Energy Consumers Drive the Digital Utility of the Future

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8 ways that energy consumers are driving the digital utility of the future

1. The traditional model for energy retailers will be obsolete.

2. Customers will become “energy experts.”

5. Utility retailers will drive new partnerships with multiple industries.

6. Customers will evangelize their utility.
3 “Living off the grid” will be mainstream.

4 Retailers will rely on new, digital services to bolster revenue and reduce customer churn.

7 Retailers will be actively forecasting supply and demand using new digital tools and systems.

8 Privacy and security will be a growing issue for energy customers.
Introduction

We’re entering an era of massive change in utility retailing.

Fundamental shifts in how utilities are producing and selling electricity, gas and water are taking place, with distinctive differences in each sector. Customers are becoming electric energy producers (or prosumers) with the growing use of distributed generation systems like micro-turbines and solar panels. Across the industry, digitalization is at the top of the agenda. With the wide-scale deployment of smart meters, sensor devices and robotics, the key business issue is extracting value from the resulting deluge of data, and using it to create new offerings and services to the end customer.

This vision paper is part of a series of executive insight papers called CGI Vision 2021 in which we delve into the impact of digital transformation on future business models within different industries.

What will the future look like for a retail utility?

CGI believes there are eight significant ways in which the landscape will begin to change by 2021.
Change #1:

The traditional model for energy retailers will be obsolete.

Globally, energy supplies are diverse and customers are shifting the way they think about their own energy consumption and the relationship they have with their retailer. Yet trends in different regions vary greatly.

In the UK, 50% of current generating capacity retires by 2025 and the country seeks to be a leader in addressing climate change. Both factors are going to fundamentally affect the UK utilities market. The costs of the capacity constraints are only going to increase over the next decade. This will create opportunities to develop distinctly different relationships between retailers and their customers.

Conversely, regions within Canada have excess capacity and so the challenges are fundamentally different. Canadian utilities are asking themselves, “How do we attract more energy users into our area?” and “Do we build inter-connectivity into the U.S. so we can export electricity?”

In France, there has been a single supplier for electricity, water and gas. Now, new market entrants are challenging the status quo.

And perhaps most interestingly, new players from the communications market are trying to leverage their existing customer relationships to gain market share in the retail utility space, which, while highly innovative, seems to be creating confusion for the customer.

It’s a new game for utilities to be broader than their historical business and to try to figure how to capitalize on the evolution of how people will manage energy consumption.
It is a new game for energy retailers who are being forced to re-consider traditional business models and figure out how to capitalize on the evolution of how customers consume energy and want to interact with their retailer of choice.
Change #2:

Customers will become “energy experts.”

Customers are using new technology and information from their utility to track and manage their own consumption. As customers become their own energy experts, they will struggle to figure out the best path forward.

With smart meters becoming more mainstream by 2021, along with the implementation of Time of Use (TOU) rates, how will this change customer behaviors and affect demand? Customers benefit if they shift their usage from high cost periods to low cost periods—even if they use the same amount of energy—to lower their overall monthly bill. But how does the retailer benefit?

In a recent study conducted by the University of Waterloo, Canada,1 an increase in conserving energy was detected by comparing the electricity consumption pre- and post-TOU rates. A 35% reduction in energy usage was found during the first corresponding billing period. Areas with smart meters, without TOU rates but with In Home Displays (IHD), experienced 10-29% reductions. Awareness was the key factor in reducing energy consumption.

An interesting finding is that households with children are more likely to benefit naturally from TOU rates than those without children because children and young people take an active role in energy conservation. When IHD devices have direct links to smart meter data, and are portable, children use them to educate themselves on the power consumption of lights and appliances by turning things on and off and witnessing the power drain. They then became the “enforcers” of conservation, educating their parents and older siblings on when to use one device over another throughout the day.

The socio-economic factors of a household can also have a significant impact on conservation and consumption. Lower-income households and homes with senior citizens appear to have different abilities to shift or conserve electricity. These human factors drive the need to treat customers as individuals rather than as meter points.

