Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

PG&E Corporation is a 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 Californians. PG&E Corporation had over $85 billion in assets as of December 31, 2019, and generated revenues of more than $17 billion in 2019.

PG&E has emerged from Chapter 11, successfully completing the restructuring process and implementing PG&E's Plan of Reorganization that was confirmed by the U.S. Bankruptcy Court on June 20, 2020. As part of our Plan of Reorganization, PG&E made a series of commitments, including assuming all power purchase agreements as part of a broader commitment to California's clean energy future.

Our climate continues to change: in less than a decade, the area served by PG&E that the California Public Utilities Commission (CPUC) has designated to be at a high risk of wildfire has increased from 15 to 52%—an increase of more than 300%. Our Community Wildfire Safety Program includes immediate and comprehensive actions to upgrade our infrastructure, monitor fire threats in real time and institute new wildfire safety measures.

Despite these challenges, PG&E continues to take action to combat climate change and support California's climate goals. 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.

Within our operations, PG&E is reducing emissions as part of the "Million Ton Challenge" — a voluntary five-year carbon reduction goal to avoid one million tons of greenhouse gases from our operations by 2022. To accomplish this, PG&E is working to reduce methane and sulfur hexafluoride emissions from operations, save energy in facilities, and continue to deploy a smarter, cleaner fleet of company vehicles.

At the state and federal 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 its long-term targets of a 40% reduction in greenhouse gases by 2030 and carbon neutrality by 2045 in a manner that is affordable for our customers. In 2019, PG&E delivered nearly 30% of its energy from renewable resources and we remain on track to meet the state's 60% by 2030 mandate under SB 100.

We also continue to offer our customers a full portfolio of programs and incentives for energy efficiency, demand response, clean energy transportation and solar energy to help them meet their clean energy goals. In 2019, we brought the total number of interconnected private solar customers to nearly 465,000 and we supported over 8,000 customers who have installed battery storage at their homes or businesses, often paired with a solar system.

PG&E is also actively supporting the large-scale electric infrastructure needed to incorporate EV charging systems into the energy grid. We continue to roll out our EV Charge Network program at multi-family dwellings and workplaces and, in 2019, we launched the EV Fleet and Fast Charge programs for medium- and heavy-duty vehicle infrastructure and public fast charging. We also received regulatory approval for EV Schools and Parks and Empower EV, which will provide education and rebates for EV chargers and installation for income-qualified residential customers.

C0.2

(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
Reporting year	January 1, 2019	December 31, 2019	No

C0.3

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

United States of America

C0.4

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

USD

C0.5

(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 chosen approach for consolidating your GHG inventory.

Operational control

C-EU0.7

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

Row 1

Electric utilities value chain

Electricity generation
Transmission
Distribution

Other divisions

Gas storage, transmission and distribution
Smart grids / demand response
Battery storage
Micro grids

C1. Governance

C1.1

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

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board-level committee	Led by the Committee Chair, the Compliance and Public Policy Committee of PG&E Corporation's Board of Directors (CPP Committee) is comprised of individuals with 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. The Committee is composed entirely of independent directors, as defined in the applicable company's guidelines and the committee's charter. As one example of a climate-related decision, the Committee decided that PG&E needed to increase its level of engagement with the Native American tribal community by adding a tribal representative to PG&E's external Sustainability

	Advisory Council to closely advise PG&E on issues related to decarbonization, distributed energy resource deployment, and climate resilience.

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	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding business plans Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	The Compliance and Public Policy Committee (CPP 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. For example, the CPP Committee oversees climate change-related policy positions that could affect customers, shareholders, or employees. Climate-related risks are integrated into "monitoring and overseeing progress against goals and targets for addressing climate-related issues" through regular updates and discussions with the CPP Committee on topics including PG&E's projects that work towards California's climate and clean energy goals. In addition, on an annual basis, management reviews PG&E's climate risk progress, developments and mitigations jointly with the CPP Committee and the Safety and Nuclear Oversight Committee of PG&E Corporation's Board of Directors.

C1.2

(C1.2) Provide the highest management-level 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
Other, please specify Senior Vice President of Corporate Affairs	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 (do not include the names of individuals).

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." Given the strategic nature of climate change to our business, PG&E Corporation's Chief Executive Officer (CEO) and President is the highest-level executive responsible for climate change-related issues. The CEO, who reports to the PG&E Corporation Board of Directors, actively monitors climate-related issues through regular engagement and communication with senior staff and supporting PG&E team members. The CEO's role includes managing risks and opportunities associated with greenhouse gas emissions reductions as well as adapting the company's systems, operations, and planning to a changing climate and changing weather patterns.

PG&E has created a Senior Vice President of Corporate Affairs position that reports directly to the CEO, which is currently held on an interim basis by Pacific Gas and Electric Company's Vice President, State and Regulatory Affairs. This individual leads PG&E's California External Affairs, which includes climate-related state and local governmental affairs and community relations. This individual leads a team of professionals responsible for developing and implementing regulatory and legislative strategy, and strategic engagement with external stakeholders, supporting the implementation of PG&E's business objectives.

This team includes the PG&E Corporation Vice President, Federal Affairs and Chief Sustainability Officer, who leads PG&E's national public policy advocacy and forward-looking sustainability initiatives to support operational priorities and investments, reduce business risk, improve environmental performance and maximize leadership opportunities.

To further embed sustainability into our operations, PG&E's Sustainability Leadership Council (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 Pacific Gas and Electric Company's 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 spearhead PG&E's Million Ton Challenge goal to avoid one million tons of cumulative greenhouse gas emissions from PG&E's operations from 2018 through 2022, compared to a 2016 baseline.

In addition, our Chief Sustainability Officer and Chief Risk Officer co-chair the Climate Resilience Officer Committee, which includes leaders from key departments across the business. The Committee provides leadership, guidance and governance for climate resilience objectives that meaningfully impact PG&E and the communities we serve and help ensure the continued safe, reliable and affordable operation of PG&E's system in the face of a changing climate. This group of senior leaders is responsible for their respective line-of-business Climate Action Plans.

Pacific Gas and Electric Company's Electric Operations is leading the implementation of our Community Wildfire Safety Program, which is taking additional precautionary measures that will help further reduce wildfire threats and strengthen our communities for the future. 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.

Our Chief Sustainability Officer also chairs an external Sustainability Advisory Council to seek ongoing feedback and guidance on issues that span our business, including climate change and clean energy. Established in 2016, the group is made up of a diverse group of recognized leaders in their fields, environmental and sustainability advocates, energy policy experts, and industry authorities and meets regularly with PG&E leaders to share insights and feedback.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Management group	Monetary reward	Emissions reduction target	Employees at all levels, including our Chief Sustainability officer, 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.
All employees	Non-monetary reward	Behavior change related indicator	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 or a team who have demonstrated environmental leadership. The winners have the opportunity to donate a $1,500 charitable contribution to an eligible 501(c)3 non-profit 501(c)3 organization of their choice.
All employees	Monetary reward	Energy reduction target	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.
All employees	Monetary reward	Emissions reduction target	The variable compensation of all employees is impacted by PG&E's annual target to complete planned gas in-line inspections, which help reduce methane emissions.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	1	PG&E's short-term time horizon is 2020, the date by which California is required to reduce its greenhouse gas emissions to the 1990 level.
Medium-term	1	10	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	10	25	PG&E's long-term horizon spans onward after 2030 toward 2045, the date by which California has an Executive Order to achieve carbon neutrality. This includes California's policy goal established by the Legislature in SB100 of 100% of retail sales from renewables or zero-carbon electricity by 2045. PG&E is assessing a variety of potential scenarios to meet this objective, including associated risks and opportunities.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

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 an enterprise. 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. 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.

Severe weather events and other natural disasters could result in severe business disruptions, prolonged power outages, property damage, injuries or loss of life, significant decreases in revenues and earnings, and/or significant additional costs to PG&E. Any such event could have a material effect on PG&E's financial condition, results of operations, liquidity, and cash flows. Any of such events also could lead to significant claims against PG&E. Further, these events could result in regulatory penalties and disallowances, particularly if PG&E encounters difficulties in restoring power to its customers on a timely basis or if the related losses are found to be the result of PG&E's practices and/or the failure of PG&E's electric and other equipment.

Under a court-developed materiality standard, information is material if there is a substantial likelihood that a reasonable investor would consider it important in deciding how to vote or make an investment decision (i.e., if the information would alter the total mix of available information). We do not view climate change as a single risk on its own, but rather a stress multiplier to existing risk and opportunity considerations that we manage in our planning. We also recognize that climate change may affect different parts of our business in different ways.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

At PG&E, risk management processes – including those related to climate risk -- are facilitated by a central group, implemented by each line of business (LOB), and overseen by senior management and the Boards of Directors. LOBs also manage climate-related opportunities through the strategic business planning process, including for customer energy efficiency and transportation electrification.

Governance: The Chief Risk Officer (CRO) is responsible for overseeing the enterprise and operational risk management program (which includes climate change as a cross cutting risk), internal audit and insurance functions, market and credit risk management, third-party risk management, and Sarbanes-Oxley Act compliance reporting jointly to the Executive Vice President and Chief Financial Officer and the Audit Committees of the PG&E Corporation and Pacific Gas and Electric Company Boards.

Under PG&E's Chapter 11 Plan of Reorganization, PG&E committed to establishing a newly expanded role of Chief Risk Officer who will have oversight of risks associated with PG&E's operations, emphasizing the role of risk management in operational decisions.

LOB Implementation: With guidance from a central program office, PG&E maintains a risk register of event-based risks and line-of-business risks. To manage risks, we follow a consistent enterprise-wide approach to model, measure and reduce risk. With our methodology, PG&E is able to calculate a baseline risk score and evaluate different mitigation strategies for their ability to reduce that baseline score. The methodology places an emphasis on identifying and prioritizing the highest safety risks. Risk mitigations are tracked throughout the year and risk assessments are refreshed at least annually to capture the impact of mitigation strategies and to reflect changes in the operating environment. The risk management program provides transparency and accountability for risk reduction progress.

The senior-most executive of each LOB maintains a Risk and Compliance Committee, which has oversight responsibility for all associated activities for risk and compliance programs within their organization, including those related to climate change. The Risk

and Compliance Committee ensures that activities related to enterprise and operational risk and compliance management within their respective organizations are adequate and effective, and that resources are available as needed.

The Boards of Directors and their respective committees have oversight responsibility for risk management in their respective areas, including compliance and public policy, public and employee safety, operational excellence, and investments to enable a low-carbon future.

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.

Assessment: We proactively track and evaluate climate-related risks. In 2016, PG&E published a Climate Change Vulnerability Assessment that details these processes and shares our vulnerability to, and strategies to address, a range of climate risks. As a recent step, PG&E has initiated a multi-year Climate Vulnerability Assessment to better understand electric and gas system vulnerabilities to expected climate change impacts and how those impacts will affect PG&E's infrastructure, operations, services, employees, customers, and surrounding communities.

The results of the analysis will help PG&E target investments to infrastructure that is most vulnerable to climate impacts and that could significantly impact customers in the event of service disruption. This effort aligns with the CPUC's expectation that utilities conduct a refreshed vulnerability assessment, with a specific focus on identifying utility-related impacts to disadvantaged vulnerable communities.

Example - Physical Risk (Wildfires):
More than half of PG&E's 70,000-square-mile service area is identified as extreme (Tier 3) or elevated (Tier 2) fire-threat areas according to the CPUC's High Fire Threat District (HFTD) Map. PG&E's service area accounts for approximately 65% of the California investor-owned utility service areas located in Tier 2 and Tier 3 HFTD areas. PG&E's 2020 Wildfire Mitigation Plan is intended to reduce the risk of wildfires in the CPUC's HFTD areas. For example, among other measures, PG&E is adding approximately 1,300 weather stations to provide improved awareness of fire danger conditions by 2022 and is installing approximately 600 cameras to enhance real-time monitoring across high fire-risk areas by 2022. PG&E is approaching the issue with urgency to do everything we can to prevent our facilities from creating public safety risks.

Example - Low-Carbon Transition Risk (Meeting California's Clean Energy Goals): PG&E faces regulatory non-compliance risks associated with the California Renewable Portfolio Standard (RPS) program. California passed SB 100 in September 2018, accelerating and increasing the state's previous RPS. SB 100 increases the RPS target to 60% by the end of 2030 and requires 100% from eligible renewables and zero-carbon resources by the end of 2045. In 2019, nearly 30% of our delivered electricity came from RPS-eligible sources and we are well on our way to meet the state's 60% by 2030 renewable energy mandate. As of April 2020, PG&E's RPS-eligible portfolio included 245 contracts for more than 6,600 MW of contracted capacity. PG&E also has 52 utility-owned RPS-eligible generation facilities representing more than 450 MW of additional capacity. Twelve projects under contract, including 310 MW of solar projects and seven smaller bioenergy projects totaling 20 MW, began delivering renewable energy to PG&E customers in 2019.

Value chain stage(s) covered

Upstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Management: PG&E has processes for identifying, assessing, mitigating and monitoring environmental, social and governance risks in the company's supplier base. To assess suppliers, PG&E leverages supplier conformance reviews conducted by a third-party, and data self-reported by suppliers to better understand risks and mitigation practices.

In 2020, PG&E is performing a utility supply chain greenhouse gas hot spot assessment with the Electric Utility Industry Sustainable Supply Chain Alliance to help prioritize sectors of our supply chain with the highest greenhouse gas footprint and best opportunity for improvement.

PG&E also maintains a Supplier Environmental Performance Standard. To score suppliers against this standard as well as to identify areas for improvement, PG&E distributes an annual Sustainability Assessment to its suppliers with questions on how they are managing environmental impacts in their operations, including five performance areas. Results from the assessment are used to generate an Environmental Performance score for each supplier.

Through many of our Request for Proposals (RFP), PG&E also asks suppliers to respond to a series of environmental sustainability questions designed to gauge the maturity of their environmental sustainability program prior to onboarding a supplier. Questions focus on a supplier's company governance and operations, assessment and scope, management system attributes, extent of reporting, and supplier/sub-contractor management. Questions also ask for the supplier's most significant environmental risks and their corresponding risk management processes, as well as best practices and innovative approaches that will be used to reduce the environmental footprint of the specific scope of work referenced in the bid opportunity. Environmental sustainability, program maturity, and supplier diversity are weighted up to 25% in the evaluation score for applicable RFPs.

PG&E's Supplier Code of Conduct also contains details around supplier expectations for environmental leadership and includes human rights, labor practices and conditions, child labor, fair and humane treatment, non-discrimination, and freedom of association, among other topics. The Code is included in our general terms and conditions in supplier contracts and is further communicated via Code training workshops. In 2019, we conducted 133 supplier desktop reviews to verify conformance with all sections of the Code. Suppliers found not in conformance with the Code were issued corrective action plans to complete.

Example – Reducing Methane Emissions from Natural Gas Value Chain:
Reducing methane emissions from the natural gas value chain is a major focus of California and PG&E. PG&E is not only actively managing and reducing methane emissions from its own natural gas transmission and distribution system but is also engaging natural gas producers through participation in a voluntary collaborative of natural gas purchasers promoting safe and responsible practices for natural gas supply.

The Natural Gas Supply Collaborative (NGSC) identified a concise set of non-financial performance indicators in the following focus areas: methane and air emissions; water; chemical use; and community and safety. NGSC encourages natural gas producers to provide an accessible, clear, and thorough discussion of important environmental and social issues through company websites and annual reporting. Continued progress on reducing the environmental impacts throughout the natural gas value chain addresses the risk of a reduced role of natural gas as an energy source as California works to decarbonize the economy. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.

Value chain stage(s) covered

Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Customer Engagement to Reduce Risk: The CPUC, in consultation with the California Energy Commission (CEC), establishes energy efficiency targets for electric and gas providers to achieve. SB 350 requires, among other things, that the state establish annual targets for state-wide energy efficiency savings and demand reduction that will achieve a cumulative doubling of state-wide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030.

In collaboration with the CPUC and stakeholders, PG&E has annual energy savings goals it is required to achieve and actively works with customers to help them achieve energy savings and greenhouse gas emission reductions through a broad range of energy efficiency programs and incentives. However, in order for PG&E to achieve energy savings, the utility is dependent on participation in these programs by its customers. If customers do not participate in energy saving programs and incentives offered, then PG&E risks falling short of its mandated goals.

