spending on energy efficiency services will have a meaningful impact on utility load and, thus, will create significant additional lost revenue exposure.

The financial implications of these threats are fairly evident. Start with the increased cost of supporting a network capable of managing and integrating distributed generation sources. Next, under most rate structures, add the decline in revenues attributed to revenues lost from sales foregone. These forces lead to increased revenues required from remaining customers (unless fixed costs are recovered through a service charge tariff structure) and sought through rate increases. The result of higher electricity prices and competitive threats will encourage a higher rate of DER additions, or will promote greater use of efficiency or demand-side solutions.

Increased uncertainty and risk will not be welcomed by investors, who will seek a higher return on investment and force defensive-minded investors to reduce exposure to the sector. These competitive and financial risks would likely erode credit quality. The decline in credit quality will lead to a higher cost of capital, putting further pressure on customer rates. Ultimately, capital availability will be reduced, and this will affect future investment plans. The cycle of decline has been previously witnessed in technology-disrupted sectors (such as telecommunications) and other deregulated industries (airlines).

Disruptive Threats—Strategic Considerations

A disruptive innovation is defined as "an innovation that helps create a new market and value network, and eventually goes on to disrupt an existing market and value network (over a few years or decades), displacing an earlier technology. The term is used in business and technology literature to describe innovations that improve a product or service in ways that the market does not expect, typically first by designing for a different set of consumers in the new market and later by lowering prices in the existing market."

Disruptive forces, if not actively addressed, threaten the viability of old-line exposed industries. Examples of once-dominant, blue chip companies/entities being threatened or succumbing to new entrants due to innovation include Kodak and the U.S. Postal Service (USPS). For years, Kodak owned the film and related supplies market. The company watched as the photo business was transformed by digital technology and finally filed for bankruptcy in 2012.

Meanwhile, the USPS is a monopoly, government-run agency with a mission of delivering mail and providing an essential service to keep the economy moving. The USPS has been threatened for decades by private package delivery services (e.g., UPS and FedEx) that compete to offer more efficient and flexible service. Today, the primary threat to USPS' viability is the delivery of information by email, including commercial correspondence such as bills and bill payments, bank and brokerage statements, etc. Many experts believe that the USPS must dramatically restructure its operations and costs to have a chance to protect its viability as an independent agency.

Participants in all industries must prepare for and develop plans to address disruptive threats, including plans to replace their own technology with more innovative, more valuable customer services offered at competitive prices. The traditional wire line telephone players, including AT&T and Verizon, for example, became leaders in U.S. wireless telephone services, which over time could make the old line telephone product extinct. But these innovative, former old-line telephone providers had the vision to get in front of the trend to wireless and lead the development of non-regulated infrastructure networks and consumer marketing skills. As a result, they now hold large domestic market shares. In fact, they have now further leveraged technology innovation to create new products that expand their customer offerings.