



White Paper

# Four Paths to Prosperity: Growth Opportunities for Utilities

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## Shareables

- The competition for customers' energy dollars is heating up—utilities around the country are exploring new ways to engage customers by offering new products and services.
- Four paths lead to new growth opportunities, each with their own risks and rewards. Some are a natural extension of the current utility business model, while others represent a greater degree of change and innovation.
- Navigating the universe of potential product and service offerings is challenging—ICF's approach guides utilities toward the highest-potential options.

## Executive Summary

Today's customers are increasingly interested in new energy choices that give them greater control, comfort, and convenience. For utilities, value creation is increasingly driven by anticipating and satisfying these changing customer needs. Customers benefit through greater personalization of their energy experience and utilities can benefit by creating new sources of revenue that can hedge against declining sales growth and other competitive pressures, as well as improve customer satisfaction. Which options are the best fit for a given utility depends on a number of factors, including but not limited to the utility's strategic priorities, regulatory environment, customer base, and existing capabilities.



ICF has identified four pathways for growing revenue through the provision of new customer offerings. ICF works with utilities to evaluate their most promising opportunities using a framework that clearly defines strategic objectives, identifies options that align with those objectives, and screens and prioritizes options based on the metrics that matter most to the utility.

## Satisfying Today's Energy Consumer

Forward-thinking companies, like Amazon and Apple, are changing what customers expect from their service providers, including utilities. Increasingly, customers expect a menu of options that they can customize to meet their energy preferences, whether those are focused on controlling energy costs, improving the comfort of their homes and businesses, promoting environmental stewardship, or other interests. In a world of growing options and market actors, there is the potential for heightened customer confusion and inertia as decisions get more complex and require greater time and resources to vet. Many customers will be left asking, "Who can I trust?" Utilities have the opportunity to be a beacon in a crowded marketplace and strengthen customer trust and loyalty. As that trusted advisor, utilities are well-positioned to be the preferred provider of new products and services, which can lead to new revenue and earnings opportunities.

## Charting Paths Forward

Four basic paths are available to utilities to grow and potentially diversify revenue sources through the offering of new products and services. Exhibit 1 outlines four basic (and potentially complementary) paths and provides example product and service options that fall under each.

### EXHIBIT 1: THE FOUR PATHS

	Examples
Growing Sales	<ul style="list-style-type: none"> <li>Non-road Electrification</li> <li>Electric Vehicles</li> </ul>
Growing Rate Base	<ul style="list-style-type: none"> <li>BTM DER Ownership</li> <li>Utility-side DER Ownership</li> </ul>
Value-Added Services	<ul style="list-style-type: none"> <li>Online Marketplace</li> <li>Enhanced Data Services</li> <li>Connected Homes</li> </ul>
New Lines of Business	<ul style="list-style-type: none"> <li>Lighting Services</li> <li>Home Warranty</li> <li>Vegetation Management</li> </ul>

The relative revenue potential of these opportunities depends on a number of factors, including market demographics, regulatory treatment, and capital availability. At a high level, the highest potential options in the short-term are programs that increase revenue without requiring major capital outlays and are scalable.



Examples include growing sales through beneficial electrification programs and creating new revenue streams through value-added services that expand on current capabilities, such as online marketplaces and connected home programs. Investing in customer-facing assets and launching new lines of businesses typically come with greater regulatory and operational hurdles, but can bring significant benefits when properly executed, including diversification of a utility's business model.

### Growing Sales

Electrification is the key to increasing sales. Termed "beneficial electrification," these programs promote the use of electrically-powered equipment over fossil-fueled equipment across a variety of applications, and can result in improved local air quality, reduced greenhouse gas emissions, and customer cost savings. Electrification programs may utilize excess capacity, improve utility load factor, and increase the sales base over which fixed costs are spread, thus benefiting all customers. Program participants may also benefit from increased productivity, reduced energy costs, and cleaner work environments. Further, as the larger energy supply shifts to low and no carbon resources, the environmental benefits of electrification increase.

