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Before the

Select Committee on
Energy Independence and Global Warming
U.S. House of Representatives

Hearing on
"Solar Heats Up: Accelerating Widespread Deployment"

September 24, 2009

Chairman Markey, Ranking Member Sensenbrenner, and Members of the Select Committee, my name is Steve Kline. I am very pleased to appear before you this afternoon on behalf of PG&E Corporation and its subsidiary, Pacific Gas and Electric Company, to provide an overview of some of PG&E's activities relative to solar energy and to offer some thoughts on this important subject. As PG&E's Vice President of Corporate Environmental and Federal Affairs and Chief Sustainability Officer I lead, among other things, PG&E's climate change strategy programs as well as our habitat conservation planning programs. Thank you for holding this hearing to examine the current state of solar energy development.

PG&E, headquartered in San Francisco, California, is one of the largest utility companies in the United States. The company provides natural gas and electric power to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. PG&E proudly delivers some of the nation's cleanest energy to our customers. On average, approximately half of the electricity we deliver to customers comes from sources that are either renewable and/or emit no greenhouse gases.

Investments in renewable resources, including solar resources, create jobs, reduce air pollution and greenhouse gas emissions, and move us toward a low-carbon economy in California and across the nation. Vitally important is the support and role of the federal government in expanding the development of solar energy, including policies related to federal lands that can help or hinder renewable energy expansion.

The American Recovery and Reinvestment Act of 2009 (ARRA or Economic Stimulus Package) has provided a foundation of support for the development of solar and other renewable energy resources in a time of economic uncertainty. The renewables industry has benefitted from the certainty provided by these longer-term, critical extensions and modifications of investment and production tax credits. Development of these projects can help invigorate our economy and support a new green energy paradigm.

Given the current state of capital markets, we would recommend further extending tax credits, grant programs, and loan guarantees. Further we support exploration of a "Green Bank" to provide longer term certainty and expanded options for financing renewable energy projects. Establishing a Clean Energy Deployment Administration, as is being discussed in the House and Senate, could assist in reaching these goals.

We are also encouraged by the Department of Interior's (DOI) investment of $41 million from the economic recovery package to facilitate large-scale production of renewables while protecting ecosystems on Bureau of Land Management (BLM) land. We also support the Department's focus on processing existing project applications that may be eligible for ARRA stimulus funding.

In addition, there have been some positive developments on the procedural front. Recently, the Interior Department, through its Bureau of Land Management, released its draft scoping document for the Programmatic Environmental Impact Statement (PEIS) on the development of renewables on public lands in the West.

According to the BLM, this PEIS is "one of several on-going DOI initiatives in support of the President's New Energy for America Plan that sets a target of ensuring that 10 percent of U.S. electricity is generated from renewable sources by 2010, rising to 25 percent by 2025." In addition to examining the "environmental effects of all solar energy technologies that are ready for deployment at utility-scale," the PEIS will study in-depth 24 tracts of land, referred to as Solar Energy Study Areas (SESAs), in six western states.

At the same time that the BLM and DOE are preparing the PEIS, the Bureau will also "continue to process all existing applications" – which total 2,256 – beginning with the so-called "fast-track" projects.

Clearly, a great deal is being asked of BLM staff in connection with the overall effort – which we support – to get more renewable energy generated and on line to consumers. Equally clearly, these related responsibilities will strain the agency's existing staff. Given the staffing needs involved in both processing the fast-track applications and preparing the PEIS, it is critical that the BLM have sufficient resources to ensure that both of these efforts can move forward in a timely and efficient manner while ensuring robust environmental review.

Overview of PG&E Projects

In 2008, approximately 12% percent of the electricity we provided to our customers was from California-eligible renewable resources. As defined in California Senate Bill 1078, which created California's renewable portfolio standard, an eligible renewable resource includes geothermal facilities, hydroelectric facilities with a capacity rating of 30 MW or less, biomass, biogas, biodiesel, fuel cells using renewable fuel, selected municipal solid waste facilities, solar facilities, wind facilities, as well as ocean wave, ocean thermal, and tidal current technologies.

In 2009, PG&E has forecasted 15% of its energy deliveries to customers will come from eligible renewables, another 16% from large hydroelectric resources that are not eligible for the state's RPS, and 20% from nuclear energy, which has zero carbon emissions.

