



Energy As A Service

As the energy landscape has continued to change, retail electricity providers have been pursuing strategies designed to meet the ever-growing, ever-changing demands of customers. This has required us to reassess the relationship between energy and those who consume it, which in turn has fostered an equally important reconsideration of the traditional power system.

In their search for better, smarter ways to navigate the energy economy of the future, some companies have begun to adopt the “Energy as a Service” (EaaS) model, which seeks to offer innovative options for taking more control of electricity consumption. In addition, ENGIE has taken this model a step further to better ensure that customers are central players in efforts to control costs, assure adequate supply, and reduce the carbon footprint associated with generation.



What Is Energy As A Service?

Energy as a Service emerged in response to an energy market that is growing more and more complex by the day. At its most basic, **EaaS** can be defined as a model that applies innovative technology and data management in ways that give customers more control over how much power they use and what they spend for it. This approach represents a significant shift from the traditional paradigm, in which electricity providers focused solely on “selling electrons” and helped customers manage the associated price risk – but not quantity risk.

This change in part can be attributed to a utilities market whose dynamic is “growing increasingly uncertain,” according to a study commissioned by ENGIE Resources, leading the industry to a future that PricewaterhouseCoopers said is “technology-enabled” and “customer-engaged.” As a result, PwC predicted, providers may have to integrate innovative technologies,

data management, and related services into their strategies if they are to remain competitive. These services are generally held to include customizable pricing and cutting-edge energy management options.

Ecova, a company that provides cost, data, and energy management solutions, represents an ideal example of the benefits of blending information and technological innovation to create value that underscores the goals of EaaS. It has identified \$2.7 billion in business client savings through strategies for increased cost savings and enhanced operational efficiencies, and its analytics-driven demand-side management services have produced lifetime energy savings for utilities of 150 terawatts.

Researchers have identified multiple factors that are fueling the move to EaaS. These include price volatility, rising costs, the emergence and growing potential of renewables, concerns over sustainability, and the availability of more data and better

ways to analyze it. But perhaps the biggest driving force is customers, and a shift in focus away from centralized generation and distribution and toward what we at ENGIE call the fringe of the grid – the homes, offices, plants, and businesses where consumers actually use power. This is requiring companies to think differently about how they view consumption and to educate customers to do the same.

A 2017 report from Navigant Research that looks at EaaS from the perspective of the commercial and industrial sector underscores the customer’s role:

Many C&I customers are now seeking clean, efficient, flexible, and low cost energy solutions that enable them to meet sustainability goals while reducing operating costs. To meet these needs, C&I customers are moving to distributed and renewable energy resources... To achieve (their) goals, minimize spending, and optimize operations, customers are more interested in controlling their energy use.

In sum, the EaaS model emerged to address some of the critical questions that are at the forefront of today’s conversation about the energy future.

Where will power be generated, and who will be responsible for its production?

How can commodity price swings – and the resulting monthly bills – be better managed?

How can technology and data be applied to manage the challenges of supply security and price volatility?

What is the environmental impact of generation and how can it be reduced?

ENGIE Resources is undertaking an initiative called the Energy Revolution whose objective is to address these questions. But we are also seeking to broaden the EaaS model in order to better position the company to deliver

innovative solutions that help create a better world for our commercial, industrial, and residential customers. In doing so, we can ensure that any of our customers’ challenges looming on the horizon can be overcome, and that any

opportunities emerging in the future can be maximized. (For more on this introduction, please see our articles on the Energy Revolution at www.engieenergyrevolution.com.)

The Eight Problems Solved by EaaS

As noted above, EaaS at its core applies technology and innovation to give customers more control over their consumption, creating a simpler energy economy and providing a greater sense of energy and financial security to all stakeholders. Like the Energy Revolution, one of its primary goals is to help customers manage their usage – and, ultimately, what they pay for power. The ENGIE initiative goes further, however, by seeking to partner with them to assure a reliable supply and to reduce the carbon footprint associated with generation.

