gas

**Project identification**

Landfill gas capture/combustion: Recology– Yuba Sutter

**Verified to which standard**

CAR (The Climate Action Reserve)

**Number of credits (metric tonnes CO2e)**

8,197

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

8,197

**Credits cancelled**

No

**Purpose, e.g. compliance**

Voluntary Offsetting

*The carbon credits that PG&E purchased as noted in Question 11.2a were purchased in 2017 in continued fulfillment of contracts from 2009. All of the offsets for which we have contracted on behalf of participating customers in the ClimateSmart program have been Climate Action Reserve offsets, which are not risk adjusted.*

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**C11.3**

**(C11.3) Does your organization use an internal price on carbon?**

No, and we do not currently anticipate doing so in the next two years

**C12. Engagement**

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**C12.1**

**(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers

**C12.1a**

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**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

**Type of engagement**

Compliance & onboarding

**Details of engagement**

Included climate change in supplier selection / management mechanism  
Climate change is integrated into supplier evaluation processes

**% of suppliers by number**

100

**% total procurement spend (direct and indirect)**

100

**% Scope 3 emissions as reported in C6.5**

100

**Rationale for the coverage of your engagement**

PG&E has a process for identifying, assessing, mitigating and monitoring environmental, social and governance risks in the company's supplier base. PG&E's Supplier Risk Program covers approximately 3,500 active prime suppliers and \$5 billion of spend. PG&E conducts a risk ranking of suppliers across four areas: Operational risk, Financial risk, Reputation/Regulatory risk, and Access to Data risk. To assess suppliers, PG&E leverages many external and internal data points -- contained in databases, produced by subject matter experts, and self-reported by suppliers to better understand and rank inherent risks and mitigation practices. PG&E also has an environmental sustainability program. PG&E conducts a Sustainability Assessment Process to assess and prioritize the impacts, issues, and opportunities across PG&E's service and product categories. PG&E uses the assessment as the basis for goal and objective setting with PG&E's key internal and supplier stakeholders. All categories of spend and Tier 1 suppliers are included and the assessment includes: (1) Environment: greenhouse gases/carbon, energy efficiency, toxics, waste, air emissions, water effluent/quality, and sustainable use of resources and (2) Social: Human rights, labor practices and conditions, child labor, fair and humane treatment, non-discrimination, and freedom of association. PG&E's Supplier Code of Conduct contains details around supplier expectations for environmental leadership among other topics. The code is communicated via our general terms and conditions in our supplier contracts, direct requests to suppliers to attest that they have read the code and that they comply with applicable clauses, and via webinars to review the code.

**Impact of engagement, including measures of success**

The top priorities of PG&E's supply chain management strategy are safety, reliability, affordability, customer service, and supply chain responsibility. Environmental performance, supplier diversity, and small business inclusion criteria are included in outgoing RFPs. These three criteria make up to 25% of the evaluation score sheet for applicable RFPs. This weight is applied to all supplier categories. For new suppliers, up to 25% of the RFP weighting represents diversity, small business, and environmental sustainability combined, and the percentage weight assigned to safety varies depending on the level of risk inherent to the work. Additionally, contractors and sub-contractors performing medium- and high-risk work are required to meet minimum pre-qualification safety requirements to perform work for or on behalf of PG&E. For existing suppliers, we use a supplier scorecard review process to evaluate our top strategic suppliers. Environmental sustainability and supplier diversity are weighted up to 25% in this process.

---

**Type of engagement**

Innovation & collaboration (changing markets)

**Details of engagement**

Other, please specify (SF6 Free Equipment Phase In )

**% of suppliers by number****% total procurement spend (direct and indirect)****% Scope 3 emissions as reported in C6.5****Rationale for the coverage of your engagement**

Sulfur hexafluoride (SF6) is used as an electrical insulating material in high-voltage circuit breakers and gas-insulated switchgear. It's also a potent greenhouse gas—about 22,800 times as potent as carbon dioxide (CO2) on a per-ton basis. The California Air Resources Board (ARB) SF6 regulation requires PG&E to achieve a 1% leak rate by 2020. PG&E is working with its suppliers and other utilities to advance technologies that do not contain SF6 gas. This will reduce emissions of SF6 and therefore contribute to greenhouse gas reduction goals and reduce risk for PG&E.

