

# *Shaping Tomorrow's Energy Landscape:*

*Balancing Sovereignty, Affordability  
and Climate Responsibility*

WORLD ENERGY MARKETS  
OBSERVATORY 2023 | 25TH EDITION

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# 02

## THE CUSTOMER



# DOES THE CUSTOMER CARE?



**CARL HAIGNEY**  
Global Vice President Energy Retail

I am old enough to have seen the transformation of the telecommunications and finance markets, with their strong parallels to the energy transformation we are about to witness. History has shown us that the old, ex-monopoly-style relationships, often with low NPS scores and a focus on cost take-out are replaced by digital, value-add customer relationships where loyalty is hard-earned, and easy-lost. History was not kind to incumbent players, though, and I believe that the energy retail sector is going to see such fundamental change that it will be unrecognisable in 10 years time.

In the articles in this chapter we explore how the customers want to see change, indeed are beginning to drive change faster than the legacy industry can cope. The uptake of EVs, smart devices, home energy solutions etc. should all be the natural playground for the incumbents, but the lack of investment in digital customer solutions has opened up the markets to new entrants from parallel fields such as mobility.

Customers care about the ease and quality of the relationship – with demonstrable value and good service. They have the ability to change – helped by the digital world and now enabled in many geographies by the opening of the markets and smart enablement.

I contend that the energy retailers who prosper in the next decade will be digitally-focussed, energy services providers (including mobility), and will have partnered to gain skills in new offering areas. The legacy finance and telco companies experience gives us a guide to success...we have to learn from it.

This chapter includes:

1. The energy retail market is dead; long live the energy services market?
2. Power to the people! How energy consumers are taking control and working around industry constraints.
3. Transformation for all? What we have learned from telecommunications and Finance transformations? Applying history to predict the future.
4. Rethinking the value of customer service
5. What big bets are utilities in Australia making ?
6. How the market changes are pointing to new leaders.



# 02



1. THE ENERGY RETAIL MARKET IS DEAD; LONG LIVE THE ENERGY SERVICES MARKET
2. POWER TO THE PEOPLE! How energy consumers are taking control and working around industry constraints.
3. TRANSFORMATION FOR ALL? What does the future hold for the atypical consumers? Does hyper-personalisation make everyone atypical?
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# THE ENERGY RETAIL MARKET IS DEAD; LONG LIVE THE ENERGY SERVICES MARKET



CARL HAIGNEY, UK

## Who will survive in the battle for the customer?

**Market opening, new competition, 'seismic shifts'... the transformation of the energy retail industry is underway. We've been here before in parallel industries and transposing this history doesn't paint a rosy picture for the future of today's retail utilities unless radical action is taken now.**

At Capgemini, we've been observing energy markets for more than 20 years through the medium of our annual thought-leadership exercise: The World Energy Markets Observatory. As a company, we are partnered with utility companies from retailers, to central bodies, networks and water companies. This article focusses on the retailers and the challenges ahead.

In the 1990's the telco monopolies experienced the seismic shift of moving to a competitive and increasingly-digital market, where not only did customers get choice of provider, customers also became drivers for new services and offerings. The transformation of the customer engagement was driven to a large degree by digitisation – notably the move from voice to data and then the insatiable and ongoing demand for mobile services. Customers suddenly had choice, had information and had appetites for new services that made their lives easier – it suddenly wasn't about communications per se, it was about entertainment and control. The market had transformed.

These fundamental and irreversible changes led to the disintermediation of some of the legacy providers from their customers (e.g. BT OpenReach in the UK) and the demise of others, a notable example being AT&T in the US.

New players came to market; some survived and prospered whilst others didn't quite get the go-to-market price or offers correct but may have pointed the way for others (e.g. Squirrel local networks in the UK). Whichever way you look at it the winners were the consumers. Benefitting from commodity phone line provision now being subsumed into communications and entertainment services, with lower prices, with easier-to-access control and loyalty awards. Better service, better price, more options.





### History Repeating Itself

It is this change that we see being replayed in the energy retail sector, as digitisation of home services underpinned by smart metering/grid combines with electrification of mobility and demand for sustainability technology in the home (such as solar, heat pumps and batteries). Pre-COVID, customers were already beginning to explore new options in energy, with competitive markets such seeing an uptick in switching and a noted swing to new entrants. Refer to Figure 1 where newcomer Octopus has used customer intimacy through digital to take market share. Ominously for the legacy players, Octopus is portraying itself as a technology firm, benefitting from the digital brand image which has pushed their NPS up to +57.

