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Bob Haywood, keynote speaker.

Utilities and Geothermal - An Emerging Partnership The Market Needs No Help

by
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Welcome, I have been invited to speak on some of the changes within our industry including:

- **Deregulation** — How deregulation will create a more competitive, market-based business environment.
- **Transmission Access**, opening transmission to a wholesale market on a nationwide basis — How likely is it that retail wheeling will occur?
- **Market Driven Contracts** — The current regulatory process, which micromanages the acquisition of new resources, will be replaced by a market driven system. What are some of the characteristics of this system?
- **PURPA** — Have PURPA requirements outlived their usefulness?

PG&E supplies gas and electric generation to 12 million people in northern and central California. PG&E is the largest investor-owned utility in the United States with the largest geothermal generation resources in the world. What I will offer you today is our perspective on the future power markets we

face, and that you face as a player in those markets. However, I will add that it's just one utility's perspective.

Over 50 countries throughout the world are presently in the process of reinventing their electric utilities. Each situation is unique. What applies in one situation may not apply in another. For instance, the British have made drastic changes. The sole driver of this restructuring was privatization, not a competitive market. The United States is already privatized; however, the forces of deregulation are dominant in the world and are challenging the status quo.

Today's conference title refers to an emerging partnership — for PG&E it is a very long partnership. PG&E has had a long-term partnership with geothermal resources since the first Geysers Unit went online in 1960. PG&E currently has 1,400 MW of geothermal, 150 MW under contract. In the geothermal power plants that we own, we purchase the steam primarily from UNOCAL. PG&E's geo-

thermal capacity is almost half of the United States' 2,800 MW, which is more than half of the world's 5,000 MW.

Now our long history with geothermal power has been a successful one.

However, in the 1980s, we experienced a surprising development - the beginning of the steam field decline. Ten years from now, we will have only half of today's capacity and energy from The Geysers. Fortunately, we were able to restructure our steam sales agreement with our steam suppliers. The main provisions of the new agreement include more flexible and efficient operation of units, including the ability to transfer steam between the units, and the ability to retire units on an economic basis. These agreements demonstrate the theme of today's conference — the partnership between utilities and geothermal.

Geothermal is valued as an important environmentally preferred and renewable resource. Currently PG&E, Southern California Edison, and San Diego

Gas and Electric are going out to bid for new resources, of which almost 300 MW is set aside for renewables, as mandated by our regulators, the California Public Utility Commission. While we prefer renewables, we have great doubt about whether renewable set asides imposed on some players, but not others, can be tolerated in a market that's becoming more and more competitive.

Set asides are not the best way to handle preferred technologies. These social costs must be dealt with on a comprehensive national level; they must be based on solid public policy and science. To deal with these types of issues on a state-by-state basis, and to treat investor owned utilities differently from municipal utilities, could lead to poor economic outcomes and will cause distortions in the market. PG&E advocated the incentives for renewables included in the National Energy Policy Act. For example:

- State or municipal utilities and non-profit electric cooperatives receive a direct 1.5 cent/kWh subsidy for new solar, wind, biomass or geothermal facilities.
- Financial assistance is provided for joint ventures between the federal government and other entities to develop renewable technologies and applications.
- The existing energy investment tax credit for solar and geothermal property is permanently extended.

Such tax credits are the best way to handle any special premiums that society decides to assign to develop a resource, technology, or fuel. It is not appropriate that one player in the

market should carry that burden, while other players can be either free of the burden or interpret their responsibility to that burden differently.

What does the future hold? The forces of change have swept through telecommunications, gas, airlines, and banks. Electric utilities will undergo their change as well — although it is not crystal clear the nature of these changes. What is clear is the importance of price — one way or the other the customer must see a future where he or she is confident in getting the market clearing price. Due to the effects of global competition and the ongoing California recession, our large customers are extremely sensitive to price — they demand lower prices. The challenge utilities face is to meet expectations of lower prices. Customers must be confident that the utilities will provide long-term economic supply.

This is not the only change in our industry. There has also been a fundamental change in the economics and planning of electric supply.

