LEADING ENERGY TRANSITION IN TOUGH TIMES

How utilities can recharge energy customers for sustainable growth through COVID-19 and beyond
As COVID-19 increased its geographic spread in February, the immediate priority for utilities in Europe and North America was uninterrupted power delivery, both for the sake of their own business and for society at large—especially hospitals and other critical installations. It was essential they ensure their workers’ safety while maintaining grid security, and facilitate smooth operations amid on-site restrictions, lockdowns and physical-distancing regulations. Cash flow and balance sheets took a hit as the pandemic dampened industrial power demand, froze some energy services—such as energy-efficiency measures, asset management, and distributed energy resources (DERs)—and increased customer defaults.

Today, as lockdowns start to ease and economies progressively reopen, utilities are shifting their focus to medium- and longer-term challenges. Specifically, executives are mulling how to manage and accelerate energy transition in a post-pandemic world. The biggest risks are the shifting priorities of customers, governments and businesses caused by factors including new investment priorities, reduced income or job losses, anxiety about health and healthcare expenses, and restrictions on economic activity.

What's promising in the aftermath of this crisis is that a substantial number of stakeholders—utility consumers, executives and employees, policymakers and governments—continue with, or even reinforce their support for energy transition. Clearly, they recognize climate change as one of the world’s most pressing issues, one which can only be addressed by a collective move to cleaner energy and more efficient use of resources.

Our research bears this out.

In June, we surveyed 1,400 consumers across the United Kingdom, France, Germany and the United States. We wanted to gauge their preoccupation with economic and health issues and ascertain any shifts in their feelings and behaviors regarding climate change. We also conducted in-depth interviews with executives from major utilities in Europe and North America, to assess the industry’s readiness for the necessary actions to continue with energy transition. To this mix, we added secondary research and extensive literature review to corroborate our findings and insights.

The good news: Most consumers are more concerned today about the impact of climate change on the environment than they were pre-COVID. And many remain ready to invest more in energy efficiency than before the pandemic. However, a lot of people have also kept their environmentally friendly purchases to a minimum during this time—and will decrease spending on these products should their household income fall, say, as a result of layoff or furlough.

In our prior May report, "A Fragile Time for Sustainability," we examined the immediate effects of the pandemic on the energy transition, foreseeing four possible future scenarios. Our forecast assumed varying levels of government “push” to promote green initiatives, along with the extent of customer willingness to support and participate in such initiatives.

In this current report, we look deeply at consumers’ stated intentions and actual actions toward energy transition—recognizing that there is a gap. Around 60% of the consumers surveyed said they had become more aware of climate change and its environmental impact since the start of the outbreak, even as 43% said they have currently minimized their personal spending on climate change actions.

We explore the extent of this gap in scenarios unfolding at a varying pace across different regions. And we recommend that closing the gap rests squarely on government incentives and utility outreach. Both must persuade and assist energy consumers to continue to invest in energy transition—not only because it is the right thing to do, but also because it makes economic sense in view of the current cost competitiveness of renewables and energy efficiency.

“Utilities can help reimagine customer experiences, delivering intelligent clean-energy and energy-efficiency solutions, supported by realistic financing solutions, while taking on the risk for their successful deployment and outcomes.”

Bruno Berthon
Accenture Strategy Utilities Global Lead
According to our research, utilities that redefine their relationship with energy consumers at this time of unprecedented global crisis are much more likely than their peers to see a successful, sustainable transition to cleaner resources and energy efficiency. No doubt government support and consumer engagement play crucial roles in achieving the outcome. This approach calls for three key steps to handling the unexpected hurdle for energy transition presented by the pandemic:

1. Collaborate with energy consumers, develop a selective portfolio and invest in a resilient core business.

None of this will be easy. Utilities—even prior to COVID—were already dealing with the challenges of digitalization and the need to invest in the network of the future, with a focus on driving all capital expenditure (CAPEX) to operational expenditure (OPEX). However, those that continue with their focus on reimagining customer experiences will be more successful in accelerating their energy transition.
Government Support is Crucial

