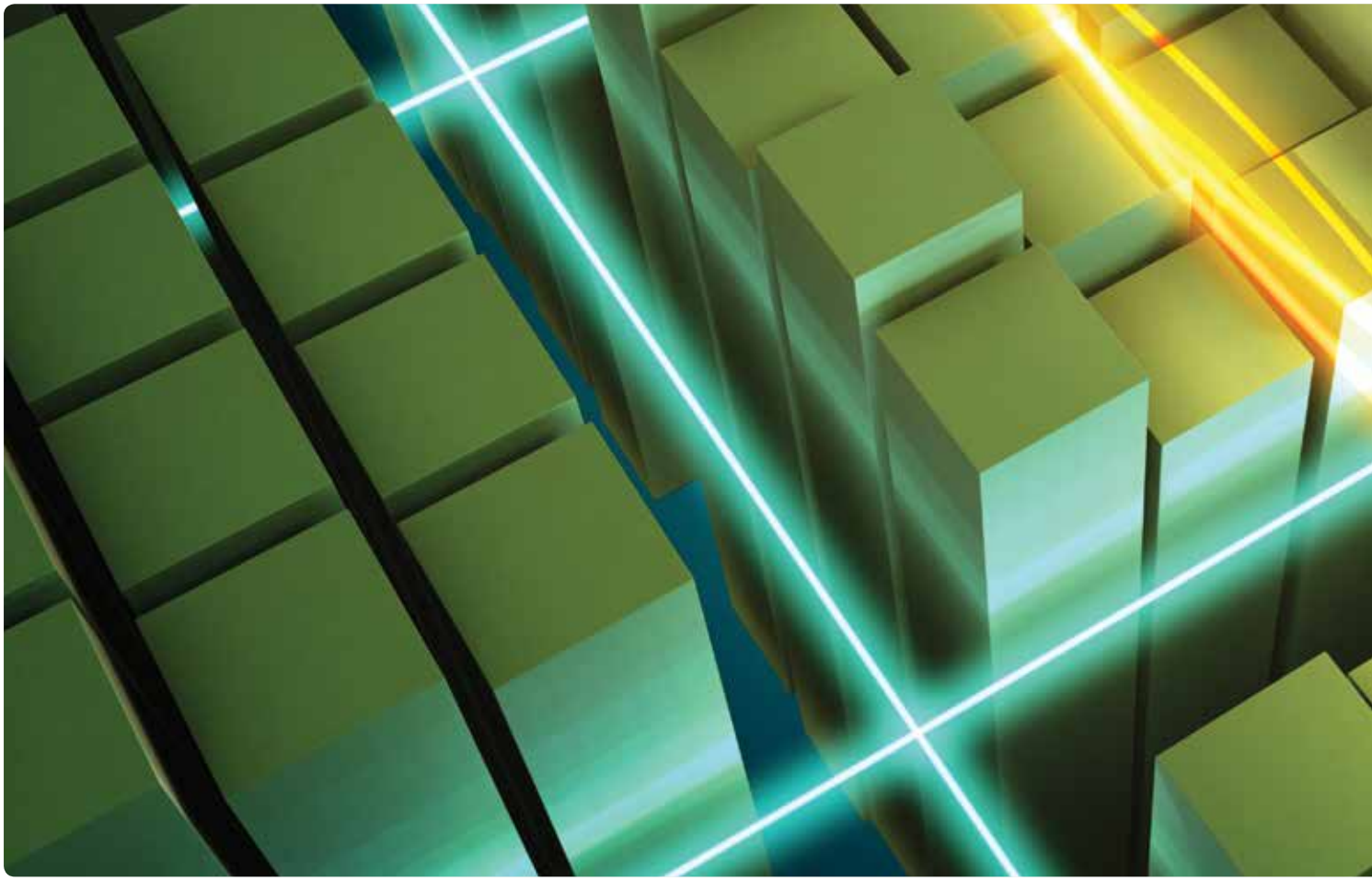

(GUEST OPINION)

Demand Response Moves to the Mainstream

BY ED THOMAS

THE IDEA OF ENERGY efficiency and demand reduction as a "fifth fuel" after coal, natural gas, nuclear and renewables is nothing new, but, despite that, efficiency and curtailment measures are typically incorporated into an energy plan as an afterthought or as a response to regulatory pressure.

