Testimony of Peter A. Darbee.
Chairman, CEO and President
PG&E Corporation

Before the

Committee on Environment and Public Works
United States Senate

Hearing on Examining Global Warming in the Power Plant Sector

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Chairman Boxer, Ranking Member Inhofe, and Members of the Committee, I am honored to appear before you this morning to offer my views on global warming and options for mitigating greenhouse gas emissions in the power sector. I believe climate change and its implications is one of the most pressing issues of our time. It is clear that the link between greenhouse gas emissions and the Earth's warming climate is convincing, the potential consequences serious and the need for action urgent. I am pleased that this Committee is showing leadership on this very important issue by having a hearing on how to address greenhouse gas emissions from the electric power sector, as proposed in several pieces of legislation introduced by Senators Carper, Feinstein, Alexander and Sanders.

PG&E Corporation is an energy holding company headquartered in San Francisco, California and the parent company of Pacific Gas and Electric Company. Pacific Gas and Electric Company is California's largest utility, providing electric and natural gas service to more than 15 million people throughout northern and central California. PG&E is a recognized leader in energy efficiency and has among the cleanest electric power delivery mix of any utility in the country. And, today, I am pleased to announce that PG&E is formally launching a new program for our customers called ClimateSmart. ClimateSmart will allow those customers who choose to participate to make their energy use "climate neutral," by paying a small premium on their monthly bill to be invested in greenhouse gas reduction projects in California.

Our work on energy efficiency, support of clean generating technologies and ClimateSmart are just a few examples of the advanced energy solutions we provide to our customers. Through technology and innovation we allow our customers to meet their energy needs while providing unique opportunities for them to manage their energy use, reduce costs, promote new technologies and address climate change.

PG&E's Position on Climate Change

As the head of a major energy company -- and also as an American and a great believer in our nation's unique place in the world – I believe the United States has a responsibility to be at the forefront of and be a leader in addressing global climate change.

The U.S. is among the largest emitters of greenhouse gases, both in terms of absolute emissions and on a per capita basis. And, based on our wealth and prosperity relative to other nations, it's clear that we have the ability to demonstrate leadership and make a difference.

The U.S. has a tremendous capacity for innovation and it is clear that we have the human capital to develop the solutions. By signaling, as a nation, that we are serious about making progress on clean energy, we can stimulate investment and engage our best and brightest minds in this effort.

The longer we wait, the costlier the solutions will likely become. On the other hand, by acting now, we preserve valuable response options. We narrow the uncertainties. And we avoid the economic and social dislocation associated with having to make drastic changes later.

From PG&E's perspective, the risk of inaction on climate change is tremendous, while, if structured properly, a program to address climate change can create economic opportunity for us as a nation and elevate the U.S.'s leadership position in the world. The nation's energy infrastructure is aging and also must be expanded to meet a growing

population and a more demanding economy. Hundreds of billions in new investments will be made. We could make the same investments we have been making for thirty years, or take the opportunity to make investments to support the economy as we want it to be, and as it will need to be, thirty years from now. These investments can enhance our energy security and advance technology, while achieving our climate change goals.

If we do not act now, the U.S. will miss the opportunity to become a technology leader, improving our competitiveness, while at the same time increasing the risks that dramatic changes in our climate will occur, stressing both our economy and citizens.

That is why, for more than a decade, PG&E has been actively looking for ways to address climate change that provide benefits to our customers and help advance technology. In order to effectively reduce greenhouse gas emissions to levels necessary to avoid dangerous climate change, we will need to fundamentally change the way we produce, deliver and consume energy in this country and throughout the world. We recognized this as a company and determined that it was our responsibility to lead and take action, as have others in our industry and industries throughout the economy. The actions by companies like ours have allowed us to advance technologies and understand the possibilities that currently exist, and also to understand what needs to be done to move forward. And, it is the investments made by our customers, and the customers of others in our industry, that have made this possible.

As climate change is a global issue, policies are needed to both maintain and accelerate these types of actions and investments and to provide a roadmap for transitioning to a low-carbon economy and the energy infrastructure to support it.