COVID-19 Slows Down Parts of Energy Transition

Consumers Need Adequate Support for Action

Utility Concerns

Reactivating Post-COVID-19 Energy Consumers

Moving Forward with Energy Transition
GOVERNMENT SUPPORT IS CRUCIAL

Government stimulus can leverage or even resuscitate energy transition during crises. For instance, a year after the 2008 recession, stimulus spending by the U.S. government, including the Advanced Technology Vehicle Manufacturing loan program, supported emerging cleantech companies such as Tesla Inc., which is among the world’s most valuable automakers based on market capitalization.¹

With this global pandemic, governments have been caught up with immediate priorities, such as protecting small- and medium-size companies from bankruptcy, and few have announced continued direct support for clean energy initiatives. Right now, it’s difficult to tell just how much stimulus money will eventually flow into climate solutions. The U.S. Congress is discussing the components of a “Phase 4” stimulus package that, according to media reports, could include initiatives such as extensions of the investment tax credit (ITC) for solar power and other clean technologies, an extension of the production tax credit (PTC) for wind power, and the temporary conversion of these programs to a direct tax refund.²

China has published an ambitious slate of energy-efficient infrastructure goals, but it has also rolled back regulations on coal plants. Europe looks more promising, with governments stepping up either through the EU or on their own to fund significant green programs as part of economic stimulus and recovery packages. Some examples of this approach include the new €560 billion Recovery and Resilience Facility launched by the European Commission in June 2020, and an additional Strategic Investment Facility built into the Invest EU program, which is intended to activate private sector investments worth up to €150 billion.³

That energy efficiency can drive job creation and stimulate the economy is underscored by the International Energy Agency’s (IEA) June 2020 World Energy Outlook Sustainable Recovery Plan, published collaboratively with the International Monetary Fund.⁴ The Recovery Plan sets out 30 actionable policy measures that would create, or save, 9 million jobs per year from 2021 through 2023—boosting global economic growth by 1.1% per year, and reducing energy-related emissions by 4.5 billion tons. Of the new jobs, 35% could be created through energy-efficiency measures, and one-quarter in power systems—particularly wind, solar and the modernizing of electricity grids. The price tag: a $1 trillion investment over the next three years.

Key investment areas include retrofitting and technology replacement programs, energy-efficient cooling, heat pumps, grid upgrades and the redesign of electricity systems, both in terms of technologies and business models.

For example, the UK’s latest round of stimulus announced in July includes energy-efficiency incentives in a $3.8 billion green investment package, which is also estimated to support around 140,000 jobs.⁵

“It is great to see the U.K. government recognizing the potential of the zero-carbon transition and energy efficiency within its stimulus plan, something which will drive employment across a sustainable U.K. supply chain. These investments will enable the modernization of energy infrastructure across a broad range of U.K. government assets that will ensure a greener future for our public services.”

Andy Witchell
Director of Strategy and Development, Public Sector, ENGIE UK
In May, France unveiled a stimulus plan worth €8 billion for their auto industry, which included higher subsidies to motivate potential buyers of new electric and hybrid cars. The French government also plans to renovate 500,000 homes every year to make them energy-efficient and cut heat loss, power consumption and carbon emissions—a key pledge among President Macron’s electoral promises. These examples show that efforts aimed at creating jobs and revitalizing economic activity at local levels could be a big lever for energy efficiency and distributed energy, since these industries depend on localized services and manufacturing capabilities. First, however, there must be adequate government financing available for such efforts.

Some government measures, though—such as mobility restrictions amid the pandemic—actually reduced the use of public and private charging points and may have slowed adoption of electric vehicles (EVs), especially among residential customers. Such a slowdown is likely to be offset by the automotive support measures that tend to favor EVs over gasoline or diesel cars. Government incentives are especially crucial when it comes to big-ticket purchases such as rooftop solar or EVs, which require hefty upfront investment. Tax credits or other incentives could go a long way in persuading those customers who say they disagree with, or aren’t sure about, increasing their environmentally friendly purchases post-COVID (more than one in five customers, our survey reveals).