Utility electrification programs have progressed well beyond the pilot stage, producing a program model proven across a number of long-running utility programs. For example, ICF has implemented CenterPoint Energy's forklift electrification program in Houston, Texas since 2008.<sup>1</sup> The CenterPoint program, which is largely driven through forklift dealer engagement and training, results in an average of 3.7 MW in load growth per year. Programs are evaluated based on load growth delivered, incremental operating margin and return on investment (ROI). Load growth and operating margin are highly variable based on the size of the program, but ROI is very favorable due to the long life of the installed equipment.

Electric light duty vehicles (EV) also represent a significant potential source of new electricity sales in the long term. A typical EV, at 12,000 miles traveled per year, uses approximately 3,000 kWh/year depending on the size of the vehicle. Utilities are actively promoting EV's through marketing activities such as ride and drive events, employee engagement through workplace charging initiatives, rebates for charging equipment and, in partnership with automakers, vehicle rebate programs.

A key factor limiting the growth of EV ownership is the lack of publicly accessible charging infrastructure. For this reason, utilities are also supporting increased availability of charging equipment at workplaces, retail centers, and public venues. Nationally, the federal government is establishing a network of charging infrastructure along highway systems.

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<sup>1</sup> For more on ICF's work with CenterPoint Energy, see "The Clean Air Technologies Program for CenterPoint Energy" at <https://www.icf.com/perspectives/case-studies/2016/the-clean-air-technologies-program-for-centerpoint-energy>

This effort is being bolstered by Electrify America, a venture stemming from the Volkswagen Clean Air Act civil settlement, which will invest \$2 billion over the next 10 years in Zero Emission Vehicle (ZEV) infrastructure and public education programs. The impact of these initiatives will be greater availability of charging stations which will, in turn, increase acceptance of EV's as a viable light duty transportation choice.

Some of the issues to consider in implementing beneficial electrification programs include promotional practice rules, cost recovery of program expenses, and treatment of incremental sales margins, including where there are decoupling mechanisms in place. For example, utilities are not generally permitted to recover costs to advertise or promote electric use, particularly in cases of fuel switching. The most common exceptions to this rule are customer education and participation in energy efficiency or demand management programs.

We are beginning to see utilities in progressive jurisdictions recovering costs for promotion of electrotechnologies where they have been shown to provide environmental benefits and meet cost-effectiveness tests such as the Rate Impact Measure test. Where a state's DSM rules define energy efficiency and conservation in a way that is incompatible with electrification, electrification programs are typically paid out of operating expense budgets and can be funded below the line.

### **Growing Rate Base**

One of the primary ways utilities create shareholder value is by investing in assets and increasing the rate base on which they earn their authorized return. New customer offerings that allow for utility ownership of program assets, such as owning a community solar array or distributed energy resources (DER) offered as part of a customer program, provide an opportunity to grow rate base and increase earnings. This is likely a greater opportunity for vertically integrated utilities, as they typically face fewer restrictions on asset ownership compared to utilities in states with retail competition, where there may be rules prohibiting utility ownership of generation assets and/or prohibit utility ownership of assets behind the customer's meter. Where not prohibited, the potential advantages of diversifying utility asset bases to include distributed generation and other DER must be balanced against the potential for anti-competitive behavior that will limit market growth, slow innovation, and disadvantage other competitors. Local market conditions impact the potential risk of competitive issues, with the greatest concern present in areas with existing broad and robust competitive markets in which the utility would directly compete. Similarly, policy considerations may come into play. For example, states with aggressive renewable energy goals or other policy mandates may leave all options for increasing renewable energy adoption on the table, including utility ownership where it serves the public interest.



Similarly, some states with retail competition are exploring exemptions to this policy to meet specific needs, such as supporting grid reliability and resiliency or filling gaps in the market, such as low income communities. Other considerations are cost-competitiveness with third parties and the willingness of utilities and regulators to accept the risk of cost overruns and market and technology change.

