The Microgrid Resources Coalition: Advocacy for the grid of the future

C. Baird Brown, Partner, Drinker Biddle & Reath LLP

The Microgrid Resources Coalition (MRC) is a consortium of leading owners, operators, developers, suppliers and investors formed to advocate for policies and regulations that support microgrid deployment. The group believes that microgrids represent the cutting edge of a distributed energy future. By providing power when the grid is down and energy savings when the grid is operating, microgrids meet their hosts’ needs for enhanced reliability, energy savings and reduced emissions. By responding flexibly to the needs of the grid, they deliver energy, capacity and ancillary services that improve the reliability of the bulk power system and the efficiency of energy markets. The MRC advocates for policy and regulatory reforms that recognize and appropriately value these services, while assuring nondiscriminatory access to the grid for a wide variety of microgrid configurations and business models.

The MRC was established following meetings in summer and fall 2013 between MRC founding members Princeton University and ICETEC Energy Services, MRC counsel Drinker Biddle & Reath and each of the commissioners of the Federal Energy Regulatory Commission (FERC). In those meetings, the group described Princeton’s microgrid, its successful performance during Superstorm Sandy and its integration into the PJM Interconnection (PJM) energy markets. The group then discussed plans to establish an advocacy organization.

Following a first meeting with then FERC Chairman John Wellinghoff, he requested that members of the group meet individually with each of the other four commissioners, which they did. Each was enthusiastic about the proposed coalition and its mission; and FERC Commissioner Cheryl LaFleur, a Princeton graduate, has since toured the Princeton facilities. Subsequently, NRG Energy, Concord Engineering and IDEA joined Princeton and ICETEC in launching the MRC.

WHAT ARE MICROGRIDS?

The MRC defines a microgrid as a local electric system or combined electric and thermal system that

- includes retail load and the ability to provide energy and energy management services needed to meet a significant proportion of the included load on a nonemergency basis;
- is capable of operating either in parallel with or in isolation from the electrical grid; and
- when operating in parallel, may be capable of providing energy, capacity, ancillary or related services to the grid.

Microgrids, as defined, can create efficiencies in many ways. For instance, using cogeneration to serve balanced electric and thermal loads, microgrids can achieve generation efficiencies above 80 percent compared to around 30 percent to 50 percent for conventional generation. In addition, including renewable energy allows microgrids to undertake efficient and flexible hybrid generation operations. By using thermal and electrical storage to manage time of use of imported electricity and fuel, microgrids help moderate power prices, efficiently shifting load to times of lower demand and pricing. These and similar efficiency and energy management strategies not only save money but also significantly reduce the environmental impact of providing energy services.

Microgrids offer a wide range of other benefits to their hosts, the larger grid and to the surrounding com-
Representatives of the Microgrid Resources Coalition participated in a panel discussion at IDEA’s 27th Annual Campus Energy Conference in February in Atlanta. From left to right are Chris Berendt, Drinker Biddle & Reath; Tom Nyquist, Princeton University; Joseph Sullivan, Concord Engineering; Mike Webster, ICETEC; Ted Borer, Princeton University; C. Baird Brown, Drinker Biddle & Reath; and John Webster, ICETEC.

munity. By “islanding” from the grid in emergencies, a microgrid can both continue serving its included load and serve its surrounding community by providing a platform to support critical services – from hosting first responders and governmental functions to providing key services and emergency shelter. Microgrids can make it feasible to place generating capacity in congested areas of the grid and, from a planning perspective, can reduce contingencies that threaten grid stability. Using electric and thermal storage capabilities, a microgrid can provide local management of variable renewable generation, particularly on-site solar. Through fine-tuning its own generation and load, a microgrid can provide load following and other ancillary services to the grid in response to real-time signals. Moreover, microgrids are capable of providing energy and multiple ancillary services at the same time. Local microgrid service providers make the operation of the grid more competitive.

BARRIERS TO IMPLEMENTATION

Despite their many advantages, microgrids face significant barriers to widespread implementation. As a fundamental complication, microgrids face often-conflicting regulation at the federal, state and sometimes local levels. As FERC has recognized, even though they are generally located behind the meter on the distribution system, microgrids provide services that substitute for and compete with the services of wholesale generation. They generally purchase power at retail rates, either from utilities or, where allowed, competitive load-serving entities that are regulated by state public utility commissions (PUCs), and they sell power and other services at wholesale rates subject to FERC jurisdiction.

AS A FUNDAMENTAL COMPLICATION, MICROGRIDS FACE OFTEN-CONFLICTING REGULATION AT THE FEDERAL, STATE AND SOMETIMES LOCAL LEVELS.

FERC rules for the wholesale electric markets under its jurisdiction were designed for a world divided into generation and load. Having a load resource capable of flexible real-time response bends the rules. FERC is working to recognize and compensate some microgrid services in the wholesale markets, including demand response and frequency regulation. Even in these markets, however, tariffs do not adequately categorize or compensate microgrids for providing dynamic response and capacity, for reducing congestion or for contributing to reliability. Outside of FERC regulated markets, the contributions of microgrids to the balancing of the generation, transmission and distribution systems go unrecognized.