For business customers, while there is still significant uncertainty regarding the likelihood and/or extent of government support, there is also regional and industrial variability in how governments allocate resources. For example, the European Commission funding program for eMobility includes a target of 1 million EV charging points by 2025. The European Commission has signaled that it also intends to invest in technologies it views as keys to the green energy transition, highlighting renewables, energy storage, clean hydrogen, batteries, carbon capture and storage, and sustainable energy infrastructure.
Utilities’ revenues from sales of electricity and energy services have been and continue to be affected by slowing demand, from both B2B and B2C customers. And the latter will likely indirectly influence investments by the former in the long run.

For B2C customers, there is no doubt COVID-19 has dealt a blow to their finances and spending plans. While the Organisation for Economic Co-operation and Development (OECD) notes “sharp contractions in the level of output, household spending, corporate investment and international trade”—and cites the difficulty of tracking changes in a wildly dynamic environment—it estimates that by May 2020, consumer spending had dropped by approximately one-third, much more than in the global financial crisis of 2008-2009. In addition, there has been a shift to more urgent needs, as highlighted by a recent Accenture survey showing consumer spending priorities moving toward areas such as “personal health” and “food and medicine safety” during the crisis. This implies consumer spending shifting away from energy transition.

Our survey results show that, faced with uncertain job prospects and weak economic activity, residential consumers may choose to minimize personal spending on climate change initiatives, especially on local energy equipment, such as rooftop solar or home battery storage, if they must finance this themselves.

For example, 43% of consumers said they have currently minimized their personal spending on climate change actions. Notably, 9% of consumers said they plan to reduce their post-COVID spend on energy-efficiency products and services, such as home energy management or smart thermostats, while 10% said they are unsure about their spend. Also 24% of consumers were likely to either reduce spending on, or were still unsure about, local energy equipment such as solar panels, while the figure was 30% for EVs.

And the propensity to cut energy services-related spending will only grow with increased fragility; more than half of survey respondents (53%) said that limitations on household income (such as a cut in wages resulting from reduced working hours) would decrease their spend on energy-efficient alternatives.

The spending plans of B2B customers do not seem to be the biggest concern—at least not yet. This might relate to much longer development cycles for distributed energy resources (DER) in the commercial and industrial (C&I) sectors. Smaller business customers may feel the impact in the latter part of 2020 and in 2021. Also, companies’ long-term investment commitments may explain the limited impact, especially for the larger C&I customers that have long-term sustainability strategies in place, as highlighted by one utility executive we interviewed.
CONSUMERS NEED ADEQUATE SUPPORT FOR ACTION

Our survey indicates the pandemic may have made customers more ready to invest in energy efficiency, renewable energy sources, EVs and other environmentally friendly technologies in the longer term.

For example, 60% of consumers surveyed said they had become more aware of climate change and its environmental impact since the outbreak. And a similar number (61%) said the pandemic has made them much more aware of the impact and far-reaching consequences of a global crisis, including the effects of a potential climate change-related disaster. More than 40% stated that, since the beginning of the pandemic, their concerns regarding climate change are now at an all-time high.

This customer trend translates to purchase intentions for energy services. Half of the consumers surveyed indicated that they are likely to invest more in energy efficiency after the COVID crisis, while only 9% said they would invest less (see Figure 1). For other products and services such as EVs and solar panels, still at least a third think they will invest more now than they would have before the crisis. Overall, nearly half would invest more in energy-efficiency products and services than before the crisis. A similar trend is observed for customers making personal investments in companies that are part of the sustainability/green energy transition.

As previously mentioned, this positive trend is sensitive to degraded financial conditions, and a majority of respondents anticipated reduced spending in sustainability in case of financial difficulty. However, a substantial portion of the population shows a dedication to climate concerns that would not be lessened even by a cut in household income. Indeed, almost a quarter (24%) said such a cut would have no impact on their sustainability spending, while 8% of respondents even said there would be a marginal increase, and 4% a dramatic increase, in their spending no matter what.

The power of incentives

Our research shows that different types of incentive programs can have a significant impact on consumer purchases of environmentally friendly products and services.

More than a quarter (27%) of consumers surveyed said that public or governmental programs supportive of actions to combat climate change (such as subsidies for rooftop solar installations, or for the purchase of home energy-efficiency improvements) would “dramatically increase” the likelihood that they would spend money on such actions. Another 39% agreed that incentives of this sort would marginally increase the likelihood of these types of expenditures.