This means that the retailer of 2021 will need to bill accurately, as well as understand their customers’ lifestyle, demographics and household makeups. This will be key to having an impact on supply and demand and optimizing their business by matching services and products to customer behaviors. In turn, customers will expect that their retailer is on their side—the side of energy conservation—and will help them understand how to best conserve energy and optimize their personal energy spend. This requires understanding each customer as an individual, communicating with them in the manner they prefer, and having consistency across all channels—with an omni-channel communications capability.

1The Influence of Home Energy Management Systems on the Behaviours of Residential Electricity Consumers (Jeremy Schembri University of Waterloo, Waterloo, Ontario, Canada, 2008)
By 2021, utility retailers will play a key role with their customers by providing the end digital systems, connecting their customers and suppliers, managing home generation, and brokering surplus energy back to the grid.
Change #3:

“Living off the grid” will be mainstream.

Over the long term, low-cost and effective personal energy storage will become a silver bullet for those customers seeking to move off of the grid affordably. Further, as they look for ways to reduce their energy consumption and environmental footprint, there will be a sharp rise in prosumers who are generating and storing their own power. By 2021, “living off the grid” will become mainstream.

For example, peer-to-peer trading could become popular whereby prosumers can sell their energy to their neighbors, at cheaper rates than providers, when away on holiday or even when surplus energy is generated, decreasing reliance on the grid.

People with home energy storage, including connections to their electric vehicles, will be able to draw down power and store it, even when they don’t require it right away. For example, they could fill up their battery when green energy is available and cheap, and then take their house off the grid when energy costs rise.

While details must be worked through, as storage costs start to fall dramatically over the next 4 to 6 years, it is clear there’s a growing role for end users on the network. According to the World Energy Council’s report for 2016, “E-storage: Shifting from cost to value,” the costs of energy storage technologies are forecast to drop by as much as 70% by 2030. The value of storage lies in the ability to provide power reliability, improve power quality and level the load, enable deferral of grid investment, and to create the possibility of price arbitrage for operators.
With low-cost and effective energy storage becoming more accessible, and customers seeking ways to reduce their environmental impact, “living off the grid” is no longer reserved for environmentalists and outdoor adventure seekers.
Change #4:

Retailers will rely on new, digital services to bolster revenue and reduce customer churn.

By 2021, customer relationships with energy retailers will look dramatically different than today.

A retailer’s role won’t just be to bill customers for energy usage. Successful retailers will transcend the role of energy supplier by offering a broader range of innovative services, such as helping people to better manage their consumption, save money and promote energy conservation.

Customers will respond to this service personalization with increased loyalty and evangelism.

Utility retailers will need to be quick to market with reliable, quality-assured services. In competitive markets like continental Europe, greater focus on improving the customer experience is leading to increased revenue and reduced customer churn.

Energy suppliers will have increased opportunities to build more meaningful brands by creating more personalized relationships through engagement on a recurring basis. Today, customers might think only of the brand that supplies their energy when they open their monthly bill. But by 2021 a significant number will experience the brand each time they adjust their thermostat on their smartphone, receive interactive e-bills, and use mobile apps that allow them to take advantage of special pricing or service offers.

As we have seen in other business sectors, better customer experience leads to better business performance. In exchange for loyal patronage, customers will start to demand a two-way engaged relationship with their energy retailer that includes the retailers being visible and responsive on social media. It’s not a far stretch to compare the future relationship between customers and utility retailers to the kind of relationships airlines and consumer products retailers enjoy today.
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Change #5:

Utility retailers will drive new partnerships with multiple industries.

The need to develop new services around smart homes, smart buildings and even smart cities will drive new partnerships with communications providers, environmental associations, customer packaged goods companies, technology firms, other energy providers, and even governments and their dedicated service providers. Some utilities are already launching new subsidiaries to provide combined services with their partners to allow customers to better manage usage, use new apps at home and in the office, and even use their own generation and share it with their neighbors.