To reduce the risk of not meeting our goals, PG&E's Customer Care organization, led by the company's Chief Customer Officer, is using data-informed insights to improve the customer experience, localizing our presence and strategies in the communities we serve, and empowering customers with greater choice and control over how they manage their energy use. We also continuously integrate customer feedback to develop, enhance and improve our products and services.

More specifically, our energy efficiency priorities include: (1) Working to reduce financial barriers for residential, commercial and government customers; (2) Giving customers access to their data to support smart energy planning; (3) Collaborating with retailers, distributors and others to increase the availability of high-efficiency products; (4) Advocating for stronger building codes and appliance standards and supporting compliance with existing codes and standards, while continuing to serve as California's state-wide coordinator for utility initiatives and analyses on standards; (5) Providing technical support for local governments that choose to exceed minimum requirements for state building codes; and (6) Engaging communities through proactive outreach.

The designated LOB Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.

Community Engagement on Climate Risk: We proactively track and evaluate physical climate risks. In 2016, PG&E published a Climate Change Vulnerability Assessment that details these processes and shares our vulnerability to, and strategies to address, a range of climate risks. As a recent step, PG&E has initiated a multi-year Climate Vulnerability Assessment to better understand electric and gas system vulnerabilities to expected climate change impacts and how those impacts will affect PG&E's infrastructure, operations, services, employees, customers, and surrounding communities. The results of the analysis will help PG&E target investments to infrastructure that is most vulnerable to climate impacts and that could significantly impact customers in the event of service disruption. This effort aligns with the CPUC's expectation that utilities conduct a refreshed vulnerability assessment, with a specific focus on identifying utility-related impacts to disadvantaged vulnerable communities.

We have been an active participant in the CPUC's first proceeding focused specifically on climate adaptation and resilience (R. 18-04-019). The outcome of this proceeding will be guidance on critical topics that will assist utilities in the mission to provide safe, reliable, affordable, and clean energy despite more frequent and severe climate impacts. The CPUC issued a proposed decision in July 2020 with guidance on how investor-owned utilities should assess and adapt to California's vulnerabilities caused by climate change, and how utilities should engage with the most vulnerable and disadvantaged communities on climate adaptation so these communities are not left behind the rest of the state.

Among several mitigations, PG&E has begun piloting a Climate Resilience Visualization Tool, which will incorporate forward-looking climate data into PG&E's mapping system to enable teams to visualize potential climate risks to infrastructure to aid in planning and decision-making. PG&E is also utilizing a maturity model approach to establish a baseline of climate resilience and to measure future progress in increasing resilience. In addition, PG&E is partnering directly with customers and communities to enhance climate resilience in California. For example, PG&E offers grants to help communities through our Better Together Resilient Communities program

As another important milestone, in 2018, the Safety Model Assessment Proceeding (S-MAP) at the CPUC established a common enterprise risk framework for California's investor-owned utilities. As a result, PG&E implemented a new risk framework in 2019, which included developing a multi-attribute value function to combine different risk consequences (safety, reliability, and financial) into a single risk score. Using the new framework, PG&E quantified the risks on our risk register and completed risk and mitigation analysis for our 2020 Risk Assessment Mitigation Phase (RAMP) filing.

In our 2020 RAMP filing, PG&E evaluated our twelve top safety risks for vulnerability to climate impacts. PG&E integrated available climate data into the risk bowties for Wildfire and Failure of Electric Distribution Overhead Asset risks. Integrating the projected, quantitative impact of climate change into the other RAMP risk models was not possible at this time due to the need for more data about the relationship between climate-driven

natural hazards and risk events and the need for more or more specific PG&E data. PG&E considers that most RAMP risks are impacted by the climate change cross-cutting factor and intends to further integrate forward-looking climate data into risk analysis in future reports.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The California Air Resources Board's (CARB) Scoping Plan includes various methods of reducing GHG emissions from natural gas. These regulations include more aggressive energy efficiency programs to reduce natural gas end use and increased RPS, which reduces noncore gas load. Non-compliance with these regulations could include financial penalties, loss of financial incentives, and reputational risks. California's Executive Order B-55-18 sets a state-wide goal to achieve carbon neutrality by 2045. Regulatory proceedings at CARB, the CPUC, and the CEC will evaluate and develop pathways to achieve the carbon neutrality goal. For example, CARB has initiated a workshop series on carbon neutrality, including scenarios for deep decarbonization. The resulting regulations have the potential to reduce natural gas usage and increase natural gas costs, which may impact the future of natural gas services. PG&E is taking steps to align its gas business with California's decarbonization and carbon neutrality goals. This includes participating in a stakeholder process on California's Gas System in Transition facilitated by Gridworks. In 2019, phase 1 of this initiative identified a long-term trend towards decreased natural gas throughput, as well as an increase in capital and ongoing maintenance costs of the gas delivery system. If unmanaged, the result of these trends could, "lead directly to higher rates and potentially higher gas bills for those who continue to use gas if the gas delivery system footprint remains static." Alongside utility, labor, ratepayer advocate, and social and environmental non-profit stakeholders, PG&E is continuing to participate in phase 2 of the Gridworks initiative. This phase aims to develop a "how to" manual for state agencies on integrated long-term gas planning and provide guidance to the CPUC to inform its gas

		system planning Order Instituting Rulemaking (OIR). This phase is expected to identify forecasting, data, and legal and policy barriers needed to develop a long-term, integrated gas planning framework that avoids and/or defers costs, promotes equity, ensures a just transition for gas workers, and maintains a financially viable gas utility. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.
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, as well as adapting to changing climate conditions and supporting efforts to make the communities we serve more resilient to climate threats. For example, the CPUC issued an OIR in May 2018 opening a proceeding to determine how California's investor-owned utilities (IOUs) should incorporate climate adaptation into their planning and operations. The CPUC issued a proposed decision in July 2020 with guidance on how investor-owned utilities should assess and adapt to California's vulnerabilities caused by climate change, and how utilities should engage with the most vulnerable and disadvantaged communities on climate adaptation so these communities are not left behind the rest of the state. While PG&E is already taking action to adapt to climate change, as this process develops we may face a regulatory risk of the CPUC developing criteria for IOUs that require changes to operations for which PG&E is not currently planning or could increase PG&E's cost of compliance. Our Climate Resilience Officer Committee, which includes leaders from key departments across the business, provides leadership, guidance and governance for climate resilience objectives that meaningfully impact PG&E and the communities we serve. Additionally, the designated LOB Risk and Compliance Committee within PG&E integrates these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.

Technology	Relevant, always included	Technological advancements are occurring rapidly in the energy industry. PG&E routinely monitors technological advancements, and how these advancements might impact business outcomes, such as increased self-generation by customers, increases in distributed energy resources, advances in energy efficiency and improvements in battery technologies, among others. Failure to fully understand, anticipate, and incorporate technological advancements into PG&E's risk assessment might result in lost opportunities for engaging with market participants and customers in new business areas. Additionally, PG&E aims to maintain a sulfur hexafluoride (SF6) leak rate of below 1% annually (with a stretch goal of 0.7%) and is exploring SF6-free electrical equipment. To do so, we are dependent on the emerging SF6-free alternative technologies available in the market for gas-insulated switchgear and gas-insulated dead tank circuit breakers. We are testing new technologies and solutions, collaborating with other likeminded utilities, and vendors. However, integrating SF6-free technology will take time and performance of new technology is essential to meeting our goal and maintaining safety and reliability. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.
Legal	Relevant, sometimes included	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, in September 2019, the Trump Administration finalized withdrawal of the waiver granted to California for the GHG and Zero Emissions Vehicles (ZEV) components of its vehicle regulations. In March 2020, the Administration also finalized a rollback of the Corporate Average Fuel Economy (CAFE) (i.e., motor vehicle fuel economy standards) and GHG standards for light duty vehicles starting with model year 2021. Both rules are in implementation, are being challenged in court, and could be further revised by future administrations. PG&E launched two programs in 2019 – the EV Fleet and Fast Charge programs for medium- and heavy-duty vehicle infrastructure and public fast charging, respectively. PG&E also received regulatory approval for EV Schools and Parks, which will allow Californians to charge at these sites with a large fraction located in disadvantaged communities, and Empower EV, an education and rebate program for income-qualified residents. The rollback to the CAFE and GHG standards and

		withdrawal of California's ZEV waiver could slow uptake of EVs in the state, leading to underutilization of PG&E's EV charging network and impact revenue associated with electricity sales. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed. 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 market related activities in its service area, including investing in customer programs to reduce energy use, increase renewable energy and storage, electrify end uses (including transportation and buildings), and decarbonize natural gas supply, among other areas. For example, PG&E is in the process of interconnecting seven renewable natural gas (RNG) projects to decarbonize gas supply, with the first few expected to begin injecting pipeline quality gas by the end of 2020. In total, the seven projects are expected to provide roughly 16.5 million cubic feet of gas per day. The market is in the early stages and largely driven by demand from the transportation sector through the Low Carbon Fuel Standard. There is a risk that the market may not value RNG and other sources such as hydrogen at the levels necessary to incorporate it as part of core gas supply or for large end users. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.
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, including increasing wildfire risk, and being a constructive voice in developing solutions. For example, in July 2019, PG&E provided an update on our accelerated and enhanced safety inspections and repairs conducted in high-fire threat areas over the prior six months. These inspections are one part of PG&E's Community Wildfire Safety Program, which was implemented following the wildfires in 2017 and 2018 as additional

		precautionary measures intended to further reduce wildfire risk. This update is consistent with our commitment to keep customers informed about the work being done to mitigate wildfire risks and safely deliver energy to customers and communities. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.
Acute physical	Relevant, always included	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. Our climate continues to change: in less than a decade, the area served by PG&E that the CPUC has designated to be at a high risk of wildfire has increased from 15 to 52%—an increase of more than 300%. A number of climate-related factors have contributed to the increasing risk of wildfires. For example, bark beetles and drought have contributed to record numbers of dead trees that fuel and amplify wildfires. Since 2010, according to the U.S. Forest Service, approximately 147 million trees have died in California. Moreover, as air temperatures rise, forests and land are drying out, increasing fire risks and creating weather conditions that readily facilitate the rapid expansion of fires. More than one half of PG&E's 70,000-square-mile service area is identified as extreme (Tier 3) or elevated (Tier 2) fire-threat areas according to the CPUC's High Fire Threat District (HFTD) Map. Approximately 5,500 line-miles of electric transmission and 25,500 line-miles of distribution assets lie within these HFTDs. PG&E's service area accounts for approximately 65% of the California investor-owned utility service areas located in Tier 2 and Tier 3 HFTD areas. PG&E's 2020 Wildfire Mitigation Plan – released annually after the inaugural 2019 plan – is intended to reduce the risk of wildfires in the CPUC's HFTD areas. PG&E is approaching the issue with urgency to do everything we can to prevent our facilities from creating public safety risks. The designated LOB Risk and Compliance Committees

		within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.
Chronic physical	Relevant, always included	PG&E's infrastructure spans more than 70,000 square miles and faces a variety of risks driven by the changing climate, including heat waves, more frequent and extreme storms and wildfires, drought, subsidence, and rising sea levels. For example, 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. Completely moving and rebuilding a substation is estimated to cost at least $100 million. PG&E's multipronged approach includes: (1) Integrating climate science into key business functions and creating tools to support planning and decision-making that takes into account the future climate; for example, we are leveraging data from Cal-Adapt, the state's portal for climate projection data, as we strive to ensure that investments in our system will be adequate in light of more extreme weather expected in the future; (2) Engaging with utility peers and policymakers to advance energy sector climate resilience, stay up to date on the most recent developments in the field, and help state and federal officials in their efforts to prepare for climate change; and (3) Partner directly with customers and communities to enhance climate resilience in California. For example, PG&E offers grants to help communities through our Better Together Resilient Communities program. The designated LOB Risk and Compliance Committees within PG&E integrate these considerations into PG&E's risk management process through regular tracking and discussion to help ensure that activities are adequate and effective, and that resources are available as needed.

C2.3

(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

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

Identifier
Risk 1

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver
Current regulation
Mandates on and regulation of existing products and services

Primary potential financial impact
Increased indirect (operating) costs

Company-specific description
SB 100, which became law in September 2018, accelerates and increases the state's previous Renewable Portfolio Standard (RPS) requirements to 50% by December 31, 2026 (previous target was 50% by 2030), 60% by December 31, 2030, and 100% of retail sales from eligible renewables and zero-carbon resources by December 31, 2045. In 2019, nearly 30% of our delivered electricity came from RPS-eligible sources, and we are well on our way to meet the state’s 60% by 2030 renewable energy mandate. 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

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)
0

Potential financial impact figure – maximum (currency)
25,000,000

Explanation of financial impact figure

PG&E's cost of compliance risk for not meeting California's RPS is $50 per MWh, up to $25 million per year. This figure is determined by the California Public Utilities Commission and was codified in CPUC Decision: D.14-12-023; D.18-05-026.

Cost of response to risk

2,300,000,000

Description of response and explanation of cost calculation

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 April 2020, PG&E's RPS-eligible portfolio included 245 contracts for more than 6,600 MW of contracted capacity. PG&E also has 52 utility-owned RPS-eligible generation facilities representing more than 450 MW of additional capacity. In 2019, 12 projects under contract, including 310 MW of solar projects and seven smaller bioenergy projects totalling 20 MW, began delivering renewable energy to PG&E customers. These additions helped PG&E deliver nearly 30% of electricity from eligible renewable sources in 2019 and continue to meet annual RPS requirements. To manage regulatory risks, compliance, and costs, PG&E's renewable energy portfolio costs in 2019 were approximately $2.3 billion.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation

Mandates on and regulation of existing products and services

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Uncertainty around state and federal GHG regulations may result in increased costs to PG&E customers. For example, at the state level, ARB's Short-lived Climate Pollutant Strategy (SLCP) includes policies that affect PG&E and our 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 GHG reduction goals. At the federal level, the administration repealed and replaced 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

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

0

Potential financial impact figure – maximum (currency)

3,650,000

Explanation of financial impact figure

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. The potential impact figure (maximum) provided would be the worst-case scenario of PG&E not meeting this compliance obligation for a full year.

Cost of response to risk

55,000,000

Description of response and explanation of cost calculation

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. This requires investment in both mobile and stationary leak survey technology as well as R&D 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 on January 1, 2018. PG&E also continued to make improvements to its distribution leak management practices in 2018 with the Super Emitter leak abatement program. PG&E implemented an approach to identify larger leaks (greater than or equal to 10scfh), by conducting annual surveys to target these larger emissions. Focusing repairs on large leaks in a gas distribution system has the potential to be an effective way to reduce methane emissions because their contribution

is disproportionally large: a 2014 WSU study found that 56% of methane emissions were due to only 2% of leaks.

For the CPUC Gas Leak Abatement rulemaking, PG&E's 2018-2019 Compliance Plan is estimated to cost approximately $55,000,000. Management costs include the implementation of best management practices as identified in PG&E's 2018-2019 Methane Abatement Best Practices Compliance Plan, including blowdown reduction; 3–year leak survey cycle; special leak survey; and super-emitter survey and leak repair.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Other, please specify

Increased severity of heat waves

Primary potential financial impact

Increased indirect (operating) costs

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 night-time 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. Between 2006 and 2017, PG&E's service area experienced ten heat waves that caused sustained customer outages and damaged the company's equipment. The most significant of these occurred in July 2006, which led to over 740,000 customer outages. During extremely hot summer days, PG&E must suspend the provision of power during Flex Alerts, which are voluntary calls for consumers to conserve electricity, when energy demand approaches available capacity. PG&E responded to one Flex Alert in June 2019, notifying 61,419 SmartRate customers and 121,842 Peak Day Pricing customers, both of which are voluntary demand response rates that encourage customers to reduce energy consumption on the hottest summer days. Although PG&E was prepared to meet the increased demand for power, greater frequency of triple-digit heat days could continue to impact demand for energy and the safety of our customers across much of PG&E's service area. There is also the risk of

increased PG&E customer outages during extreme heat wave events.

