
***2017 Power
and Utilities
Industry Trends***

&

**Managing a
revenue downturn
while meeting
the demands of
consumers**

Contacts

Beirut

George Sarraf
Partner, PwC Middle East
+961-1-985-655
george.sarraf@pwc.com

Chicago

Michael (Casey) A. Herman
Partner, PwC US
+1-312-298-4462
michael.a.herman@pwc.com

Dallas

Tom Flaherty
Principal, PwC US
+1-214-746-6553
tom.flaherty@pwc.com

Todd Jirovec
Principal, PwC US
+1-214-746-6525
todd.jirovec@pwc.com

Düsseldorf

Joachim Rotering
Partner, PwC Strategy& Germany
+49-211-3890-250
joachim.rotering@strategyand.de.pwc.com

Norbert Schwieters
Partner, PwC Germany
+49-211-9812-153
norbert.schwieters@de.pwc.com

Frankfurt

Marcus Morawietz
Partner, PwC Strategy& Germany
+49-69-97167-467
marcus.morawietz@strategyand.de.pwc.com

London

Andrew Clark
Partner, PwC UK
+44-20-7393-3418
andrew.clark@pwc.com

Steve Jennings
Partner, PwC UK
+44-20-7212-1449
steven.m.jennings@pwc.com

San Francisco

Christopher Dann
Principal, PwC US
+1-916-930-8434
christopher.dann@pwc.com

San Jose, Calif.

Brian D. Carey
Principal, PwC US
+1-408-817-7807
brian.d.carey@pwc.com

Tokyo

Kenji Mitsui
Partner, PwC Japan
+81-3-625-1200
kenji.mitsui@pwc.com

Shoji Shiraishi
Partner, PwC Japan
+81-3-6250-1200
shoji.shiraishi@pwc.com

About the authors

Tom Flaherty is an advisor to executives in the electric power and gas sectors for Strategy&, PwC's strategy consulting group. Based in Dallas, he is a principal with PwC US. He focuses on development, corporate growth and M&A, financial management and capital allocation, organizational restructuring, performance improvement, regulatory strategy and assistance, capital allocation, and risk analysis.

Dr. Norbert Schwieters is a partner with PwC Germany. Based in Düsseldorf, he oversees PwC's global power and utilities business. He focuses on general industry and operational issues, risk management, audit, acquisitions, and due diligence projects in the power and utilities industry.

Steve Jennings is a partner with PwC UK and plays a key role in the power and utilities sector practice. Based in London, he has more than 20 years of experience in the sector, including advising on strategic issues as well as on the design and implementation of business transformation programs.

Rhys Kealley also contributed to this report.

Introduction

Everywhere in the industrialized world, the electric power and utilities sector finds itself pulled to economize and pushed to innovate — two goals that might seem to conflict, but that are actually in harmony. The pull comes from a prolonged downturn in consumer energy revenue on both sides of the Atlantic. End-use electricity consumption declined in 22 out of 28 E.U. countries between 2005 and 2014, according to Eurostat. In the U.S., the Energy Information Administration (EIA) reports that the electricity sales growth rate since 2002 has hovered around 1 percent or less per year, and demand has declined in five of those years. That’s a steep drop from growth rates that were well above 2 percent for much of the 1980s and 1990s. The rise in demand for electricity has been consistently lower than general economic growth in recent years.

Revenue growth is almost certain to continue slowing, and, according to the EIA, there may be two more years of decline during the next decade. This outlook reflects clear macro-level trends. The EIA cited a range of causes for the downturn: “Older equipment was replaced with newer, more efficient stock, [and] efficiency standards were implemented and technology change occurred, particularly in lighting and other appliances. The demographic and economic factors driving this trend included slowing population growth and a shifting economy toward less energy-intensive industries.”

Offsetting these trends, however, is a surge in demand for new power and utilities offerings — a surge so strong that the industry hasn’t yet caught up to it. Innovations in power-sector technology, such as new storage battery options and smartphone-based thermostat apps, are advancing at a pace that has surprised developers and adopters alike. Customers are asking for these products. To meet that demand, industry leaders are integrating those innovations into their operations and infrastructure as rapidly as they can.

If your company is in the power and utilities sector, the challenge you face is to close the demand gap and provide value for customers profitably. Do so, and you can expect a future of growth and customer loyalty. Fail, and you may risk being eclipsed by upstart competitors.