Since 2002, PG&E has signed more than 40 contracts with existing and new facilities that use or plan to use wind, geothermal, biogas, biomass, and solar as their fuel source. We recognize the need for a diverse portfolio of renewable resource typologies and technologies – both in California and beyond its borders. For example, PG&E is a leader in researching ways to expand the use of renewable biogas, a prospect that holds significant potential in a state that is home to two million dairy cows. Last year, PG&E and BioEnergy Solutions began operating the first project in California that is delivering natural gas to a utility using methane produced from animal waste at Vintage Dairy in Fresno County. This innovative effort, which produces gas that meets PG&E's gas quality specifications, is significantly reducing the farm's methane emissions while providing a valuable energy resource for our customers.

Solar energy is an especially attractive renewable power source for because it is available when power is needed most in California – during the peak mid-day summer period. PG&E's portfolio includes both solar photovoltaic and solar thermal technologies. Since early 2008, PG&E has entered into five solar contracts, three using solar PV technology and two using solar thermal (or concentrated solar power) technologies. One of the PV facilities, Sempra's El Dorado facility in Boulder City, Colorado, has achieved commercial operation, while the other solar facilities are still being developed.

Technological innovation and incorporating "learning curve" benefits are expected to reduce the cost of solar technologies over the next few years, leading to higher levels of solar development. For example, a study prepared by the National Renewable Energy Laboratory (NREL) on the potential for concentrated solar power, or CSP, in California and the rest of the Southwest U.S. indicated that CSP in California could produce upwards of seven times the energy needed to serve the state. NREL also suggests that costs for CSP technologies could decline significantly, from approximately 16 cents per kilowatt-hour on average today, to approximately 8 cents per kilowatt-hour in 2015. The halving of the cost of this energy in seven years is premised on an assumption that at least 4,000 MW of CSP will be built by then – not just contracted for – to achieve "learning curve" benefits. In summary, getting the facilities built is a crucial element of reducing costs in the long run.

We are also impressed by the progress being made in reducing the cost of photovoltaic (PV) technology and look forward to a healthy competition between CSP and utility-scale photovoltaics to meet the peak electric needs of California customers. We expect the competition between the two solar technologies will help our customers over time by bringing the cost overall of solar energy down.

There are challenges to fully realizing the potential of these clean, renewable, domestic energy resources. As a load-serving entity subject to meeting California's RPS requirements, our perspective is primarily driven by our role as one of the nation's largest purchasers of renewable power through power purchase agreements. In light of the financial crisis and resulting credit freeze – and in order to help assure that we will have the renewable energy projects needed to

meet our California RPS obligations – we are also exploring the possibility of developing commercial-scale solar projects ourselves.

We acknowledge the potential tension between important environmental and conservation needs and state and national imperatives to decarbonize energy sources in light of climate change. We are committed to working with other stakeholders and with policymakers and regulators to finding a path forward that brings renewable generation on-line as quickly as possible while protecting our unique and sensitive natural and cultural resources. As such, PG&E is pleased to be part of an informal working group recently formed to examine ways to balance the need for timely development of renewable energy sources with the need to protect desert ecosystems, landscapes and species.

Given the amount of overlap with federal lands and agencies for projects in the West, it remains critical that efforts continue to address the following areas:

A. Transmission

A significant challenge we face in bringing renewable energy resources online faster is the lack of transmission lines to the areas where the renewable resources are located. In California, for example, most large-scale concentrated solar power generating facilities are sited in remote desert locations, far away from the areas where the electricity is needed most. Across the West, thousands of miles of transmission lines will be needed to significantly expand renewable energy production, including paths on or around Federal lands. It would be no exaggeration to say that only with increased transmission capability can the benefits of renewable resources be fully realized.

One way to facilitate added transmission would be through better coordination among agencies. In addition to better coordination, state and federal agencies should remove unnecessary overlap or duplicative requirements in order to enhance the development of transmission lines needed to link renewable energy resources to the grid (and hence, consumers). Carefully-crafted permitting improvements would not – and should not – have to come at the expense of protecting critical natural and cultural resources.

B. Storage

Cheap energy storage is sometimes called the holy grail of renewable energy and a key component of future "smart grids" envisioned by utilities like PG&E.

Now PG&E is taking steps to make it a reality, applying to the Department of Energy for a $25 million Smart Grid stimulus funding grant, under the American Recovery and Reinvestment Act, for a large compressed air energy storage (CAES) project. PG&E plans to pump compressed air into an underground reservoir, using mainly wind energy produced during non-peak hours, and then release it to generate electricity during periods of peak demand. The project has an output capacity of 300 megawatts – similar to a mid-sized power plant – for up to 10 hours. It will take an estimated five years to design, permit and build.

Energy storage is a strategic complement to the generation resources that provide power to our customers because storage helps utilities maximize the efficiency and flexibility of our grid while enabling the delivery of clean, renewable energy. We appreciate legislation proposed by Sen. Wyden that would establish tax incentives for energy storage technologies such as compressed air, pumped hydro, and batteries.