One such measure, demand response, or DR, has historically been a second-string player, only deployed when there's an emergency. And despite DR's contributions to maintaining grid stability, averting blackouts and brownouts, and reducing the impact of extreme summer and winter weather events, the industry has been slow to adopt it as a meaningful solution to managing the electric grid.

We believe this slow adoption is about to change. Within the next five years, we see the role of DR shifting from that of understudy to key player. 2015 will be a transformative year for DR – one in which DR heads out of the shadows of emergency management and into its own as a legitimate market force.

ing communication and command/control capabilities with the transmission and distribution grid infrastructure and linking the customer to the utility.

That DR universe can begin today with a look at automated technology. Automation makes demand response a more attractive resource for utilities and independent system operators and is also making participation more attractive to energy end users. To be able to see into the functionality of an HVAC system and identify the fluctuations in load in real-time provides invaluable data regarding the general health of the system; meanwhile, the addition of fault-detection capabilities – another side benefit – can result in long-term savings for building owners.

In addition to the operational insight for home and business owners, the technology enhancements are making participation in DR programs easier, with results more reliable and verifiable in terms of load provided (kW) in return for savings and/or incentives earned.

The ability to deploy DR events automatically and more frequently not only can shave the peak during periods of grid strain, but it can also lower demand in response to minor system impact events throughout the day, such as a cloud passing over a photovoltaic station. And with distributed energy use becoming more and more widespread, the need for dynamic system balancing will only increase.

Taking DR out of the realm of the extreme and implementing it as a standard energy management tool also makes the impingement to both commercial and residential occupant comfort minimal, if not wholly imperceptible. Florida utilities have already implemented automated DR, in which 10- to 20-minute-long events occur more than 100 times in a year. These shorter, more frequent events deliver a consistent reduction in usage that occupants barely notice.

For utilities, as more commercial entities deploy demand response as part of their energy management strategy, there may be a greater opportunity for bundling loads within portfolios in order to produce necessary curtailment numbers.

This idea of DR bundling is also contributing to new and innovative energy storage methods. For example, PLMA is home to a special-interest group focusing on the potential of grid-interactive electric water heating. In Minnesota, there are currently 100,000 homes storing the equivalent of one gigawatt of electricity within residential water heaters.

> **As an industry we are adjusting our perception of what it means to be a resource.**

The water is heated at night when there is a surplus of energy generated by renewable resources, and then the heaters can be taken off-line and off-load during the day, when there is potential for a deficit, when grid load is heavy or any other time there is a need to balance supply and demand at a granular level. This rethinking of DR bundling as an implement for energy storage is opening new avenues of thought and contributing to the general shift in perception that Schare perceives as a catalyst to DR growth within the next five years. But growth often comes with resistance.

The DR Backlash

Anyone paying attention to what's been going on with FERC Order 745 can see that innovations within the DR industry are already disrupting the status quo. But as ground-level practitioners, the PLMA executive leadership is unified in its opinion that the backlash is not a roadblock; rather, it is a market signal pointing toward DR's movement further into the mainstream of resource management.

"FERC Order 745 will cause market adjustments, but the sky is not falling. That's for sure," said PLMA Vice Chair Richard Philip of Duke Energy. "As we move toward a more Web-enabled world, DR and its related topics and programs will only increase in scope and scale. We are, very much, in a changing marketplace. When you fold in solar and wind power and smarter controls, this is not the same industry it was 30 years ago, and the pace of change is not going to slow down."

Is 2015 the year of DR? Only time will tell, but, at the practitioner level, this prediction is looking more and more likely.

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