PG&E recommends the following principles to guide the development of climate policy that achieves these goals:

- **Mandatory greenhouse gas reductions are necessary.** Voluntary programs alone are insufficient and will not send the appropriate price signal to U.S. industry to make

a measurable impact on global climate change. Only a mandatory, national reduction program is capable of stimulating sustained action and investment on the scale required to meaningfully reduce emissions and establish the U.S. as a leader in the response to global climate change.

- **Market-based programs minimize costs and maximize innovation.** Market-based strategies—such as cap-and-trade —provide the economic incentive and the flexibility to cut emissions in the most innovative, cost-effective ways. This approach is key to driving development of the next generation of clean, highly energy-efficient technologies and practices.

- **Long-term greenhouse gas targets provide a rational basis for action.** Addressing climate change will ultimately require stabilizing greenhouse gas concentrations in the atmosphere at a level that will avoid dangerous climate change. Setting ambitious, but achievable, targets now is important because it establishes a clear objective and sends the appropriate price signals from which incremental objectives and action plans can be created, as technologies emerge and scientific understanding progresses.

- **Broad-based participation leads to better, more cost-effective results.** Multi-sector participation creates efficiencies that will be essential to keeping costs low. A national program should eventually encompass all major sectors that emit greenhouse gases, with each sector responsible for its fair share of reductions. Sector-specific programs can, however, serve as a starting point for creating the infrastructure on which to base a broader, economy-wide program and strategy.

- **Energy efficiency must be a top priority.** Improving energy efficiency is one of the lowest cost options for managing growing energy demand, while eliminating greenhouse gas emissions. Policies and incentives should encourage and maximize improvements in energy efficiency throughout the economy. For example, utilities are empowered to aggressively pursue energy efficiency and demand response programs when regulators "decouple" the link between revenues and earnings by

setting fixed revenue levels and eliminating the financial incentive to sell more energy.

- **Investment in low- and zero-emission electric generation and other technologies is critical.** Policies should lower barriers and create incentives for investment in renewable power, nuclear power, advanced coal technologies with carbon capture and storage, distributed generation, advanced transportation options, such as plug-in electric hybrid vehicles, and other low- and non-emitting technologies. Driving investment in these technologies, along with aggressive support for energy efficiency and demand response, will reduce greenhouse gas emissions, enhance and improve the efficiency and reliability of the nations' energy infrastructure, create economic opportunities for American business, reduce reliance on imported fossil fuels, and support overall U.S. energy independence and security.

- **Early action deserves to be rewarded—not penalized.** Policies must recognize and provide credit to responsible parties that have proactively cut emissions before being required to do so. Ignoring prior efforts sends a signal that stepping up, taking risks and taking responsibility is not something valued by policymakers. It also puts these parties at a competitive disadvantage, forces them and their customers to "pay twice" for emissions reductions, and discourages similarly responsible initiatives in the future.

- **Any climate program must be economically sustainable, achieve the ultimate environmental objectives of the program, and begin to address physical impact and adaptation issues.** Some economic sectors, geographic regions and income groups may be disproportionately impacted by both climate change impacts and mandatory greenhouse gas reductions. Any climate protection program needs to take account of these impacts and provide appropriate assistance to those impacted constituencies. At the same time, policies need to recognize that, ultimately, the majority of program costs will be born by energy consumers, and policies must therefore be structured to address this issue.

- **Near-term opportunities for cost-effective, verifiable greenhouse gas reductions should be pursued.** Policies should encourage greenhouse gas reductions, regardless of their geographic location or from where in the economy these greenhouse gas reduction opportunities originate. At the same time, a rigorous system must be developed to ensure the environmental credibility and integrity of these reductions. Taking this approach can help to encourage actions by other countries, spur technological innovation, reduce overall compliance costs and offer ancillary benefits.