Through the 60s and 70s, monolithic, vertically integrated utilities were building all generation. Generation was a fully regulated monopoly because of economies of scale. Economies of scale led to building larger and larger power plants. As the power plants got larger and the environmental regulations came into play, lead times for these projects became longer and longer. So, to build resources in the 70s, you were looking at 10-, 12-, and even 14-year lead times, with construction periods of 4 or 5 years. And so, 20-year load forecasts and resource plans were the norm and these time

frames were then embedded in the regulatory process. Also, fossil fuel prices were high and expected to increase.

But that is not the world we live in today. The economies of scale no longer exist. Fossil fuel prices are far lower than the projections of the 70s. Lead time for building new generation is more like 4 or 5 years, and we go forward to an uncertain market. A series of national legislation has changed the face of electric generation. First PURPA created the independent power industry. Last year, the National Energy Policy Act removed all constraints on independent power's financial structure and technological choice, and guaranteed wholesale transmission access that independent power producers can sell their products in near, distant or multiple markets.

This is good news for geothermal or any market player. An independent producer can bid in not only the market in which he is situated but also in adjacent markets. This will further enhance the competitive generation market by bringing together more buyers and sellers. Transmission access in particular is important for site-constrained resources such as geothermal and other renewables where your "fuel" cannot be moved.

The pricing of transmission will likely remain cost-based and regulated by the Federal Energy Regulatory Commission; and, so in a very short period of time, the ability to get easy access at known prices will be available to all wholesale sellers. PG&E, like I would imagine most utilities, is looking at its current transmission access pro-

cedures and policies to make this frictionless with as low transaction cost for the producer and utility as possible. What I mean by transaction cost is that we do not want a future where every transmission request is followed by long negotiations and arguments over upgrades, requiring a lengthy procedure with the Federal Energy Regulatory Commission which is, in our view, unacceptable to ourselves and the market players.

But, in spite of these developments, California's regulatory planning process and philosophy has not changed to encompass them. For PG&E, we have now, out on the street, an RFP to buy resources that won't come into operation for 4 to 5 years, based on assumptions that are now 3 to 5 years old, with price locked in for up to 25 years! These bids resulted from a 4-year regulatory process, with endless hearings and volumes of testimony. The process is too long and besides being locked into long-term prices, PG&E is severely hampered by not allowing negotiations between the utility and the producer. This micro-management is crippling — it takes away creativity and flexibility — to meet the customers' demand for the lowest price. We must have unfettered access to the market to buy the resources that meet the market test for our future customers.

What business, faced with the uncertainties of the future, would use such a decision process? Unless you believe you are getting the lowest prices possible and foreseeable, you would not lock into such agreements.

This process will result in higher prices in the future than are necessary. And the process is

simply a failed attempt to emulate the market in the hearing room; a very clear example of over regulation and micro-management. The reason for this micro-management is the concern of the regulator for self dealing — that is the utility is also competing with the independent power industry to build the new generation as both a player and referee.

At PG&E, we feel so strongly about the need to set the market clearing price that PG&E is willing and has offered to withdraw from building new generation, including the repowering of our fossil-fuel. This will give the entire market for new generation to the independent power producers and eliminate the need for micro-management by regulators.

Changes that must be made include:

- All - source bidding where all players and technologies can compete.
- Options and shorter-term contracts to balance long-term contracts.
- Diversification of our portfolio with blends of technologies, fuels, and contracting terms.
- Contract termination and renegotiation clauses that allow for change in an evolving market.

Can renewables and preferred technologies be part of this future? The test is the market — can they produce at low enough prices and with sufficient flexibility to meet both the market test and societal goals?

There are existing stories of where progress in environmentally preferred technology can meet the market test and societal

goals. Look at customer energy efficiency, which has moved from the conservation, "behavior change," focus of the 70s to the a fully fledged price competitor of the 90s and beyond. For PG&E and other California utilities, customer energy efficiency is a primary source of new supply. PG&E's electric demand is expected to grow by 20 percent between 1990 and the year 2000. Seventy-five percent of that demand, 2,500 MW, will be met through an aggressive program of investment in customer energy efficiency. This is an example of technology-driven competitiveness. Customer energy efficiency will continue to be a fundamental part of the resource plan for the future.

I have mentioned how electric resource procurement needs changing. This is just one area which needs to be addressed.

Recently, the California Public Utilities held an important series of hearings receiving viewpoints from dozens of interested parties. The range of opinions was formidable. The participants included representatives of the independent power industry, large industrial customers, residential customers, representatives for renewables, utility representatives, regulators, environmentalists, academics, and experts from all over the world.