**Impact of engagement, including measures of success**

PG&E's near-term target is to achieve a 1% SF6 leak rate by 2020. PG&E is also working towards the longer-term objective to phase-in SF6-free equipment as it becomes available, and partnering with industry groups and other energy companies to accelerate the move to SF6-free equipment. We're also working with the California Air Resources Board to explore how energy companies like PG&E can get credit for adopting alternatives to SF6.

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**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

4

**% total procurement spend (direct and indirect)**

60

## **% Scope 3 emissions as reported in C6.5**

### **Rationale for the coverage of your engagement**

We prioritize our top tier suppliers, who represented approximately 60% of the company's spend in 2017, to participate in an annual Sustainability Survey. The supplier's response allows us to gauge the maturity of their environmental management systems and request quantitative data around their GHG, energy, water, and waste impacts. For select suppliers, approximately 40 in 2017, we used their survey response data in formal scorecard reviews. Each scorecard review is attended by top management from both the supplier and PG&E, driving engagement in the key environmental areas. All suppliers responding to the survey are evaluated against PG&E's Supplier Environmental Performance Standards (which incorporate greenhouse gas emissions and energy use elements) and use the resulting environmental performance scores to prioritize support. Additionally, in 2012 PG&E undertook a detailed carbon mapping exercise to quantify and rank the greenhouse gas footprint of all products and services procured in our supply chain (excluding contracts for power generation), helping to prioritize sectors with the highest greenhouse gas footprint and best opportunity for improvement.

### **Impact of engagement, including measures of success**

PG&E distributes an annual Sustainability Survey to its top tier suppliers with questions on how they are managing environmental impacts in their operations, including greenhouse gas emissions, energy and water usage, waste, and materials management. PG&E uses the survey to monitor suppliers' conformance with the company's Supplier Environmental Performance Standards. Results from the survey are used to generate an Environmental Performance score for each supplier. In 2017, over 40 suppliers had their Environmental Performance score incorporated in supplier performance scorecard reviews. Each scorecard review is attended by top management from both the supplier and PG&E, driving engagement in the key environmental areas. Point allocation for the Supplier Environmental Performance Standards is as follows: • Environmental Management System is in place and tracks all the following environmental impacts: greenhouse gas emissions, energy, water, and waste, compliance: 2 points • Voluntary reduction goals are in place for at least 3 out of the following 4 environmental impacts: greenhouse gas emissions, energy, water, and waste: 2 points • Public disclosure of progress against goals: 1 point With a result of 78%, PG&E exceeded its 2017 goal to have 75% of our top-tier suppliers achieve a three or higher on a five-point scale. Additionally, we added a new key performance indicator this year for environmental sustainability: Every applicable supply chain portfolio is to have at least 2 new initiatives identified or in progress annually.

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### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change  
Climate change performance is featured in supplier awards scheme

### **% of suppliers by number**

4

**% total procurement spend (direct and indirect)**

60

**% Scope 3 emissions as reported in C6.5****Rationale for the coverage of your engagement**

We prioritize our top tier suppliers, who represent approximately 60% of the company's spend, for focused attention on environmental sustainability. We evaluate suppliers against PG&E's Supplier Environmental Performance Standards (which incorporate greenhouse gas emissions and energy use elements) and use the resulting environmental performance scores to prioritize support. We also offer training for our suppliers, including a recent workshop on the basics of greenhouse gas calculations and reporting. The workshop included an exercise in which attendees had the opportunity to practice how to prepare a GHG report by setting the required boundaries, selecting the key performance indicators, and using the GHG calculators to determine the Scope 1 and 2 carbon dioxide equivalent (CO<sub>2</sub>e) emissions in a given case study. In addition to the in-depth GHG calculation workshop for PG&E suppliers, we also hosted a public workshop on understanding the importance of GHG causes and impacts.