- **Standardized emissions reporting is an essential first step and must form the basis of any mandatory program.** Developing consistent and coordinated greenhouse gas emission inventories, protocols for standard reporting and accounting methods for greenhouse gas emissions is fundamental to establishing a credible reduction program that is capable of tracking and verifying progress toward emissions goals and facilitating a tradable emissions credit system. PG&E was a Charter Member of the California Climate Action Registry, which is now working with 30 other states to develop a consistent set of reporting standards and protocol. We believe that this effort can serve as a model for a national system and that any national system should leverage the work that the states have already done.

Developing a Response

These principles guide our analysis of legislative proposals and policies and calibrate our participation in various coalitions. For example, PG&E is a founding member of both the Clean Energy Group, a coalition of environmentally progressive power companies supporting mandatory, market-based solutions to addressing climate change and air quality, and the U.S. Climate Action Partnership (USCAP), a coalition of leading businesses from a diverse range of industry sectors as well as leading environmental organizations. Together we support a mandatory, flexible, market-based approach to reducing greenhouse gas emissions.

In terms of legislation, PG&E has supported Senator Carper's Clean Air Planning Act of 2007 and Senator Feinstein's Electric Utility Cap and Trade Act of 2007. At the state level, PG&E was one of a handful of businesses to support Assembly Bill 32, the Global Warming Solutions Act, California's landmark greenhouse gas legislation. All of these legislative proposals recognize that market-based programs are needed to address climate change, greenhouse gas emission reductions can and must come from various sectors of the economy to allow for the most cost-effective reduction options, early actions should be recognized and accounted for, clean energy technologies and energy efficiency are key to addressing climate change, and a long-term emissions pathway is needed to allow for investment certainty and a long-term price signal.

With regard to the Clean Air Planning Act, one of the bills being discussed here today, PG&E also recognizes the importance for our industry of having long-term certainty with regard to emission reduction requirements for other major air emissions, such as sulfur dioxide, nitrogen oxide and mercury. Actions taken and investments made to reduce these emissions from power plants can have an impact on a facility's carbon dioxide emissions. Having a clear emissions reduction pathway for these pollutants, in addition to carbon dioxide, particularly in the next 10 to 15 years, will allow for our industry to make the most prudent and cost-effective investment choices.

Our industry is on the cusp of making more than $700 billion in investments to meet the future electric needs of this country between now and 2020. These are long-term investments, whose costs will ultimately be paid by electric consumers. It is imperative that our industry be given clear guidance and direction, as soon as possible, so that we make the right choices for the environment, for the economy and for our customers.

That is why we support the Clean Air Planning Act of 2007. We believe that taking the approach called for in this legislation will create clarity for business; create focus for a comprehensive electric power sector strategy; provide linkages to other sectors of the economy and the world; and allow us to begin to change the U.S. emissions trajectory

today. This is particularly important given that the power sector accounts for approximately 1/3 of total U.S. greenhouse gas emissions.

I would also like to spend a little time addressing some of the key program design elements for reducing carbon dioxide provisions and their importance. These include the emissions trajectory, compliance flexibility mechanisms and allowance allocation approach. It is these provisions that I believe will most directly impact our sector's ability to address climate change cost-effectively, efficiently and accelerate the transition to the energy infrastructure needed to meet our greenhouse gas reduction responsibilities. For purposes of this testimony, I will focus on how the Clean Air Planning Act addresses these elements.

Emissions Trajectory

The Clean Air Planning Act provides an appropriate glide path for reducing electric sector greenhouse gas emissions by starting slowly, and then gradually ratcheting down the cap over several decades. This approach provides opportunity for technology solutions to develop, while ensuring a significant contribution from the electric sector toward a broader, economy-wide reduction goal. It also provides a long-term price signal, which will be vital for driving investment in low-carbon technologies.

Initially, we believe the caps proposed by the Clean Air Planning Act can be achieved with existing technologies and investments, including energy efficiency, renewable energy, greenhouse gas offsets and high efficiency coal and natural gas-fired generating technologies. Over time, advanced coal technologies with carbon capture and storage capability, next generation renewable technologies, like tidal and solar thermal, and advanced nuclear technologies will need to play a serious and greater role in America's energy future.

