

John Bryson Testimony

House Energy and Commerce Subcommittee Hearing on Energy and Air Quality

May 3, 2007 at 10 AM

Thank you Mr. Chairman, Mr. Ranking Member and Members of the subcommittee.

I am John Bryson, the Chairman, CEO and President of Edison International, the parent company of the regulated utility Southern California Edison and the competitive power generation business Edison Mission Group.

My message to you today is that a high-tech world can no longer afford a low-tech electricity grid. We must together build the smart electricity grid of the future. This will require substantial capital investment in the modernization of our transmission and distribution systems, and in the replacement of the dinosaurs of our industry – analog household electricity meters – with state of the art digital meters. We are fortunate that in California our public officials have provided the necessary regulatory environment to make these investments possible. I'm pleased to have the opportunity to share a few observations from our experience.

I'll begin my comments by addressing the application of smart grid technology to the transmission and distribution system before focusing my comments on our advanced metering initiative.

At SCE, our distribution system – the component of the electricity grid that delivers power directly to most customers – is both aging and growing. In response, and with the support of the California Public Utilities Commission, we are making capital investments in the system at an all-time high rate.

We should not, however, continue to invest in the same old circuit designs. Even momentary interruptions can now cause significant economic loss for business customers. And residential customers using more digital home electronics have understandably higher expectations for service. The old standards are not good enough.

An early example of the smart grid's potential will be a 12 kV circuit that will become operational this July serving 2000 customers in the San Bernardino area. Called the Avanti Circuit, it will feature a large array of advanced monitoring and control capabilities and will interface with our new smart meters. What will that mean for customers? Current distribution technology can now take more than a minute to locate and isolate a problem on the system. The Avanti Circuit will do the job in seconds, limiting outages and improving reliability.

At the transmission level, we now have sophisticated new tools to measure stress on the system, including a new early warning system called Synchronous Phasor Measurement in which SCE leads the nation. Over the next two to five years, we will increasingly have the ability to act on this warning system with faster and more sophisticated control technology. The result will be substantially improved system reliability.

Let me give you a sense of how significant this is. If the technology I just described had existed in August 2003, the Northeast blackout, which affected 50 million customers, some for as many as four days, would likely have been largely controlled.

These same advances will also facilitate the continued development of renewable power. The smart grid will be better able to react to the variability of wind and solar generation by activating other resources, dampening peak demand, and smoothing out disruptions. This is particularly

important to us, since SCE leads the nation with nearly 17 percent of our generation coming from renewable sources.

The feature of smart grid technology most immediately visible to customers will be the advanced electricity meter. This is a game-changer for our industry.

Through our advanced metering infrastructure effort, which we call Edison SmartConnect, every household in our service territory will be equipped with a truly state of the art “smart” all-digital electricity meter. These new meters will actually be small but powerful computers and communication systems.

Among many benefits, smart meters will allow time-of-use electricity pricing for all customers, including small business and residential. Time-of-use pricing will create powerful incentives for customers to save money by shifting their use to off-peak hours when electricity costs are much lower. Customers will be able to interface with these meters through their home computers to develop efficient usage patterns that can help reduce their electric bills.

In a few years, it will likely be common to see signs in appliance stores labeling household devices as "communicating." Communicating thermostats already exist. Soon we will have communicating dishwashers, electric dryers, refrigerators and pool pumps. Some customers will program their appliances to respond to the smart meters and automatically reduce usage when power costs rise. Others will sign up for programs that allow the utility to control many of their appliances remotely when needed, in exchange for guaranteed additional cost savings.

Let me spend a few moments emphasizing the importance of this benefit. One of the keys to meeting our nation’s power needs in an environmentally friendly way – along with a large increase

in generation from renewable sources and the commercialization of new clean generation technologies – is the substantial expansion of energy efficiency and demand response programs.

California and Edison International have led the way in both. We lead the nation's utilities in helping our customers save electricity through energy efficiency programs. Since the Department of Energy started tracking energy efficiency in 1992, we have helped our customers conserve more than nine million megawatt-hours of electricity. To put this number in some perspective, that's enough to power 1.1 million homes for a year.

