

**BEFORE THE
UNITED STATES SENATE**

COMMITTEE ON ENERGY AND NATURAL RESOURCES

**TESTIMONY OF THE HONORABLE FREDERICK F. BUTLER
COMMISSIONER, NEW JERSEY BOARD OF PUBLIC UTILITIES**

**ON BEHALF OF THE
NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS**

ON

“Smart Grid”

March 3, 2009



**National Association of
Regulatory Utility Commissioners
1101 Vermont Ave, N.W., Suite 200
Washington, D.C. 20005
Telephone (202) 898-2200, Facsimile (202) 898-2213
Internet Home Page <http://www.naruc.org>**

Good morning Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee:

My name is Frederick F. Butler, and I am a member of the New Jersey Board of Public Utilities (NJBPU). I also serve as President of the National Association of Regulatory Utility Commissioners (NARUC), on whose behalf I am testifying here today. I am honored to have the opportunity to appear before you this morning and offer a State perspective on “Smart Grid”.

NARUC is a quasi-governmental, non-profit organization founded in 1889. Our membership includes the State public utility commissions serving all States and territories. NARUC’s mission is to serve the public interest by improving the quality and effectiveness of public utility regulation. Our members regulate the retail rates and services of electric, gas, water, and telephone utilities. We are obligated under the laws of our respective States to ensure the establishment and maintenance of such utility services as may be required by the public convenience and necessity and to ensure that such services are provided under rates and subject to terms and conditions of service that are just, reasonable, and non-discriminatory.

There’s a worn-out cliché that goes something like this: Don’t put the cart before the horse. In an industry as old as the electric utility sector, this saying aptly describes the situation we face in dealing with the modern Smart Grid and future demand growth.

As a State regulator in New Jersey and co-chair of a national board analyzing Smart Grid issues, I am absolutely convinced of the Smart Grid's potential to revolutionize how energy is delivered and consumed. I know the Smart Grid can change how utilities oversee their networks and improve reliability. I know that, in the end, consumers could have greater control over their usage and have the potential to lower their bills. I also know, however, that if we do not do this correctly, if we move too quickly and promise too much we can endanger our coming close to meeting any of those lofty aspirations.

That is why it is important to remember that old cliché and not put the cart before the horse. The benefits of the Smart Grid are obvious, and we must be sure that we move deliberately and in stages so that the costs of rolling out the necessary infrastructure are borne by those who will benefit. If we expect the horse—i.e. the consumers—to push the cart before it is ready, we may never get the Smart Grid off the ground. This means that we should not focus immediately on the end user and demand response; rather, we must start with the backbone—the transmission and distribution systems—while proceeding carefully to go inside consumers' homes.

Achieving the ultimate goal of reliable service at a fair and reasonable price is becoming harder and harder in this era of rising costs. There is a high probability that within the next three to ten years all electricity consumers will be facing higher costs because of rising fuel and commodity prices, as well as the initial sticker shock of federal and State initiatives to increase renewable generation and the anticipated costs associated with climate change legislation. These costs are and will continue to hit energy

companies hard, and State regulators are faced with having to approve rate increases that a growing number of consumers may not be able to afford. Should the potentially substantial price tag of Smart Grid be suddenly thrust upon them, notwithstanding the federal funding increase in the stimulus law, ratepayers will not be happy.

The utility industry is facing tremendous challenges, and we all need to welcome new technologies that could help this country become more efficient while bolstering the existing transmission grid. The Smart Grid has this potential, but only if embraced by utilities and, most importantly, consumers. Without getting the consumers on board, the Smart Grid may just be another good intention.

Before going too much further, it must be stated that our nation's energy woes will not be slain by a single silver bullet, but rather by what has been referred to as silver buckshot, a whole array of various and new revolutionary energy programs. This includes building some new transmission, encouraging renewable energy resources, promoting energy efficiency, resolving the nuclear-waste storage problem, and developing new technologies. The easiest and cheapest of this list is, of course, energy efficiency, but we must consider the role new technologies can play in helping us fix our current situation.

Here is where the Smart Grid comes into play. With the right investment and incentives, modernizing the nation's transmission system could revolutionize how and when we use electricity. If done correctly, utilities can streamline their operations and

have more control over their networks. The more efficient we get, the less electricity will be lost on the transmission grid. Consumers, meanwhile, can reduce their usage across the board, and especially during peak times. This can actually lead to reduced electricity bills. From an operational, business, environmental and economic standpoint, the Smart Grid, if implemented properly, can be a major win-win.