In 2018, PG&E conducted a research deep dive into heat wave impacts on our electric infrastructure. Findings will be considered in the risk and strategic planning process. Forward-looking climate data from the deep-dive project a significant increase in the frequency and severity of heat waves in PG&E's service area. Based on PG&E's climate models, the number of heat days (over 100 degrees F) could reach 21 in 2050 compared to 12 in 2020. This carries implications for PG&E's load forecasting, cost containment, asset management, supply chain management, engagement with local communities, and the safety of PG&E customers.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

150,000,000

Potential financial impact figure – maximum (currency)

300,000,000

Explanation of financial impact figure

The July 2006 California heatwave 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. Of this amount, the total costs to restore service and repair facilities from these events amounted to approximately $62 million. While this was a singular event, climate science suggests these events will likely occur more frequently.

Cost of response to risk

46,000,000

Description of response and explanation of cost calculation

For extreme heat events, PG&E's demand-response (DR) programs (e.g., SmartRate, Peak Day Pricing, SmartAC [residential], Base Interruptible Program [commercial & industrial]) and smart meter data have helped mitigate peak demand. For example, the SmartAC Program (offered May-October) allows PG&E to send a signal to a customer's air conditioner, cycling it to use less energy.

In 2019, more than 170,000 residential customers participated in the DR programs we offer, along with more than 120,000 larger commercial and industrial customers. Through our DR programs, PG&E and our customers had the ability to provide up to 400 MW of load reduction in 2019—about the capacity of a large conventional power plant.

After the 2006 heat storm, PG&E made a number of improvements: increased emergency stock levels of equipment, installed SmartMeters to aggregate transformer loads in real time, added new tools for load growth planning to predict system overloads, and re-evaluated company standards. More broadly, PG&E has established an internal Climate Resilience Officer Committee to coordinate work across enterprise risk management, integration and planning, and engagement.

PG&E's expenditures for DR programs in 2019 were approximately $46 million. This figure is calculated by tracking costs associated with the implementation of the programs, which enable customers to reduce energy use during periods of peak demand.

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Increased indirect (operating) costs

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.

PG&E participated in the Bay Area Council Economic Institute’s 2015 Surviving the Storm report, which looked at the economic impact of a Superstorm and associated flooding on the Bay Area economy. The report concluded that a Superstorm and the associated flooding would be detrimental to PG&E both physically and economically,

identifying several Bay Area substations that are at risk. The report identifies the potential for a $10.4 billion impact on the greater San Francisco Bay Area economy with PG&E's estimate of a $125 million impact based on six of PG&E's Bay Area substations. This estimate represents the associated outage cost—or loss of value—to PG&E customers, not the cost of replacing or repairing equipment. In the Bay Area, 355,000 residents (6% of the total exposed) live within a 100-year floodplain while over a million (17%) live in a 500-year floodplain.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

0

Potential financial impact figure – maximum (currency)

125,000,000

Explanation of financial impact figure

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.

Cost of response to risk

205,000,000

Description of response and explanation of cost calculation

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.

For example, we are integrating climate data into our strategic risk planning process,

and in June 2020 filed our second Risk Assessment Mitigation Phase report with the CPUC. In 2016, PG&E voluntarily published a Climate Vulnerability Assessment to identify our top climate-driven risks and we have initiated a second Assessment to understand the impacts of those risks to PG&E's infrastructure with guidance from the CPUC. PG&E also engages with leaders from business, government, academia, and non-profit organizations to share information and plan for the future.

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. The recorded costs associated with the repair of facilities and restoration of service associated with the 2019 Winter Storms in CEMA totaled $205 million as the 2019 Winter Storms were estimated to have damaged approximately 4,900 of PG&E's Electric Distribution facilities, eight Electric Generation facilities, 300 Gas Distribution facilities, and disrupted service to approximately 2.3 million electric customers and approximately 300 gas customers across PG&E's service area.

Comment

Note: the $205 million does not equate to PG&E's revenue requirement request in the 2019 CEMA filing.

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Other, please specify

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

PG&E owns and operates one of the nation's largest investor-owned hydroelectric systems, which relies on nearly 100 reservoirs located primarily in the higher elevations of California's Sierra Nevada and Southern Cascade mountain ranges. Climate scientists predict that climate change will result in varying levels of precipitation in PG&E's service area. As a result, PG&E faces the risk of reduced hydroelectric output; there is also increased risk to infrastructure from land subsidence that occurs as a result of increased groundwater extraction during extreme drought conditions. Extreme precipitation can also cause a sharp increase in water levels, placing stress on hydro

infrastructure and reinforcing the importance of dam safety measures. One of the wettest water years on record was 2017. California experienced a “great water year in 2019” (October 2018-September 2019) due to significant rainfall and snowpack 175% of average, according to the Department of Water Resources.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The 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.

Cost of response to risk

151,167,530

Description of response and explanation of cost calculation

During California’s recent drought with near historically low levels of precipitation, PG&E conserved water in our reservoirs in the spring so more would be available during summer months. PG&E also worked to reduce the required water releases from our reservoirs to lessen the drought’s impact on the environment and prolong availability of water for downstream users’ needs.

The $151 million figure above represents the average annual operations and maintenance costs for PG&E's hydroelectric operations during 2011 to 2014, the primary years of California's recent drought.

Longer-term, 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 include the development of pump storage projects, new reservoir capacity, and additional capacity from other energy sources. PG&E is engaging with state and local stakeholders and has adopted strategies such as maintaining higher winter carryover reservoir storage levels, reducing discretionary reservoir water releases, and collaborating on research and new modeling tools.

Comment

Cost of management is difficult to determine as each year is dependent on the amount of precipitation received and the temperature (if the precipitation falls as rain or snow). There is an opportunity cost of winter and spring peak generation that is foregone for summer generation, but that is a calculated/optimized decision based on our water supply forecast and schedule optimization results - not a cost of management but a cost associated with the lack of precipitation.

There are some opportunities to address the expected increase in the coefficient of variation for annual precipitation in the Sierra Nevada Region. PG&E's Power Generation Water Management organization may incur additional climate change costs from some or all the following: development/enhancement of distributed modeling tools such as the PRMS Model, enhancement of existing statistical runoff forecast tools to include additional snow courses and snow sensors outside of the targeted watershed/sub-basin, and installation of additional soil moisture probes at selected snow sensors in the mid-elevation snow zone.

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Rising sea levels

Primary potential financial impact

Increased capital expenditures

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. PG&E is assessing the risk of sea level rise and associated flooding risk as part of its ongoing Climate Vulnerability Assessment.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

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.

Cost of response to risk

50,000

Description of response and explanation of cost calculation

PG&E is 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 to coordinate work across enterprise risk management, integration and planning, and engagement. PG&E piloted a Climate Resilience Visualization Tool 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.

The cost of management figure refers to a "deep dive" research project PG&E is undertaking in 2020 to better understand potential impacts of inland and coastal flooding, which will also consider impacts of sea level rise, rising water tables, and impacts of extreme storms. The effort is part of a series of targeted deep dives to research particular natural hazards and aspects of PG&E's business.

The costs of preparing for sea level rise will depend on site specific information, including the existing elevation of assets and surrounding land characteristics. Replacement of equipment can run in the thousands to millions of dollars, depending on the asset. Levee design, permitting, and construction for individual sites can run into the tens of millions of dollars. Completely moving and rebuilding a substation is estimated to cost at least $100 million.

Comment

Identifier

Risk 7

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased likelihood and severity of wildfires

Primary potential financial impact

Increased direct costs

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.

A number of climate-related factors have contributed to the increasing risk of wildfires. For example, bark beetles and drought have contributed to record numbers of dead trees that fuel and amplify wildfires. Since 2010, according to the U.S. Fish and Wildlife Service, approximately 147 million trees have died in California. Moreover, as air temperatures rise, forests and land are drying out, increasing fire risks and creating weather conditions that readily facilitate the rapid expansion of fires.

More than one half of PG&E's 70,000-square-mile service area is identified as extreme (Tier 3) or elevated (Tier 2) fire-threat areas according to the CPUC's High Fire Threat District (HFTD) Map. PG&E's service area accounts for approximately 65% of the California investor-owned utility service areas located in Tier 2 and Tier 3 HFTD areas. PG&E's 2020 Wildfire Mitigation Plan is intended to reduce the risk of wildfires in the CPUC's HFTD areas.

As described in the Fourth National Climate Assessment, released November 2018,

"[W]ildfire trends in the western United States are influenced by rising temperatures and changing precipitation patterns, pest populations, and land management practices… resulting in fires that are larger and more damaging when they do occur… Increased wildfire driven by climate change is projected to increase costs associated with health effects, loss of homes and other property, wildfire response, and fuel management." California has not only entered a "new normal" with regard to the risk, magnitude, and devastating impact of wildfires, but as former Governor Jerry Brown explained, California has entered a "new abnormal" that will continue in the next 20 years. As a result, the new wildfire season may span eight months or more of the year.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The potential financial figure is unknown but could be substantial. California law includes a doctrine of inverse condemnation that is routinely invoked in the state. If the Utility's facilities, such as its electric distribution and transmission lines, are determined to be the substantial cause of one or more fires, and the doctrine of inverse condemnation applies, the Utility could be liable for property damage, business interruption, interest, and attorneys' fees without having been found negligent.

Additional information:
In accordance with the executed settlement agreements embodied in PG&E's Plan of Reorganization, PG&E has paid or will pay a total of approximately $25.5 billion at Plan Value in settlement of claims of wildfire victims, public entities, and subrogated insurers arising from the 2015 Butte Fire, 2017 North Bay Wildfires, and 2018 Camp Fire.

On 7/12/2019, CA's Governor signed into law AB 1054, which provides for the establishment of a state-wide fund available for eligible electric utility companies to pay eligible claims for liabilities arising from wildfires occurring after 7/12/2019 that are caused by the applicable electric utility company's equipment, subject to the terms and

conditions of AB 1054.

Electric utility companies that draw from the Wildfire Fund will only be required to repay amounts that are determined by the CPUC in an application for cost recovery not to be just and reasonable, subject to a rolling 3-year disallowance cap equal to 20% of the electric utility company's transmission and distribution equity rate base and other conditions imposed by the statute.

The Fund is expected to be capitalized with (i) $10.5 billion of proceeds of bonds supported by a charge to ratepayers, (ii) $7.5 billion in initial contributions from CA's three IOUs and (iii) $300 million in annual contributions paid by CA's three IOUs. The Utility's Wildfire Fund allocation metric is 64.2%. The Fund will only be available for payment of eligible claims so long as there are sufficient funds remaining in the Fund.

On 7/1/2020, PG&E Corporation and the Utility contributed an initial contribution of ~ $4.8 billion and first annual contribution of ~ $193 million to the Fund to secure participation of the Utility.

As of 7/1/2020, the Fund is available to the Utility to pay for eligible claims arising as of 7/12/2019, subject to a limit of 40% of the amount of such claims arising between the effective date of AB 1054 and 7/1/2020.

Cost of response to risk

11,700,000,000

Description of response and explanation of cost calculation

As part of our ongoing efforts to further reduce wildfire risks and keep customers and the communities we serve safe, PG&E submitted our 2020 Wildfire Mitigation Plan to the CPUC. The Plan forecasts $11.7 billion in costs for the period of 2019 to 2022.

The plan expands and enhances PG&E's comprehensive Community Wildfire Safety Program designed to address the growing threat of extreme weather and wildfires across our service area. The plan will continue expanded key safety work including: new grid technology; hardening of the electric system; accelerated inspections of electric infrastructure; enhanced vegetation management around power lines; and real-time monitoring and situational awareness tools to better understand how severe weather can impact PG&E's system.

PG&E's 2020 plan also includes changes to make Public Safety Power Shutoff (PSPS) events smaller in scope and shorter in duration and to lessen the overall impacts of shutoffs while working to keep customers and communities safe during times of severe weather and high wildfire risk.

Highlights from 2019 included: (1) Clearing thousands of miles via Enhanced Vegetation Management work; (2) Installing stronger and more resilient poles and covered power lines on 171 circuit miles, 21 more miles than the goal of 150 miles; over the next 12 to 14 years, approximately 7,100 miles will be hardened in high fire-threat areas; (3)

Adding new technology to our Wildfire Safety Operations Center, the 24/7 command center for PG&E's wildfire monitoring and response; (4) Completing 100% of visual inspections and aerial inspections of nearly 50,000 transmission structures as well as visual inspections of nearly 700,000 distribution poles and 222 substations in high fire-risk areas; all of the more than 1,100 highest safety risk issues found through these inspections have been repaired or resolved; (5) Installing 426 weather stations, 26 more than the goal of 400; by 2022, there will be 1,300 weather stations in operation; and (6) Installing 133 high-definition cameras, 37 cameras above the goal for the year; by 2022, 600 cameras will be in operation.

Pacific Gas and Electric Company's 2020 Wildfire Mitigation Plan Report is available at: https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf

Comment

Additional details for "Explanation of financial impact figure" are available at https://www.cawildfirefund.com/. See also PG&E Corporation and Pacific Gas and Electric Company's joint quarterly report on Form 10-Q at http://investor.pgecorp.com/.

Forecasted cost information is available on slide 31 of PG&E's Business Outlook (Feb. 2020): http://s1.q4cdn.com/880135780/files/doc_financials/2019/q4/Business-Outlook-Presentation-Final-Feb-2020.pdf.

C2.4

(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

(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

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

The CPUC, in consultation with the California Energy Commission (CEC), establishes efficiency targets for electric and gas providers to achieve. SB 350 requires, among other things, that the state establish annual targets for state-wide energy efficiency savings and demand reduction that will achieve a cumulative doubling of state-wide energy efficiency savings in electricity and natural gas end uses of retail customers by January 1, 2030. PG&E can earn a financial incentive for achieving the CPUC-approved customer energy efficiency targets.

As the portfolio program administrator, PG&E's energy efficiency Business Plan is built on three guiding principles: (1) Scaling energy efficiency in a cost-effective way, (2) Making energy efficiency offerings easier to access by streamlining our portfolio, and (3) Developing energy efficiency as a cost-effective grid resource that is integrated with other distributed energy resources—enabling deeper savings, greater penetration and location-specific efficiency. PG&E will transition at least 60% of its program design and delivery to third parties by 2020.

In 2019, PG&E's estimated electric savings totaled 1,253 GWh and total natural gas savings came to 27.6 million therms. As a result, PG&E helped customers save more than $300 million on their energy bills and avoid the emission of nearly 640,000 metric tons of carbon dioxide through our energy efficiency programs. Highlights from 2019 include increasing financial incentives for energy-efficient and resilient construction practices in homes rebuilt after wildfires; expanding our energy efficiency financing program for commercial customers and government agencies, funding 668 loans; and supporting California's goal for all newly constructed residential buildings to be zero net energy by 2020 by delivering trainings to more than 2,660 students, among others.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

15,000,000

Potential financial impact figure – maximum (currency)

21,000,000

Explanation of financial impact figure

PG&E can earn a financial incentive for achieving the CPUC-approved customer energy efficiency targets. The forecasted payment for 2019 is between $15 and $21 million, based on the historical relationship between the incentive and program expenditures.

Cost to realize opportunity

301,009,486

Strategy to realize opportunity and explanation of cost calculation

PG&E's Customer Care organization is responsible for implementing our energy efficiency program, which includes: (1) Working to reduce financial barriers for residential, commercial and government customers; (2) Giving customers access to their data to support smart energy planning; (3) Collaborating with retailers, distributors and others to increase the availability of high-efficiency products; (4) Advocating for stronger building codes and appliance standards and supporting compliance with existing codes and standards, while continuing to serve as California's state-wide coordinator for utility initiatives and analyses on standards; (5) Providing technical support for local governments that choose to exceed minimum requirements for state building codes; (6) Maintaining our longstanding role in the nation's first interdisciplinary energy efficiency institute at the University of California Davis and in the best practices clearinghouse for energy efficiency and demand response at the Consortium for Energy Efficiency; and (7) Engaging communities through proactive outreach.