In advocating for a new power system, EaaS focuses on eight key elements, all of which ultimately seek to reduce or eliminate concerns about price and usage consumption by putting control back in the hands of the customer.

What follows is a brief discussion of each topic.

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The Eight Problems Solved by EaaS



01

Rethinking What Constitutes Value for the Electricity Market

For some time, energy providers have defined “customer value” in ways that are more about their bottom line than about customers. For example, they have bundled services, such as home security or HVAC maintenance plans, or offered low introductory rates. But the former is designed to bind customers to the provider, and the latter is a way to attract customers before raising their rates. While both tactics may deliver some short-term value, providers accrue the longer-term value by virtue of the fact that they grow and retain their consumer base at a lower cost.

ENGIE proposes a different model of customer value. We concentrate on the three basic demands of customers – machines, climate control, and the full use of life’s modern amenities – rather than on non-core offerings or temporary discount rates. But where we diverge from the current power system is that we make customers a key part of the equation by enabling them to satisfy those three demands in a way that is environmentally responsible, offering simple decision tools, simple contracts, and products and services that take the stress out of daily energy needs. In other words, we redefine value as a customer-centric benefit in which consumers partner with providers to ensure that they get the power they need, when they need it, at a reliable price, without interruption, with a smaller carbon footprint, all while doing it in a non-intrusive, reliable manner.

02

Conjoined Price and Quantity Risk

In putting customers at the center of the new electricity equation, we also seek to shift the emphasis of providers. Historically, suppliers have focused on helping customers manage price risk – the monthly bill. But today price is no longer the sole concern of users. What’s more, other market participants – from regulators to grid operators – are also faced with challenges that go beyond price alone. To successfully navigate the future, providers must reconsider their relationship with customers – and customers’ relationship with energy.

Rather than simply helping to manage price risk, providers now have a responsibility to help customers manage quantity risk – how much power they use and when they use it. By partnering with individuals and businesses to reduce consumption when it’s most expensive, or use power when it’s least expensive, providers can help them manage price. At the same time, they can ease stress on the energy infrastructure – especially the grid – and thus reduce the need for expensive plants, lines, and wires whose costs customers would ultimately bear.

Adding this second dimension creates orders of complexity that can overwhelm many customers. That is why a successful EaaS model provides automated levels of control, guaranteed optimization of outcomes, and the peace of mind that your electricity supplier is working in your best interest.

03

Decentralization of Generation

The traditional power system has been built on a model in which electricity was produced at a centralized location (the power plant) and then delivered to end users over a complex system of lines and wires. When additional capacity was needed, more plants, lines, and wires were built, ultimately at ratepayer expense. But under the Energy Revolution, power would be generated at the point of consumption – behind the meter or on the fringe of the grid.

Rather than large-scale production, this emphasizes use of a large number of small-capacity units, each of which is connected to the grid, natural gas supply network, or urban heating/cooling networks to generate power from renewable sources at the local level. In that this model is built around renewables, it is more environmentally friendly and provides users more control over what they consume, and when and how they consume it.

The best EaaS models are able to account for the differences in generation type and location, and they are able to optimize for efficiency – without impacting the customer in any material way.

04

Digitization of Information

In the current power system, the flow of information is largely one way: Customers have some idea about their consumption habits – largely from the monthly bill – but do not have the expertise to assess its value. Under the EaaS and the Energy Revolution, however, that flow goes both ways. If providers can somehow access and analyze this information, they can in turn develop products and services that deliver greater value by being more responsive to customers' particular usage patterns. The key to this is digitization of data. Converting complex real-time information received from customers into a digital form enables it to be more easily retrieved, shared, and acted upon.