C. Project Permitting

Another set of challenges relate to permitting the renewable energy projects themselves. Due to frozen credit markets we are in the process of also developing several renewable projects, but our primary experience is as one of the largest purchasers of renewable energy in the U.S. From our perspective as a renewable energy purchaser, it is worth noting that many of the applications for permits for renewable development are located within the California Desert Region and involve the use of federally managed land. Those that do not involve development on federally-managed land often include a transmission intertie that must cross federally managed land.

Adding complexity, in many cases, development in the desert may involve lands that are home to federally listed species and/or habitat. Let me offer three observations here. First – and obviously – the U.S. Fish and Wildlife Service ("USFWS") has a critical role to play. Like the BLM, the USFWS will need adequate funding to ensure that it has the staff in place to handle the increased volume of work generated by the desert solar projects. Without additional resources at the USFWS Field Offices, other critical infrastructure projects could be delayed due to inadequate Endangered Species Act permitting staff.

Second, we encourage the BLM, as part of its PEIS's consideration of Solar Energy Study Areas, to undertake a programmatic Section 7(a)(2) consultation with the U.S. Fish and Wildlife Service. To the extent possible, in order to provide solar developers with greater certainty, this Section 7 consultation should also seek to provide project-level "take" coverage under the federal Endangered Species Act.

Third and finally, in the vast majority of currently proposed projects, coordination is required among federal agencies and between federal and state agencies. Therefore, it will be critical that the Interior Department have a process in place to facilitate efficient, expedited resolution of problems and obstacles as they arise, especially since the permitting requirements for these projects will be extensive. We are pleased that Secretary Salazar recently named David Nawi as his Senior Advisor for California and Nevada, and we look forward to Mr. Nawi bringing his extensive talents to bear on enhancing the coordination among the federal agencies and between the federal and state agencies.

PG&E supports Secretary Salazar's plan to open four Renewable Energy Coordination Offices with smaller renewable energy teams in other western states. The stated intent to "cut red tape by expediting applications, processing, reviews and permitting of renewable energy projects" is a positive step forward for the challenges solar development faces and builds off the ongoing work by BLM to develop a comprehensive approach to solar projects in the Mojave Desert region and the West.

D. Moving Forward

Given the dual imperatives of reducing greenhouse gas emissions as soon as possible and of bringing renewables on-line while protecting natural and cultural resources, PG&E believes that the federal agencies (and their state agency analogues) must proceed along two parallel paths. One path – the short-term path – is identifying and permitting the solar projects most likely to be "shovel ready" in time to be eligible to receive stimulus funds. The other path is longer-term, namely developing a process to manage solar development on public lands (i.e., lands managed by the Department of Defense (DOD) and Bureau of Reclamation (BuRec) as well as the Department of Energy (DOE) and the Bureau of Land Management (BLM)) in a more orderly and comprehensive fashion.

In our view, the BLM PEIS offers a means of establishing such a comprehensive program. Along with other stakeholders from the environmental and solar developer communities, PG&E has recently commented to the BLM on its PEIS scoping document, recommending in part that its PEIS should lead to the establishment of a comprehensive program for managing solar development on federal public lands that includes designation of appropriate lands for solar development in the short term and a process for identifying lands for such development in the long term, based on environmental and technical analyses (including insolation levels) as well as transmission and other infrastructure considerations.

The PEIS and the resulting program should also serve as the basis upon which others, including the State of California, can come together with DOI and other federal land managers to formulate a comprehensive program that addresses development of renewables, i.e., wind and geothermal as well as solar, across multiple jurisdictions, private and public alike, in California.

At PG&E, we are working with policymakers, regulators, and relevant stakeholders to help address these challenges. For example, California's utilities are working closely with state and federal agencies and representatives of leading environmental groups on the Renewable Energy Transmission Initiative, which is expected to identify a prioritized listing of Competitive Renewable Energy Zones (CREZ) and conceptual transmission plans to access these zones. Improving the permitting process for transmission lines to reach the CREZs is a critical path item to achieving the 33% RPS goal established by Governor Schwarzenegger's recent Executive Order.

As we work to achieve California and the US goals on climate change and to decarbonize energy supply resources, as well as protect land, water, and wildlife resources, the federal government is well positioned to help bring greater clarity through sound policies.

We appreciate this Select Committee's interest in these vital issues, and look forward to working with you, other policy makers, and stakeholders on this journey on the road to consensus. On behalf of PG&E, I want to thank you for the opportunity to appear before you today and I look forward to answering your questions.

Thank you.