In 2019, PG&E spent $301 million on its energy efficiency programs (including $28 million for programs administered by Regional Energy Networks/Community Choice Aggregators whose impacts count toward PG&E's energy savings goals). (This does not include $171 million for programs serving low-income customers; $15 million for evaluation, measurement, and verification; $31 million revolving loan fund for on-bill project financing, or $4.7 million for state-wide marketing, education and outreach that is funded through a separate regulatory proceeding.) These energy efficiency funds are collected from customers via public purpose program charges embedded in gas and electric rates and are therefore revenue neutral. To increase our impact, we also partner with state and local governments, community partners and third-party energy efficiency specialists.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Other, please specify

Expanded markets

Company-specific description

SB 1371 requires the adoption of rules and procedures to minimize natural gas leakage from CPUC-regulated natural gas pipeline facilities. In the June 2017 Decision D. 17-06-015, the CPUC adopted 26 best practices related to natural gas leak abatement. In compliance with CPUC requirements, PG&E's Natural Gas Leak Abatement Program includes annual methane emission tracking and reporting as well as the submission of a biennial best practice compliance plan.

In 2018, PG&E submitted its first Natural Gas Leak Abatement Compliance filing with the CPUC, outlining our first two-year plan (2018-2019) to address the 26 best practices documented in the CPUC Natural Gas Leak Abatement OIR 15-01-008. These best practices emphasize minimizing methane emissions through changes to policies and procedures, recordkeeping, personnel training, leak detection, leak repair and leak prevention.

By 2025, PG&E is committed to reduce methane emissions by 20% below 2015 levels. By 2030, PG&E is targeting a 40% reduction in support of state climate policy goals. To achieve these goals, PG&E engages in numerous technology research and development efforts into new technologies to improve leak detection, quantification and repair capabilities, as well as improvements in processes to limit the release of methane into the atmosphere.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

18,448,461

Potential financial impact figure – maximum (currency)

27,672,691

Explanation of financial impact figure

PG&E's investment in technologies and strategies to detect and reduce methane emissions enables the utility to reduce emissions associated with our natural gas transmission, storage and distribution infrastructure in California. New technologies often provide benefits that evolve over time. Some of the projects are funded through research consortiums and their costs are shared with other utilities or oil and gas companies. The average leverage ratio for the projects is higher than five, which means PG&E is paying approximately one-fifth of the research costs. This allows PG&E to keep R&D activities cost-effective.

To estimate the financial impact figure, we estimated the value of natural gas saved associated with detection and repair activities, the social cost of the methane, and the avoided cap and trade emissions allowance costs. The figures used in the calculations include the following: city gate price of natural gas $3/mscf; social cost of methane of $1,100 per ton, which is equivalent to approximately $22/mscf; and avoided cap and trade emission allowances costs of $3/mscf. This equals an estimated total of $28/mscf. PG&E's 2015 baseline is 3,294,368 mscf. The range provided quantifies the potential financial impact figure associated with a 20-30% reduction below 2015 levels by 2025.

Cost to realize opportunity

4,300,000

Strategy to realize opportunity and explanation of cost calculation

In response to California SB 1371, PG&E is actively pursuing and testing methodologies and new technologies to reduce methane emissions from gas operations activities. PG&E has been using advanced mobile technology for compliance leak surveys and has been at the forefront of this development through its partnership with Picarro.

PG&E has also been using Differential Absorption Lidar (DIAL) LiDAR aerial surveys for a portion of its transmission system. Finally, PG&E has initiated several R&D projects to improve leak detection technologies, including gas speciation to differentiate between biomethane and pipeline gas. Gas Distribution moved to a three-year leak survey cycle starting January 1, 2018 and implemented the Super-Emitter Program, which aims for early detection and repair of large leaks.

PG&E is also engaged in R&D efforts to develop new solutions, including: piloting fixed wing DIAL (Differential Absorption LiDAR) aerial surveys; developing and testing light UAV mounted leak detection technologies; exploring optical imaging technologies; and piloting the use of high sensitivity handheld devices for leak surveys. The $4.3 million cost associated with this work supports various methane emissions technology R&D activities for 2018-2019.

Comment

Identifier

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

Primary potential financial impact

Other, please specify

No financial impact

Company-specific description

The Low Carbon Fuel Standard (LCFS) program is a core component of California's climate change strategy and is intended to reduce the carbon intensity of certain transportation fuels. As a supplier of a low-carbon fuel, PG&E generates and sells LCFS credits on behalf of our electric and natural gas vehicle customers through the LCFS 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 the proceeds to our customers, as a $800 Clean Fuel Rebate for electric vehicle owners, and as an on-bill credit for compressed natural gas vehicle drivers. The rebate and on-bill credit offer additional non-ratepayer funded incentives to our customers to own clean fuel vehicles and contribute to emissions reductions in the transportation sector.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

90,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Since the Clean Fuel Rebate program began in 2016, PG&E has issued over 130,000 rebates to customers for the purchase of a new EV, distributing a total of over $90 million of incentives back customers. PG&E will continue to distribute proceeds from our participation in the LCFS program through various customer programs.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

The LCFS program is authorized until 2030 and PG&E has the opportunity to participate as long as we remain a supplier of low-carbon transportation fuel. PG&E constructively engages with the California Air Resources Board (ARB) on matters relating to the LCFS and has been supportive of the program and its goals.

Recent amendments to the LCFS regulation now require PG&E to contribute a portion of the LCFS credit proceeds to a state-wide point-of-purchase EV incentive program, the Clean Fuel Reward, which will launch in 2020. PG&E continues to support increased EV adoption and transportation electrification in our service area through the LCFS programs as well as through our CPUC-approved “make-ready” infrastructure programs such as EV Fleet and EV Fast Charge. Increased EV adoption and EV charging could potentially allow PG&E to generate additional credits and distribute more revenue back to EV customers through the LCFS programs.

Comment

There is no cost to participate and generate LCFS credits.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization’s strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

C3.1a

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

Yes, qualitative and quantitative

C3.1b

(C3.1b) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
Other, please specify PG&E Proprietary Scenarios	PG&E has conducted – and is in the process of conducting new – climate-related scenario analysis to assess future risks and opportunities for PG&E's business strategy. California's climate policies, which set an overall emissions trajectory in line with below 2°C goals, are a key component of the scenarios. In fact, a state Executive Order directs all sectors of the California economy to achieve carbon neutrality by 2045 and to be net GHG negative thereafter. This includes California's Renewables Portfolio Standard (RPS), which targets 60% of retail sales from eligible renewable or zero-carbon resources by 2030 and 100% by 2045. To position PG&E for the future, we have launched a decarbonization pathways and vision initiative, which includes a 2045 carbon neutrality study. The study will produce a set of scenarios, including detailed projections of California's energy system, that achieve California's policy goal of economy-wide carbon neutrality by 2045. Our intent is to use the study results to inform our business and public policy strategy. Modeling will encompass California's energy system and associated GHG emissions through 2045, including supply and demand for electricity, natural gas, and transportation fuels across all sectors of California's economy and negative emissions technologies that interact with the energy system. Among other findings, prior scenario analysis has identified a long-term trend towards decreased natural gas throughput, as California pursues electrification strategies. This could translate into higher rates and potentially higher gas bills for those who continue to use gas and has informed PG&E's efforts, including our participation in a stakeholder process on California's Gas System in Transition facilitated by Gridworks. PG&E has also proactively evaluated scenarios associated with the physical impacts of climate change. In 2016, PG&E published a Climate Change Vulnerability Assessment that details various climate scenarios and shares our vulnerability to, and strategies to address, a range of climate risks. As a recent step, PG&E has initiated a multi-year Climate Vulnerability Assessment to better understand electric and gas system vulnerabilities to expected climate change impacts and how those impacts will affect PG&E's infrastructure, operations, services, employees, customers, and surrounding communities. The time horizons for this analysis include near term to 2030, mid-century, and end of the century.

	The results of the analysis will help PG&E target investments to infrastructure that is most vulnerable to climate impacts and that could significantly impact customers in the event of service disruption. This effort aligns with the CPUC's expectation that utilities conduct a refreshed vulnerability assessment, with a specific focus on identifying utility-related impacts to disadvantaged vulnerable communities.

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Risks and opportunities related to the growing demand for clean energy from our customers and the state of California (as reported in C2.4a Opportunity 3) have influenced our product-related strategy and product portfolio. As a supplier of electricity, PG&E is well positioned with the low carbon intensity of our electricity supply. This provides an opportunity for PG&E to enable the GHG emission reductions necessary in key sectors, particularly the transportation and buildings sectors. Transportation is California's leading source of GHG emissions at about 40%, and the building sector accounts for approximately 25% of California's emissions. Nearly 30% of PG&E's delivered electricity came from RPS-eligible renewable energy in 2019. As this percentage grows, and the transportation and building sectors are electrified, GHG emissions from these sectors will decline. PG&E is actively engaged in efforts to support the large-scale electric infrastructure needed to incorporate EV charging systems into the energy grid. For example, in 2019, we received regulatory approval to invest in charging infrastructure at schools and state parks and to provide education and rebates for EV chargers and installation for income-qualified residential customers. These programs – combined with PG&E's EV Charge Network program for light-duty vehicles, EV Fleet for medium- and heavy-duty vehicles, and Fast Charge for

		public charging – represent a significant effort to spur the adoption of EVs in our service area. To help ensure all communities benefit from the transition to transportation electrification, 25% of state park charger installations and 40% of school installations will be located in disadvantaged communities. Through these initiatives, PG&E will help contribute to California's goal of 250,000 chargers across the state by 2025. Generally speaking, risks and opportunities related to products and services have a high impact on our business.
Supply chain and/or value chain	Yes	Sulphur hexafluoride—or SF6—is commonly used by PG&E and other utilities as an electrical insulating material in high-voltage circuit breakers and gas-insulated switchgear. California's proposed regulations necessitate the phase out of SF6 equipment at different voltage levels beginning in 2025. PG&E is working on an orderly and systematic transition away from the use of SF6 in gas insulated equipment due to the high global warming potential of SF6. PG&E has been working to meet ARB's requirements since 2006. Establishing a multi-pronged approach to tackle SF6 has helped PG&E address emerging regulatory obligations and contributed toward our Million Ton Challenge carbon reduction goal. In 2019, PG&E repaired or replaced 24 of the highest leaking circuit breakers, implemented SF6 cylinder best management practices, and continued the phase-in of SF6-free equipment working with its supply chain vendors, including Hitachi, Siemens and GE. PG&E began to purchase and pilot circuit breakers and gas insulated switch gear that does not contain SF6 gas at the 72kV level in 2017 and continues to phase in circuit breakers at the 72kV and 115kV levels. PG&E's roadmap outlines a strategy to integrate non-SF6 equipment through 2030 and beyond as non-SF6 equipment becomes available from vendors. Integrating SF6-free technology will take time, and performance of new technology is essential to meeting the state's goal and maintaining safety and reliability (as reported in C2.2c, Technology Risk). Generally speaking, risks and opportunities related to supply chain have a high impact on our business.
Investment in R&D	Yes	As a regulated electric and natural gas utility, PG&E is at the forefront of investing in technology research and

		development. One key program is the Electric Power Investment Charge (EPIC), which provides funding through 2020 for applied R&D, technology demonstration and deployment, and market facilitation of clean energy technologies and approaches. EPIC consists of four funding areas: (1) Renewables and Distributed Energy Resource Integration, (2) Grid Modernization and Optimization, (3) Customer Service and Enablement, and (4) Cross Cutting/Foundational Strategies and Technologies. The annual EPIC budget of $162 million is collected from customers in electric utility distribution rates. PG&E contributes 50.1% - approximately $81 million annually – with the other IOUs making up the other 49.9%. The California Energy Commission (CEC) administers 80% of the EPIC funding, with the ability to invest in all of the approved EPIC activities. PG&E is approved to administer 20% of the EPIC funding in an amount proportional to the amount collected. While PG&E has funded a variety of programs since EPIC's inception in 2012, one program that launched in Q1 2019 and is in the build/test phase focuses on location targeted distributed energy resources (DER). By exploring projects that help with renewable and DER integration, PG&E can increase safety, improve reliability, and reduce costs. As a driver for the project, not many Front-of-the-Meter microgrid solutions have been explored and there is a need for development of standards for integrating multi-customer microgrids. In Arcata/Eureka, PG&E has helped configure the airport's local microgrid controller to integrate the microgrid into PG&E's distribution network. Through this project, PG&E helped develop a scalable and replicable approach to planning, designing, deploying, and operating multi-customer microgrids. Generally speaking, risks and opportunities related to investment in R&D can have a medium impact on our business.
Operations	Yes	Prolonged periods of high temperatures, extreme dryness and record-high winds have created conditions in our state where any spark could cause a catastrophic wildfire. Our climate continues to change: in less than a decade, the area served by PG&E that the CPUC has designated to be at a high risk of wildfire has increased from 15 to 52%—an increase of more than 300% (as referenced in C2.3a Risk 8). We are committed to working together—PG&E, our

		government and all Californians—to adapt our electric system to the growing threat of wildfires, while also helping our customers prepare for service interruptions under our Public Safety Power Shutoff (PSPS) program. We have a comprehensive plan for reducing wildfire risks which includes new grid technology, a critical hardening of the electric system, enhanced vegetation management and more, with short-, medium- and long-term plans to make our system safer. This includes listening sessions with stakeholders to improve our PSPS program going forward by making events smaller in size, shorter in length, and smarter for our customers. We are also delivering more assistance and outreach to help vulnerable customers, who include medical baseline customers and tribal communities, among others. For example, we are partnering with the California Foundation for Independent Living Centers (CFILC) and other community-based organizations to provide resources for vulnerable customers and conduct outreach. These local affiliates can provide transportation, lodging or temporary generation, depending on need. We are also upgrading Community Resource Centers (CRCs) so that customers without power can have a place to go for charging and other basic needs. PG&E is also adapting our approach to CRCs to reflect appropriate COVID-19 public health considerations. We are also actively working with tribal governments to prepare their communities for PSPS events and obtain feedback from those that were impacted by prior events. Other initiatives include creating resources and materials such as the Safety Action Center webpage and brochures in multiple languages and meeting demand from customers for more battery storage for backup power through programs like our Self Generation Incentive Program (SGIP). Generally speaking, risks and opportunities related to operations can have a high impact on our business.

