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*The Changing Role of the Utility  
In a Decentralized World  
(And the Changing Role of Regulation, too)*

For Presentation to  
Smart Energy International:  
Connecting our World of Energy  
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## **Introduction**

Good Morning. It is a pleasure and an honor to be here with you this morning. Thank you for inviting me.

My standard caveats:

- I am one commissioner among five.
- I do not speak for the CPUC, which speaks through its decisions.
- I am not stating how I will vote on any matter that is before me at the CPUC.

That last one may be particularly important when you hear what I have to say. What I hope to do today in the brief time allotted is to **focus on real economic**

**development in the state of California** – I am a California commissioner, after all – though my remarks can be applied equally well to any other state and, perhaps more important, my remarks could be applied to the nation as a whole. Indeed, much of the policy responses must result from interaction between state and federal government.

## **Context**

Any comments will, of necessity, reflect the commentator's world view. So, rather than have you guess about mine, I will lay it out up front.

- I am concerned that the United States of America is losing the next war. By that I mean the war for global capital competitiveness, for economic growth, and all that means in terms of peace, order, and human welfare.
- We Americans, and we Californians, have become self-absorbed, spoiled, and careless of our future.
  - Too much borrowing
  - Government bent on making “popular” decisions
  - Less thought about **our Nation**, and more about **Ourselves**.
- We fail to understand that there is **No Guarantee** of returning to our former position of global economic greatness and dominance.

One thing on which our economy depends is effective, efficient, available, and reliable electric power. In short, we will depend on effective and innovative utilities. That means we need to make our utilities (and our regulators) recognize that things are changing, that our roles are changing even as technology is changing. In terms of economic growth and well being, we need to understand that we are working in a global context.

## **My Theme**

You are here to talk about Smart Energy, including Smart Energy Storage and Smart Energy Investment. In my few minutes, I wish to address three subjects very quickly.

- First, I believe California – and the United States as well – is on a tipping point regarding energy and environmental policy – maybe beyond the tipping point, as I indicated.
- Second, based on that hypothesis, I will offer a thought about your potential investment in Smart Energy products and processes.
- Finally, I will speak more generally about the official title of my remarks, about the changing role of the utility in a decentralized world.

## **Are We at (or even Beyond) a Tipping Point?**

There are many reasons you are meeting here in California to talk about Smart Energy. Among them is the

fact that California is a Smart Energy State. We Californians have **consistently** chosen a green path towards a cleaner and more environmentally benign energy future. Since the 1970s, we have chosen to focus on Efficiency in energy as much as or more than expansion of capacity. We have chosen to avoid high-polluting energy sources even if there is a cost disadvantage from doing so. We have put in place a renewable energy portfolio standard. We have implemented building code standards designed to reduce energy consumption. We have mandated the installation of Smart Meters so that consumers will be able to evaluate their energy consumption quickly and take effective action and not wait for their energy bills to appear at the end of the month. We have programs to encourage residential end-users to put solar PV systems on their roofs. We in California have taken many steps designed to reduce our energy consumption overall and to make the remainder of our consumption smarter and cleaner.

We did not start this yesterday! Over many years, Californians have elected governors, legislators, and members of local government agencies at least partly based on their environmental promises. We have said that we want a clean and beneficial environment *even if it costs a little bit more!*

Up to now, we have been largely successful. As you know, and as others before me have pointed out, while electricity consumption per person rose by about 50-percent since the 1970s on average across America, in California it has remained about flat. This happened in

spite of the introduction of personal computers into homes, in spite of the greater prevalence of air-conditioning in new homes, in spite of people buying larger televisions and watching them more hours per day. This did not happen by government clamping down on users. It happened through deliberate energy policies. As I said, people here have wanted this result *even if it costs a little bit more*.

*How much more?* Well, that is not very clear. And when the bills come due, as they are now beginning to, we may not be as happy as we are now. You might get a different answer if you talk to consumers and businesses that have left the state!