But we do need to be careful. Right now, we are selling the Smart Grid as a means of empowering consumers to lower their usage and, correspondingly, their energy bills. While this may ultimately be the case, we must learn our lesson from the restructuring experience before heading down this path. The promise of restructuring was that consumers would save money by shopping for power. Nearly half the States introduced some kind of restructuring legislation in the mid- and late-1990s. Congress also considered mandating a national restructuring scheme during the late 1980s and early 1990s. In many States, rates were cut and/or frozen for a set number of years, so at the outset, restructuring seemed to be a success.

The 2000-2001 Western Energy Crisis prompted many to rethink this approach. Instead of lower prices, consumers saw their rates skyrocket as utilities were forced to buy electricity through the volatile spot-market costs which, we later found out, were being manipulated. Along the East Coast, starting in 2006, when rate caps expired in Maryland, ratepayers and politicians led a mutiny that nearly resulted in the demise of the State's Public Service Commission. Cooler heads prevailed and the massive rate increases were phased in over time, but many consumers still feel burned. Delaware and

Illinois have had similar experiences. We have not had these kinds of problems in New Jersey, but the sting in many States is being felt across the country.

The problem here was not restructuring per se, but it was the way it was sold to consumers. Instead of determining the best way to move forward deliberately, we jumped right in, with the promise of lower rates to follow. Because of this approach, and because of the results, the concept of restructuring has taken a significant hit. Indeed, we put the cart before the horse.

We cannot make this same mistake with the Smart Grid if we want it to succeed. There is no doubt that the Smart Grid will bring consumers significant benefits. However, if we want to make the biggest impact, we should consider a different approach and concentrate first on the operational side while we educate consumers and deploy smart meters very strategically. Many utilities, engineers, and vendors have extolled the virtues of how an updated, modernized transmission system will give grid operators a much better view of their transmission and distribution network. New technologies can be installed on distribution poles and on the lines themselves to give advanced warning of a power surge. A modernized grid can help utilities lower costs by reducing the need for sending out trucks to read meters or restore power. Business operations can be streamlined, reliability can be improved, and money—real money—can be saved.

For instance, phasor measurement and backscatter sensors on the transmission grid, along with video sagometers and wireless mesh sensors, can use radio-frequency

identification (RFID) technology to give utilities real-time information on the status of specific lines. These sensors can detect problems on the grid as they develop and that are relayed back to the utility for resolution before they escalate into a massive blackout. Instead of relying on costly and time-consuming manual visits from work crews, utilities will have up-to-date information on their system and can act accordingly. These reasons alone will make the Smart Grid a safe and worthwhile investment for utilities, whether or not end-users choose to get on board later.

From my perspective as a State regulator, it seems to make the most sense that if we're going to begin investing in a Smart Grid, we should start here. If we start with the backbone – if we update and improve the delivery system first – we will see the utility company side benefits of the Smart Grid. The question of who pays is important—and with consumers already challenged because of rising rates and the economic downturn, we must be careful before putting more on their plate. In this case, starting with the backbone means the initial investments would be paid for by the utilities themselves, as they will be the initial beneficiaries, and not immediately by ratepayers. While we all would like to see end users enjoy the benefits of Advanced Metering Infrastructure, the Smart Grid can still make an immediate and long-lasting improvement for the industry by making the delivery system more efficient. This alone will result in considerable savings and fewer outages. Meanwhile, advanced meters and the applications they enable can at the same time be deployed strategically in pilot and demonstration projects thus demonstrating the benefits to end-use customers. Moreover, these backbone investments

are necessary at some point during the transition to the Smart Grid. So let's ready the cart to be pulled before asking the horse—or consumers—to pull it.

The second part of Smart Grid should be developed and implemented in an effort coordinated by State and local officials. In my experience as a Commissioner I have found that a key component for an initiative such as Smart Grid is public outreach. We should use some federal resources to explain to the consumers that a new Smart Grid program is worthwhile. Most State commissioners understand the benefits of Advanced Metering Infrastructure and time-of-use rates, but most consumers do not. Because these new programs will need new rate structures that will be disruptive to habits of paying energy that have been in place for over 120 years, we must proceed carefully to avoid public backlash. Time-of-use rates are being welcomed by some sectors of society and feared by others. States must be sure that consumers will embrace the technology and tolerate the initial investment. So far, this is only occurring in a few States. In California, for example, the Public Utilities Commission is committed to rolling out the Smart Grid to their consumers. The State has taken a number of steps laying out the initial foundation, including a decision in September 2008 approving a smart-metering program for Southern California Edison, one of the State's three investor-owned utilities.