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence

Row 1	Revenues Direct costs Capital expenditures Assets	Revenues: 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 Utility's revenue requirements consist primarily of a base amount set to enable the Utility to recover its reasonable operating expenses (e.g., maintenance, administration and general expenses) and capital costs (e.g., depreciation, and financing expenses). The Utility's base revenues are "decoupled" from its sales volume. As a result, base revenues are not impacted by fluctuations in sales resulting from, for example, weather or economic conditions. The Utility's financial results could be affected by the loss of customers. In addition, increasing levels of self-generation of electricity by customers (primarily solar installations) and the use of customer net energy metering (NEM), which allows self-generating customers to receive bill credits for surplus power at the full retail rate, puts upward rate pressure on remaining customers, who may incur significantly higher bills due to an increase in customers seeking alternative energy providers. A confluence of technology-related cost declines and sustained federal or state subsidies could make a combination of distributed generation and energy storage a viable, cost-effective alternative to the Utility's bundled electric service which could further threaten the Utility's ability to recover its generation, transmission, and distribution investments. Direct Costs: State climate policy requires reductions in greenhouse gases of 40% by 2030 and 80% by 2050. The Utility expects all costs and revenues associated with the GHG cap-and-trade program to be passed through to customers. The Utility also is required to incur costs to comply with legislative and regulatory requirements and initiatives, such as those relating to the development of state-wide electric vehicle charging infrastructure, the deployment of distributed energy resources, implementation of demand response and customer energy efficiency programs, energy storage and renewable energy targets, underground gas storage, and the construction of the California high-speed rail project. The Utility's ability to recover costs, including its investments, associated with these and other legislative and regulatory initiatives will depend, in large part, on the final form of legislative or regulatory requirements, and the associated ratemaking mechanisms associated with these initiatives, including the timely adjustment of such mechanisms to reflect any lowered customer demand for the Utility's electricity and natural gas

		services. Capital Expenditures: PG&E invested approximately $7 billion in 2019 to enhance and upgrade our infrastructure for safety, reliability and wildfire mitigation. Our climate continues to change: in less than a decade, the area served by PG&E that the CPUC has designated to be at a high risk of wildfire has increased from 15 to 52%—an increase of more than 300%. We are committed to working together—PG&E, our government and all Californians—to adapt our electric system to the growing threat of wildfires, while also helping our customers prepare for service interruptions under our Public Safety Power Shutoff program. We have a comprehensive plan for reducing wildfire risks which includes new grid technology, a critical hardening of the electric system, enhanced vegetation management and more, with short-, medium- and long-term plans to make our system safer. PG&E's 2020 Wildfire Mitigation Plan (WMP) is intended to reduce the risk of wildfires in the CPUC's HFTD areas. The WMP provides details on PG&E's comprehensive Community Wildfire Safety Program (CWSP) and, incorporating lessons learned from the 2019 wildfire season, outlines the additional programs planned from 2020 to 2022 to prevent catastrophic wildfires. For example, among other measures, PG&E is adding approximately 1,300 weather stations to provide improved awareness of fire danger conditions by 2022 and is installing approximately 600 cameras to enhance real-time monitoring across high fire-risk areas by 2022. PG&E is approaching the issue with urgency to do everything we can to prevent our facilities from creating public safety risks. Assets: State climate policy proposals for reducing greenhouse gas emissions have the potential to reduce natural gas usage and increase natural gas costs, which may impact the future of natural gas services. The future recovery of the increased costs associated with compliance is uncertain. Natural gas providers have been subject to compliance with CARB's Cap-and-Trade Program since 2015, and natural gas end-use customers have an increasing exposure to carbon costs under the Program through 2030 when the full cost will be reflected in customer bills. CARB's Scoping Plan also proposes various methods of reducing GHG emissions from natural gas. These include more aggressive energy efficiency programs to reduce natural gas end use, increased renewable portfolio standards generation in the electric sector reducing noncore gas load, and replacement of natural gas appliances with electric

		appliances, leading to further reduced demand. The combination of reduced load and increased costs could result in higher natural gas customer bills and a potential mandate to deliver renewable natural gas could lead to cost recovery risk. In addition, local city governments have passed ordinances restricting use of natural gas in new construction, and if other jurisdictions follow suit, this could affect future demand for the provision of natural gas. PG&E welcomes the opportunity to avoid investments in new gas assets that might later prove underutilized as local governments and the state work together to realize long-term decarbonization objectives. With all this in mind, PG&E supports state and local government policies that promote all-electric new construction when it is feasible and cost-effective. PG&E became the first dual-fuel utility in the U.S. to publicly support all-electric new construction in July 2019 when the Berkeley City Council passed the first all-electric new construction ordinance in California. In total, PG&E has provided letters of support for all-electric new construction codes or ordinances to 28 cities and counties. PG&E also supports the California Energy Commission's efforts to advance efficient, all-electric new construction, when it is feasible and cost-effective, through the forthcoming rulemaking for the 2022 iteration of California's Energy Code (Title 24, Part 6).

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

Target reference number

Abs 1

Year target was set

2018

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

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.

Base year

2016

Covered emissions in base year (metric tons CO2e)

1,540,000

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

38

Target year

2022

Targeted reduction from base year (%)

10

Covered emissions in target year (metric tons CO2e) [auto-calculated]

1,386,000

Covered emissions in reporting year (metric tons CO2e)

1,454,695

% of target achieved [auto-calculated]

55.3928571429

Target status in reporting year

Underway

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

Please explain (including target coverage)

In 2019, PG&E continued to track progress towards the company's five-year greenhouse gas emission reduction goal for its operations (including natural gas transmission and distribution, vehicle fleet and PG&E facilities). PG&E's 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 avoid one million metric tons of cumulative greenhouse gas emissions from 2018-2022.

Target reference number

Abs 2

Year target was set

2013

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Other, please specify

Scope 1 + 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.

Base year

1990

Covered emissions in base year (metric tons CO2e)

0

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

Target year

2020

Targeted reduction from base year (%)

0

Covered emissions in target year (metric tons CO2e) [auto-calculated]

0

Covered emissions in reporting year (metric tons CO2e)

2,796,314

% of target achieved [auto-calculated]

Target status in reporting year

Underway

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

Please explain (including target coverage)

The Cap and Trade target years include 2020 and 2030. California's 2030 target is consistent with IPCC recommendations. California's 2017 GHG inventory (the most recent data publicly available) showed that emissions are 7 MMTCO2e below the 2020 GHG Limit of 431 MMTCO2e.

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. AB 32 mandates the reduction of California's GHG emissions to the 1990 level (431 million metric tons of CO2e, as determined by ARB) 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.

Approximately 62% of PG&E's Scope 1 voluntarily reported GHG emissions were covered by the C&T program in 2019. PG&E has a compliance obligation under the C&T program, as determined by the Air Resources Board, 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. AB 398, passed in 2017, extended the C&T program out to 2030. 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.

C4.1b

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

Target reference number

Int 1

Year target was set

2011

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1

Intensity metric

Other, please specify

SF6 system wide leak rate

Base year

2011

Intensity figure in base year (metric tons CO2e per unit of activity)

66,840

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

0.8

Target year

2020

Targeted reduction from base year (%)

90

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]

6,684

% change anticipated in absolute Scope 1+2 emissions

1

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO2e per unit of activity)

35,112

% of target achieved [auto-calculated]

52.7428685418

Target status in reporting year

Underway

Is this a science-based target?

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

Please explain (including target coverage)

PG&E continues to implement controls and tracking measures to enhance our 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 2019, PG&E's SF6 emission rate decreased to 0.7%. As part of a multi-year effort, PG&E is piloting the installation of SF6-free high-voltage circuit breakers and gas-insulated switchgear.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to reduce methane emissions

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2018

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Methane reduction target

Other, please specify

Total annual volume of natural gas leaks and emissions (Mscf)

Target denominator (intensity targets only)

Base year

2015

Figure or percentage in base year

3,294,368

Target year

2025

Figure or percentage in target year

2,635,494

Figure or percentage in reporting year

3,099,573

% of target achieved [auto-calculated]

29.5648333369

Target status in reporting year

Underway

Is this target part of an emissions target?

PG&E's methane emission reduction initiatives are part of Abs 1 - PG&E's Million Ton Challenge program. PG&E launched the “Million Ton Challenge,” a voluntary five-year carbon reduction goal for the company’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. PG&E’s natural gas transmission and distribution system is included in this carbon reduction goal, specifically 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 CO2e in 2016, the baseline year for the Million Ton Challenge.

Is this target part of an overarching initiative?

Reduce short-lived climate pollutants

Please explain (including target coverage)

One of the state of California's goals is to reduce methane emissions by 40% from 2013 levels by 2030. PG&E’s natural gas transmission and distribution system leak abatement program includes annual methane emission tracking and reporting, and a biennial best practice compliance plan submission. PG&E’s two-year Compliance Plan (2020-2021) was submitted to the CPUC in March 2020. PG&E’s 2020 Compliance Plan will continue its progress toward meeting the emissions reduction goals of 20% and 40% below 2015 levels by 2025 and 2030, respectively.

C4.3

(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 initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	2	0

To be implemented*	6	0
Implementation commenced*	22	261,050
Implemented*	26	112,878
Not to be implemented	2	0

C4.3b

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

Initiative category & Initiative type

Other, please specify

Other, please specify

Initiative: Process emissions reductions; Initiative Type: changes in operations

Estimated annual CO2e savings (metric tonnes CO2e)

82,602

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

1,756,530

Investment required (unit currency – as specified in C0.4)

1,500,000

Payback period

No payback

Estimated lifetime of the initiative

1-2 years

Comment

In 2019, PG&E reduced methane emissions, compared to the 2016 baseline of the Million Ton Challenge, by 82,602 metric tonnes CO2e (mtCO2e). PG&E implemented drafting and cross compression strategies to reduce the amount of natural gas released to the atmosphere during construction and repair projects on our natural gas transmission system. Drafting and cross compression are strategies used to reduce and transfer the amount of natural gas from the part of the system needed to complete work to another part of our system. Reducing these gas transmission system “blowdown” emissions prevented the release of approximately 585 MMscf, equaling approximately

263,000 mtCO2e from entering the atmosphere. This performance eclipsed the annual abatement goal (240 MMscf) established in PG&E's Natural Gas Leak Abatement Compliance Plan filing to the CPUC.

PG&E also continued implementing several additional strategies across natural gas pipelines and operations to reduce emissions including: 3–year leak survey cycle; Super-emitter survey and leak repair; replacement of high bleed pneumatic controllers; and main and service replacement. PG&E's system wide process and fugitive methane emissions increased about 180,400 mtCO2e compared to 2016 baseline levels. Gas network emissions increases were driven by finding a greater number of leaks identified through distribution leak surveys and increased compressor operation to meet customer demand that led to increased compressor station blowdowns.

Initiative category & Initiative type

Fugitive emissions reductions

Other, please specify

Repair of leaking SF6 equipment

Estimated annual CO2e savings (metric tonnes CO2e)

13,167

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

450,000

Payback period

No payback

Estimated lifetime of the initiative

11-15 years

Comment

PG&E reduced its Scope 1 sulphur hexafluoride (SF6) emissions by implementing SF6 tracking, early detection measures for circuit breakers, and an active breaker replacement program. In 2019, PG&E's leak detection and repair program resulted in 24 repairs and one replacement of dead-tank circuit breakers at PG&E's substations. The average annual expense for this type of work is $450,000, based on a 9-year period. Separately, the estimated 2019 reduction in systemwide fugitive emissions relative to the 2016 baseline year was 13,167 MT CO2e.

Initiative category & Initiative type

Energy efficiency in buildings

Other, please specify

Building Energy Efficiency Upgrades and Solar Generation

Estimated annual CO2e savings (metric tonnes CO2e)

168

Scope(s)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

625,672

Investment required (unit currency – as specified in C0.4)

0

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

As part of the Million Ton Challenge, a five-year carbon reduction goal for our operations, we are working to improve the sustainability performance of our facilities. PG&E utilized three on-site solar PV installations at their facilities for 2019, resulting in savings of approximately 168 MT CO2e. PG&E did not complete any Building Energy or Solar projects in 2019, which is why there is no “Investment Required” shown above. Additional PV solar projects will come online in the next year. During the year, PG&E also continued to engage employees around energy efficiency and energy-saving actions.

Initiative category & Initiative type

Other, please specify

Other, please specify

Environmental remediation sites

Estimated annual CO2e savings (metric tonnes CO2e)

485

Scope(s)

Scope 3

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
0

Payback period
No payback

Estimated lifetime of the initiative
1-2 years

Comment
PG&E reduced its emissions in 2019 across various environmental remediation sites. PG&E achieved these results by incorporating sustainable practices on our remediation sites: using heavy construction and remediation equipment meeting Tier 3 and Tier 4 federal emission standards, reflecting the cleanest standards in the industry; using alternative fuels and renewable sources of energy for equipment and vehicles; and maximizing recycling, on-site reuse of materials and reductions in liquid and soil wastes generated during remediation.

At our Marina project in San Francisco, we continued to use the e240 Electric Mini Excavator, the first in the world to match the performance metrics of a diesel-powered unit with a lithium-ion battery. The advantages of using this innovative equipment include using clean energy, less noise and fewer emissions.

Initiative category & Initiative type
Transportation
Company fleet vehicle replacement

Estimated annual CO2e savings (metric tonnes CO2e)
16,456

Scope(s)
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
0

Payback period

No payback

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. PG&E managed approximately 13,000 on-road vehicles and related equipment in its fleet at the end of 2019. Of those, about 1,360 were electric-based and 65 were powered by compressed natural gas (CNG). Our network of electric charging stations is also growing: last year we surpassed 1,230 charge points at 117 locations across our service area. We also maintain a network of 32 CNG vehicle refueling facilities, 24 of which are open to customers. PG&E also rolled out renewable diesel to more than 60 sites, using over 2.6 million gallons of renewable diesel in our conventional vehicles and reducing associated carbon emissions. 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. Emission reductions are calculated as part of the Million Ton Challenge (2019 performance compared to the 2016 baseline).

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. This process is informed, in part, by an external Sustainability Advisory Council, which engages with PG&E leaders to provide feedback and identify new areas of opportunity. California's 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. SB 32 codified an aggressive economy-wide GHG reduction goal of 40% below the 1990 level by 2030. SB 100 accelerates and increases the state's previous Renewable Portfolio Standard (RPS) requirements to 60% by 2030 and 100% of retail sales from eligible renewables and zero-carbon resources by 2045. 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 2019, PG&E spent $301 million on energy efficiency projects—a significant investment in energy efficiency by a U.S. utility. In 2019, the estimated electric savings totaled 1,253 GWh and total natural gas savings came to 27.6 million therms. These results avoided the emission of nearly 640,000 metric tons of CO2.
Employee engagement	PG&E has a dedicated campaign to engage its employees to contribute towards the Million Ton Challenge.
Other	PG&E integrates emission reduction activities into business plans and operating budgets to reduce our Scope 1 SF6 emissions.
Other	PG&E integrates emission reduction activities into business plans and operating 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 operating budgets to improve our fleet's efficiency and to incorporate low-emissions vehicles into our fleet.
Other	PG&E integrates emission reduction activities into business plans and operating budgets to improve our facility sustainability performance.
Other	PG&E conducts policy advocacy to drive investment in emissions reduction activities. For example, at the federal level, PG&E supported measures of the LIFT Act (Livable Incomes for Families Today the Middle Class Act) related to technologies and clean energy research and development.

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 2019, nearly 30% of our delivered electricity came from renewable sources, including solar, wind, geothermal, small hydroelectric and various forms of bioenergy, and we are well on our

way toward meeting the state's 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

60

Comment

Percent revenue is based on PG&E's 2019 weighted average rate base. PG&E is required to deliver an average of ~30% over the 2018 to 2020 period. By the end of 2019, nearly 30% of the electricity PG&E delivered to its customers came from RPS-eligible resources, achieving the state's interim target.

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. 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.

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 (for both Solar Choice and Regional Renewable Choice)

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

1

Comment

Level of aggregation

Group of products

Description of product/Group of products

PG&E offers customers a comprehensive portfolio of energy efficiency options. Serving residential, commercial, agricultural, and other customers across the state, PG&E delivers energy efficiency solutions that empower customers to reduce energy use, reduce their carbon footprint, and save money. PG&E reaches customers using a variety of channels, from self-service software tools to PG&E's business customer account representatives. PG&E also partners with state and local governments, community partners and third-party energy efficiency specialists.

PG&E operates three training centers that offer energy efficiency education and training programs for building professionals, including architects, designers, engineers, contractors and technicians.

PG&E's energy efficiency priorities include: (1) Working to reduce financial barriers for residential, commercial and government customers; (2) Giving customers access to their data to support smart energy planning; (3) Collaborating with retailers, distributors and others to increase the availability of high-efficiency products; (4) Advocating for stronger building codes and appliance standards and supporting compliance with existing codes and standards, while continuing to serve as California's statewide coordinator for utility initiatives and analyses on standards; (5) Providing technical support for local governments that choose to exceed minimum requirements for state building codes; and (6) Engaging communities through proactive outreach.

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

1

Comment

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. PG&E's demand response options are supported by SmartMeter™ technology, which helps customers better understand their energy usage and lower their energy costs. More than 170,000 residential customers participate in the programs we offer, along with more than 120,000 larger commercial and industrial customers. Demand response programs include SmartRate, SmartAC, Peak Day Pricing, Capacity Bidding Program, Base Interruptible Program, and AutoDR.

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

1

Comment

Level of aggregation

Group of products

Description of product/Group of products

EV Charge Network program, Fast Charge Program and FleetReady Program:
In December 2016, the CPUC approved a three-year program to install 7,500 Level 2 electric vehicle (EV) charging ports at multi-unit dwelling and workplaces. In 2019, PG&E installed nearly 2,300 Level 2 ports at workplaces and multi-family dwellings through the program. Approximately 10% of new vehicle sales in PG&E's market were electric – totaling almost 275,000 EVs in PG&E's service area at the end of 2019.

In 2019, PG&E launched two new, five-year EV programs – the Fast Charge Program and the EV Fleet program. The Fast Charge Program will focus on public fast chargers while the EV Fleet program will focus on charging infrastructure for medium- and heavy-duty fleets. PG&E also received regulatory approval for our EV Schools and Parks and Empower EV programs, which will allow Californians to charge at these under-served sites, a large fraction of which will be located in disadvantaged communities.