Consumers are equally enthusiastic about other government incentives, such as those that promote the use of cleaner transportation, including public transport and EVs. Examples would include free public travel, free shared bicycles, or free parking for EVs. This, with the caveat that public transport has largely lost its appeal due to COVID-19, remaining a high-risk transportation option in the eyes of users. More than a quarter (26%) of consumers said such initiatives would dramatically increase their willingness to spend on energy-efficient alternatives, while 38% predict a marginal increase.

Disincentives in the form of higher prices for electricity and gas have a more mixed impact on consumers’ commitment to energy transition and can even backfire. Overall, most customers (60%) expect their utility to provide an uninterrupted power supply at the same price as pre-COVID. At the same time, consumers are making some assumptions about the price of reliable power. This is reflected in the fact that nearly half (48%) expect the same price for an uninterrupted supply of electricity and gas. Disincentives in the form of higher prices for electricity and gas have a more mixed impact on consumers’ commitment to energy transition and can even backfire.

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Figure 1. Half of customers would invest more in energy efficiency post-COVID vs pre-crisis.

<table>
<thead>
<tr>
<th>Energy-efficient products &amp; services</th>
<th>Likely to invest less</th>
<th>Don’t know/unsure</th>
<th>No change</th>
<th>Likely to invest more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local energy equipment (e.g. solar panels, home battery storage, etc.)</td>
<td>11%</td>
<td>12%</td>
<td>18%</td>
<td>50%</td>
</tr>
<tr>
<td>Privately owned EV</td>
<td>9%</td>
<td>18%</td>
<td>39%</td>
<td>37%</td>
</tr>
<tr>
<td>Personal investments in sustainable/green companies</td>
<td>9%</td>
<td>15%</td>
<td>37%</td>
<td>33%</td>
</tr>
</tbody>
</table>
electricity in a post-pandemic world. For example, while almost a third (30%) expect a lower rate after the pandemic, only 8% expect their utility to raise prices. In case of increases in electric and/or gas prices, 46% of survey respondents said such increases would make them less likely to spend on energy-efficient alternatives.

Another potentially powerful incentive is attractive credit by banks, such as low-interest loans to finance the purchases of energy-efficient products and services for the home, EV purchases, full-service energy-efficiency packages that are fully paid off by energy savings, and other environmentally friendly alternatives. One in five respondents said such offers would dramatically increase their spending in these areas, while another 35% predicted a marginal increase in their spending as a result of attractive credit terms.

The power of customer cost savings

Consumers are committed to combatting climate change, and there are no indications they will abandon environmentally friendly alternatives such as DERs in the long term. Also, according to Wood Mackenzie, the economic business case will likely support the recovery of consumer spending for distributed solar after the first three years post-crisis (see Figure 2).

Our survey results bear this out: Almost a quarter of respondents (24%) indicated that, post-pandemic, they would have a higher preference for lower-risk business models that require a lower or no upfront investment. Indeed, business and residential customers would benefit from learning more about the long-term savings associated with energy-efficient alternatives, such as the amount of time required to recoup an investment in industrial photovoltaic (PV) generation, as well as the electricity storage needed as backup. As shown in Figure 3, a solar + storage installation could already today offer a payback within just a few years for business customers.

The pandemic has also increased an interest in various payment options, such as flexible payments and dynamic tariffs—potentially as a result of increased home energy consumption.

More than half (55%) of consumers said they would be more interested in time-of-use tariffs/flexible tariffs/demand-response options after the pandemic, in order to increase cost savings by shifting electricity consumption from evenings to daytime/nights (see Figure 4). With more people working from home, it becomes increasingly challenging to run demand reductions, such as switching off heating or air-conditioning at specific hours. This means higher enrollment in demand-response programs would be needed to spread reductions over more customers, especially in places such as California and Texas that have viable demand-response programs. Utilities, especially those in Europe that are starting to explore demand-response programs, must assume residential customers would spend most of their time at home, and that the availability of C&I load could be lower than prior to the pandemic. (Figure 4 on next page).
Figure 4. More than half of respondents are more interested in time-of-use tariffs/flexible tariffs/demand response post-pandemic vs. before.