The European Union's short-term compliance periods—leaving industry guessing about their longer-term reduction obligations—is not a model to emulate. Businesses,

particularly in our sector, need to understand what requirements will be for decades, as opposed to years, as some technologies, particularly advanced coal with carbon capture and storage and nuclear, have long lead times, entail project costs on the order of billions of dollars and are meant to serve customers for years to come. Again, we recommend a long-term reduction trajectory to guide investment decisions.

I would like to focus for a minute on energy efficiency as a near-term response option to climate change. Energy efficiency can and must play a key role in meeting the nation's energy needs. The recent energy legislation passed by the Senate recognized energy efficiency as a resource and asks states to review existing regulatory policies to ensure that they do not impede achievement of this goal. In California, energy efficiency is the first resource we look at to meet our customer's electric demand. In fact, we meet half our demand growth (approximately 1 percent per year) through energy efficiency. Over the past 30 years, we have avoided the need to build approximately 24 large power plants to meet our customers' needs and have saved them money in the process.

Placing this type of "full court press" on energy efficiency nationally over the next 5 to 10 years could allow the nation to offset the need to make the significant investments in conventional generating technologies that are contemplated, while low- and non-emitting generating technologies become more competitive and are tested and proven. This will help our sector to cost-effectively meet our customers' energy needs, slow and potentially stop the growth of emissions, maintain investment flexibility and reduce demand on natural gas – an important feedstock and energy source for many U.S. manufacturers.

PG&E's customers have seen tremendous benefit from our partnership with them on energy efficiency. For example, in partnership with Sun Microsystems, PG&E developed an incentive program for energy-efficient servers. PG&E also announced the first-of-its-kind utility financial incentive program for virtualization projects in data centers, which enable customers to consolidate IT workloads, using dramatically less energy. One major software firm, for example, was able to consolidate workloads that were running on 230 servers onto just 13, capturing tens of thousands of dollars in energy savings.

Compliance Flexibility

We all recognize the need to control the costs of achieving our greenhouse gas reduction goals, and the Clean Air Planning Act offers several cost control mechanisms that we think are vital to the success of a cap-and-trade program. These include greenhouse gas offsets, multi-year compliance periods, the banking of allowances and credit for early action.

Greenhouse gas offsets. High quality greenhouse gas offsets—which allow power companies to invest in reductions outside of our sector—reduce the costs of the program by providing a broader array of reduction opportunities, while stimulating innovative compliance solutions. For example, PG&E is partnering with dairy farms in California to produce pipeline quality "biogas" to serve our customers. This effort will not only reduce greenhouse gas emissions by offsetting fossil fuel use and capturing methane that would otherwise be released to the atmosphere, but it also diversifies our energy supply mix, provides additional economic opportunities to the farm sector and advances technology that can be deployed elsewhere in the U.S. and abroad.

Multi-year compliance periods. Cap-and-trade programs for conventional pollutants are typically based on annual compliance periods. At the end of each year, affected sources retire allowances for each ton of emissions they generated. However, because of the long-term nature of the climate change problem, multi-year compliance periods, like the two-year compliance period proposed by the Clean Air Planning Act, are perfectly appropriate. This flexibility is particularly useful for the electric power sector because our emissions can vary significantly depending on weather and precipitation. For example, a dry year reduces hydroelectric capacity and increases our reliance on fossil-fired power plants, increasing carbon dioxide emissions in that year. Multi-year compliance periods can help manage this variability.

Banking. One of the most important aspects of the cap-and-trade regulatory approach is the ability to "bank" allowances for future years. By allowing companies to, in effect,

"over-comply" and carry forward any excess allowances, banking greatly encourages compliance, slowing the accumulation of greenhouse gas emissions in the atmosphere. Given the long-life of greenhouse gases in the atmosphere and the cumulative effect, the more we can avoid releasing now and in the early years of a program, the more flexibility we will have in the future.