Utility-owned assets can be located in front of the customer meter (on the utility's side) or behind the meter (BTM). Some examples of asset-based technologies that can be considered for utility ownership include rooftop and community solar, smart inverters, energy storage, microgrids, and combined heat and power (CHP). An example of utility ownership of customer-sited equipment is utility ownership of onsite CHP systems. Working with SoCalGas, ICF completed a market study to examine the CHP technical potential of over 10,000 sites within the SoCalGas service territory.<sup>2</sup> The study helped SoCalGas develop an innovative business strategy to offer enhanced CHP services to customers, including the option of having SoCalGas build, own, and operate CHP equipment on a customer's site. To support this business approach, SoCalGas requested (and received approval of) a new tariff to offer CHP as a service to an individual customer with the CHP investment added to SoCalGas' rate base. While the business case is more straightforward for gas utilities, which will sell more gas, CHP represents an opportunity for electric utilities as well. In many states, electric utilities can treat CHP investments as rate-based supply assets, the same as any other supply-side investment. With utility ownership of a CHP asset, the utility earns on the invested capital and continues to serve the full customer electric load, without the loss of revenue that occurs when a customer invests in CHP.<sup>3</sup>

#### EXHIBIT 2: POTENTIAL ADVANTAGES OF UTILITY OWNERSHIP

- Leverage experience planning, constructing and operating long-lived assets
- Gain operational experience with new technologies on the grid ("learning by doing")
- Diversification of utility resource portfolio
- May allow for modularity of supply investments, as complement to centralized generation
- Reduced financing costs due to lower cost of capital
- Placement at strategic locations on the electric grid
- Operate assets to optimize system operations and maximize system benefit
- Greater customer confidence and protection from confusing or misleading marketing
- Reduced marketing and customer acquisition costs
- Expand technology access to low and moderate income and other hard-to-reach customers

<sup>2</sup> For more on ICF's work with SoCalGas, see "Unlocking Your CHP Potential" at <https://www.icf.com/perspectives/white-papers/2015/unlocking-your-chp-potential>

<sup>3</sup> For more on the Utility CHP Ownership model see ICF's white paper, "Utility Owned CHP: A Least-Cost Baseload Resource" at <https://www.icf.com/perspectives/white-papers/2017/utility-chp-ownership>

Investing in assets that enable new options for customers can benefit utilities and customers, including currently under-served populations. Third parties can benefit as well when the utility serves as a market catalyst and/or relies on third party installers to implement the program. While there are regulatory and policy hurdles, there are circumstances that may support utility ownership, including but not limited to:

- Limited/no market development
- Low consumer awareness and acceptance
- Opportunity to target low-income communities
- Access to lower cost capital
- Ability to leverage existing utility property and/or infrastructure
- Ambitious energy policy goals

### Value-Added Services

Value-added services are specialized services provided to customers and/or third parties in exchange for a fee, revenue sharing mechanism, or other financial benefit. For this paper, the emphasis is on services that are an extension of a utility's regulated operations and are provided through the regulated business, though offering the service through a separate, unregulated entity may be preferred depending on the utility's particular situation and priorities. Often, value-added services leverage existing marketing channels and related IT systems and back office support to effectively target customers and streamline the utility's service offering. These same resources can be used to provide value-added services to third parties, who can use this data to inform their business strategy and reduce customer acquisition costs. In addition to leveraging a utility's data, utilities can leverage their experience designing and installing electric infrastructure to provide turnkey projects, such as installation of CHP or microgrids at customer sites to improve reliability. Other examples of utility product and service strategies are online marketplaces and connected or smart home offerings.

### Online Marketplace

With 8 out of 10 Americans now shopping online,<sup>4</sup> online marketplaces are gaining in popularity as a vehicle to add to revenue and provide another touchpoint to build engagement, satisfaction, and trust along a customer's energy journey. Most utility marketplaces have their start in lighting catalogs (think specialty light bulbs) and online fulfillment. They have advanced since those days, but the market has characteristics of still being in the early stages, including a rather fragmented and complex vendor landscape comprised of different providers, different fulfillment vendors, different software platforms, etc.