Source: Accenture Post-COVID Energy Consumer Survey, June 2020

Note: Original survey question: To what extent do you anticipate your preferences regarding the below electricity tariff options could change after the COVID-19 pandemic is over? Time-of-use tariffs/Flexible tariffs/Demand response (e.g., savings in energy bill through shifting electricity demand from evenings to daytime/night, etc.)
Our detailed interviews with utility executives show a high level of uncertainty about the post-pandemic environment, both for C&I and residential markets. Also, many are banking on government intervention to get energy transition back on track. That there is broader support for energy transition in the business and political world helps.

A global survey of economists (conducted by Nobel Prize-winning economist Josef Stiglitz) found most respondents favoring “green” stimulus measures. The outcome of recent French municipal elections, where the environmentalist party and its allies won control of a clutch of major cities, including Lyon, Strasbourg and Bordeaux, shows the rising importance of environmental causes at local levels. However, if there is a resurgence in virus cases (or if the economic effects of the pandemic prove to be more severe, or longer lasting than anticipated), the public’s immediate economic needs will take precedence over climate change initiatives. Another executive we interviewed noted that oil prices, which were expected to add momentum to energy transition, were now at their lowest level in more than a decade.

Other elements factor into continuing uncertainty. By curtailing economic activity and limiting consumers’ ability to travel, the pandemic has driven down the cost of oil and gas, making coal even less economically viable. According to British newspaper The Guardian, reduced electricity demand and an increase in solar supply in the United Kingdom has meant that coal-fired power plants have not been used for electricity generation at all in recent weeks. The record in the U.K. topped out on June 16 with 1,629 hours of no coal-powered electricity, which works out to 2 months and 1 week. Even as the renewables were favored in the energy mix, COVID-19 caused an immediate drop of more than 10% in energy usage in most European countries, hampering utilities’ ability to add renewables capacity. And it is not just about capacity investment: energy transition involves costly investments to the grid itself, as new networks are required to manage distributed generation, distributed storage and batteries. For instance, the energy transition envisages a switch to battery-powered EVs, and improvements in those batteries, so that they can provide additional storage. Also, since wind and solar farms, and other renewable energy sources are often located far from end users, the transition calls for a significant investment in transmission and distribution networks.

“Our global challenge is to reach carbon neutrality. Similar to the French nuclear plan 40 years ago, we have to roll out an industrial program covering the rest of energy consumption in transportation, industry and housing, including localizing back our value chains on hydrogen, EV batteries, heat pumps and energy-efficient renovation.”

Alexandre Perra
EDF Group Senior Executive Vice President—Innovation, Corporate Social Responsibility and Strategy

To hedge their risks, many utilities are investing in what they see as growing business areas. Here are our observations:

• Large-scale renewables continue to be an important investment area in both Europe and the United States (confirmed by more than half of the European and U.S. utility executives interviewed).

• C&I customers are showing continued interest in electricity from green sources, with Big Tech companies insistent upon green sourcing. A key indicator is the growing demand for power purchase agreements (PPAs) among tech giants. The amount of clean energy bought by these companies tripled in the past few years, with Google being the biggest buyer. Other companies, facing financial damage from the pandemic, need favorable pricing and may be less selective about energy sourcing, provided the price is low enough.

• DERs remain attractive, especially for large numbers of consumers who are financially less affected by the pandemic and will be spending the same or more as they were before the outbreak.

• Utilities are seeking to boost the productivity of renewables while increasing their own overall reliability and resiliency—by combining them with, for example, battery storage (as confirmed by more than half of the utility executives we interviewed). This is also illustrated in Figure 5. which demonstrates the simplified attractive business case of a battery storage integrated with large-scale renewables after 2020 in two scenarios, with new revenues through optimized output exceeding the levelized cost of energy (LCOE) of co-located battery storage today (bull scenario), and similar business case for standalone storage (bear scenario) approaching 2020-2030.
Utility executives told us in our survey that they did not think this would be the last crisis, but that COVID-19 exacerbated specific existing challenges related to demand flow and resiliency. While already, prior to the crisis, extreme weather events posed a significant new threat to utilities operations, the pandemic may bring its own after-effects that utilities executives envision. Here are some insights from our executive interviews:

- Changing load patterns, caused by permanent changes in commuting behaviors as cities open their streets to bicyclists and pedestrians, more workers adopt staggered shifts, and more people work from home, especially in major urban areas, and through the closure of physical outlets for many commercial businesses.