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05

Innovative Technologies

EaaS and the Energy Revolution share a clear commitment to technology. As PwC noted, EaaS is “technology-enabled” and “customer-engaged,” while the Energy Revolution seeks to use innovative technologies to engage customers to view their relationship with electricity differently. Some of that technology currently exists in the form of rooftop solar, smart thermostats, and battery storage. But providers must leverage the potential of those options with newer technologies that provide for the sharing and digitization of information referenced above. The concept is not new. United Parcel Service introduced “track and trace” in the 1990s, improving the customer experience while enhancing its own performance.

Given the fact that an estimated 50 billion new machines are expected to be unveiled by 2020 – further expanding the Internet of Things – there will be multiple opportunities to adopt technology that will allow the capture of relevant energy data. What's more, there is an audience for this kind of innovation: A survey of 700 enterprise service buyers by the global business consultant Accenture found that 96 percent believe intelligent data has an impact – and often a significant impact – on their businesses.

An ideal example of what technology can do for large companies can be seen in Cisco Systems' 2015 deployment of 1,500 energy and temperature sensors on its manufacturing equipment. The company reduced its power consumption by 30 percent, saving \$1 million annually.

06

Security of Supply

Although EaaS, to some degree, considers the need for supply security, the Energy Revolution takes a more direct approach, providing a blueprint for ensuring that customers have the power they need, when they need it, without the threat of blackouts. Service interruptions are a significant risk because of two key factors. First, the U.S. power grid is becoming increasingly stressed; it is a 20th-century system that needs to be modernized to handle 21st-century challenges. Second, the pressures on this aging network are increasing; electricity demand rose 10 percent in the past decade, and the Energy Information Administration has forecast that total electricity sales to commercial, industrial, and residential customers will rise 0.7 percent per year through 2040.

The Energy Revolution offers a solution to these issues by empowering customers to be a part of the solution. By providing information to help them make better decisions about how much power they use and when they use it, it can play a significant role in cutting usage, as was demonstrated in the Cisco example. As more and more customers use less and less power, the strain on the power infrastructure will begin to ease. That will help ensure a dependable, reliable supply of power and mitigate the potential for outages during times of peak demand.

07

Reduced Environmental Impacts

The EaaS model does not explicitly address the need to minimize the carbon footprint of power production. The Energy Revolution does. By enlisting customers in efforts to manage how much power they use, it effectively reduces consumption. The less the consumption, the less electricity that needs to be generated. As a result, current plants burn less fossil fuel to produce power, and fewer fossil fuel-fired plants need to be built. That significantly reduces emissions associated with generation, thus shrinking the carbon footprint associated with generation.

08

Easier Integration of Clean Energy onto the Grid

The Energy Revolution also expands upon the EaaS model in another way by making it easier to integrate renewables onto the grid. Regulators and states have often found themselves wrestling with limitations of the existing system: grids often do not have the capacity to accommodate the growing production of power from solar and wind. But because it offers a model for helping customers reduce power consumption without sacrificing comfort or convenience, the Energy Revolution enables more renewable energy to be brought onto the grid and to be more efficiently distributed. This complements efforts to minimize use of fossil fuel-fired generation, further helping to shape a lower-carbon future.

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Conclusion

The ENGIE Energy Revolution embraces the basic tenets of Energy as a Service, and then builds on them. The benefits are far-reaching. Regulators face fewer difficult decisions over the need for expensive new plants and infrastructure, and have options to make more clean power available to more customers. Businesses can better manage their energy spend and prevent monthly price spikes, freeing up more capital for expansion and job creation. Customers can get lower bills, reliable pricing, and supply security.

ENGIE Resources is ideally positioned to make all of this a reality. We're part of a global group of energy companies operating in 70 countries on five continents, where they face a diverse

range of technical, commercial, and regulatory matters. In the United States, we serve commercial, industrial, and residential customers in 14 markets. So we have the breadth, depth, and experience to help build a better world through innovative energy solutions that empower customers to make smarter decisions about energy, helping cut costs, foster a cleaner energy future, and assure a dependable supply of power. By leading the transition to a new conversation defined by a new model of price risk, use, and consumption, we will shape the energy landscape of tomorrow for the good of everyone.



