

## **EE Global Interview (May 12, 2010)**

**Moderator:** Well, we're here with Jon Wellinghoff, Federal Energy Regulatory Commission Chairman. Thanks so much for giving us some of your time.

**Chairman Wellinghoff:** You're very welcome.

**Moderator:** I want to talk to you today about the smart grid. Now, there's a lot of talk about the smart grid in the industry right now. If you could give us a little bit of insight on the infrastructure of the existing transmission grid and what you guys are doing to make it more integrated so that smart grid technology can actually come to fruition.

**Wellinghoff:** Well, we're trying to do everything we can to encourage the proliferation of technology for the smart grid. We have some statutory authority that allows us to provide incentives for smart grid-type upgrades to the transmission side that is our responsibility. FERC is over the wholesale side of the grid, and we do what we can to encourage the transmission owners and operators to upgrade it with the latest and best technology to make sure that that side operates well.

We also do what we can to encourage the wholesale markets to place into their tariffs ways for consumers that do have smart grid-enabled appliances or businesses and industries that have smart grid-enabled loads that can actually use those in ways that can make the grid work more efficiently. For example, in an area of the Mid-Atlantic from New Jersey to Chicago called PJM, which is a grid operator, an independent grid operator under our jurisdiction, they have tariffs in place that allow, right now, about 9,000 megawatts of what is called demand response to participate in making the grid more efficient. And essentially, it is part of integrating the smart grid into the system, because they control their loads and they move their loads in ways that the grid operator directs them to through communications, and, by doing that, they get paid to do it, so there's some tremendous things going on there.

We're also working with some very innovative ideas as part of that PJM system. There's a professor at the University of Delaware by the name of Willett Kempton, and he's converted five formerly gasoline cars to all-electric and put in electric motors and lithium ion batteries, and, in addition to using them as electric cars and doing testings on how much they drive and the performance and so forth, when he plugs them into the grid, he's got a box in that car that's got electronic equipment in a very small module. That electronic equipment can wirelessly signal to the grid operator, PJM, and the grid operator signals back to them what's called a regulation signal, meaning a signal that's needed to determine what's

stabilizing the grid. Based upon that signal, the car's battery can actually follow the signal as it's plugged in, and, as it's being charged, as the charge is going up, it follows the regulation signal and provides regulation services to the grid just like a generator.

**Moderator:** That's very cool.

**Wellinghoff:** Right now the generator's providing it. The coolest thing is ...

**Moderator:** That's really cool ...

**Wellinghoff:** They're getting paid to do it.

**Moderator:** [laughter]

**Wellinghoff:** They're charging the car, and they're getting paid \$7 to \$10 per car per day to provide regulation service while they're getting charged. It'd be like driving into a gas station filling your car up, and they guy coming out and giving you a \$20 bill.

**Moderator:** So how many stories like this are out in the country right now trying different types of technologies to make the different applications that a smart grid has work?

**Wellinghoff:** Well, there's a number of them. Another group, National Laboratory, Pacific Northwest National Labs, did a whole test on the Olympic Peninsula with about 150 consumers, and they actually got IBM to work with them and embed chips in their dishwashers and washing machines and water heaters that could actually sense the frequency on the grid. And by sensing the frequency, that sensed how congested it was and what the price was, and, in essence, functioning when the price went up, and these appliances could determine whether or not they wanted to be used during that time or whether or not they wanted to shift to another time that was more economical for the consumer. So it ultimately saved consumers costs and did it automatically. There was no, you know, interaction by the consumer at all. It all happened sort of automatically. Sort of "set it and forget it" type thing.

This is happening in a number of pilots across the country with the automobiles in Delaware, with these appliances in the Pacific Northwest, and I know that many other utilities – in Boulder, Colo., and other areas – are doing these types of pilots to see how consumers can best benefit from smart grid applications.

**Moderator:** But we know that there are some areas in the country that have might not have had as good success in integrating smart technology, most notably, or most recently, in Texas and in California.

**Wellinghoff:** California.

**Moderator:** Talk to us about what you guys tell utilities and ratepayers on how to integrate these types of new technologies, because it's proving that it's saving money and that it's improving the economy as a whole.

**Wellinghoff:** Right, right.

**Moderator:** But there's such a backlash of customers saying, "Hey, my bill is higher, because you've given me a digital meter and we're creating a smart grid." So how do you combat that messaging?

**Wellinghoff:** Well, I tell the state regulators all the time, and, of course, we don't have jurisdiction over state retail rates.