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, Fast Charge Program and FleetReady Program

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

1

Comment

Level of aggregation

Group of products

Description of product/Group of products

Incentive programs for low-income solar, solar thermal water heating, fuel cells, wind, battery storage and other advanced technologies:
As of year-end 2019, PG&E had provided financial incentives through the Self-Generation Incentive Program for over 4,200 projects since 2001, representing $668 million in incentives and approximately 350 MW capacity for energy storage, fuel cells, wind turbines, internal combustion engines and other distributed generation.

Additionally, there were nearly 8,000 PG&E customers with battery storage in their homes or businesses, representing 125 MW of installed capacity – more than doubling installed capacity compared to 2018.

In 2019, we reached nearly 465,000 interconnected solar systems. In addition, we provided average incentives of about $3,400 each to single-family residential solar water heating projects, and an average of $54,000 for multi-family residential and commercial solar water heating installations. These incentives have helped support nearly 2,200 gas-offsetting projects of all types since the program's inception, which, in total, are expected to avoid more than 2.1 million therms annually. The solar water heating program is scheduled to run through July 31, 2020 or until the budget of $250 million is exhausted, whichever occurs first, though state legislation may further extend the 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 incentive programs for low-income solar, solar thermal water heating, fuel cells, wind, battery storage and other advanced technologies

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

1

Comment

C-EU4.6

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

PG&E's efforts to reduce methane emissions from our 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 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, including 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 CO2e 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 a number of emerging technologies, 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. 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 2018, 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 four-year to a three-year survey cycle starting January 1, 2018.

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 second two-year compliance plan (2020-2021) was submitted to the CPUC in March 2020 and includes incremental work.

In 2017, the California Air Resources Board began implementation of the Oil and Gas Regulation, which 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.

C5. Emissions methodology

C5.1

(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 CO2e)
3,218,256

Comment

Scope 2 (location-based)

Base year start
January 1, 2009

Base year end
December 31, 2009

Base year emissions (metric tons CO2e)
1,060,153

Comment

Scope 2 (market-based)

Base year start

January 1, 2009

Base year end

December 31, 2009

Base year emissions (metric tons CO2e)

997,983

Comment

C5.2

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

The Climate Registry: Electric Power Sector (EPS) Protocol
The Climate Registry: General Reporting Protocol
Other, please specify
California Energy Commission Power Source Disclosure; California and EPA protocols

C5.2a

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

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

4,495,574

Comment

C6.2

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

Row 1

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

Comment

C6.3

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

Reporting year

Scope 2, location-based

2,930,616

Scope 2, market-based (if applicable)

27,596

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 (2.68 pounds CO2/MWh in 2019), which is still undergoing third-party verification. This rate significantly differs from previous years due to a methodology change to the California Energy Commission's Power Source Disclosure Report. The resulting Scope 2 market-

based emissions should not be compared to previous years due to this methodology change.

C6.4

(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

(C6.5) Account for your organization's gross global 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. PG&E, in its engagement with the Electric Utility Industry Sustainable Supply Chain Alliance and in conjunction with Anthesis Group, will refresh this calculation in 2020.

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

Please explain

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

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

43,650

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.

Due to changes to the PSDR report and its methodology, emissions associated with purchased power have significantly decreased for this reporting year. The PSDR require that any procurement (owned generation or purchases) in excess of retail sales (e.g., an oversupply of power) be subtracted from retail sales using a cascading formula. The prescribed CEC formula requires that all fossil fuel procurements be subtracted first and if additional volumes are still required then all other specified purchases are proportionality reduced until total procurement equals total retail sales. Due to this adjustment, nearly all anthropogenic CO2 emissions are removed from PG&E's retail electricity supply mix.

The PSD regulations are new for the 2019 reporting year. This approach differs from prior reporting years and results in a retail electricity supply emission rate that is significantly lower.

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

100

Please explain

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

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

1,301

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

Please explain

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3,728

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 travelled 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

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2,016

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

Please explain

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

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

Please explain

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

Please explain

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

41,304,585

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

Please explain

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

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

Please explain

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

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

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

Investments

Evaluation status

Not relevant, explanation provided

Please explain

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

Please explain

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

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

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

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(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

0.00026

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

4,523,171

Metric denominator

unit total revenue

Metric denominator: Unit total

17,129,000,000

Scope 2 figure used

Market-based

% change from previous year

3

Direction of change

Decreased

Reason for change

One percent decline in total Scope 1-2 emissions and two percent increase in total revenue compared to 2018. Emission reduction activities that contributed to the decline in Scope 1-2 emissions include (1) energy efficiency (building services), (2) SF6 emissions savings, and (3) alternative fuel use in fleet vehicles.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(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).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	2,899,906	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	1,557,390	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	1,580	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	506	IPCC Fifth Assessment Report (AR5 – 100 year)

SF6	36,190	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)	Total gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	1,242.84	49,895.36	1.54	1,435,009.48	
Combustion (Electric utilities)	2,799,574.27	52.86	0	2,802,440.22	
Combustion (Gas utilities)	0	0	0	0	
Combustion (Other)	92,507.6	0.82	0	92,721.68	Combustion (mobile)
Emissions not elsewhere classified	6,582.15	5,672.04	0	165,402.87	This represents process emissions related to PG&E's natural gas operations during 2019

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	4,495,574

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	36,190
Facility Natural Gas Use	9,264
Gas Compressor Stations	307,397
Owned Fossil Electric Generation	2,490,747
Process and Fugitive Emissions from Natural Gas System	1,557,268
Fleet (transportation emissions)	92,722
Other Emissions (e.g., propane use, stationary equipment gas and diesel use)	1,986

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) 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	Comment
Electric utility activities	4,495,574	

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 for in Scope 2 market-based approach (MWh)
United States of America 💬1	2,930,616	27,596	115,471	288,284

💬1PG&E consumed approximately 300,575 MWh of electricity in 2019. Of this consumption, approximately 115,471 MWh was purchased; the remaining 185,104 MWh was generated by PG&E-owned facilities.

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 (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
T&D Line Losses	2,862,631	26,922
Facility Electricity Use	30,299	285
Compressor Station Electricity Use	37,558	388
Electricity Use by Fleet	128	1

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	294.8	Decreased	0.01	Renewable energy consumption from distributed rooftop solar on PG&E facilities increased during 2019, resulting in decreased emissions associated with Facility Electricity usage. Total percentage change is calculated as [294.8 MT(avoided emissions due to increased renewable energy consumption in 2019)/4,563,630 MT (total Scope 1 and Scope 2 emissions from 2018) x 100 = 0.01%]
Other emissions reduction activities	55,078	Decreased	1.2	Emission reductions activities include: (1) energy efficiency (building services): 2,398 MT CO2e, (2) reduced fossil generation from owned facilities: 29,215 MT CO2e, (3) alternative fuel use in fleet

				vehicles: 1,845 MT CO2e and (4) fugitive emission reductions from reduced SF6 usage: 21,620. Total percentage change is calculated as [55,078 MT/4,563,630 MT (total Scope 1 and Scope 2 emissions from 2018) x 100 = 1.2%]
Divestment				
Acquisitions				
Mergers				
Change in output	86,914	Increased	1.9	Total Scope 1 emissions increased due to change in output activities include (1) Overall increase in process and fugitive methane emissions due to higher natural gas customer demand: 86,581 MT CO2-e, and (2) other Scope 1 emission sources: 332 MT CO2-e. Total percentage change is calculated as [86,914 MT/4,563,630 MT (total Scope 1 and Scope 2 emissions from 2018) x 100 = 1.9%]
Change in methodology	129,247	Decreased	2.8	Total Scope 2 emissions reductions due to change in methodology include (1) electricity transmission and distribution line-losses: 116,745 MT CO2-e, and (2) facility electricity use: 12,502 MT CO2-e. Total percentage change is calculated as [129,247 MT/4,563,630 MT (total Scope 1 and Scope 2 emissions from 2018) x 100 = 2.8%] PG&E is required to submit generation and power purchases on behalf of its retail customers to the California Energy Commission's Power Source Disclosure Report (PSDR). For 2019, the CEC changed their methodology for how oversupply of power is addressed. The PSD regulations require that any procurement (owned generation or purchases) in excess of retail sales (e.g., an oversupply of power) be subtracted from retail sales using a cascading formula. The prescribed CEC

				formula requires that all fossil fuel procurements be subtracted first and if additional volumes are still required then all other specified purchases are proportionality reduced until total procurement equals total retail sales. Due to this adjustment, nearly all anthropogenic CO2 emissions are removed from PG&E's retail electricity supply mix. The PSD regulations are new for the 2019 reporting year. This approach differs from prior reporting years and results in a retail electricity supply emission rate that is significantly lower.
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

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 undertook this energy-related activity in the reporting year
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 (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	106,360	14,995,981	15,102,341
Consumption of purchased or acquired electricity		47,715	252,860	300,575
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		154,076	15,248,841	15,402,916

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 heat	No
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

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

9.45

Unit

kg CO2e per gallon

Emissions factor source

Climate Registry Default Emission Factors

Comment

Fuels (excluding feedstocks)

Compressed Natural Gas (CNG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

562

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

110

Unit

lb CO2 per 1000 cubic ft3

Emissions 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)

Fuels (excluding feedstocks)

Fuel Oil Number 2

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

170,282

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

73.96

Unit

kg CO2 per million Btu

Emissions factor source

EPA Part 98

Comment

Fuels (excluding feedstocks)

Jet Kerosene

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

6,891

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

9.75

Unit

kg CO2 per gallon

Emissions factor source

Climate Registry Default Emission Factors

Comment

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

189,632

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

70.22

Unit

kg CO2 per million Btu

Emissions factor source
EPA Part 98

Comment

Fuels (excluding feedstocks)
Propane Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
2,542

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

Emission factor
61.46

Unit
kg CO2 per million Btu

Emissions factor source
EPA Part 98

Comment

Fuels (excluding feedstocks)
Natural Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
14,794,975

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

Emission factor

53.02

Unit

kg CO2 per million Btu

Emissions factor source

EPA Part 98

Comment

Fuels (excluding feedstocks)

Other, please specify

Renewable Diesel Fuel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

106,222

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

73.96

Unit

kg CO2 per gallon

Emissions factor source

EPA Part 98

Comment

This represents Renewable diesel fuel used by PG&E diesel fleet vehicles.

Fuels (excluding feedstocks)

Other, please specify

Renewable Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

139

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

53.02

Unit

kg CO2 per million Btu

Emissions 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). This represents renewable natural gas used by PG&E's CNG fleet vehicles.

C8.2d

(C8.2d) 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	25,621,211	185,104	460,370	16,203
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C-EU8.2d

(C-EU8.2d) 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

Comment

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

Comment

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

Comment

Gas

Nameplate capacity (MW)

1,400

Gross electricity generation (GWh)

6,321

Net electricity generation (GWh)

6,321

Absolute scope 1 emissions (metric tons CO2e)

2,490,747

Scope 1 emissions intensity (metric tons CO2e per GWh)

394.09

Comment

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

Comment

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

Comment

Nuclear

Nameplate capacity (MW)

2,240

Gross electricity generation (GWh)

16,195

Net electricity generation (GWh)

16,195

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Fossil-fuel plants fitted with CCS

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

Comment

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

Comment

Hydropower

Nameplate capacity (MW)

3,891

Gross electricity generation (GWh)

11,051

Net electricity generation (GWh)

11,051

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

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

Comment

Solar

Nameplate capacity (MW)

152

Gross electricity generation (GWh)

283

Net electricity generation (GWh)

283

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

Marine

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

Comment

Other renewable

Nameplate capacity (MW)

224

Gross electricity generation (GWh)

266

Net electricity generation (GWh)

266

Absolute scope 1 emissions (metric tons CO2e)

0

Scope 1 emissions intensity (metric tons CO2e per GWh)

0

Comment

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

Comment

Total

Nameplate capacity (MW)

7,686

Gross electricity generation (GWh)

33,849

Net electricity generation (GWh)

33,849

Absolute scope 1 emissions (metric tons CO2e)

2,490,747

Scope 1 emissions intensity (metric tons CO2e per GWh)

97.21

Comment

C8.2e

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

Sourcing method

Other, please specify

Grid mix of renewable electricity

Low-carbon technology type

Other, please specify

Solar PV, concentrated solar power (CSP), wind, hydropower, nuclear, biomass (including biogas)

Country/region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed accounted for at a zero emission factor

288,284

Comment

After accounting for consumed electricity through the Solar Choice program, 96% of delivered electricity was delivered by zero-emitting resources [(% zero-emitting)*(electricity consumption - Solar Choice MWh) + Solar Choice MWh] = ~96%*(300,575-14,080)+14,080 = 288,284.

C-EU8.4

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

Yes

C-EU8.4a

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

Country/Region

United States of America

Voltage level

Transmission (high voltage)

Annual load (GWh)

78,070

Annual energy losses (% of annual load)

27.69

Scope where emissions from energy losses are accounted for

Scope 2 (market-based)

Emissions from energy losses (metric tons CO2e)

26,922

Length of network (km)

29,000

Number of connections

33

Area covered (km2)

181,299

Comment

At December 31, 2019, the Utility owned approximately 18,000 circuit miles of interconnected transmission lines operating at voltages ranging from 60 kV to 500 kV. The Utility also operated 33 electric transmission substations with a capacity of approximately 65,000 MVA. The Utility's electric transmission system is interconnected with electric power systems in the Western Electricity Coordinating Council, which includes many western states, the Canadian provinces of Alberta and British Columbia, and parts of Mexico.

PG&E does not calculate the split between its transmission and distribution emissions from line-losses. The Scope 2 emission value and % annual energy losses represent the total line-losses for PG&E's transmission and distribution system.

Country/Region

United States of America

Voltage level

Distribution (low voltage)

Annual load (GWh)

78,070

Annual energy losses (% of annual load)

27.69

Scope where emissions from energy losses are accounted for

Emissions from energy losses (metric tons CO2e)

26,922

Length of network (km)

172,199

Number of connections

828

Area covered (km2)

181,299

Comment

The Utility's electric distribution network consists of approximately 107,000 circuit miles of distribution lines (of which, as of December 31, 2019, approximately 25% are underground and approximately 75% are overhead), 68 transmission switching substations, and 760 distribution substations, with a capacity of approximately 32,000 MVA. The Utility'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 the Utility's customers.

These distribution substations serve as the central hubs for the Utility's electric distribution network. Emanating from each substation are primary and secondary distribution lines connected to local transformers and switching equipment that link distribution lines and provide delivery to end-users. In some cases, the Utility sells electricity from its distribution facilities to entities, such as municipal and other utilities, that resell the electricity. The Utility operates electric distribution control center facilities in Concord, Rocklin, and Fresno, California; these control centers form a key part of the Utility's efforts to create a smarter, more resilient grid.

PG&E does not calculate the split between its transmission and distribution emissions from line-losses. The Scope 2 emission value and % annual energy losses represent the total line-losses for PG&E's transmission and distribution system.

C9. Additional metrics

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
Gas	8,294,000	3	2020	Capital budget includes costs primarily related to employee safety or regulatory requirements for natural gas generation and costs to install new or replace existing equipment or components to support natural gas generation activities.
Nuclear	47,494,000	18	2020	Capital budget includes replacement of equipment and capital structures, systems and components to safely and reliably operate and protect the plant. The costs also include costs to design, develop and enhance applications, systems and infrastructure technology solutions, and projects established for Nuclear Safety and Security regulatory-mandated projects.
Hydropower	206,814,000	79	2020	Capital budget includes purchase of tools and equipment required to perform various functions to maintain the safety and reliability of hydroelectric generation operations, costs for complying with the conditions required by FERC licenses, and other compliance work.

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
Smart grid	Highlights of PG&E's Smart Grid deployment update include:	253,730,000	5.1	2020

	(1) Distribution Supervisory Control and Data Acquisition (SCADA) Program, which is focused on increasing SCADA penetration in the distribution system and improving reliability for PG&E's customers. PG&E's goal is to achieve 100% visibility and control over all critical distribution substation breakers over the next few years by adding or replacing SCADA for approximately 530 substations and 2,030 breakers. Between 2011 and 2019, the project has upgraded or replaced SCADA in 495 substations and 1,930 breakers. PG&E estimates that it will achieve 99% penetration by December 2020. Additionally, at the conclusion of Q2 2019, PG&E completed SCADA-enabling on approximately 87% of line recloser devices on lines serving or running through Tier 2 and Tier 3 High Fire Threat District (HFTD) areas. (2) Modular Protection Automation and Control (MPAC) Installation Program, which aims to deploy pre-engineered, fabricated, and standardized control buildings in transmission substations. As of 2019, PG&E had installed and completed 120 MPAC buildings and avoided $5.2 million in capital costs over traditional upgrade methods in 2019. PG&E has avoided $69.8 million in capital costs cumulatively since the program began in 2005. (3) Resilience Zones – This program is in the pilot phase and is intended to reduce the public impact and to increase community resiliency during PSPS events by enabling power to stay on in designated resiliency zones. PG&E's first resilience zone site became operational in 2019 in Angwin, California and an additional four resilience zones are currently in the design phase.			