Opinions range from "unbundle the industry — split generation from transmission to allow full retail wheeling to stimulate competition" to "retail wheeling is a short-term, misguided solution for a few at the expense of many."

Our view is that retail wheeling is not in anybody's best in-

terest. Three key issues must be addressed (among others):

- 1) Transition costs
- 2) Value of the integrated grid — different from telecom and gas.
- 3) Ancillary grid services such as backup or standby service, voltage support, etc.

Transition costs are predominantly the standard investments for generation built for all customers based on the forecast assumptions of years gone by such as high gas prices. These transition costs are very large. Much larger in fact than they were for gas, because the asset structure of electric utilities has 80 percent or more of the asset value in the power plants, whereas for gas most of the investment is in the pipeline itself. Who should pay the transition costs? Surely, those who stand to benefit. This issue would have to be faced.

Even ignoring the very large issue of transition costs, there are other issues. How are retail wheeling and the benefits of the integrated grid to be handled? Does retail wheeling mean that we will break up the integrated grid into many separate dispatch and control areas or do we maintain the integrated grid and the dispatch functions and just change accounting procedures? PG&E has one of the most sophisticated Power Control Energy Management Centers in the world, dispatching 500 generators to meet the bulk load of a 19,000 MW system. I encourage you to visit our control center and see firsthand how the grid is managed day-to-day. PG&E has offered a tour to conference participants.

The first method of breaking up the integrated grid has not

been attempted, and it is clear that there would be a tremendous loss of efficiency. We are really only dealing with large customers that have around-the-clock baseload that wish to contract for generation that would then be dispatched into the grid as there is no way to dispatch to a single customer. So the electrons from that generation would have no relationship to the electrons reaching that customer. Therefore, the actual physical power delivery and the contract for power delivery are two separate, unrelated functions. However, the power to the bypassing customers will use essential grid services, such as backup power and voltage support, and these grid services are generally ignored in the discussion of retail wheeling. These grid services must be accounted for to discover if there are true economic advantages of retail wheeling. Some grid services, such as standby power, should be at value-based pricing as with retail wheeling the utility no longer has market power for generation. Once these grid services are accounted for, in almost every case, retail wheeling will be seen to be unattractive.

So what is the solution, given the challenge that customers want lower prices and face far more market uncertainty? Our strategy — two critical needs.

One, give the utility the flexibility to target discounts to those consumers with legitimate, competitive alternatives; and, two, in exchange for not participating as a new generator, free the utility from regulatory micro-management to procure new supply resources at market prices, terms, and conditions. In this way, consumers would receive

all the benefits of competition without creating the dislocations and transition costs associated with retail wheeling. Most importantly, with flexible pricing to customers with legitimate alternatives, the utilities can deliver all of the economic benefits today, not at some point in the future.

In 1993, we have taken several actions to respond to the changing market:

- Implementing a rate freeze, maintaining current rates
- Using an economic stimulus rate to target discounts to "at-risk" customers (\$100 million of additional savings).
- Cutting costs through downsizing (eliminating 3,000 positions).
- Willing to abandon the new generation business in exchange for major resource procurement reform.

In conclusion, I'd like to describe how PG&E and geothermal resources can respond to the market challenge.

PG&E and our suppliers, including geothermal, are business enterprises and our success relies on providing customer satisfaction, just like any other business enterprise. What we hear loudly and clearly today from our customers are that our prices are too high. As we look to the future, our future depends on being able to produce or deliver to the customer a product that is competitive and meets the market test.

The bulk power market is in place and needs no help from the micro-management of regulation. Hopefully, the success stories of customer energy efficiency and wind power, which has reduced its costs and im-

proved technology to the extent that it is on the verge of being competitive in the open market, will also include geothermal. And that is why conferences like this are vitally important to share ideas and information to constantly improve the competitiveness of your product. I wish you a stimulating and productive week and, through these efforts, wish you success in keeping geothermal a preferred resource.

Together, utilities and geothermal move forward into uncharted territory. As we each improve our competitiveness and customer satisfaction, and attempt to anticipate the market changes in our industry, we increase the likelihood that our ongoing partnership will prosper in the future. Thank you.