"Although some utilities certainly can do this as well, by and large the rules don't permit utilities to work on the consumer side of the meter. I call the meter as we know it today, the iron curtain of electricity. Consumers and utilities are trapped on either side of it. We need to break that down."

In terms of accountability for microgrids, utilities and consumers do have many options. "Accountability of the system to both the utility and, more importantly, to the consumer would be through the entrepreneurial third-party organization that would basically be responsible to maintain it and be held accountable by the consumer and the utility to do so," Yeager said. "So, in some cases, the utility could contract with a third party who would provide these services or the consumer could contract with them directly."

FINAL THOUGHTS

Third-party providers would likely play a key role in developing microgrids, but that does not mean that utilities have to be left in the dark on such projects. "The whole idea here is not to compete with utilities, but to work with utilities," Yeager said. "Where we are doing this most effectively is in those cases where it is a collaboration with the utility and the utility is making upgrades and improvements to its distribution system so that it can get the full benefit of the microgrid and the use of distributed generation. Time-of-use pricing is also an absolute essential here. You have to have real-time pricing signals that are going out to all the devices so consumers don't have to look at price signals. Basically, the system is programmed to adjust electricity use automatically to whatever level the consumer wants."

Humor break: Smart grid blah de blah

By Carol Ray with contributions from Patti Harper-Slaboszewicz

EVERY WHITE PAPER AND PRESENTATION ABOUT THE SMART GRID SEEMS to include some explanation of what the smart grid is: "Smart grid must include advanced metering and distribution automation and" … blah de blah. It sounds so easy. Need a smart grid? Start with a network, add smart meters and meter data management, interfaces to the back office, two-way digital network paths, sensors and some other whiz-bang expensive stuff and you're done!

Imagine a commercial, similar to a recent insurance company advertisement where people pull smart grid solutions in colorful boxes off the shelf, load up their shopping cart and off they go, assisted by the friendly agent with "a tricked out nametag."

A smart grid store of the future would have numerous aisles labeled something like this:

- Distribution automation
- Metering solutions
- Network components
- Meter data management & unification
- Home area networks (no TDSPs allowed)
- Systems integration
- Outage management
- Sensors, circuit closures & responders
- Magic potions and charms

A smart grid shopper cruises up and down the aisles, filling a shopping cart with colorful packages, color-coded to indicate what components play nicely together. This aisle is interesting: metering solutions. A hologram label reads "ZigBee® Approved" and another one says, "Coming Soon: 6LoPAN." A table includes packets of options like remote connect/disconnect, net metering, prepay, demand response (requires additional investment in smart thermostats and/or energy management systems); or how about an option for distributed generation (requires additional investments in solar, wind or waste-to-energy).

Smart grid shopper takes three boxes from the middle shelf noting the approximate coverage area of one million residential meters per box and lots of small print: "No guarantees for coverage or distance of signal; coverage may vary seasonally, may not be applicable in rolling topographies; may or may not require buddy-hopping or cable extensions; caution when using in basement-based meters. If depression worsens, see your doctor." Add in a couple of boxes of installation tools and it's on to the next aisle.

For the networking components aisle, our shopper likes the looks of the box labeled "Radio frequency mesh" with action figure included! Two years ago, there was the purchase of power line carrier (PLC) components. Last year, peer pressure forced a buy of the broadband over power line (BPL) box, but that was then and this is now—on to radio frequency mesh. A can of concentrators, a box of nuts and bolts, a couple of expandable towers with wires and antennae, plus the incredibly popular miniature bucket truck, which morphs to full size when wet, and move on to the next aisle.

And so it goes for smart grid shopper, loading up the cart with solutions needed to fulfill the emerging smart grid! The last stop for today is the magic potions collection.

The label reads, "Must be included for smart grid integration." Our smart shopper chokes on the hefty price for the case of potions, but carefully selects the neon bottle labeled, "SOA." Then a magic charm collection! Selected handfuls of favorite three-letter acronyms: AMI, MDM, CIS, GIS, OMS, IVR and WMS end up in the cart. Now for some doubles: DA, DG and DR. Then a variety pack of SCADA, mobile, supply chain and tariffs with rates is added to the cart.

Our smart shopper heads over to the checkout counter and the girl with the tricked out name tag starts ringing up the "smart" purchases. Our smart shopper has a little sticker shock: $384,524,694.99! Not too bad on a per meter basis! ✗

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