	The total CAPEX for products and services refers to PG&E's annual capital expenditures for electric operations.			
Electric vehicles	PG&E has long been an industry leader in programs that encourage and facilitate the growth of electric vehicles in California. Our programs cover a wide range of offerings and serve a variety of customers. PG&E's $414 million of EV programs is one of the largest utility investment portfolios in the United States. PG&E's EV portfolio includes: (1) the EV Charge Network program: a $130 million program (ending 2021) to install up to 7,500 Level 2 (L2) charging ports at multi-unit dwellings and workplaces; (2) SB 350 Programs: up to approximately $269 million (ending 2025) to support make ready infrastructure for medium and heavy duty fleets (EV Fleet) and public fast charging (EV Fast Charge). In the EV Fleet program, the Utility has a goal of providing make-ready infrastructure at 700 sites supporting 6,500 vehicles, conducting operation and maintenance of installed infrastructure, and educating customers on the benefits of electric vehicles. The EV Fast Charge program has a goal to install utility-owned make-ready infrastructure at approximately 52 public charging sites amounting to roughly 234 DC fast chargers; (3) EV Schools and Parks: an approximately $11 million program (ending 2022) that will enable up to 132 L2 chargers at 22 California schools and up to 40 L2 and DC fast chargers at 15 state parks and beaches; and (4) Empower EV: an approximately $4 million program (ending 2022) that supports up to 2,000 chargers and 800 panel upgrades for low- and moderate-income customers through incentives and education and outreach opportunities.	414,000,000	8.4	2025

	The total CAPEX for products and services refers to PG&E's annual capital expenditures for electric operations.			

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	

C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other, please specify Methane detection and reduction	Applied research and development	≤20%	1,500,000	In response to California SB 1371, PG&E is actively pursuing and testing methodologies and technologies to reduce methane emissions from gas operations. PG&E has been using advanced mobile technology for compliance leak surveys and has been at the forefront of this development through its partnership with Picarro. PG&E has also been using Differential Absorption Lidar (DIAL) LiDAR aerial surveys for a portion of its Transmission system. PG&E has also initiated several R&D projects to improve leak detection technologies, including gas speciation to differentiate between biomethane and pipeline gas.

				During the 2018 Compliance Plan period (2018-2019), PG&E continued to use advanced mobile and aerial technologies and engaged additional R&D efforts to improve these technologies. PG&E continued the use of highly sensitive mobile methane and ethane detection technology, and developed new solutions through R&D efforts, including: Piloting fixed wing DIAL aerial surveys; Developing and Testing light unmanned aerial vehicle mounted leak detection technologies; Exploring Optical Imaging Technologies; and Piloting the use of high sensitivity handheld devices for leak surveys. Stationary methane detectors include point detectors with sensitivity varying from part per billion to percent gas. In addition, PG&E continued to work with the industry to lower the cost of sensors. In the next two years, PG&E's R&D team will continue to conduct studies to develop new technologies to enable methane emission reduction, refine emission factors for more accurate data for emissions reporting, and propose additional emission reduction activities at its compressor stations, regulator stations, and meter set assemblies. In PG&E's 2020 General Rate Case, PG&E had a total forecast of $1.2 million per year for R&D projects that support the 2020 Compliance Plan (2020-2021) activities. In addition, PG&E has an adopted forecast of $0.6 million

				from the 2019 Gas Transmission and Storage rate case to support 2020 Compliance Plan activities. Therefore, PG&E has a total forecast of $1.8 million per year for R&D projects.
Infrastructure [1]	Applied research and development	≤20%	7,980,000	The CPUC established the Electric Program Investment Charge (EPIC) to provide funding for public interest investments that benefit the electricity customers of PG&E, Southern California Edison and San Diego Gas & Electric. EPIC provides funding for the following public interest investments: Applied Research and Development, Technology Demonstration and Deployment, and Market facilitation of clean energy technologies and approaches. The EPIC program enables PG&E to execute emerging technology demonstration and deployment projects that address emergent grid needs. Projects in the third triennial investment plan period include: Advanced Distributed Energy Resource Management Systems (DERM) and Advanced Distribution Management System (ADMS); Location Targeted DERs; Proactive Wire Down Mitigation; and Data Analytics for Predictive Maintenance. PG&E launched four projects and completed one project in 2019, which brings the total number of completed projects to date to 34.

[1] EPIC provides funding for the following public interest investments:
Applied Research and Development (R&D)
Technology Demonstration and Deployment
Market facilitation of clean energy technologies and approaches

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 emissions, and attach the relevant statements.

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

Third party verification/assurance underway

Attach the statement

PG&E Emissions Verification Statement 2018.pdf

Page/ section reference

pages 1-2

Relevant standard

The Climate Registry's General Verification Protocol

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

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

Third party verification/assurance underway

Attach the statement

PG&E Emissions Verification Statement 2018.pdf

Page/ section reference

pages 1-2

Relevant standard

The Climate Registry's General Verification Protocol

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

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

Third party verification/ assurance underway

Attach the statement

PG&E EPS Verification Statement 2018.pdf

Page/section reference

Page 3 - Electricity Purchased on Behalf of Customers; EPS Metric G-4; Average power deliveries metrics for system mix; All facility-specific generation metrics

Relevant standard

The Climate Registry's General Verification Protocol

Proportion of reported emissions verified (%)

100

C10.2

(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

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

PG&E EPS Verification Statement 2018.pdf

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Other, please specify Generation emissions intensity	TCR Electric Sector Protocol	Verification of CO2 emissions intensity (lbs./MWh) of retail electricity sales (PG&E generation and procured electricity) 1

[1]PG&E EPS Verification Statement 2018.pdf

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 - ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

California CaT

% of Scope 1 emissions covered by the ETS

62

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

40,507,062

Allowances purchased

Verified Scope 1 emissions in metric tons CO2e

4,495,574

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

The California Air Resources Board (ARB) allocates allowances to electrical distribution utilities (EDU) and natural gas suppliers (NG suppliers) on behalf of their ratepayers. PG&E receives allowance allocations under the EDU and NG allocation. PG&E is required under the regulation to consign all of its allocated EDU allowances for sale in ARB-run auctions. In 2019, PG&E was required to consign at least 45% of its allocated allowances as a NG supplier for sale in ARB-run auctions. This amount will increase by 5% each year through 2030. PG&E has been authorized by the CPUC to procure compliance instruments needed to meet its GHG compliance obligations. PG&E returns the revenue from consigned allowances to customers per CPUC decisions, primarily through the California climate credit.* In 2019, the Climate Credit was $28 for PG&E's residential electric customers and $25 for natural gas customers.

Under ARB rules, PG&E is prohibited from disclosing any non-public information concerning auction participation, therefore we are unable to provide the number of

allowances purchased.

Allowances purchased: For the latest public data, see CARB's 2018 Compliance Report at https://www.arb.ca.gov/cc/capandtrade/2018compliancereport.xlsx?_ga=2.148513719.1247724255.1591649823-1398038052.1534956127
Verified emissions in metric tons CO2e: For the latest public data, see CARB's Mandatory Reporting Rule webpage at https://ww2.arb.ca.gov/mrr-data

*For more information, see: https://www.cpuc.ca.gov/climatecredit/

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

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 (i.e., natural gas supplier obligation).

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, the revenues from which are distributed to customers primarily via the biannual Climate Credit. 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, the revenues from which are primarily distributed via the annual Climate Credit, 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.

C11.2

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

No

C11.3

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

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations
Change internal behavior
Drive low-carbon investment

GHG Scope

Scope 1
Scope 3

Application

As an economy-wide market, the CA cap-and-trade (C&T) program covers emissions from PG&E's fossil-fuel power plants, natural gas distribution to customers not directly covered by the program, compressor stations and electricity imported into CA. By applying a carbon price to the majority of PG&E's emissions, the C&T program allows PG&E to internalize the cost impacts of CO2 emissions across our business operations. In addition market participating, PG&E also develops an IRP according to SB350. In the IRP, we consider several scenarios that combine constraints on GHG emissions and GHG allowance prices with other factors determined by the CEC and the CPUC as well as PG&E's propriety modeling. The overarching objective of the IRP process is to ensure that CA's load serving entities (such as PG&E) meet emissions reduction and renewable energy targets that allow the electricity sector to contribute to CA's economy-wide GHG emissions reductions goals. PG&E's IRP includes a 10-year forecast.

Actual price(s) used (Currency /metric ton)

Variance of price(s) used

Internal prices are confidential. Historical prices are available from CARB.

PG&E uses current and projected market prices for GHG emissions allowances based on the California Cap-and-Trade program. The annual allowance auction reserve price

was $15.62 in 2019 and increases annually by 5% plus the rate of inflation. The average allowance price for 2019 was $17.16.

In our IRP process, the conforming scenario GHG emission allowances prices ($2016) start at $14.73 in 2018 and increase to $53.16 in 2030. Additional scenarios and GHG emission allowances prices used by PG&E are confidential.

Type of internal carbon price

Other, please specify

Market Price

Impact & implication

Integrating carbon pricing helps achieve the three core objectives of the IRP analysis:
• Clean Energy: Focuses on meeting the state's aggressive goals for RPS as well as meeting PG&E's LSE GHG planning target.
• Reliability: Includes PG&E's contribution to system and local reliability, in compliance with the CPUC's resource adequacy requirements.
• Affordability: Selects resources to meet the state's clean energy and reliability goals in a least cost manner and provides a system average rate forecast in compliance with the CPUC's requirements for IOUs.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers

C12.1a

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

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

4.5

% total procurement spend (direct and indirect)

80

% of supplier-related Scope 3 emissions as reported in C6.5

80

Rationale for the coverage of your engagement

We prioritize suppliers who represent approximately 80% of the company's spend (this represents our critical, most strategic suppliers) as well as our direct manufacturers, for focused attention on environmental sustainability. The spend data used is from the previous full calendar year. (Suppliers we are no longer doing business with are excluded from the spend data and assessment.) 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 offer training for our suppliers, including a 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 (CO2e) emissions in a given case study. In addition to the in-depth GHG calculation workshop for PG&E suppliers, we also hosted a workshop for small and diverse businesses 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, our scoring methodology (totaling five points) is broken down into three categories:
(1) Environmental Management System (EMS) & Tracking (2 points): Organization has an EMS in place to measure and track five performance areas: GHG emissions (Scope 1 and 2); energy; water; waste; and compliance with environmental requirements;
(2) Voluntary Reduction Goals (2 points): Organization has set voluntary reduction goals; and
(3) Public Disclosure (1 point): Organization publicly reports annual progress 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 Assessment to its suppliers with questions on how they are managing environmental impacts in their operations, including the five performance areas. Results from the assessment are used to generate an Environmental Performance score for each supplier.

In 2019, we enhanced the sustainability assessment to request supplier GHG emissions and other environmental impact data. Nearly 20% of survey respondents (39 out of 196 respondents) provided their GHG emissions data and 9% (18 out of 196 respondents) provided GHG reduction target specifics.

Suppliers are encouraged to meet our expectations as part of doing business with

PG&E and their own continuous improvement. PG&E's Supply Chain Responsibility team provides one-on-one coaching to suppliers to identify gaps and help them enhance their environmental performance.

PG&E's goal in 2019 was for 75% of top-tier suppliers to receive a score of 3 out of 5 or higher (point breakdown outlined above). In 2019, 62% of PG&E's top-tier suppliers met this target. The assessment was enhanced in 2019 to capture reduction target data. Suppliers not providing specific information on reduction targets were the primary driver of not meeting the 75% goal. In response, PG&E is increasing efforts to educate suppliers on setting and sharing environmental reduction targets. PG&E also tracks the supplier response rate to the Annual Alliance Sustainability Assessment, which was 73% in 2019.

Comment

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

% of supplier-related Scope 3 emissions as reported in C6.5

100

Rationale for the coverage of your engagement

PG&E has processes for identifying, assessing, mitigating and monitoring environmental, social and governance risks in the company's supplier base. To assess suppliers, PG&E leverages supplier conformance reviews conducted by a third-party, and data self-reported by suppliers to better understand risks and mitigation practices.

In many of our Request for Proposals (RFP), suppliers respond to a series of environmental sustainability questions designed to gauge the maturity of their environmental sustainability program prior to onboarding a supplier. A multiple-choice format set of 12 questions focuses on a supplier's company governance and operations, assessment and scope, management system attributes, extent of reporting, and supplier/sub-contractor management. There are also two open-ended questions. In the first question, the supplier shares their three to five most significant environmental risks and their corresponding risk management processes. In the second question, the supplier can highlight best practices and innovative approaches that will be used to

reduce the environmental footprint of the specific scope of work referenced in the bid opportunity. This specific question set is to be included in RFPs that will result in master service agreements or in bid events over $1 million dollars.

PG&E's Supplier Code of Conduct contains details around supplier expectations for environmental leadership and includes human rights, labor practices and conditions, child labor, fair and humane treatment, non-discrimination, and freedom of association, among other topics. The Code is included in our general terms and conditions in supplier contracts and is further communicated via Code training workshops.

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 sustainability, program maturity, and supplier diversity are weighted up to 25% in the evaluation score for applicable RFPs. 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 some top strategic suppliers, we use a supplier scorecard review process.

In 2019, we reviewed supplier conformance with our Supplier Code of Conduct (Code). We conducted 133 supplier desktop reviews to verify conformance with all sections of the Code. Suppliers found not in conformance with the Code were issued corrective action plans to complete.

Comment

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Other, please specify

SF6 Free Equipment Phase In

% of suppliers by number

0.01

% total procurement spend (direct and indirect)

0.01

% of supplier-related Scope 3 emissions as reported in C6.5

0

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 23,500 times as potent as carbon dioxide (CO2) on a per-ton basis and, once emitted,

can live in the atmosphere for 800 to 3,200 years. 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.

Comment

In 2019, PG&E continued to plan and contract for SF6-free circuit breakers at the 72kV and 115kV levels and gas insulated switchgear at different voltage levels as part of a pilot initiative. This equipment began to be installed in 2019 and will continue in 2020. PG&E's Sourcing Department also amended PG&E's Qualified Supplier List to remove all 72kV equipment that contains SF6.

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

4.5

% total procurement spend (direct and indirect)

80

% of supplier-related Scope 3 emissions as reported in C6.5

80

Rationale for the coverage of your engagement

We prioritize suppliers, who represented approximately 80% of the company's 2018 spend, to participate in an annual Sustainability Assessment. The most recent annual Sustainability Assessment took place in Q3 2019. 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.

All suppliers responding to the assessment 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. In 2020, PG&E is performing a utility supply chain greenhouse gas hot spot assessment with the Electric Utility Industry Sustainable Supply Chain Alliance.

Impact of engagement, including measures of success

PG&E distributes an annual Sustainability Assessment to its top spend suppliers and direct manufacturers 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 assessment to monitor suppliers' conformance with the company's Supplier Environmental Performance Standards. Results from the assessment are used to generate an Environmental Performance score for each supplier.

In 2019, 62% of PG&E's top-tier suppliers received a score of three or higher on a five-point scale. Also, in 2019, we enhanced the sustainability assessment to request supplier GHG emissions and other environmental impact data. Nearly 20% of survey respondents (39 out of 196 respondents) provided their GHG emissions data and 9% (18 out of 196 respondents) provided GHG reduction target specifics. Additionally, PG&E engages all supply chain portfolios in identifying initiatives to improve environmental performance.

Comment

C12.1b

(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)

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

By taking advantage of new technologies to help customers understand, actively manage, and reduce their energy use, PG&E enables customers to make more informed decisions. We work with customers to help them achieve energy savings and

greenhouse gas emission reductions through programs and incentives for energy efficiency, demand response, and solar installations.