**Impact of engagement, including measures of success**

As part of PG&E's Supplier Environmental Performance Standards, top tier suppliers are required to:

- Implement an environmental management system that tracks the following environmental impacts: greenhouse gas emissions (Scope 1 and 2), energy, water, waste and compliance with environmental requirements
- Set voluntary reduction goals
- Publicly report their annual performance against goals.

To score suppliers against the Supplier Environmental Performance Standards, as well as to identify areas for improvement, PG&E distributes an annual Sustainability Survey to its top tier suppliers with questions on how they are managing environmental impacts in their operations, including greenhouse gas emissions, energy and water usage, waste, and materials management. Results from the survey are used to generate an Environmental Performance score for each supplier. In 2017, over 40 suppliers had their survey response incorporated in recurrent supplier performance scorecard reviews. Each scorecard review is attended by top management from both the supplier and PG&E, driving engagement in the key environmental areas. PG&E's Supply Chain Responsibility team provides one-on-one coaching to suppliers to identify gaps and help them enhance their environmental performance. Our 2017 target was for at least 75% of top-tier suppliers to achieve a score of three or higher on a five-point scale. We exceeded that goal, with 78% of suppliers meeting the standard. PG&E also utilizes the supplier response rate to the Annual Alliance Sustainability Survey, which, for the sixth year in a row, was 100% in 2017.

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**C12.1b**

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**(C12.1b) Give details of your climate-related engagement strategy with your customers.****Type of engagement**

Education/information sharing

**Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

**Size of engagement****% Scope 3 emissions as reported in C6.5****Please explain the rationale for selecting this group of customers and scope of engagement**

We work with customers to help them achieve energy savings and greenhouse gas emission reductions through some of the nation's leading programs and incentives for energy efficiency, demand response, and solar installation. These efforts include offering energy efficiency audit and opportunity identification services to commercial customers, financial support to low income residential customers for energy efficiency retrofits, rebates to all parties implementing qualified energy efficiency measures, and helping local governments develop strategies and implementation plans to reduce emissions.

**Impact of engagement, including measures of success**

By taking advantage of new technologies to help customers understand, actively manage, and reduce their energy use, we enable them to make more informed decisions. We are increasingly reaching out to customers through a growing variety of channels, including mobile phones, email, web, and social media channels. We provide the vast majority of customers with access to hourly data on their energy use, and a comparison of their use to similar homes in their neighborhoods. Within My Energy (an online portal), customers can see how and when they use energy and find energy saving tips and information on our energy efficiency programs and incentives. PG&E's Business Energy Checkup enables small and medium business customers to find energy-saving ideas and incentives to lower their operating costs. And Share My Data allows customers to share their energy usage data with select third party service providers to determine if energy products and services such as solar installations may be right for them. We measure a composite score of customer satisfaction, which serves as one of the metrics we use for determining performance-related compensation. We are committed to improving satisfaction for both residential and business customers. In 2017, our customer satisfaction score decreased to 75.6, which fell short both of our target of 76.4 and the prior year's result. For 2018, our target is 75.2. We also benchmark with customers of best-in-class performing utilities from J.D. Power's Customer Satisfaction Index. This helps us set our goal each year, as we aim to achieve top quartile performance in customer satisfaction.

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**C12.3**

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**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Direct engagement with policy makers  
Trade associations  
Funding research organizations