Meeting the demand gap

Because of the changes in customer demand, being a leading innovator is a much more compelling strategy than it used to be in the power and utilities sector. Digital technologies are evolving, and customers are quick to adopt them. Both business and consumer energy users are clear about their expectations. They want to reduce their consumption, and they know that technological controls and data analytics can help them do it.

For example, business customers are increasingly interested in managing their energy use patterns. Manufacturers and industrial firms are monitoring heating and cooling equipment performance with intelligent sensors that can indicate malfunctions, anticipate and prevent disturbances, or signal when major maintenance is needed. Owners of commercial buildings are installing energy monitors to help gauge variations in consumption and predict future fuel requirements. Many well-known companies have announced energy efficiency targets for 2020, including Procter & Gamble (powering its plants with 100 percent renewable energy), Walmart (reducing building energy intensity by 20 percent from 2010 levels), and McDonald's (increasing energy efficiency by 20 percent in company-owned restaurants).

Companies pursuing energy efficiency have two long-standing goals — gaining a competitive advantage and boosting the bottom line — and one relatively new one: environmental sustainability. Google, for example, has indicated that it expects to satisfy its power needs entirely from renewables by the end of this year. Adobe has said it would do the same, by 2035. Even if these goals change before they're reached, they will affect business power usage in the short term, demonstrating a significant shift toward renewables.

New energy-related technologies are also beginning to trickle down to the residential sector. To be sure, the initial response to such technology was weak. In a May 2016 [PwC survey](#) of U.K. energy consumers, 72 percent of respondents said they were unlikely to introduce smart-home technology before 2020. They also said they were unwilling to pay for it. But the rapid proliferation of smart-home devices such as Amazon's

Business customers are increasingly interested in managing their energy use patterns.

Alexa and Google Home could change consumer attitudes more quickly than expected. The same survey, for example, found that 81 percent of people with smart heating devices noticed a positive effect in the daily running of their home.

Another [recent study](#), in which PwC surveyed industrial, commercial, and public-sector energy users in the U.K., found an even higher level of interest. Respondents indicated that they trusted utilities to deploy smart-building solutions in their business over and above all other vendors, including engineering and technology firms. Utilities have a limited window of opportunity to engage with this trust and establish their new business models, because rivals from other industries are rapidly building their capability and credibility with customers.

The solution is going to involve “retailization” — a concept described in [Flipping the Switch](#), a 2017 report by PwC on prospects for the utility industry in the United States. Retailization is the development of more direct consumer-to-utility relationships, along the lines of consumer banking or online shopping. Early steps might include real-time mobile and digital experiences, energy efficiency audits, home energy management solutions, and real-time billing and mobile payments. There is some distance to go. In 2015, just 40 percent of customers received outage information directly from their electric utility.

Over time, a broader array of new technologies — battery storage, microgrids, analytics software, and intelligent substations — will find their way onto the retailized power grid as utility offerings. New home and office electric power installations are coming to be known as “gateway hubs,” because they provide not just energy, but security, telecommunications links, and infotainment. These changes are happening, in part, because a group of manufacturers, startups, nontraditional entrants, and venture capital funds are focused on bringing the technology revolution to the utility sector. Power utilities across the sector recognize that their customers expect them to innovate, just as other service providers do, and the old industry boundaries seem much less relevant.

Utilities have a limited window of opportunity to engage with this trust and establish their new business models.

Blueprint for a service-based model

Much of this change will start in the business-to-business domain. As enterprise customers focus on reducing their energy consumption and expanding their mix of options, they are creating new opportunities for power utilities. Energy management is a new competency for many of these businesses, and it requires sophisticated help — of just the sort that an electric power or oil and gas utility can provide. Thus, with an eye on future value, customers are proactively turning to utilities and contracting with them for sophisticated energy management services.

Advances in power-sector technology will ultimately extend to all customers. But at first, utilities will direct their emerging technology offerings toward large commercial and industrial customers. In operational settings — infrastructure, large-scale equipment, industrial platforms, and complex assets — advances in energy management can have the greatest impact on reliability and costs.