Based on extensive market research. PG&E has identified discrete customer segments to help the company develop tailored engagement strategies. This helps ensure that PG&E offers programs and incentives that are attractive and relevant to customers and ensures those customers who would benefit from the programs and incentives are aware of the options PG&E is offering. These efforts include offering energy efficiency audit and opportunity identification services to commercial customers, financial support to low income residential customers for energy-saving treatments, rebates to all customers implementing qualified energy efficiency measures, and helping local governments develop strategies and implementation plans to reduce emissions. We're also building out a growing network of EV charging stations for workplaces and apartment buildings and have begun to build EV charging stations for customers with fleet vehicles.

Impact of engagement, including measures of success

We reach out to customers through a variety of channels, including mobile phones, email, web, and social media. The vast majority of customers can view and download their hourly usage and cost data.

We measure a composite score of customer satisfaction and are committed to improving satisfaction, which we benchmark against our peers. In 2018, our customer satisfaction rose to a high of 77.3, driven by customer satisfaction with service reliability and pricing. In 2019, due to PG&E's Chapter 11 filing and multiple PSPS events, customer satisfaction with PG&E decreased from the prior year. In 2019, PG&E began using a metric tracking the customer complaints escalated to the CPUC as the customer-related metric for our Short-Term Incentive Plan. Our 2019 target was 12.2 complaints per 100,000 adjusted customers, and we achieved that goal with a 10.1 complaint rate for the year.

In 2019, PG&E's programs helped customers save more than $300 million on their energy bills and avoid the emission of nearly 640,000 metric tons of CO2. We also brought the total number of interconnected private solar customers to nearly 465,000 and customers with battery storage to over 8,000; and we expanded our energy efficiency financing program, which provides commercial customers and government agencies with loans for energy efficiency upgrades with no out-of-pocket costs and zero interest, funding 668 loans worth a total of $59 million.

In 2019, PG&E achieved 1,253 GWh of energy saved (253 MW generation capacity avoided), surpassing its goal of 1,079 GWh for the year. We expanded our Home Energy Reports program in 2019 to reach 1.8 million customers. The program shows customers how their energy usage changes over time and how their usage compares with similar homes in their area. PG&E also promotes the Home Energy Checkup, a self-guided online assessment completed by 151,000 customers in 2019, and Marketplace, an online tool to help customers research the efficiency of home

appliances and consumer electronics, which about 275,000 customers visited in 2019.

For workforce education and training, PG&E held 580 classes, provided more than 100 technical consultations, and hosted more than 40 outreach events in 2019 to help building professionals gain new skills and expertise in energy efficient design and construction.

C12.3

(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

(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	PG&E is committed to California's implementation of SB 100 and carbon neutrality by 2045 in a reliable and cost-effective manner for customers. SB 100 is still being implemented by the CPUC, CEC, and CARB. PG&E generally supports the focus of this legislation, with consideration given to impact on customer rates. Additionally, Executive Order B-55-18 sets a state-wide goal to achieve carbon neutrality by 2045.	PG&E will be an active participant in future efforts in the Legislature to codify the carbon neutrality goal and in proceedings at the CPUC, CEC, and CARB to determine how to achieve carbon neutrality in an affordable and reliable way.
Other, please specify Low Carbon Fuel Standard	Support	In 2019, PG&E supported CARB's amendments to the Low Carbon Fuel Standard (LCFS) program to add additional cost containment mechanisms such as a firm ceiling price on all LCFS credit sales.	Additional cost containment mechanisms such as a firm ceiling price on all LCFS credit sales.
Other, please specify Sulfur Hexafluoride	Support	PG&E supports CARB's proposed amendments to strengthen the sulfur hexafluoride (SF6) regulation. PG&E supports	CARB is proposing regulatory amendments to phase out use of SF6 in gas-insulated equipment (GIE), further reduce GHG

Emissions Reduction		an orderly and systematic transition of the electricity transmission and distribution industry away from the use of SF6 in gas insulated equipment due to the high global warming potential of SF6 and the lack of a feasible destruction method for this persistent greenhouse gas. PG&E continues to work with CARB and industry on this rulemaking in 2020.	emissions, and clarify regulatory requirements.
Other, please specify All-Electric New Building Construction	Support	PG&E supported the California Energy Commission's efforts to advance efficient, all-electric new construction, when it is feasible and cost-effective, through the forthcoming rulemaking for the 2022 iteration of California's Energy Code (Title 24, Part 6).	Achieving California's climate and clean air goals requires a range of approaches and tools, including increasing the use of energy-efficient electric appliances in buildings when cost-effective.
Adaptation or resilience	Support	PG&E has been an active participant in the CPUC's first proceeding focused specifically on climate adaptation and resilience (Climate Change Adaptation Order Instituting Rulemaking). Topics under consideration include: (1) What data sources, scenarios, and tools utilities should rely on when planning for climate resilience; (2) How forward-looking climate data should be incorporated into utility and CPUC processes for investment planning and determining risk; (3) Whether certain customers are particularly vulnerable to climate impacts, and how utilities should take this into account; and (4) How utilities and the CPUC can make adaptation investments effectively in the face of uncertainty.	The outcome of this proceeding will be guidance on critical topics that will assist utilities in the mission to provide safe, reliable, affordable, and clean energy despite more frequent and severe climate impacts.

Other, please specify Renewable Natural Gas	Support	SB 1440 is intended to explore how California's gas delivery system can support the cost-effective reduction of short-lived climate pollutants (SLCP) and CO2 through the delivery of biomethane. In December 2019, PG&E participated in a Technical Workshop to Consider SB 1440 implementation – renewable natural gas (RNG) procurement as a cost-effective SLCP reduction strategy. In 2020, PG&E is participating in Working Groups on RNG Interconnection Agreements and hydrogen injection standards and research.	PG&E contributed lessons learned from past procurement programs that should guide the formulation of an RNG procurement goal or target: 1) go slow to start, 2) who buys and who pays matters, 3) need for rules-based cost containment mechanism, and 4) one inclusive low carbon fuel program.
Other, please specify Federal Carbon Pricing	Support	PG&E has engaged Congressional policy makers directly and through allied organizations, including the CEO Climate Dialogue, to advocate for a federal price on carbon. The CEO Climate Dialogue is a group of 21 companies with over $1.4 trillion in combined annual revenue and 4 leading environmental non-profit organizations that are committed to advancing climate action and durable federal climate policy in the U.S. Congress.	Institute a well-designed federal price on carbon that enables cost-effective achievement of GHG reduction goals, covers all emitting sectors, provides flexibility in emission-reduction strategies, promotes equity, and enables harmonization across jurisdictions over time. One of the six guiding principles of the CEO Climate Dialogue states that "an economy-wide price on carbon is the best way to use the power of the market to achieve carbon reduction goals in a simple, coherent and efficient manner."
Adaptation or resilience	Support	PG&E has engaged Congressional policy makers directly and through allied organizations, such as the Business Council for Sustainable Energy, to support federal policies to increase climate adaption and resilience.	Institute incentives and policies that encourage infrastructure owners to increase the resilience of their systems to the effects of climate change, and provide investments, incentives and technical guidance to communities to increase their climate resilience.
Other, please specify	Support	PG&E has engaged Congressional policy makers directly and through allied	Expand and enhance the current federal tax credit for electric vehicles; provide grants, tax

Transportation Electrification		organizations, including as members of the National Coalition for Advanced Transportation, the Electric Drive Transportation Association, Clean Energy Group and the Edison Electric Institute to promote policies to increase the affordability of electric transportation, expand and increase access to refuelling infrastructure, educate customers about electric vehicles and promote research and development on grid benefits.	credits and other incentives and policy changes to encourage the expansion of charging infrastructure; incentives to support electrification of fleet vehicles (e.g., school buses); and uphold California's ability to set its own vehicle emissions standards under the Clean Air Act.
Energy efficiency	Support	PG&E has engaged Congressional policy makers directly and through allied organizations, such as Alliance to Save Energy and the Business Council for Sustainable Energy, to support federal policies to increase customer incentives for energy efficiency and robust federal energy efficiency standards for appliances and equipment.	Expand and enhance tax credits for energy efficiency improvements; provide robust federal funding for weatherization programs; and advocate for robust and timely implementation of the energy efficiency standards for appliance and equipment as required under the Energy Policy and Conservation Act.

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

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 supports climate change laws and regulations that are cost-effective, technology-neutral, and promote the use of market-based strategies to reduce GHGs. The Legislature should ensure that any changes to California law safeguard the economy while having a demonstrable impact on GHG reduction and attract private capital to the state.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

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

CCEEB's Climate Change Project was launched in 2006 to assist the state in its implementation of AB 32 and the development of California climate change policies. Today, CCEEB continues to work to support California's climate leadership. The project brings together a diverse group of organizations, and frequently communicates directly with legislative and administration decision makers. The project works to ensure that California develops an efficient and effective regulatory structure and reduces GHG emissions for the greatest benefit to Californians. To protect the health of the economy, CCEEB supports credible, peer-reviewed, and transparent economic evaluations of state programs. The Climate Change Project works to ensure accurate and comprehensive emission inventories, clear and consistent reporting protocols and enforcement, and credit for early action measures, and verifiable GHG reductions.

How have you influenced, or are you attempting to influence their 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.

Trade association

Silicon Valley Leadership Group

Is your position on climate change consistent with theirs?

Mixed

Please explain the trade association's position

The Silicon Valley Leadership Group (SVLG) continues to be actively involved in helping ensure the implementation of California's climate policies rewards efficiency, protects innovation, and provides flexibility to seek out and implement the lowest-cost solutions, while also meeting 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 influenced, or are you attempting to influence their position?

Serving on the Board

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 supports and advocates for the transition to a zero-emission transportation future as a means to spur economic growth, fuel diversity and energy independence, ensure clean air, and combat climate change. With every major automaker producing or announcing production of some type of electric vehicle, California is poised to continue to lead the transition of the transportation sector away from petroleum and towards electricity. CalETC will continue to support all aspects of the shift to electric transportation, working closely with our government, environmental, and industry partners to ensure a successful transition and cleaner air in California.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

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 influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

Edison Electric Institute

Is your position on climate change consistent with theirs?

Mixed

Please explain the trade association's position

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 have undertaken a wide range of initiatives over the last 30 years to reduce, avoid or sequester GHG emissions. Policies to address climate change should seek to minimize impacts on consumers and avoid harm to U.S. industry and the economy. As of 2020, the EEI Board of Directors is currently examining new climate principles to help guide its approach to various policy proposals.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

American Gas Association

Is your position on climate change consistent with theirs?

Mixed

Please explain the trade association's position

The American Gas Association's "Climate Change Position Statement" notes that the organization and its members are committed to reducing greenhouse gas emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient, and affordable energy service choices for consumers. AGA believes the development of an effective national policy approach to reducing greenhouse gas emissions and addressing climate change should: be economywide; recognize the benefits of natural gas; remove barriers to the modernization of natural gas infrastructure including for methane emission reductions; improve energy efficiency; promote use of renewable natural gas; expand research and development; and preserve customer choice.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

Nuclear Energy Institute

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

NEI states that we need deep decarbonization to hit our climate goals. As the nation's largest source of clean energy, nuclear power is critical to reduce carbon emissions. Wind, solar and geothermal are on the rise, but the smartest policies will ensure these technologies complement, not replace, nuclear's clean energy production. Protecting and growing our use of nuclear technologies are important ways to make a dent in greenhouse gases and help us make meaningful progress to address climate change.

How have you influenced, or are you attempting to influence their position?

Membership in organization

Trade association

National Hydropower Association

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

NHA believes hydropower can facilitate the transition to a low-carbon, clean, affordable, and reliable electric power system. Hydropower projects, including conventional, run of river, marine energy, hydrokinetic and pumped storage, are critical resources to enable this transition. Hydropower can and should continue to play a key role in meeting existing and future carbon reduction goals in both the electricity and transportation sectors. Policies should be designed to achieve the most efficient carbon reductions through technology-neutral, market-based signals that incentivize the choice of "least-cost" generation that meet carbon emission goals while maintaining electric reliability. Such policies should be indifferent to project size, age, or location.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

Interstate Natural Gas Association of America (INGAA)

Is your position on climate change consistent with theirs?

Mixed

Please explain the trade association's position

Members of the Interstate Natural Gas Association of America (INGAA) commit to continuously improving practices to minimize methane emissions from interstate natural gas transmission and storage operations in a prudent and environmentally responsible manner.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

California Hydrogen Business Council

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The vision of the California Hydrogen Business Council is to reinforce California's position as the most advanced clean energy state in the nation, expanding the sustainable use of its precious natural and renewable resources and providing clean air to its citizens, by adopting hydrogen and fuel cell technologies in transportation, power and goods movement markets.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

Trade association

The Coalition for Renewable Natural Gas (RNG Coalition)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

RNG Coalition advocates for sustainable development, deployment and utilization of renewable natural gas so that present and future generations will have access to domestic, renewable, clean fuel and energy.

How have you influenced, or are you attempting to influence their position?

Serving on the Board

C12.3d

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

No

C12.3f

(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 has maintained a Climate Change Policy Framework to guide our activities and ensure consistency with PG&E's climate change strategy. The framework outlines

principles for PG&E's programs and policies to address global climate change. Specifically, PG&E supports and prefers national action, but is also 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 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 executives to share developments at the state and national levels and seek approval on policy positions.

PG&E's Climate Change Policy Principles state the following: Meeting the challenge of climate change is central to PG&E's vision of a sustainable energy future. Consistent with our vision, PG&E works to reduce greenhouse gas (GHG) emissions and environmental impacts from our operations, and acts as a valuable partner to do so in California and beyond. PG&E also builds climate resilience through taking actions to adapt to and prepare for a changing climate and associated weather patterns that could affect our assets, infrastructure, operations, employees and customers.

PG&E is committed to achieving more sustainable operations by:
· Reducing emissions of methane, a potent greenhouse gas released from the operation of natural gas infrastructure, by implementing Senate Bills 1371 and 1383, which address leak abatement and short-lived climate pollutants, respectively.
· Making our facilities more energy efficient and sustainable; increasing clean vehicles and fuels in our fleet; and adopting environmentally responsible products and services.
· Engaging with our customers to help them use less energy and better manage their energy footprint through solutions that include energy efficiency and demand response; clean and renewable energy; storage; and low-carbon transportation fuels and fueling infrastructure.
· Integrating the best climate science into PG&E decision-making and asset planning to mitigate climate risks and build resilience to climate-driven impacts over the long term.

PG&E advocates for policies that:
· Position California and the nation to achieve economy-wide emissions reductions consistent with limiting the increase in global average temperature to less than 2° Celsius above pre-industrial levels.
· Support cost-effective achievement of GHG goals through providing flexibility in GHG emission-reduction strategies, covering all major emitting sectors, and fostering innovation and technology.
· Support well-designed carbon pricing mechanisms, including California's cap-and-trade program, that enable harmonization across jurisdictions over time through strategies such as linkage.
· Promote GHG reductions beyond California's borders, with California positioned as a key policy innovator, technology exporter and "proving ground" that supports broader decarbonization.

· Promote the use of offset credits and carbon sinks as valuable tools in reducing GHG emissions, improving local air quality, and enhancing the resilience and adaptability of natural ecosystems and communities.
· Help our customers become more climate-resilient and reduce their own GHG footprint affordably.
· Support PG&E's ability to invest in and adaptively manage a modern and resilient natural gas and electric system that can better withstand climate-related impacts and enable PG&E to continue providing safe, reliable, affordable and clean energy in the face of a changing climate.

C12.4

(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
Complete

Attach the document
PGE_CRSR_2020.pdf

Page/Section reference
Whole document

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication
In mainstream reports

Status
Complete

Attach the document

2019 Annual Report.pdf
2019 Proxy.pdf

Page/Section reference

Whole document

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In other regulatory filings

Status

Complete

Attach the document

PG&E RAMP.pdf

Page/Section reference

Whole document

Content elements

Risks & opportunities

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

PG&E Climate_resilience_report.pdf

Page/Section reference

Whole document

Content elements

Other, please specify

Climate resilience

Comment

C15. Signoff

C-FI

(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.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Vice President, Federal Affairs and Chief Sustainability Officer	Chief Sustainability Officer (CSO)