**C12.3a**

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**(C12.3a) On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	In August 2015, the U.S. EPA published final regulations under sections 111(b) and 111(d) of the Clean Air Act, known as the “Carbon Pollution Standards” and the “Clean Power Plan,” respectively. Following the publication of the final regulations, several states and parties challenged the Clean Power Plan. PG&E joined other utilities and parties to intervene in that case in support of the Clean Power Plan.	PG&E and other utilities intervened to support the Clean Power Plan. However, the Supreme Court has issued a stay on implementation of that regulation. In October 2017, the EPA issued a notice of proposed rulemaking to formally repeal the Clean Power Plan regulations.
Clean energy generation	Support	Through the Joint Utility Group, PG&E submitted comments in support of the Clean Power Plan’s flexible framework to reduce electricity sector CO2 emissions. PG&E also engaged with policy makers to discuss Western Electricity Coordinating Council (WECC) state coordination on compliance and our analysis of the market impacts of different compliance scenarios.	EPA’s final Clean Power Plan rule was issued in August 2015. However, the Supreme Court has issued a stay on implementation of that regulation. In October 2017, the EPA issued a notice of proposed rulemaking to formally repeal the Clean Power Plan regulations.
Cap and trade	Support	Through the Gas Utility Group, PG&E worked with California’s natural gas suppliers to advocate at the California Air Resources Board for post-2020 allowance allocation and consignment methodologies that would protect consumers from significant increases in overall natural gas costs.	Continued allowance allocation to natural gas suppliers using a more moderate cap adjustment factor
Cap and trade	Support	Through the Joint Utility Group, PG&E collaborated with the state’s investor-and publicly-owned utilities to advocate at the California Air Resources Board for post-2020 allowance allocation based on customer cost burden to protect customers from higher overall electricity costs.	Continued allowance allocation to electric distribution utilities based on customer cost burden
Cap and trade	Support	PG&E engaged with policy makers and various stakeholders on AB 398 which extended the cap-and-trade program through 2030, with specific design elements. Working with other utilities, PG&E has been supportive of its implementation through the Air Resources Board.	Continued support of cost-containment measures
Other, please specify (Low Carbon Fuel Standard)	Support	Through the California Electric Transportation Coalition, California Natural Gas Vehicle Coalition, other stakeholders, and directly, PG&E supported the post-2020 continuation of the Low Carbon Fuel Standard (LCFS) as part of negotiations for the	Continue the LCFS post-2020 with meaningful but achievable targets

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
		passage of SB 32. PG&E also engaged with Air Resources Board staff on regulatory amendments to the LCFS program.	
Other, please specify (GHG Emissions Reductions)	Support	PG&E engaged with policy makers and various stakeholders on SB 32 which codified the statewide GHG limit of at least 40% below the 1990 levels. Working with other utilities, PG&E has been supportive of its implementation through the Air Resources Board.	Continued support of cost-containment measures and market mechanisms to achieve the goal
Clean energy generation	Support	PG&E supported Senate Bill (SB) 350, which increases the state's Renewable Portfolio Standard (RPS) to 50 percent by 2030 and doubles state energy efficiency goals.	PG&E views SB 350 as an important step toward achieving California's climate change and clean energy goals.

**C12.3b**

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

**C12.3c**

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

Alliance to Save Energy

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

The Alliance states that climate change is already making the United States warmer, and much greater temperature increases are expected in the coming decades. Along with increasing temperatures, precipitation patterns are shifting, extreme weather events such as storms and droughts are increasing, and sea levels are rising. These changes in weather patterns affect both energy demand, especially with increased peak electricity use for air conditioning, and energy supply, with reduced reliability and efficiency. Weather changes due to climate change also have closely related effects on water demand and supply. Energy efficiency is one of the most important tools for avoiding climate change by reducing use of fossil fuels. However, energy efficiency and related demand management measures also can address some of the energy sector's vulnerabilities to climate change impacts.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

Edison Electric Institute

**Is your position on climate change consistent with theirs?**

Mixed

**Please explain the trade association's position**

The Institute states that global climate change presents one of the biggest energy and environmental policy challenges this country has ever faced. EEI member companies are committed to addressing the challenge of climate change and support an 80% reduction in GHG emissions by 2050. Regarding the Clean Power Plan, EEI states that it is essential to include effective reliability and consumer-protection measures that help to avoid harm to U.S. industry and the economy. In Congress, EEI supported the American Clean Energy and Security Act in 2009. In addition, the EEI Foundation established an institute focused on advancing the adoption of innovative and efficient technologies among electric utilities and their technology partners that will transform the power grid.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