Whilst the conflict in Ukraine and the subsequent peaking of energy prices effectively curtailed the competitive energy market in many geographies, we are now seeing a return to switching. In parallel the International Energy Agency Global EV Outlook 2023 predicts a 35% rise in EV sales in 2023 (20% of market share), increasing year on year. Couple this with growing consumer demand for solar, home energy management and batteries and it is clear that now is the time for unified, digital service offerings to customers.

And this isn't just in the open, competitive markets...consumer demand for efficient digital services will force regulated retailers to transform too.

FIGURE 1

Electricity supply market shares by company: Domestic (GB) 2017 - 2022

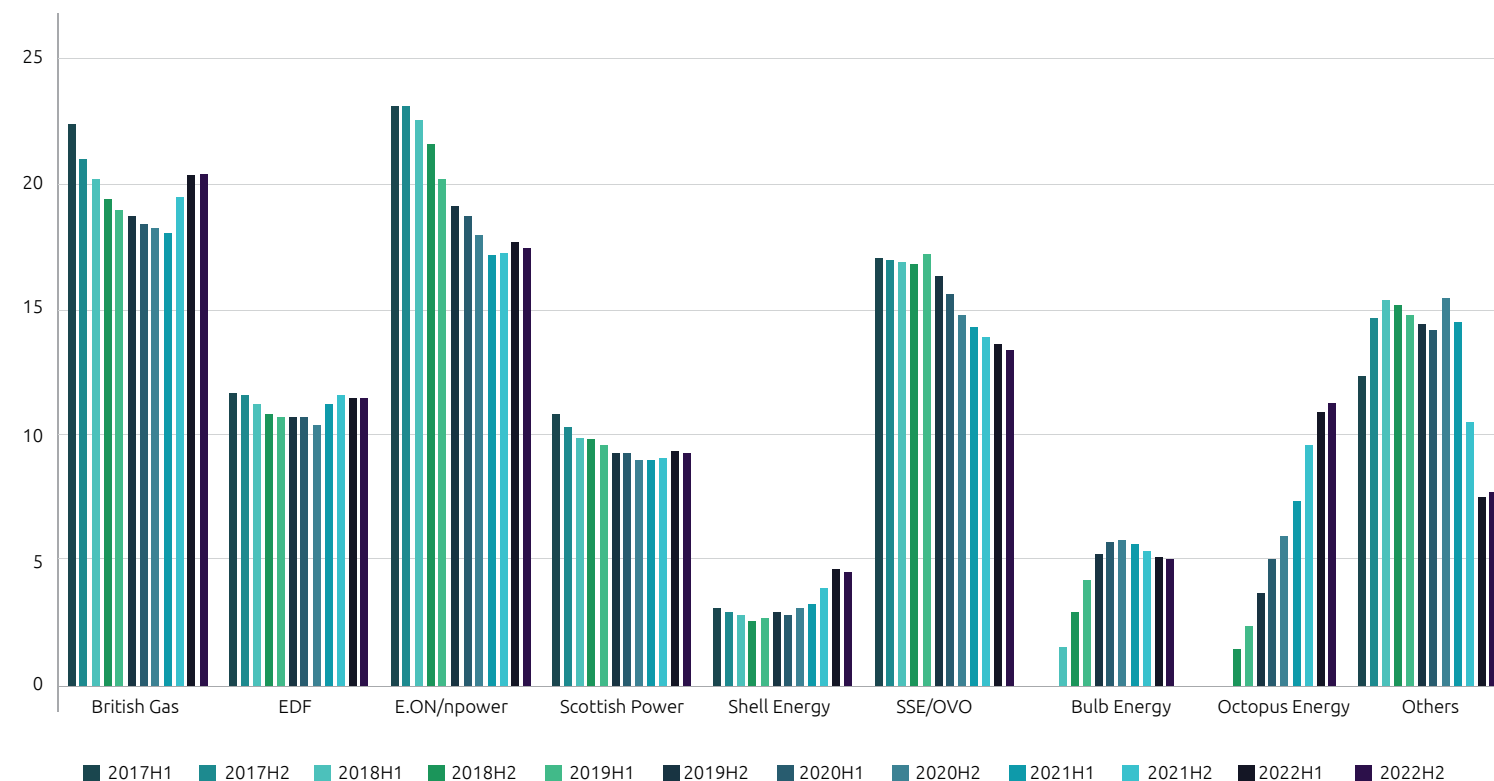


Figure 1: GB Energy Retail Market Shares – reference: <https://www.ofgem.gov.uk/energy-data-and-research/data-portal/retail-market-indicators>