Besides the total costs, the sheer number of dollars involved, we may be **running into diminishing returns** from these policies. At the CPUC we are authorizing the expenditure of a billion dollars a year on energy efficiency. Can we continue to spend such large sums and expect to get cost-effective results in the future? Will electric customers continue to be pleased to provide that extra billion dollars each year in addition to the basic costs of service? And what other costs are energy customers in California paying? Will customers continue to support residential solar applications that depend on net metering? Will they continue to support the renewable portfolio standard as it becomes more binding on California utilities and the costs begin to show up in our bills? These are questions worth pondering.

We need a dose of reality: California is tapped out. Our legislature and our governor cannot agree on a budget.

We cannot agree what programs should be cut, or what taxes should be raised. We have a rate of unemployment that is higher than the national average. Our state has high bond indebtedness, and we have back-loaded state pension liabilities. Our education system ranks near the bottom, as does our credit rating! I wonder if Californians are beginning to ask whether we can afford the promises we have made to ourselves.

It seems we may be asking such questions now. There is a ballot initiative on the California ballot that would suspend our most ambitious legislated environmental goal, that of reducing greenhouse gas emissions. I make no prediction how it will come out. **I want to make it clear: I am NOT endorsing that ballot initiative or any other. In fact, I am trying to be completely non-political. As a general matter, government by initiative is bad government.**

Regardless of the outcome, the fact that the initiative is even on the ballot at all is an indication that we may be reaching the tipping point. We Californians may be reaching the point where voters stop saying, *“Yes, I am willing to pay a little bit more for a better environment,”* and they begin to say, *“Slow down, people. I can’t afford any more improvements in my life.”*

Now, I have made this case in terms of the specific situation of California. But the same is true generally. Two years ago it seemed that the United States was about to undergo a major transformation in energy and environmental policy, including the establishment of a

national market for greenhouse gas reductions. Today, we do not hear such a wholesome call for Cap & Trade regulation of greenhouse gases. Is America beginning to ask the same question as California? If America is also asking these questions, is that the bad news? Or is that the good news?

## **Questions to Ask about Investing in Smart Energy**

That brings me back to you, the participants in this conference. As you think about investment and change, I advise some skepticism. You should ask good questions about the costs and benefits of Smart Energy and Smart Energy Storage. And you should surely ask good questions about the costs and benefits of Smart Energy Investment. Consider:

- Are the opportunities we are seeing here today related to a long-term need and economic sustainability? Or are they likely related to stimulus programs or to temporary government subsidies that may be gone in a year, or as soon as the “free” money dries up?
- Is this opportunity dependent upon the continuing good will of the legislature or an agency, or a special tax incentive, to turn a profit?
- Is this opportunity something that is really “in the money”? That is, would a profit-seeking entrepreneur actually put her own money down?

- Would potential customers wish to buy this product or service on their own? Or will government compulsion be required to create demand for my product or service?

You, many of you, are entrepreneurs. You are looking to profit from the revolution we are calling Smart Energy. Many of you are motivated by a desire not only to make money, but also to make the world a better place. And I applaud you. I hope that you will “*do well by doing good.*”

Deng Xiaoping is famously quoted as saying: “*To get rich is glorious.*” Those words unleashed a tidal wave of entrepreneurial activity in China – maybe that wave would be better characterized as a tsunami! Still, there is plenty of opportunity for you in this state and in this country that rewards those who develop new ideas and bring them to market. I have been an entrepreneur myself, and I salute you.

But remember that there will not be much good done in the absence of the opportunity to do well. And so you should think clearly about any potential investment, and policy makers also should be thinking about that.

Some smart energy products and services will turn out to be very expensive. Maybe a governor or a legislature will require people to buy them anyway.

Some smart energy products will pay off well in the presence of subsidies or tax incentives. Maybe you will make enough money before the subsidies or tax incentives are withdrawn.

Some smart energy products or services will command a good price partly because there is a mandate that they be produced and consumed here, in this state or in this nation. And maybe you will do well as long as foreign competition is kept out.