- Increasing need for a resilient grid infrastructure (mentioned by 12 of the utility executives we interviewed) as a result of shifting load patterns.

- Higher stress on national and local government budgets—caused by lower tax receipts and spending related to the health crisis and stimulus measures—that could lead to slowdowns in planned energy-efficiency spending programs.

- New internal utility issues, including an overextended workforce coping with the psychological stress of the pandemic, deferred maintenance programs, and the continuing need to modernize and digitize operations.

- Continued need for available low-carbon baseload generation, including nuclear power as a bridge for supply security during energy transition (according to multiple executives).

- An increasing number of customers unable to pay their bills, required hedging of risks.

- Increasing customer interest in new lower-risk payment models (mentioned by more than a third of the utility executives we surveyed).
Reactivating Post-COVID-19 Energy Consumers

As European and North American economies begin to recover from the COVID-19 crisis, utilities need to rethink and reinvent their consumer strategies to overcome the current challenges to energy transition. They need to think more about viewing the customer experience as a holistic solution that solves multiple customer needs as they evolve. They need to make decisions about the key messages they send to consumers, and how those messages should be communicated. Some utilities are already beginning to show a very "green media" approach in their external public communication, including Enel and ENGIE in Europe.

“The potential of renewable energy is endless, and offers many opportunities to support a #GreenRecovery.”

Antonio Cammisecra
CEO, Enel Green Power (speaking at the #EnelFocusOn live webinar)

On the retail side, this is an opportunity for utilities to realign their brand to be viewed as more purposeful beyond just keeping the lights on. Our prior research shows that consumers, especially Generation X and millennials, are more purpose-driven in their purchase of products and services.

However, uneven government support could hinder, or even reverse the progress made on energy transition. Utilities should leverage their connections with governments and other policymakers to confirm the introduction/extension of tax credits, subsidies and other incentives critical to offset consumers' reduced energy transition-related spending.

Ultimately, energy transition depends on residential and commercial consumer engagement. Consumers need to spend money on equipment—whether this be rooftop solar, charging stations, smart meters and thermostats, or other investments—to fully bring the benefits of clean energy to businesses and homes.

We believe the range of scenarios we presented in the previous report still matches up with those detailed in the figure below.

Figure 6. Four scenarios that will influence utilities’ response

<table>
<thead>
<tr>
<th>Economic Arbitrations</th>
<th>Virtuous Circle</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The classic model of governments doing the work or internalizing externalities through regulations.</td>
<td>• Expectations from citizens, employees and consumers are increased by taking stock of the stakes.</td>
</tr>
<tr>
<td>• Individuals and businesses have ceased to be the driving force they had become in the past few years. Instead, they focus on economic survival and arbitrate their decisions rationally, on a case-by-case basis.</td>
<td>• Businesses continue to grow their green commitments.</td>
</tr>
<tr>
<td></td>
<td>• Governments make energy transition one of the engines of economic stimulus.</td>
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</table>

<table>
<thead>
<tr>
<th>Sustainability Winter</th>
<th>Society in the driver seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Economic stimulation at all costs concentrates on emission-heavy sectors such as traditional construction.</td>
<td>• States concentrate on economic stimulation and fail at coordinated action for climate.</td>
</tr>
<tr>
<td>• A majority of individuals has more pressing preoccupations than climate change.</td>
<td>• People lose faith in governments but remain mobilized as employees and consumers.</td>
</tr>
<tr>
<td>• Businesses sacrifice sustainability efforts to cut costs.</td>
<td>• Businesses take over and federate efforts.</td>
</tr>
</tbody>
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in Figure 6; if that is the case, utilities could pursue different courses of action to reflect conditions on the ground.

We expect this to play out in two clusters with common characteristics:

**Cluster 1: Utility businesses with stable growth** (scenario “Virtuous Circle” in geographies with strong government support; “Society in the Driver’s Seat” in geographies without).