This is a shift in the energy value chain. Yesterday, generation was the key point. Today, it is consumption. As people choose their means of consumption, it creates a very different relationship between the customer and their utility providers.

The shift to providing services will mean that retailers will become better at building the value of their brand and having more of a presence in people’s lives—delivering valued, interactive services.

New services are important for another reason: revenue.

Customers are choosing to use less energy and shift to greener alternatives, and it is largely making a difference. Devices and appliances are becoming more efficient, so that even with the plethora of digital devices we own, the average household uses less energy than it did a few years ago. (For example, UK homes are using less energy than 10 years ago, according to 2014 figures from the Department of Energy and Climate Change.)
By 2021, CGI predicts that utilities will become more customer centric, moving beyond the role of energy supplier to offering a broader range of new services that improve customers’ lives.

Market leaders will invest in digital technologies and new services as a way to drive revenue in the face of declining energy consumption.
Change #6:

Customers will evangelize their utility.

A customer’s relationship with their utility isn’t something people normally talk about the way they talk about their favorite retail brands or their bank of choice. But in 2021 this will be common place.

The customer’s smart meter data will be enriched from other sources, including weather data and sensor devices such as Internet of Things (IoT) points in the home and in the network. This will provide predictive price curves to the benefit of both the customer and the retailer.

Customers will be able to take control of their bills and reduce their reliance on more carbon-intensive forms of energy with access to tools to select more sustainable sources. This value-driven shift will provide many customers with the control to actively reduce their energy consumption and bills, which will create engaging talking points in everyday conversation, such as “Look how much I saved this week.”

Retailers will engage with their customers through social media, smart-home devices and in-home displays to share energy consumption tips, outage updates, TOU information, and perhaps other offers and information from service partners. Perhaps retailers will have online loyalty rewards programs to reward energy consumption.

Retailers will also have the capability to answer questions, manage service calls and respond to customer concerns in real-time—because that is what customers will soon demand. In turn, customers will take to social media to evangelize their utility by sharing, posting, liking and more. This kind of customer loyalty and customer interaction will continue to shape new service innovation on the part of the retailer, leading to new revenue streams.

Creative customer engagements that build both loyalty and a bond between the customer and the utility are not limited to just energy savings programs. Some utility retailers already have created clever mobile applications that link a customer’s physical exercise activities to rewards and discounts on their bill. Gaming applications are also being offered to help improve a customer’s mental and physical health, building value where the customer sees that their utility cares about their progress towards a healthier lifestyle. The rewards are the icing on the cake because customers are more loyal to and engaged with the utility at personal level.
By 2021, consumers will be able to take control of their energy consumption through smart meters, smart home devices and mobile apps, making energy conservation a point of pride.
Change #7:

**Retailers will be actively forecasting supply and demand using new digital tools and systems.**

In the near future, greater use of renewable energy sources like solar and wind power will create opportunities as well as challenges at the distribution level. The role of integrated Distribution Energy Renewable Energy Management Systems (DERMS) will impact the supply chain.

The move toward decentralized power generation has produced an uptake in distributed generation, created a shift that affects today’s business models and grid stability.

As operators gain real-time visibility of distributed generation, retailers will also gain a view of available production and may move into other service areas to help manage demand response and a more comprehensive mix of renewable/based services.

Will the retailer of 2021 want to play a role in providing solar roof panels or storage, like the systems recently introduced by Tesla, directly or in partnerships with other providers and communities? Further, how will the 2021 retailer be involved in peer-to-peer energy trading? For example will blockchain become a reality for this industry? There are blockchain solution proposals in play that look to fulfill the local system operator role and perform settlements at the local market level. These proposed new market models are seeking to offer incentives for residential prosumers to share flexibility and to maintain grid connectivity services. They also look to allow the overall energy system to absorb an increasing amount of renewable energy production while operating at the lowest total social costs.