And some smart energy products and services will be valuable even without mandates or subsidies or bans on imports.

## **The Changing Role of the Utility in a Decentralized World**

Finally, we come to the section of my presentation that is directly related to the title of this speech. Technology is changing the energy system, and it is a major driver in changing the role of energy utilities.

Once, electric utilities were one-way systems. The economies of centralized generation were so great that everyone was better off if the electric utility did all the production. From the end of the 19<sup>th</sup> century through the 1970s, the average size of new generating units doubled every 20 years. And the economies of operating power plants increased as well, such that several large turbines were typically located together at a site to achieve lowest costs. The epitome of this kind of economy can be seen at the Palo Verde Nuclear Generating Station, originally conceived to include five reactor-generators, each producing 1,200 megawatts of base load power. If that plant had been completed as designed, we would have seen six gigawatts of power at a single site. If that technological

trend had continued up to today, we would now be seeing power plants of more than 25-gigawatts. A half-dozen such plants could serve the entire western interchange!

But history did not work out that way. The Palo Verde station eventually completed three generating units, and even that was a struggle. Since the 1970s there has been a technological revolution caused economies of scale in generation to implode. Today we see very efficient combined-cycle generating plants at only 500 megawatts, and those plants could be designed to be much smaller without a significant cost hit. In other words, the trend toward massive centralized power plants has been replaced by a trend toward smaller and more flexible plants. And we are also seeing a trend towards renewable sources of power, regardless of the cost or the flexibility.

But that is only the beginning of the change. Today, we are seeing the advent of two-way utilities. That is, utilities now are accepting power inputs from their customers as well as from their suppliers. This is a fundamental change for the energy utilities. And the big telecom companies, and the search companies, are now getting engaged in the energy business.

The utility is no longer a mere **supplier** of power; it is also a **marketplace for power** that customers are producing in their factories and in their homes. Utilities are beginning to act as brokers or bankers, accepting energy deposits from customers, and returning those deposits at different times or in different forms. Such a system requires major changes in regulation.

Utilities are also becoming agents of their customers. In this time of smart grids and smart meters, utilities are beginning to provide much more information to those customers so that the customers can be more economical in their choices of when and how to consume power.

In addition, utilities are becoming agents in another sense. Customers are allowing utilities to reach into their factories, shops, and homes, and directly operate the customers' equipment, such as air conditioning systems, pool pumps, and lighting systems.

Regulators are participating in these changes. But we have not figured out quite what it means. One thing we should all understand: Electric utilities produce many other products besides kilowatts and kilowatt-hours. Utilities also supply reliability, connectivity, a place to store your PV electric output so that you can run your lights at night! But so far, regulators only seem to be able to recognize and see, and allow utilities to charge for, the kilowatts and kilowatt-hours.

Consider: We have net metering to encourage residential customers to produce photovoltaic energy at home. We provide special discounted rates to customers who agree to have the utility control their major appliances. And the benefits of smart meters will accrue largely to customers who are the most efficient at using the information they provide for their own advantage.

So far, the Smart Energy Economy is changing the role of the utility to engage in all these services on the

behalf of customers, but the customers are only paying for their kilowatts and kilowatt-hours. The regulators have not caught on yet to the costs and benefits of these other services. And they certainly have not figured out who is producing the services, and who should pay for them.

This change in the role of utilities is only beginning. Up to now, the changes are only at the margins, and utilities are still largely purveyors of kilowatts and kilowatt-hours that flow through the system in one direction, from the power plants to the customers.

## **Conclusion**

Ladies and Gentlemen, I want to thank you for this opportunity to speak with you today. I hope that as you go forward, you will think about the true dimensions of this change. I hope you will recognize that the global economy plays a big role in the results of your decisions. Perhaps, more importantly, you will think about the central role of utilities in America's economic future – and while you are at it, think about America's Economic Future in the Global Perspective. I hope you will judge the opportunities before you in the cold light of reality.

Thank you very much.