American Gas Association

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Excerpted from President and CEO of the American Gas Association (AGA) in response to President Obama's Climate Action Plan: "Working alongside renewables and energy efficiency, our domestic abundance of natural gas provides an incredible opportunity to deliver the essential energy that will help drive economic growth while protecting the environment. Natural gas utilities are committed to actions that, in the words of the President, 'save families money, make our businesses more competitive and reduce greenhouse gas emissions.'" AGA has constructively engaged on the Clean Power Plan and has also worked cooperatively with environmental groups on measuring methane emissions associated with natural gas distribution systems.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

Nuclear Energy Institute

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

The Institute states that climate change is increasingly important as federal, state, and local policymakers consider energy supply and GHG mitigation. Given those concerns and the need for base load electricity production, policymakers and energy industry leaders are evaluating an expanded role for nuclear power.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

Business Council for Sustainable Energy (BCSE)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

The Council believes the optimal policy for regulating greenhouse gas emissions is for Congress to enact comprehensive market-based legislation that allows for flexibility and cost-effective emissions reductions, including carbon offsets. In addition, BCSE highlights several areas where existing authorities are in place were the federal government to take action. For example, the BCSE calls for the EPA to consider—where legally appropriate—the role that existing clean energy technologies and fuels can play in achieving the goals of Clean Air Act regulation. With respect to the development of GHG NSPS for fossil fuel fired power plants, including emissions guidelines under Clean Air Act Section 111(d), the BCSE has urged U.S. EPA to use an output-based approach to setting emissions standards and to provide clear guidance to the states regarding how climate and clean energy programs might show equivalency with federal emissions guidelines.

**How have you, or are you attempting to, influence the position?**

Serve on the clean air policy group

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**Trade association**

California Chamber of Commerce

**Is your position on climate change consistent with theirs?**

Mixed

**Please explain the trade association’s position**

The California Chamber of Commerce will continue working to ensure that compliance costs are minimized through measures that effectively reduce GHGs while allowing for continued economic growth. Regulations must be seen through the lens of the economy and must minimize costs and maximize benefits for California. In order to ensure GHG reductions are achieved while maintaining the competitiveness of California businesses and the health of the economy, it is critical that the state agencies promulgating climate change policies (i.e. the California Air Resources Board (ARB) and California Public Utilities Commission) periodically review all GHG programs as implemented to ensure GHG emissions are reduced in an economically efficient and environmentally sound manner.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

California Council for Environmental and Economic Balance (CCEEB)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

The Climate Change Project was launched in 2008 to assist with the design and implementation of AB 32 and other climate change policies. Key priorities include: designing a regulatory structure that effectively balances command-and-control regulations with market-based measures; creating accurate and comprehensive emission inventories and clear and consistent reporting protocols; and ensuring California’s framework is consistent with local, national, and international efforts.

**How have you, or are you attempting to, influence the position?**

PG&E actively participates in CCEEB’s Climate Change Project and its work to develop and advocate for policy positions on pending climate change legislation and regulations. PG&E also serves on the board.

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**Trade association**

Silicon Valley Leadership Group

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

The Silicon Valley Leadership Group (SVLG) continues to be actively involved in helping ensure the implementation of AB 32 rewards efficiency, protects innovation, and provides flexibility to seek out and implement the lowest-cost solutions, while also meeting our GHG reduction goals. In addition, the group is increasingly active in federal-level advocacy for smart energy and climate policies, as well as local climate change resilience.

**How have you, or are you attempting to, influence the position?**

Participating as a member

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**Trade association**

California Electric Transportation Vehicle Coalition

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

CalETC promotes economic growth, clean air, fuel diversity and energy independence, and combating climate change through the use of electric transportation. CalETC is committed to the successful introduction and large-scale deployment of all forms of electric transportation including plug-in electric vehicles, transit buses, port electrification, off-road electric vehicles, and equipment and rail.

**How have you, or are you attempting to, influence the position?**

Serving on the Board

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**Trade association**

Business Roundtable

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

The Business Roundtable states the following: Because the consequences of global warming for society and ecosystems are potentially serious and far-reaching, Business Roundtable believes that steps to address the risks of such warming are prudent and supports collective actions that will lead to the reduction of greenhouse gas emissions on a global basis.