## Survive? Thrive?

The data underpinning WEMO (ref: xx) shows that we are at the start of a similar seismic shift to the telcos of the early years of the millennium, and there is an enormous amount of work to do if some of our oldest utility retailers are to survive. The prize for the established utilities is survival and expansion into a new customer relationship, based on broader sales opportunities to home services related to energy. This is an massive ask, though, for many of these established entities as they are encumbered with history and brand - a history of oft-siloed, data-rich, information poor, low-margin, inflexible business and a brand of 20th century dinosaurs.

The prize for newcomers is also revenue/margin expansion but they come often from a position of good market presence in mobility or retail, experts in turning data into information, slicker in leveraging their brand and marketing and with deeper pockets for investment. We contend that survival isn't good enough. Poor returns and stagnant to falling market share and NPS will see the slow demise of those who fail to thrive.

Have we hampered established utilities with too much technical- and process-debt? Or is this a consequence of decades of a focus on low cost to serve at the expense of net promoter score?

Let's think back to the days of AT&T and BT's dominance of their relevant markets. Given their scale they had invested in 20th century technology which enabled the efficient operation of their businesses. Customer contact was through the monthly paper bill and customer services was a cost centre in a cheap

location without much focus on customer satisfaction overall. Sound familiar?

Many legacy utilities have invested in unwieldy ERPs, often segmenting their business units into separate systems, again focussing on corporate efficiency. Contrast this with the 'born in the cloud' approach of newcomers which takes a data-centric approach, focussing on customer engagement and exploiting the newer technologies.

AT&T post-break-up tried to invest in the newer technologies, such as home entertainment but buying in a sellers' market means a high price was to be paid. And that high price was funded by debt. And eventually that debt pile toppled the company...being eventually bought by one of the divestments it was forced to make, Southwester-Bell. This company has made further debt-leveraged investments to stay as a key player in the market.

How many of today's retail utilities can truly afford to buy their way into areas such as mobility without risking the entire venture through the debt? Worse still, in regulated markets, the ability to branch out from energy supply is often limited.

The converse picture (e.g. car manufacturers buying into the energy retail industry) is certainly possible but why buy an organisation that has a legacy brand, old processes and a waterfall mindset? Why not set up afresh, a digital energy arm as an extension of a car firm? Tesla's growing market presence spreading from automotive, to services, solar, batteries and now into energy retail is a sure sign that the change is happening now.



## Loyalty

Energy retailers can't rely on loyalty...switching is evidence of this (see Figure 2) and when you look at the potential competition and their NPS scores, it paints a worrying picture.

Many markets now have a customer group with changing attitudes – wanting a 21st century solution to home energy services management, and with the shift to electrification of transport and the further energy transition, this includes mobility and storage, heat pumps and solar. Loyalty is not there and the only constraint for new entrants such as mobility firms will likely be the speed of development of the vehicle offering.



## There is no loyalty to legacy energy retailers

### Success is possible

Whilst the picture for the established utilities seems bleak, almost to the point of 'giving up', one thing is clear, the customer relationship will be key to success for the future. This relationship will evolve from commodity to services provision, will expand into new scope including mobility and will have to be based on an integrated digital solution making it easy for customers to engage and control their approach to cost/risk.

With little in the way of loyalty or money to invest in digital services, lacking agile platforms for customer experience...it might sound like the end of the world for retailers, but they do have some strategic items of value.

Often unrecognised in the portfolio of systems and operations, legacy retailers have a most sought-after commodity – data (arguably it should be information!). Established utilities are data rich, and now need to turn this into a competitive advantage, augmenting their data with other sources to build a comprehensive picture of customers. This then has to be proactively leveraged in building the trust with customers – established utilities cannot sit back and wait for customers to call them – they won't.