The CPUC has long supported this effort both by the commitment of program funds and also at a more fundamental level through ratemaking that decouples sales and revenue. For utilities this increases our risks because it requires more frequent rate cases, but constructive regulation makes it work in California.

Edison also has the largest demand response program in California. When needed, we can call on more than 1,000 megawatts of interruptible power. That's roughly equivalent to the size of a large power plant. It has the additional benefit of being spread across our service territory, which helps us manage the grid more effectively during times of peak demand.

Peak consumption levels are a key factor in determining generating capacity requirements, so managing peak load is essential to controlling the need to build expensive new power plants. We see demand response programs therefore as an absolutely vital part of our effort to provide cost-effective and cleaner power to customers.

After a one-in-fifty-year heat wave hit in Southern California last July, the CPUC very appropriately challenged us to increase substantially customer participation in our demand response

programs. We responded with an enrollment push that since August of last year has added 58,000 new customers, bringing total participation to more than 250,000 customers. The added potential for load relief associated with those new enrollments is 105 megawatts, bringing total potential relief to nearly 500 megawatts. By the time summer arrives, we expect an additional 70 megawatts. Here is the key point: We added this capacity in less than a year, far less than time than it would take to build a generating station or transmission line.

We can achieve even more in this area and we see advanced metering as a significant step forward. When fully deployed, we estimate that Edison SmartConnect could reduce peak demand on our system by as much as 1,000 megawatts, essentially doubling our current portfolio.

It is important to note that participation in time-of-use and other pricing options will be completely voluntary. Some customers will surely choose not to participate and thus forego any direct benefits, although they may still benefit if SCE is able to defer the costs associated with building new generation.

Smart meters can offer other potentially significant benefits as well.

They will enable faster outage response. With the aid of our new meters, dispatchers will know immediately *when* and *where* an outage occurs. Crews will be able to respond faster.

All customers will benefit from improved customer service and service automation. For example, the residential meters include a service switch that provides the ability to remotely turn-on our customers' service – a real benefit for the more than one million customers who move each year.

For example, wind energy generally peaks in the early morning hours and solar energy generally peaks mid-day, so any shift in usage to those off-peak hours facilitates the future use of new solar and especially new wind power.

These new meters are compatible with future plug in hybrid vehicles which offer the promise of replacing petroleum consumption with clean electric power. A soon to be released EPRI study will quantify the savings in greenhouse gases and other pollutants from this shift. Even using power from traditional coal plants to charge a plug in hybrid is environmentally superior (for CO₂ and criteria pollutants) to driving a regular Toyota Prius. This trend increases over time as newer, clean generating plants replace older, less efficient ones.

Just as importantly, integrating all these meters to a single open standards based system provides utilities additional communication and pricing tools and flexibility to respond to outages and emergencies in a far less disruptive manner than rolling blackouts.

A little more than a year ago, no existing meter technology met our requirements for cost effectiveness and customer benefits. So we used the prospect of a five million meter purchase by SCE to drive the development of technology that met our requirements for open standards and future flexibility.

Our strategy was successful and as a result new meters and communication networks from several manufacturers are being tested right now by SCE technicians. Field tests will be underway by the end of the year. And by 2013 we plan to install five million advanced meters with the largest array of customer-service features offered by any utility in the United States.

Beginning with the first meter installations in 2008, we expect a transition period of learning and assessment. Large commercial and industrial customers (above 200KW) have already received smart meters, so we have already begun to climb the learning curve.

Edison SmartConnect meters are a completely new breed. They contain two way communication capabilities and advanced software and computer capabilities that make them entirely different than the previous generation of meters. Edison International along with a number of other utilities has been working with the House Ways and Means Committee and the Senate Finance Committee on new tax policies that better reflect the nature of the new generation of high technology metering equipment.

Just last week, at a first-of-its-kind conference sponsored by the U.S. Department of Energy and others here in Washington, SCE received one of the inaugural awards for “Outstanding Leadership for the Advancement of a Smart Grid.” We were the only utility to be recognized.

None of this would be possible without the full support and backing of the California Public Utilities Commission, which to its great credit saw the potential value of the Edison SmartConnect program and is strongly encouraging the other utilities in the state to adopt the same fully digital technology.

Thank you.