- Retail supply of green electricity (B2B and B2C) in Europe and the United States, linked to large-scale wind and solar generation, which is receiving a federal government stimulus in the United States, and regional and national stimulus in Europe; 12 of the utility executives we interviewed believed the large renewables business will continue with stable growth.

- eMobility in Europe, continuing to enjoy medium-term consumer interest, together with increased European Commission support for the charging infrastructure and regional/local incentives for EVs; e.g., the national stimulus package of Germany, with an additional €2.5 billion to expand EV charging infrastructure and support eMobility research and development.23

- Flexible transmission and distribution grids, reflecting sustained consumer interest in a reliable energy supply; more than half of the utility executives we interviewed have talked about the increasing importance of making the electricity grid more flexible.

- Large C&I distributed solar + storage markets in Europe and the United States, following a rather long-term sustainability strategy, and investment commitments that are less affected by sudden events such as the pandemic, according to several utility executives we interviewed.

**Cluster 2: Utility businesses with challenges** (scenario “Economic Arbitrations” in geographies with strong government support; “Sustainability Winter” in geographies without).

- Residential distributed solar + storage markets in Europe and the United States, with the share of consumers decreasing spend in local energy equipment. The downward trend in Europe is mitigated by governments through new incentives to stimulate individual purchases, such as new tax rebates for residential systems in Italy,24 while the governments of several U.S. states (including California) are prioritizing more urgent needs, including health, safety and education, over energy efficiency and climate projects.25 Furthermore, the worst impact on DER spend may be ahead, with the financial crisis unfolding and hitting residential household income over the coming months, as mentioned by several utility executives we interviewed.

- Small commercial distributed solar + storage markets in Europe and the United States, with signs of a closing sales pipeline for B2B DER projects today, and with direct market impact delayed due to longer development cycles.26

While conditions vary dramatically from country to country, and from region to region within the United States, we see three key steps utilities can take to support profitable participation in the economic recovery, and the resumption of energy transition.

1. **Collaborate with post-COVID consumers.** Utility customers need a reliable source of reasonably priced energy for their homes—more than pre-pandemic. But, as the crisis has demonstrated, utilities need them as well—not just for revenue, but as partners in funding and enabling the transition to clean energy. To improve collaboration with C&I and residential consumers, utilities should undertake initiatives, including:

   **Continuation of deferred and flexible payment programs.** Our survey research indicated strong and continuing interest among consumers in clean energy options, such as rooftop solar installations, better insulation, smart thermostats and EVs. Utilities can and should tailor programs that allow customers to make these purchases with a minimal up-front investment, while enabling potential anonymous analytics on their consumption behavior. Utilities could also launch a no-investment policy for long-term contracts and leverage government-based, zero-interest loans to assist green-minded customers.

   **Consumer dialogue and education.** Consumers need a better understanding of the long-term benefits of clean energy investments and new tariff and payment models including demand response and equipment leasing—in terms of both financial and environmental benefits—particularly in the context of the drastic move toward home or remote working. Consumer workshops, online education, advertising, social media and other communication channels could convey these messages in ways that are effective and enjoyable, and from a single provider.

   **New partnerships.** Utilities do not manufacture insulation, smart thermostats, energy-efficient appliances or EVs. Instead, they serve as resellers, redistributors and integrators. Alliances with EV manufacturers, storage suppliers, appliance makers and other product and service partners can leverage those companies’ expertise, reach and marketing savvy, while helping utilities find new customers for clean energy initiatives. Finally, utilities are not
supposed to act like a bank to directly provide rental or leasing contracts to customers, requiring instead close cooperation with financial institutions and adequate regional/government-subsidized loans.

2. Create a selective post-COVID portfolio.
As previously noted, the utilities industry is facing multiple scenarios in a post-COVID environment. Competition is increasing and utilities can no longer position themselves as monolithic providers of all things to all people.

