ENERGY, ENVIRONMENT AND THE EDGE – THE DECENTRALIZED FUTURE OF THE DATA CENTER

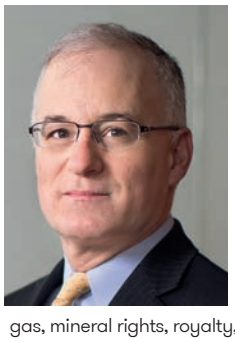
Regulatory and Compliance Risks in the Modern Data Center

By Dale Mullen, Gregory Riegle and Jonathan Blank of McGuireWoods LLP

About the Authors

Dale Mullen
Mullen co-chairs the firm's Internet infrastructure practice. He helps data center clients develop innovative solutions on strategic transactions, disputes, legislative initiatives and regulatory matters. Mullen draws on his state and local legislative experience, as well as his legal and practical managerial experience in federal, state and local government regulatory and compliance matters.

Gregory Riegle
Riegle is the managing partner of the firm's Tysons office and co-chair of the Internet infrastructure practice. He uses his extensive experience and knowledge to anticipate and resolve issues related to the permitting and regulation of data centers throughout the United States.



Jonathan Blank
Blank chairs the firm's Business & Securities Litigation Department. He is a problem-solver and American College of Trial Lawyers fellow who focuses on energy law including wind, solar, biomass, natural gas, mineral rights, royalty, transportation, construction, consumer protection, antitrust, fraud and other complex litigation.

Energy, environment and the Edge are three dominant business issues facing data centers and connectivity providers in 2021. A global pandemic, the development of 5G technologies, artificial intelligence (AI), and a renewed focus on renewable energy and environmental issues under President-elect Joe Biden will accelerate transformation in the Internet infrastructure and data center industry.

Data centers sell incredible amounts of electrical power and rely on on-site emergency power generation. In just one county in Virginia, the daily demand for energy has topped one gigawatt (GW). In comparison, the Union of Concerned Scientists reports that in 2012, the total capacity of all U.S. electricity generating plants was only 1,100 GW. Some models project that data center energy usage may exceed 10 percent of the worldwide energy supply by 2030. Regulatory enforcement and market demand will drive the need for renewable energy alternatives, on-site reduction of fossil fuel generators (primarily diesel) and opportunities for innovative energy procurement by data center industry participants.

Facebook, Amazon, Google and Microsoft have been major players driving large-load energy procurement and replacement with renewable energy. Increasingly, data centers and the customers who utilize them are in search of power supplies that not only meet the need for utility scale power, but also meet their sustainability goals. President-elect Biden's "Plan for a Clean Energy Revolution and Environmental Justice" offers a window the future of clean energy, data centers connectivity through the following ways:

- $1.7 trillion investment over ten years in clean energy, climate research and innovation
- $400 billion as one part of a broad mobilization of public investment, in clean energy and innovation
- Target of reducing the carbon footprint of the U.S. building stock 50 percent by 2035, creating incentives for retrofits and on-site clean power generation

Data centers and connectivity providers will drive the geographic expansion of clean energy sources and data centers will assume a greater role in the composition of microgrids. With energy replacement capabilities reaching utility scale, data centers have the capability to provide power, or shave demand, during peak events. Data centers make a natural choice for developing microgrids and renewable energy.

Distributed electrical microgrid systems, 5G and edge computing will play a role in moving data centers closer to the edge where data is collected and distributed. Decentralized renewable energy and decentralized data will increase speed, capitalize on distributed electric generation and storage, and reduce data speeds and latency.

Moving out of 2020 into the next decade sees the combination of energy, environmental, and edge computing needs to drive a decentralized data center model. Internet infrastructure development into new geographic markets is a certainty. Smaller facilities that rely on renewable energy and capitalize on edge location will proliferate. As this occurs, successful data centers will leverage opportunities to participate in microgrid opportunities and renewable energy opportunities in edge markets.