Many power utilities already maintain active, expertise-driven energy management programs for customers in these key categories. Unfortunately, however, the utilities may lack the skill sets and resources needed to extend them to a broader customer base. Data analytics capabilities, for example, often receive limited funding owing to overall cost constraints. That's likely to change as analytics' value to utilities becomes more obvious.

To capitalize on this emerging market opportunity, utilities need to move beyond the old commodity-based model in which the primary goals were cost-effective supply acquisition, modernization of industrial process equipment, and total bill reduction. Cost management and basic service will still be important, but they will no longer be central. Power utilities will now need to provide alternative generation sources, energy storage, equipment replacement, sensor-based energy monitoring systems, software-based data analytics, facilities management services, and the infrastructure to back it all up. On this basis, they will expand their customer relationships.

At first, utilities will direct their emerging technology offerings toward large commercial and industrial customers.

Redefining the portfolio

Utilities are used to providing knowledge and services through a single model: the regulated business. And this tradition may not need to change. Many electric power companies can simply expand out from their regulated business model, increasing their portfolio of offerings to include some that are regulated and some not. But even utilities that operate almost entirely in regulated businesses will have to embrace a new, digitally enabled portfolio of offerings. This is the simplest and most direct path to a service capability that will have increasingly high value in the marketplace.

Numerous utilities will find it difficult to stand up this new business, especially if they try to build all the requisite capabilities to scale on their own. For example, many utilities will need to build a sophisticated capability in real-time business model development, incorporating data analytics and pricing strategies to tailor energy-related services to each major customer's interests, and adapting automatically to changing circumstances; others will require a capability in making good use of innovations such as sensors and storage technology. These may be difficult for utilities to develop on their own. An alternative is to adopt a broad partnering approach that leverages the existing market expertise of others — either other power utilities or key suppliers. This partnering approach can be a first step in a new go-to-market model that positions the utility as part of a broader energy platform.

Several large utilities have already employed an inorganic, M&A-based strategy, identifying and acquiring companies that have an existing brand and market position in energy service management. By buying other companies, these utilities intend to leverage established market presence, existing technology expertise, and broader distribution channels to evolve the customer-facing model that they presently employ.

Whether through M&A, partnerships, or both, choosing energy services management as a growth path means evolving from a basic regulated-utility model to one with more flexibility in market participation, offerings of products and services, risk taking, and other factors.

This partnering approach can be a first step in a new go-to-market model that positions the utility as part of a broader energy platform.

This would include more adjustable pricing approaches such as fees-for-service, shared performance gains, and value-based margins. Following an inorganic approach also means shifting from a business model of owning assets and driving return on capital to a model that focuses on product and service volumes that create margins.

Conclusion

The push into emerging energy services will affect more than individual companies. It will reshape the power and utility landscape, favoring utilities that grow beyond their traditional business model to build a market-based technology and related services portfolio. As power utilities make this move, the industry will change around them, in ways that are still hard to predict, in part because the technology is still evolving. Now that customers are interested and see these changes as beneficial, they are ready for a new relationship with energy providers. The primary limit for utilities is their own ability, whether in marshaling their capital, establishing productive partnerships, choosing effective technologies, or bringing to scale the capabilities they will need to thrive over time in this new world.

Strategy& is a global team of practical strategists committed to helping you seize essential advantage.

We do that by working alongside you to solve your toughest problems and helping you capture your greatest opportunities.

These are complex and high-stakes undertakings — often game-changing transformations. We bring 100 years of strategy consulting experience and the unrivaled industry and functional capabilities of the PwC network to the task. Whether you're

charting your corporate strategy, transforming a function or business unit, or building critical capabilities, we'll help you create the value you're looking for with speed, confidence, and impact.

We are part of the PwC network of firms in 157 countries with more than 223,000 people committed to delivering quality in assurance, tax, and advisory services. Tell us what matters to you and find out more by visiting us at strategyand.pwc.com.

www.strategyand.pwc.com

© 2017 PwC. All rights reserved. PwC refers to the PwC network and/or one or more of its member firms, each of which is a separate legal entity. Please see www.pwc.com/structure for further details. Mentions of Strategy& refer to the global team of practical strategists that is integrated within the PwC network of firms. For more about Strategy&, see www.strategyand.pwc.com. No reproduction is permitted in whole or part without written permission of PwC. Disclaimer: This content is for general purposes only, and should not be used as a substitute for consultation with professional advisors.