Devices on the edge of the grid will now be capable of executing transactions and making business decisions via machine learning logic. Systems are moving form decentralized to distributed, narrowing the physical distance between end points and business logic. Will there be a role for the retailer to provide the settlement and clearing house services, or will there be new entrants into the system?

The solution will be advanced tools that provide retailers with a forecast of energy demands and surpluses. Further, service excellence will be driven by the use of new robotic process automation, connected to IoT devices and advanced analytics that deliver real-time, end-to-end digitalized benefits to both customer and retailer.

Understanding the consumption impact that improved energy efficiency standards of both buildings and devices is having on demand, retailers will have to seek new opportunities to generate revenue by selling additional services that customers will want, such as automated Home Energy Management (HEMS) solutions that are tightly integrated and provide optimized pricing.

These forecasting tools will enable retailers to predict how much energy will be produced and consumed. If they can see that production will be much higher than consumption, they will be able to provide lower rate offerings to customers via their interactive apps, and connections into HEMS, thus providing a higher level of customer service.
By 2021, CGI predicts that utilities will be able to better forecast energy production and consumption and pass on that information to consumers to guide their energy usage. This information also will lead to new revenue opportunities through, for example, higher pricing for energy usage during the least optimal times.
Change #8:

Privacy and security will be a growing issue for energy customers.

As customers play an increasing role in managing their energy consumption, they will have to decide how much personal data they’re comfortable sharing. From online interactions, billing accounts, TOU information and purchases of new services, energy retailers will be generating useful customer data that will paint a very accurate picture of what goes on inside private residences.

For example, the data generated by smart meters is useful for more than just measuring consumption; it also offers unique insight into how people live, such as when they come home, go to bed, turn on their TV, etc. Retailers will face increased customer demand to protect their personal information and, in some regions, regulators and governments are taking a close look at this and developing and enacting legislation.

Retailers will face increased privacy and security requirements in parallel to increased cyber threats to both networks and physical and logical infrastructure. Utilities will continue to be one of the most cyber-attacked industries with potential dire consequences of knocking a city off-line, wielding significant power for attackers.

By 2021, utilities will have highly connected digitalized systems, will manage increased amounts of personal customer data, and have a wider scope of service partners—all of which makes them far more vulnerable to cyber-attack. They will have invested in robust security to protect their networks, customers and the utility overall.

There are numerous controversial and potentially ethical considerations regarding data privacy. As examples, consumers with smart meters in California have objected when the utility has tried to sell the data, and Canada has enacted specific legislation preventing this sort of information from being shared.

Key legal obligations will continue to increase, for example: retailers will need to enforce legislation such as the exercise rights under Article 8 of the European Convention on Human Rights or Article 12 of the United Nations’ Universal Declaration of Human Rights. Business, security, privacy and legal advances will need to be in place to safeguard the interests of all parties and for the retailer to be compliant with all mandated reporting of any breaches of this legislation. Managing this without violating the privacy of customers will be a delicate challenge for retailers.
By 2021, CGI predicts that increased data collection and sharing through digital technologies, such as smart meters, will create privacy issues for consumers. Market leaders will invest in technologies and processes to maximize data usage without compromising consumer privacy.
Conclusion

Utility retailers are facing a major transition, driving to digitalize their business to take on new services and opportunities. At the same time, customers are finding the retail utility markets confusing and are starting to use emerging third-party comparison sites to filter through the complexity and figure out what is best for their needs.

Many of the 2021 retailers will learn from other digital and deregulated industries like communications, and even forge new partnerships with emerging and non-traditional companies while fending off new competitors that are built for end-to-end digital transactions.

Market leaders will embrace digitalization, not just as an enabler, but as a driver of change toward new digital business models focused on the customer and operational excellence. They will take a holistic view of their operations to exploit market opportunities and adapt to change agile way.

Transforming the retailer of 2021 could seem like trying to feel your way through a thick fog. Developing a differentiating approach to serving your customers will require some experimentation and innovation.

If you want to learn more and continue the conversation, please contact us at: info@cgi.com.
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