

**Testimony of Jill Egbert
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Before the

**Committee on Science and Technology
Subcommittee on Energy and Environment
United States House of Representatives**

**Legislative Hearing on
“Hybrid Technologies for Medium-to-Heavy Duty Commercial Trucks”**

June 10, 2008

Chairman Lampson, Ranking Member Inglis, and Members of the Committee, I am very pleased to appear before you this morning on behalf of Pacific Gas and Electric Company to offer my views on the important role of medium and heavy duty hybrid and plug-in electric hybrid trucks in utility fleets. At a time of historically high diesel fuel prices, increasing concerns over climate change and U.S. energy security, I commend the Committee for its leadership in addressing this important topic.

Pacific Gas and Electric Company, headquartered in San Francisco, California, is one of the largest natural gas and electric power utility companies in the United States. The company provides natural gas and electric service 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, more than half of the electricity we deliver to customers comes from sources that emit no carbon dioxide, or CO₂, and an increasing amount comes from renewable sources of energy.

For nearly two decades, PG&E has also actively worked to advance alternative transportation technologies, including natural gas and electric vehicles. More recently, the Company has added diesel-electric hybrid, plug-in hybrid electric and fuel cell powered vehicles to its fleet. PG&E's clean air transportation strategy is integrated throughout our fleet and the fleets of many of our customers as well. This is a key pillar of PG&E's overall emissions reduction and environmental stewardship strategy – no less important than procuring clean sources of energy or protecting wildlife habitats.

PG&E operates the largest natural gas alternative fueled utility fleet in the nation. Our fleet includes more than 1,200 natural gas fueled vehicles, of which more than 100 are classified as medium and heavy duty vehicles. The majority of these vehicles run on cleaner burning compressed natural gas. Over the past ten years, PG&E's fleet displaced over 3.4 million gallons of diesel and gasoline with natural gas which translates to over 6,000 avoided tons of CO₂ emissions. When combining our fleet with those of more than 300 of our customers whom we have helped with incorporating alternative fueled vehicles into their own fleets, the amount of diesel and gasoline displaced grows to more than 47 million gallons and 174,000 tons of avoided CO₂ emissions over the last three year period alone.¹

We are particularly enthusiastic about the incorporation of hybrid and plug-in electric hybrid, medium and heavy duty trucks, or PHET's, into our fleet. We have already seen tremendous financial and environmental benefits from doing so. Our goal in assessing and applying new

¹ These figures represent a full "well-to-wheel" analysis, which takes into account energy use and emissions at every state of the process, from the moment the fuel is produced at the well to the moment the wheels are moved. Estimates compare the avoided emissions from PG&E's CNG vehicles to petroleum usage based on the methodology outlined in Full Fuel cycle Assessment (CEC-600-2007-003, June 2007), which uses the Argonne National Laboratory's GREET emissions model modified to California inputs.

vehicle power technologies is to demonstrate their practical application in our fleet, and gain the experience necessary to provide our fleet management with alternatives to conventionally fueled vehicles. With each demonstration vehicle and truck we consider a number of factors, including initial capital cost, operating and long term fuel costs, ability to meet greenhouse gas emissions reduction goals, reliability and serviceability, operational flexibility, fuel consumption reduction, tailpipe emission reductions consistent with California and federal regulations, noise pollution reduction and operator safety.

The two most common uses for integrating hybrid and PHET trucks into our fleet are for our so-called “trouble trucks”, and the more familiar “bucket trucks”. PG&E’s “trouble trucks” are used by our first responders when an outage or other situation is initially reported, and are dispatched to assess a problem, and occasionally perform minor repairs lasting under two hours. These trucks operate within a wide range of mileage parameters, ranging from a few miles if operated locally within the City of San Francisco to covering long distances if operating in more remote parts of our service territory. This range of operation makes hybrids, such as the Ford F550 SuperDuty hybrid truck an ideal solution for our company and our industry. These types of vehicles provide significant benefits which include improved fuel efficiency, lower fuel costs, and lower refueling time as compared to our conventional trouble trucks. PG&E is currently working with Ford to develop an all plug-in electric version of the F550 SuperDuty truck.

For most repair work, the utility industry standard is to dispatch large diesel-powered bucket trucks. These trucks are then required to idle for long periods of time to complete many of the necessary repairs which forces a fuel consumption rate of approximately one gallon of diesel per

hour of idle time. The idling is necessary to power the hydraulic arm, which is powered by the engine, to maneuver the bucket used to hoist servicemen who perform repairs.

In 2007, PG&E became one of 14 utilities across North America to deploy one of 24 diesel-electric hybrid bucket trucks developed by the International Truck and Eaton Companies.

PG&E's field trial for this new truck is currently ongoing in San Francisco with an on-board telematics system that sends continuous performance and operations data which measures efficiency against that of a conventional diesel truck being used in the same application and in the same general geographic location. Preliminary results indicate that diesel-electric hybrid bucket trucks:

- Reduce fuel consumption by 40 – 60 percent.
- Reduce emissions by 50 – 90 percent by operating the utility bucket in electric-only mode without the engine running. A typical utility truck's engine runs eight or more hours a day.
- Provide on-board power generating capacity of 25 kilowatts of standby power – enough to power up to five average-size homes while service is being restored.
- Improve operational and scheduling flexibility, and customer satisfaction by operating quietly, particularly when working at night in noise-sensitive areas.
- Reduce maintenance costs due to less engine use and brake wear due to regenerative braking capacity that charges the battery.

PG&E has also procured two pre-production heavy duty Peterbilt hybrid trucks which will have two buckets per truck, designed specifically for live wire work.

In addition to incorporating these and other new vehicle and truck technologies into our fleet, we also participate actively in industry and government sponsored initiatives aimed at defining standards and requirements for new hybrid and PHET technology. PG&E has actively participated in DOE sponsored workshops by providing a utility company perspective on the benefits and potential of all types of plug-in hybrid electric vehicles and the potential impacts on the electric power grid of significant penetrations of such vehicles. .

Even as new technology demonstration options are becoming available to PG&E at an increasing pace, there remain significant barriers to our ability to more fully deploy the hybrid and PHET medium and heavy duty trucks – the most significant being financial barriers. Currently, the upfront cost of a hybrid bucket truck is 50 percent higher than a conventional bucket truck. In other words, we could purchase three conventional bucket trucks for every two hybrids we purchase. Though the lifetime fuel and maintenance savings help make the investment more attractive, and the environmental benefits are a key part of our business objectives, the upfront costs are still daunting. In order to accelerate the procurement of hybrid trucks into utility fleets, therefore, we believe some financial incentive will be needed in either the form of grants or tax credits. These financial incentives would spur demand from PG&E and other utilities around the nation that will allow truck and power system manufacturers to expand operations and production, achieve economies of scale, and ultimately bring down the unit costs.

At a time of historically high diesel prices, increasing concerns over climate change and energy security, the time is right to accelerate the research, development and deployment of hybrid and plug-in hybrid electric truck technologies. With thousands of utilities nationwide, each

deploying a fleet of trucks daily to points far and wide within their service territory, the market for medium and heavy duty hybrid and plug-in hybrid electric trucks is significant. PG&E commends the Subcommittee's inquiry into this important market and we are hopeful that with effective government leadership, the right incentives will be implemented to help reduce the financial barriers that currently exist and that discourage widespread, rapid deployment of clean, hybrid commercial truck technology.

On behalf of PG&E, I want to thank you for the opportunity to appear before the Subcommittee today.

Thank you.

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