Credit for early action. Even before the program gets underway, early reduction credits can be used to encourage investments in low-carbon technologies. The Clean Air Planning Act creates a limited reserve of allowances to reward companies for their early reduction efforts. We think that this sends the right signal to industry to act now to begin to slow the growth of emissions.

Allowance Allocation

The methodology used for distributing emissions allowances is perhaps the most challenging aspect of designing a cap-and-trade program. By capping electric sector greenhouse gas emissions, Congress will be establishing a new commodity—the emission allowance. These allowances will have tremendous value in the open market, on the order of billions of dollars annually, in aggregate, dwarfing any past emissions trading market. It's no surprise then that companies and other stakeholders have strong opinions about the most appropriate method for distributing these allowances.

Recognizing that there are divided opinions on this subject and multiple objectives to serve in allocating allowances, I offer the following principles, which guide PG&E's thinking on the distribution of allowances and which I believe are generally consistent with the recommendations of USCAP.[1]

[1] USCAP does not endorse any particular allowance allocation methodology. The members of the group have a diversity of opinions on this issue. The allowance allocation language in the USCAP's recommendations provides a framework within which Congress can resolve this important question.

- Create a smooth economic transition for those that are adversely impacted by the program, such as businesses and their employees that face intense, international competition.

- Use the allowances to accelerate the development and deployment of new technologies, including advanced coal, nuclear and renewable generating technologies and carbon capture and storage technologies.

- Avoid penalizing early actors and their customers.

- The customer at the end of the energy supply chain—like the households and businesses that we serve—will ultimately bear a substantial share the costs associated with the regulation of greenhouse gas emissions. The allocation system should recognize and compensate for these costs.

- Avoid creating unintended "windfalls" for companies by granting allowances whose value is far in excess of the costs of compliance or of mitigating costs for those company's customers.

We think there are several options for designing a cap-and-trade program to meet these objectives.

For example, the Clean Air Planning Act initially allocates—at no cost—a substantial share of the allowances to the electric power sector (82%). Only 18% of the allowances are auctioned initially. Assuming an average allowance price of $10 per ton, this translates to the free distribution of more than $20 billion in value in the first year of the program alone.

The bill gradually transitions to a full auction over the course of 25 years with the revenues dedicated to various initiatives, including assistance for displaced workers and disproportionately affected communities, low-interest loans, loan guarantees, grants, and other financial awards for clean coal technology development and deployment and energy efficiency research and development. The bill also establishes a special reserve of allowances to provide incentives for clean coal technology projects. These incentives will be critical as we transition to a lower carbon energy system that allows the U.S. to continue to use one of our most abundant energy resources – coal.

In terms of the allowances that are freely allocated to the electric power sector (the bulk of the allowances in the early years of the program), the Clean Air Planning Act proposes distributing the allowances based on a company's proportional share of electricity production or output, with the allocations updated each year to reflect a company's current production levels. This approach—known as an updating, output-based allocation—naturally adjusts to the changing dynamics of the industry. Retired units, no longer generating power, are phased out of the allocation, and new generating facilities are phased in to the system once they begin generating power. We think that this is a significant improvement over the approach used by the Clean Air Act's Acid Rain program.

Also, by distributing the allowances based on electricity output, a financial incentive is created for investment in power plant efficiency upgrades and you encourage investment in new energy technologies.

One issue that was not fully addressed in the Clean Air Planning Act, but an issue that is gaining increased attention as we unravel the lessons from the European cap-and-trade experience, is the treatment of allowances in regulated versus unregulated power markets. In Europe, and we would expect this to be true in unregulated power markets in the U.S. as well, power companies will reflect the cost of allowances in their wholesale power prices regardless of whether they initially received the allowances for free. Electricity customers pay more for electricity and power companies receive a valuable asset in the form of allowances.