State energy regulation imposes more fundamental barriers to microgrids. In some states it is impossible for an independent developer to provide energy generation services to a single customer on the customer’s own site, and in most states it is impossible to aggregate retail load from multiple customers into a microgrid. Some states and municipalities also restrict retail distribution of thermal energy. Even in states with retail deregulation, load-serving entities generally must provide energy on an all-or-nothing basis.
Community choice aggregation legislation, virtual net metering and, in a few states, specific microgrid support legislation are the exceptions. As a result, most sophisticated microgrid development has occurred on campuses, such as universities or private research facilities, where a single end user is the microgrid host.

Finally, utility rate regulation in most states discourages distribution companies and integrated utilities from supporting microgrid development. For the most part, these utility companies are compensated on the basis of the total number of megawatt-hours they deliver, and a reduction in retail demand through energy efficiency or distributed generation threatens their business model. Distribution networks play a critical role in supporting customer microgrids and eventually can contribute to integration of multiple microgrids into more self-healing, resilient regional electric systems. The Microgrid Resources Coalition supports nondiscriminatory compensation for all services provided to and by microgrids, and it supports investment incentives for linking microgrids into the grid of the future. Without new business models that reward distributed energy resources while also maintaining the financial viability of the distribution system, the promise of microgrids will not be achieved.

TAKING ACTION TO PROMOTE GROWTH

The coalition will seek to promote microgrid industry growth through fair and broad-based regulation. MRC advocacy before FERC, state PUCs, regional transmission organizations (RTOs) and the North American Electric Reliability Corp. will pursue a range of goals including:

- defining the microgrid resource in the context of federal and state regulatory schemes, and defining the services provided by and to microgrids, in order to seek parity for resources with similar capabilities and nondiscriminatory treatment where microgrids can provide equivalent performance;

- establishing the basis for reasonable tariffs that do not discriminate between wires and generation and among end users, distribution companies and independent developers to the extent that they provide equivalent reliability and adequacy services;

- implementing and incentivizing integrated reliability planning that accommodates the interests of private-sector and regulated infrastructure investors, state and federal regulators, and stakeholders; and

- supporting local governments in their efforts to achieve more resilient and cost-effective energy infrastructure.

The coalition will pursue these goals through working groups and initiatives formed by interested members. MRC has formed a Wholesale Markets Working Group to examine issues arising in the wholesale markets operated under FERC jurisdiction by RTOs. While initially focused on RTO markets, MRC expects that by clearly identifying the value of microgrids to the bulk power system, it will be able to facilitate conversations with utilities and regulators in traditionally regulated jurisdictions as well. The Wholesale Markets Working Group is currently undertaking a review of recent actions by the PJM Interconnection to amend its manuals so as to limit participation by flexible demand response resources such as microgrids in PJM’s economic demand response.

In the wake of Superstorm Sandy, Princeton University’s 15 MW cogeneration plant was able to power the campus by disconnecting from the local electric utility and running in island mode. Princeton is one of the founding members of the Microgrid Resources Coalition.

Ted Borer, Princeton University energy plant manager and Microgrid Resources Coalition member, outside the Federal Energy Regulatory Commission headquarters in Washington, D.C.
program. (See sidebar.) The coalition has also formed a State Regulation Working Group both to support PUCs seeking to encourage deployment of microgrids and to work to remove regulatory barriers to widespread deployment. MRC expects to form additional working groups, including a group on reliability planning, as it goes forward.

The Microgrid Resources Coalition aims to expand the conversation about the future of energy delivery systems. It wants to encourage resiliency by acting locally to meet local needs. But MRC also expects to help shape the larger discussion about the grid of the future, both through public education and through focused regulatory advocacy on behalf of microgrid resources. The coalition invites members of the emerging microgrid sector to join it in taking action.

More information is available at www.microgridresources.com

C. Baird Brown is a partner in Drinker Biddle & Reath LLP’s Environment and Energy Practice Group. His practice includes the development and financing of energy and sustainable infrastructure projects, and he also advises on regulatory and policy issues affecting such projects. He is counsel to the Microgrid Resources Coalition. Brown began his legal career in the Office of General Counsel of the Board of Governors of the Federal Reserve System. He is a former co-chair of American Bar Association and International Bar Association committees on renewable and distributed energy-related issues. He holds a Juris Doctor degree from the University of Pennsylvania Law School and a Bachelor of Arts from the State University of New York at Buffalo.

A PROBLEM AT PJM

ORDER 745

In its Order 745, FERC directed regional transmission organizations to establish demand response markets open to retail load with included generation or the ability to curtail electric demand. FERC established two criteria for demand resources to participate: A demand resource must have the technical ability to respond to grid signals, and its participation must provide a net benefit to the grid – reducing price after taking load reduction into account.

PJM Interconnection initially implemented Order 745 in a way that permitted microgrids and other flexible behind-the-meter generation to participate. However, in recent action PJM has amended its manuals to severely limit microgrid participation by imposing a new test that rejects compensation for resources when they have additional financial motivations to participate. MRC and PJM member ICETEC, with assistance from MRC counsel Drinker Biddle, objected that the proposed changes violated Order 745. In a letter shared with PJM stakeholders, they quoted FERC’s order: “In the absence of market power concerns, the Commission does not inquire into the costs or benefits of production for the individual resources participating as supply resources in the organized wholesale electricity markets and will not here ... single out demand response resources ....”

PJM’s stakeholders voted not to support the proposed changes, but PJM has moved to implement them anyway. ICETEC estimates that revenues available for flexible demand response resources participating in this market will decrease by 30 percent to 60 percent as a result of these changes. The MRC Wholesale Markets Working Group is evaluating possible MRC action on this issue.