**Moderator:** Sure.

**Wellinghoff:** We have the jurisdiction over the wholesale side, but we have an interest in ensuring the retail side can participate in the wholesale side, because it makes the whole grid more efficient. It makes the whole system nationwide work better, and reduces costs for the consumers overall. So I tell the retail regulators and the distribution utilities, don't put in the smart meters until you provide the consumers with the smart information and with the tools they need to get the feedback as to what those meters are doing for them. Don't simply put in a meter and walk away, because if you do that, it's, you know, like taking the Model T out of the driveway and towing it out and towing in a Ferrari but not giving the customer the keys. If they don't have any way to use the technology, it's going to be very frustrating for them.

And, ultimately, I think that's what we've seen. We've seen frustration in Northern California especially, we've seen some in Texas, but I think really the worst stories I've seen have been out of PG&E in Northern California where consumers were just given these meters and they walk away, and there's no interaction by the utility to give them either the understanding and the education as to what those meters can do for them if they use them properly, and, number two, we have to have some type of internal feedback to the consumer. You can't just have the meter outside of the house. You have to enable your iPhone so you can look at what your usage is or your computer or put a glowing orb inside the house or something that can tell consumers what are times that they can adjust loads and

how they can use loads in ways that will, ultimately, make the grid more efficient and lower their costs at the same time. Because costs can be lowered. I did it myself in Las Vegas when I was there using, in essence, a smart meter and a web-enabled system where I could find out how much I was using, plus could control my thermostats on the web and, doing all that, I reduced my bill by about 20 percent.

**Moderator:** That's pretty cool.

**Wellinghoff:** Yeah. If consumers are given those tools, they're not stupid. Consumers are not stupid. But, you know, it's like you can't just lock a guy up and say "Here it is." It doesn't work that way. You have to ultimately give them the keys to the car.

**Moderator:** So what is the Commission doing to aid these states to work with other states, because, you know, that's also a big issue as well is to be able to connect the state's grids together so that you can either transfer renewable energy power from one state to another or, for peak load or off-load times, you can transfer power across state lines. What types of steps are you guys taking?

**Wellinghoff:** Well, we're doing two big things. Number one, we're going to be rolling out a Demand Response Action Plan that will be go to Congress in June because Congress designated us to do this plan, and in that plan it has, as part of the communications plan across the nation, so we'll be working with states and local jurisdictions and state commissions and utilities to help them better communicate to consumers what are the benefits of smart grid, what are the benefits of doing demand response, so that Action Plan is coming out soon.

The second thing that we're really doing is we have a collaborative with the state utility commissioners and we meet three times a year. That collaborative is both a demand response collaborative and a smart grid collaborative called the Smart Response Collaborative. So it combines the two things together saying smart grid is good technology, but you have to put in the economic benefits for the consumer which is, ultimately, the consumer doing demand response and getting paid to do it. And so we're in those collaboratives working with state regulators and working with other stakeholders, both the providers of these technologies and the utilities, to come together to figure out better ways to deliver the services to consumers.

**Moderator:** Final question, and this is more about you personally.

**Wellinghoff:** Sure.

**Moderator:** We interview folks all the time about all the initiatives that they're actually doing within their respective positions, but one of the things that doesn't get much light is why do you do what you do?

**Wellinghoff:** Well, I do what I do because I love helping people and getting people to look at how they can better their own lives through advances in technology. I'm a technology geek, there's no question about it. I love technology. I think technology can provide us with many, many solutions, but part of the thing that consumers don't realize is that to get those technologies in place, there's lots of barriers that are not economic; regulatory barriers and other institutional barriers that I just love – it's sort of a problem-solving challenge for me to see how I can help consumers become more efficient and more technologically savvy and, at the same time, I get to play with all those technologies.

**Moderator:** Sure.

**Wellinghoff:** So that's the good part of it for me, I guess. I get to see all the technologies in action

**Moderator:** All right. So I lied. One more question.

**Wellinghoff:** Sure.

**Moderator:** So when you're finished as the Chairman and you look back on your time at the FERC, what are you going to say is going to be your success?

**Wellinghoff:** Well, I hope my success will be fully integrating in consumers' participation in the grid, in the demand side, with demand response and their ability to actually help control their bills and their costs by being a full participant. And by doing that, making the grid more efficient and doing things like also being able to also integrate in more wind, more variable renewable resources, because we now have a more flexible, more resilient grid than we had before. I hope that's something I can look back on and have achieved.