In regulated power markets, a different set of issues emerges when a large share of the allowances are allocated at no cost to generating facilities and energy regulators claim the allowances for the benefit of the energy consumers within their jurisdiction. First, some states import a significant share of their power and would never see the benefit of the allowances allocated to power plants outside of their borders. California, for example, imports 22 to 32 percent of its electricity supply and most power distribution companies, whether they are investor-owned or municipally-owned utilities, purchase power from the

wholesale markets on behalf of their customers. So while customers in states that import a large share of their power supplies will face higher wholesale power prices, they see no benefit from the free distribution of allowances to out-of-state power plants. Again, this raises important equity concerns that should be factored into the allocation methodology.

The National Commission on Energy Policy, the California Market Advisory Committee and the Natural Resources Defense Council in separate reports have each outlined an alternative approach that we find compelling to avoid the inequities and the inefficiencies that stem from an Acid Rain-style allocation approach, while benefiting electricity consumers. Rather than allocating free allowances to power plants, allowances would be allocated to local electric distribution companies on behalf of their customers. Local distribution companies would in turn sell the allowances allocated to them to regulated sources, returning the proceeds to their customers through rebates, low income assistance programs, economic development rates or other programs that help to mitigate costs or reduce demand. In this way, you ensure that the value of the allowances flows to energy consumers who ultimately bear the costs of the program. This provides a more equitable and more rational basis for distributing the allowances, as compared to an Acid Rain-style, input-based allocation. PG&E has expressed support for this concept in the context of California's AB 32 implementation process.

The Time Is Now

Our country has an historic opportunity to change the way we produce and use energy in ways that will lower the threat of climate change and improve our environment. The optimist in me is certain that we're going to achieve this goal over the course of the next generation. But the realist in me knows that we can't take this outcome for granted. Achieving it will be a very substantial challenge. And that is why we are committed to being a pragmatic, responsible participant in this effort.

On behalf of PG&E, I want to thank you for the opportunity provided today. I appreciate the commitment of this Committee to addressing this critical issue and I pledge my cooperation and support as this Committee and Congress moves forward.

Thank you.

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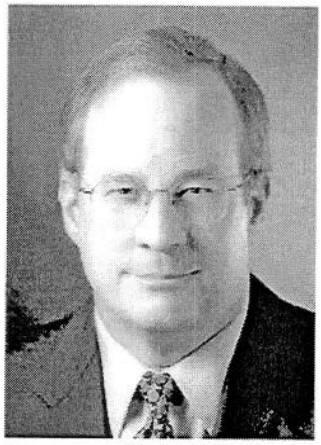

PETER A. DARBEE
Chairman of the Board, Chief Executive Officer and President
PG&E Corporation

Peter A. Darbee, a veteran of the energy, telecommunications and investment banking industries, is Chairman of the Board, Chief Executive Officer and President of PG&E Corporation. Based in San Francisco, PG&E Corporation is a $34 billion energy-based holding company that owns Pacific Gas and Electric Company, one of the largest combination natural gas and electric utilities in the United States. The utility serves 14 million people throughout a 70,000-square-mile service area in Northern and Central California.

Darbee, 53, joined PG&E Corporation in 1999 as Senior Vice President and Chief Financial Officer. Prior to that, he was Vice President and Chief Financial Officer of Advance Fibre Communications Inc. (AFC), a telecommunications manufacturer of digital loop carrier systems. Before joining AFC, he was Vice President, Chief Financial Officer, and Controller of Pacific Bell.

Darbee previously was an investment banker with Goldman Sachs, where he was Vice President and co-head of the company's energy and telecommunications group. He also held positions at Salomon Brothers and AT&T.

Darbee earned his bachelor's degree in economics from Dartmouth College and an M.B.A. from the Amos Tuck School of Business at Dartmouth. He has also successfully completed the Nuclear Reactor Technology Program at the Massachusetts Institute of Technology.

Darbee is a Director of PG&E Corporation and Pacific Gas and Electric Company. He also is active in numerous civic and community organizations, including The Business Council, the California Business Roundtable, the California Commission for Jobs and Economic Growth, the San Francisco Committee on JOBS, and the Board of Governors of the San Francisco Symphony.

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