<sup>4</sup> Smith, A., & Anderson, M. (2016, December 19). Online Shopping and E-Commerce. Retrieved June 17, 2017, from <http://www.pewinternet.org/2016/12/19/online-shopping-and-e-commerce>



Additionally, most of the products available through marketplaces are limited to incentivized energy management products. Long-term, we envision the marketplace expanding to play a role as a centralized hub that serves a wide variety of product and service needs for customers, which can also increase the revenue generated through the marketplace.

Existing online marketplaces vary in their scale and scope. An example of a larger online marketplace is ComEd's Marketplace, which sells lighting products, smart thermostats, and other connected home devices. The site applies instant, point-of-purchase rebates, offers integrated customer support, and end-to-end fulfillment, including free shipping on qualifying orders.<sup>5</sup> During a Black Friday and Cyber Monday promotion in 2016, thousands of customers visited the site, resulting in nearly \$1.3 million in sales volume.<sup>6</sup>



### Connected Home

The growth of the smart home market provides an opportunity for utilities to generate new revenue streams by offering customers home automation and related services. ICF is working with utilities to introduce new offerings based on the installation of smart home devices connected to a universal app that provides automation, energy monitoring, preventative maintenance and protection alerts. The app becomes a new channel for utilities to reach customers and leverage insights to provide a richer and more personalized customer experience and potentially increase energy and demand savings captured through the DSM portfolio. These programs are typically easy to scale and can generate revenue for utilities through equipment margin, monthly fees, and referral fees.

The decision to offer a value-added service through the regulated business or an unregulated subsidiary depends on a number of factors, including but not limited to strategic priorities, risk tolerance, regulatory policy, legal considerations, and stakeholder input. When these programs are implemented through the regulated utility, the regulatory treatment must be addressed. For example, regulators must determine what portion of the net revenue can be retained by the utility as a contribution to earnings. Depending on the regulatory commission and particular request, this can range from 0% to 100%. It is common for regulators and consumer advocates to argue that revenues that are derived using assets and resources funded by ratepayers should be returned to ratepayers. One counter-argument is that it is in the public interest to incentivize utilities to take actions above and beyond their core responsibilities that can result in incremental customer benefits and support a sustainable business model for utilities.

Finally, it is worth noting that the concept of value-added services is related to the emerging and evolving concept of the utility as a platform, with the distribution grid serving as the interface between the utility, customers, third parties, and the wholesale market. In this role, the utility would serve a market enablement and value creation function—facilitating new third party products and services, connecting buyers and sellers, and enabling market transactions, including selling grid services into the wholesale market.

<sup>5</sup> <http://www.businesswire.com/news/home/20161128005955/en>

<sup>6</sup> <http://simpleenergy.com/huge-success-for-comed-marketplace/>

Ride-sharing services like Lyft and Uber, Airbnb, and Amazon Marketplace are often cited as examples of the platform model in other industries. A utility can earn revenue under this model by charging access fees or transaction-based fees, with revenue increasing as more parties transact on the platform. Utilities may also form unregulated subsidiaries to participate in the market and transact on the platform. Online marketplaces may be a first step in the direction of a platform model. However, full manifestation of the utility as a platform would require significant grid modernization investments and regulatory and rate reform to align a utility's revenue and business model with the new role and ensure a level playing field.

### New Lines of Business

Some utilities are exploring and opening new lines of business, such as solar and DER installations, appliance servicing and repair, home warranty services, vegetation management, real estate services, and outdoor/security lighting. These services are typically offered through an unregulated affiliate subject to code of conduct rules to ensure a level playing field. As an example, Duke Energy provides home protection plans as market-based, unregulated offerings, which include but are not limited to home wiring repair, surge protection plans, and HVAC repair.<sup>7</sup> Other examples of utilities offering competitive products and services through unregulated affiliates include Exelon (Constellation Energy), Edison International/Southern California Edison (Edison Energy and SoCore Energy, among others), and Southern Company (Southern Power). Additionally, several utilities are currently investing in technology companies and/or forming strategic partnerships with third parties. For example, American Electric Power (AEP) invested \$5 million in the energy storage software provider Greensmith and is partnering with them on an energy storage system in West Virginia.<sup>8</sup> Ameren, National Grid, Southern Company, and Xcel Energy, have teamed with Energy Impact Partners—a private equity and venture capital firm—to invest in innovative energy technology companies.<sup>9</sup> Aside from investment returns, partner utilities can benefit through enhanced visibility and understanding of the emerging technology landscape and identifying potential partnership or pilot opportunities.