Still, my colleague on the California PUC, Commissioner Dian Grueneich, said that despite the commission's conclusion on the benefits, key California consumer groups remain unconvinced that the Smart Grid will deliver. The advanced metering infrastructure deployment for Southern California Edison will cost about \$1.63 billion,

with estimated benefits ranging from \$9 million and \$304 million for consumers. Speaking in September 2008 at the Grid Week forum in Washington, D.C., Commissioner Grueneich said the PUC moved forward despite the strong opposition from some consumers. “Very significant costs have been authorized and put into rates,” she said. “Our consumer groups are not comfortable” with this.

The concern that many of my colleagues are trying to resolve is that consumers are convinced that the Smart Grid will only raise their rates with no discernable benefits. In a high-priced environment, some or perhaps most consumers see advanced metering rollouts as just one more headache and budget buster and are particularly scared that utilities and vendors will keep raising rates as the technology changes.

California will be launching a major education, marketing, and outreach campaign next year. This will need as much support as possible from all parties so the program can succeed and perhaps reduce the sting on ratepayers. Once they see the benefits, they should also see how they can turn this into savings.

As this experience demonstrates, the way a Smart-Grid program is structured and rolled out is absolutely key to its success, and regulators and industry must be flexible to ensure that consumers will not feel inundated or overwhelmed. Depending on how a Smart-Grid program is structured and rolled out will be the key to its success, and Congress, regulators, and industry must be flexible to ensure that consumers will not feel inundated or overwhelmed. As a State regulator, here’s how I think we should proceed.

A good place to look is at the work we're doing with the NARUC-Federal Energy Regulatory Commission (FERC) Smart Grid Collaborative, which I co-chair with FERC Commissioner Suedeen Kelly. As this is an issue that cuts across both wholesale and retail energy markets, the dialogues we are initiating through this process will help us all as we move forward. The Collaborative brings together a diverse group of State and federal regulators, consumer groups, and industry experts and allows us to talk in a public setting about these issues.

The Collaborative has met three times since its February 2008 inception, most recently at the NARUC Winter Committee Meetings last month. We have discussed issues such as cost allocation, specific technologies, interoperability, and pilot programs with consumers and industry executives who are promoting Smart-grid technologies.

In my role as co-chair of this Collaborative, I have spent a considerable amount of time getting up to speed on the different technologies and pilot programs throughout the country. I am, as is the entire Smart-Grid industry, very interested in the pilot program in Boulder, Colorado, which is aiming to become the nation's first "Smart Grid City." I have discussed the many different pilots with my regulatory colleagues and am convinced that we must take a deliberate approach to introducing these new technologies to end-use consumers. As described above, consumers have yet to "buy into" the concept of the Smart Grid, and when they see any associated rate increases, they are more than likely not going to be pleased. Smart meters are expensive—right now we're talking about

approximately \$150 - \$200 per meter—so we must be very careful in forcing anyone to upgrade if they are not willing. Pilot programs must be carefully structured in such a way that creates a “buzz” and excitement, not a ratepayer revolt.

In addition, there should be large-scale “demonstration projects” that cover a larger geographic area. We are all watching the Boulder, Colorado effort and that project’s success is instrumental to the future of the Smart Grid. These kinds of projects must cover a significant demographic area that reflects a microcosm of the country at large, including different incomes and education levels. While the pilot programs are useful, these larger projects will give us a glimpse as to how a larger pool of consumers will react to the Smart Grid. The project doesn’t have to be huge, but it must be an accurate representation of the society.

This approach lets consumers take part by building interest and selling the product amongst themselves, rather than having Congress, utilities, or regulators do it for them. The consumers who want the meters will get the meters, and through word-of-mouth, others will find out how valuable this new system can be, and will be more willing to endure a slight rate increase to pay for it. What concerns me is that under some proposals, millions of people will get these smart meters whether they want them or not. They will be getting a rate increase and new gadgets that they do not know how to use installed in their homes. I am not sure if this will breed anything but hostility among a rate class that is already facing challenging economic times.

Smart Grid can be successful provided we have federal and State governments working in concert with one another as partners; not working in contrast to one another as adversaries. The challenge before us is great, the technology and potential benefits exciting. The federal government has resources that the States do not; the States have expertise in the development and implementation of programs that the federal government does not have. Therefore, this challenge calls for a true partnership between the States and FERC that we are already developing through the NARUC-FERC Smart Grid Collaborative.

We have to remember that the Smart Grid will only achieve its vast potential if consumers embrace it. While we can certainly see major improvements in efficiencies and reliability by upgrading the transmission and distribution backbone, we will not change consumers' habits and consumption if we are unable to convince them of its promise. I respectfully request that this Committee and this Senate recognize and respect our unique roles so that we can work towards a truly 21st Century electricity delivery system.