Rather, utilities should carefully assess the business climate in which they operate, incorporating demographic, economic and political considerations, as well as consumer sentiments related to energy transition. Then they should match their purpose, positioning and operations to those conditions, whether they reflect the Sustainability Winter, Economic Arbitrations, Society in the Driver’s Seat or Virtuous Circle scenarios we have laid out. This may mean putting a greater emphasis on investing in stable businesses, such as large renewables or shouldering more risk by offering new deals for DER facilities or developing/reinforcing their services portfolio to address those new customer needs/challenges at both the B2B and B2C levels.

3. Create a resilient core for the next crisis.
To their credit, utilities have performed extremely well during the crisis in fulfilling their primary purpose of delivering energy reliably, which is also why traditional utilities have been extremely resilient during that period. They have worked well with consumers around the world to keep costs down and provide financial flexibility to businesses and households facing reduced income and uncertain prospects. Con Edison is one example. In March the utility announced its 2020 summer resilience and energy-efficiency plan for the state of New York, accompanied by an investment of $1.3 billion in its electric delivery systems, to keep service reliable during COVID-19. In most cases, the digital readiness of utilities has come in handy. Those that were best prepared for remote operations and working have discovered—often contrary to management expectations—that a significant proportion of their activity could be delivered remotely, and just as efficiently.

In doing so, however, utilities have stretched the capabilities and endurance of their workers. Many utilities have deferred maintenance and put off needed capital projects. And some have slowed down or postponed innovation related to more efficient operations, increased energy efficiency and new sources of clean energy.

With fuel costs down, to continue the business case for renewables, utilities should invest in areas allowing for greater operational efficiency, including:

- Creating the network of the future (avoid congestion, accommodate DER at scale) and networks that require real-time control towers, the internet of things (IoT) and advanced analytics, to make the appropriate decisions and capture value.
- Acceleration of the modernization and digitalization of power-generation operations, such as condition-based asset maintenance and the creation of digital control centers to support real-time monitoring of operations.
- New capabilities to hedge retail operations against credit risks.
- Commercial asset optimization to meet portfolio and system-balancing needs.
- Increasing grid flexibility—finding more DER customers is counterproductive, unless the grid can handle such traffic. A flexible grid, including the appropriate mix of demand response, smart EV charging and behind-the-meter storage—as well as next-generation solutions including grid-scale battery and hydrogen storage, that can support reliability and resiliency, and promote the use of green energy.
- Reinforced services portfolio to address/support the increasing and more complex demand of customers for greener energy/greener solutions and increased energy efficiency.
The COVID-19 pandemic has inflicted terrible challenges, cost many lives, disrupted much everyday activity and brought economic hardship. Health experts interviewed by Reuters have called the pandemic virus a window into future climate threats.

The resulting downturn in economic activity during the crisis has caused a significant decrease in CO$_2$ levels in the atmosphere, said to be the largest such drop since World War II. While the 2008 global financial crisis also led to CO$_2$ reductions, this trend reversed as soon as the economic recovery gained momentum.

This time, however, the outcome is expected to be different. Greenhouse gas reductions resulting from a pandemic and massive economic downturn are neither sustainable nor desirable, but utilities—working in concert with governments, consumers and their own ecosystems of allies and partners—could help lead the way to a future that combines economic growth with the transition to clean energy sources. There are many factors that could make this possible. These include the increased availability and competitive pricing of renewables; the build-out of the transmission infrastructure and flexible grids to support renewables; and innovative technologies in areas ranging from EVs to smart thermostats to sophisticated analytics empowered by machine learning.

Most important of all, however, is the fact that consumers as well as utilities agree on the importance of clean energy and reinforced energy efficiency. Working together, consumers, utilities and governments can take significant steps forward in the transition to an economy based on renewable and efficiently used energy sources. This can benefit the environment, while building a foundation for sustainable growth for utilities in the future.
HELP FOR ALL
To help our clients navigate both the human and business impact of Covid-19, we’ve created a hub of all of our latest thinking on a variety of topics. Each topic highlights specific actions which can be taken now, and what to consider next as industries move towards a new normal. From leadership essentials to facilitating productivity for your employees and customer service groups to building supply chain resilience and much more, our hub will be constantly updated. Check back regularly for more insights. Visit the hub at www.accenture.com/us-en/about/company/coronavirus-business-economic-impact

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