As mentioned above, code of conduct issues are typically front and center when proposing competitive services. These rules are intended to prevent utilities from using their position as a monopoly energy provider to create an unfair competitive advantage and often involve, at a minimum, creating a Chinese wall to prevent information sharing between regulated and unregulated entities. Additionally, it is often necessary to demonstrate that resources paid for by customers of the regulated entity are not used to support the unregulated business.

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<sup>7</sup> <https://www.duke-energy.com/home-and-energy-services/home-services>

<sup>8</sup> <https://aepsustainability.com/energy/technology/storage.aspx>

<sup>9</sup> <http://energyimpactpartners.com/>



## Ready...Set...Prioritize

Which path is best for a specific utility will depend on several factors, including strategic priorities, risk tolerance, regulatory environment, current resources and capabilities, and service territory characteristics, among others. Finding and selecting the best path starts with a framework for evaluating and ranking the options and identifying potential risks, as well as producing realistic projections of expected earnings. ICF developed a framework to help a utility think proactively and strategically about how it can enhance the customer experience through the addition of new customer programs, while also improving the bottom line. Starting with a list of approximately 25 potential options, ICF helped the utility narrow the list down to the choices with the greatest potential and completed a more detailed assessment for each, thus enabling the utility to advance to the next stage of decision-making. The most promising of those options are currently the subject of more detailed market assessment and pilot program design. Through this work, ICF was able to formalize and accelerate the utility's decision-making process, allowing it to move more quickly to implementation.

## Conclusion

The utility industry is continuing its move away from a commodity-based business toward a customer-centric model that seeks to uncover new sources of value for customers. For many utilities this requires a reassertion and strengthening of their role as a trusted energy provider and enabler of choice. By aligning customer value with utility value through the offering of new utility products and services, utilities can establish a sustainable framework that helps them adapt to industry trends and capture new strategic growth opportunities.



**About ICF**

ICF (NASDAQ:ICFI) is a global consulting and technology services provider with more than 5,000 professionals focused on making big things possible for our clients. We are business analysts, policy specialists, technologists, researchers, digital strategists, social scientists, and creatives. Since 1969, government and commercial clients have worked with ICF to overcome their toughest challenges on issues that matter profoundly to their success. Come engage with us at [icf.com](http://icf.com).

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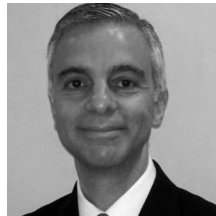
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**About the Author**

**Carolyn Brouillard** has over 10 years of experience supporting transformation in the energy sector. She spent nine years in policy, strategy and regulatory roles at a major U.S. electric and natural gas utility, where she advised on a broad range of industry issues, including alternative regulation, grid modernization, and solar policy and programs. Ms. Brouillard has an MBA from the University of Minnesota and undergraduate degrees in Environmental Studies and English from the University of Colorado.



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**Bob DiBella** has over 25 years in the energy industry as an energy auditor, project manager, consultant, and product manager. He has in-depth experience in energy engineering for utilities and their customers. Prior to joining ICF, Bob led product management and business development at Aclara Technologies where he was responsible for utility consumer engagement solutions. Bob was also a project manager at XENERGY Inc. (now DNV-GL), where he was responsible for major projects involving residential/small commercial audit programs, large C&I energy efficiency studies and development of software tools.



**Patricia D'Costa** is a Distributed Energy Resources (DER) Analyst at ICF within the Energy Advisory Services group. Her research is focused on grid modernization efforts across the United States, including DER policies, technologies, and innovative utility business models. She has advised utilities, organizations and agencies on best practices for DER evaluation and integration into the grid. D'Costa holds a B.S. in Industrial Engineering and M.S. in Energy Systems from Northeastern University.