**How have you, or are you attempting to, influence the position?**

Participating as a member

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**Trade association**

International Emissions Trade Association

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

IETA strongly supports emissions trading as an instrument to combat climate change and believes that mechanisms to link different carbon markets will be critical to the development of a global trading regime. They support the design and implementation of efficient carbon markets globally.

**How have you, or are you attempting to, influence the position?**

Participating as a member

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**Trade association**

Center for Climate Energy Solutions

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

C2ES partners with policymakers and diverse stakeholders to reduce emissions, expand clean energy, mobilize climate finance, strengthen climate resilience, and build a foundation for national and international climate policy efforts.

**How have you, or are you attempting to, influence the position?**

Participating as a member, signed letter to President Trump encouraging U.S. to remain in Paris climate accord

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**C12.3d**

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**(C12.3d) Do you publicly disclose a list of all research organizations that you fund?**

No

**C12.3f**

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**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Since 2006, PG&E’s Climate Change Policy Framework has ensured that our activities are consistent with PG&E’s climate change strategy. The framework outlines commitments and values to establish responsible policies and programs to address global climate change. Specifically, PG&E supports and prefers national regulatory action, but is currently focused on state, regional and local action that is based on market mechanisms to achieve economy-wide emission reductions efficiently, economically, and in a way that encourages the next generation of energy technologies and minimizes impacts to the U.S. economy.

PG&E's revitalized Mission, Vision and Culture places a sustainable clean energy future at the center as our North Star, guiding our decisions on how we will meet the challenge of climate change. Our approach to climate change policy is managed by a cross-functional team comprised of representatives from across the company. The team meets regularly and actively coordinates with PG&E's officers to share developments at the state and national levels and seek approval on policy positions.

PG&E's Climate Policy Principles state the following: We seek to make PG&E a valuable partner in reducing greenhouse gas (GHG) emissions in California and other jurisdictions through advancing innovation; facilitating technology deployment, adoption and integration; and providing affordable, low-carbon energy solutions to our customers. To do this, we advocate for policies that:

- Employ a broad, multi-sector approach to emissions reduction
- Support the continuation of the AB 32 cap-and-trade program to 2030 and beyond and, ultimately, create a linked North American multi-sector cap-and-trade program that provides the majority of abatement needed to reach science-based 2030 and 2050 GHG reduction goals for California and the larger linked program area
- Transition away from the use of “complementary policies” (or technology mandates) as the primary vehicle to reduce GHG emissions to one in which complementary policies are used only to improve the cost-effectiveness of the GHG reducing technologies needed to reach 2050 GHG reduction goals
- Facilitate broad acceptance of the use of offsets and carbon sinks as a valuable tool in mitigating GHG emissions, thereby improving local air quality and enhancing the resiliency and adaptability of natural ecosystems and communities
- Promote GHG reductions at the regional and national level, with California positioned as a key policy innovator, technology exporter and “proving ground” that supports the broader decarbonization of the U.S. economy
- Help our customers become more climate-resilient and reduce their own GHG footprint affordably through solutions that include energy efficiency, demand response, renewable energy, storage, and low-carbon transportation fuels and fueling infrastructure

#### **C12.4**

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**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In voluntary sustainability report

**Status**

Underway – previous year attached

**Attach the document**

[2017-PGE-Corporate Responsibility & Sustainability Report.pdf](#)

**Content elements**

Governance

Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

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**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

[2017-Annual-Report-Final.pdf](#)

[2018-Proxy-Statement-Final.pdf](#)

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

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**Publication**

In other regulatory filings

**Status**

Complete

**Attach the document**

[TN221908\\_20171205T160625\\_PGE\\_RAMP\\_Report.pdf](#)

**Content elements**

Risks & opportunities

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**Publication**

In voluntary communications

**Status**

Complete

**Attach the document**

[PGE\\_climate\\_resilience\\_report.pdf](#)

**Content elements**

Other, please specify (Resiliency)

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**C14. Signoff**

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**C-FI**

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**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

**C14.1**

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**(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	<b>Job title</b>	<b>Corresponding job category</b>
Row 1	Director, Corporate Sustainability	Environment/Sustainability manager