Long histories in the industry give legacy retailers expertise which can be used to avoid pitfalls that others might experience. Some of the bigger challenges to be faced will be with regulation and politics – something legacy retailers are efficient at managing.

For those retailers with workforces, the set of established processes and accreditations gives an amazing opportunity to broaden the customer sale. For example, field engineers could arguably be re-trained into heat pump or EV charger installation. This addresses a challenge the mobility companies have in that they rarely have the large mobile field forces necessary to install the home technologies.

FIGURE 2

Aggregated European electricity switching rates 2021(%)		
Netherlands	27.00%	Hot Market
Belgium (Flanders)	26.88%	
Belgium (Wallonia)	24.11%	
Norway	21.56%	
Spain**	16.74%	Warm Active Markets
Finland	16.30%	
Italy	16.20%	
Czech Republic	15.59%	
Great Britain	15.58%	
Estonia	15.00%	
Ireland (Rep. of)	14.81%	Active Markets
Northern Ireland	13.10%	
France	12.30%	
Germany*	11.05%	
Sweden	10.51%	
Portugal	10.22%	
Greece*	7.72%	
Danmark	7.36%	
Latvia	5.94%	
Belgium (Brussels)	5.62%	
Slovakia	5.27%	
Slovenia	4.78%	Cool Active Markets
Austria	4.10%	
Lithuania	3.18%	
Croatia*	1.37%	
Hungary	0.75%	Dormant Markets
Switzerland	0.62%	
Bulgaria	0.46%	
Luxembourg	0.27%	
Poland	0.21%	





## Pick your battles

The future is exciting, profitable and arguably more engaged, more real-time and the time to begin this transformation is now. We will see some fall by the wayside on this journey but the winners can benefit from the experiences of the telcos, from the unstoppable force for change in the form of the energy transition and from the latest digital engagement models.

Each retailer, be they in a competitive, open market or a semi- or fully-regulated will need to make some strategic decisions... and quickly.

Firstly, the retailers will need to decide what they want to be and to whom...are they going to go head-to-head with the new digital entrants and build a full service offering? Or will a more focussed approach lead to greater shareholder value, potentially restricting on scope of market or offerings?

The global market is littered with failed retailers or those who are so heavily-indebted that without the support of governments would be failed entities. The market is also surprisingly slow to partner, possibly as a result of the historic monopolistic positions in the market. What better way, though, to gain digital traction than to partner with a new entrant. And what better way for the new entrant to gain market understanding than to partner with an established retailer?

## The future is exciting, profitable and arguably more engaged, more real-time and the time to begin this transformation is now

### This is happening now...it is not the time to prevaricate.

Finally, after 25 years of WEMO, reporting on how the retail market slowly moves forward we are at the point of acceleration. WEMO 2024 will surely include new names, and many of the old ones..but will see a rapidly-evolving proposition set.

As a call to action, we note the points below as essential activities in the short term. The consumer uptake of EVs, solar etc. and the market expectations building around the associated services pushes us to believe that there is no time for hesitation...action has to be taken now.

- **Brand and Market Offerings** – Have the courage to take a fundamental look at what your brand means and what offerings will be relevant to your consumers in the next 25 years. Pick those markets, customers, offerings which align to the outcome of this review...and benchmark against your current and expected competition.
- **Assetise Data** – The core asset of many retailers is the volume of data. Make this an asset and optimise re-sale opportunities for this recognising that data shelf-life isn't long.

- **Digitise the customer engagement** – Augmenting internal data with other sources, applying AI and leveraging customer contact will yield new sales opportunities for retailers and begin to re-build the trust in the relationship.
- **Partner** – Be bullish but don't over-estimate the fierceness of the competition. Partner as needed to benefit from the skills (and money!) coming into the market.
- **Focus on the Customer** – Customer demand is driving this revolution and the customer relationship has to be brought to the heart of your retail organisation. Contact should be a blessing...and one to be made easy.



# POWER TO THE PEOPLE!

## HOW ENERGY CONSUMERS ARE TAKING CONTROL AND WORKING AROUND INDUSTRY CONSTRAINTS.



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JOHN BRIGNELL, UK



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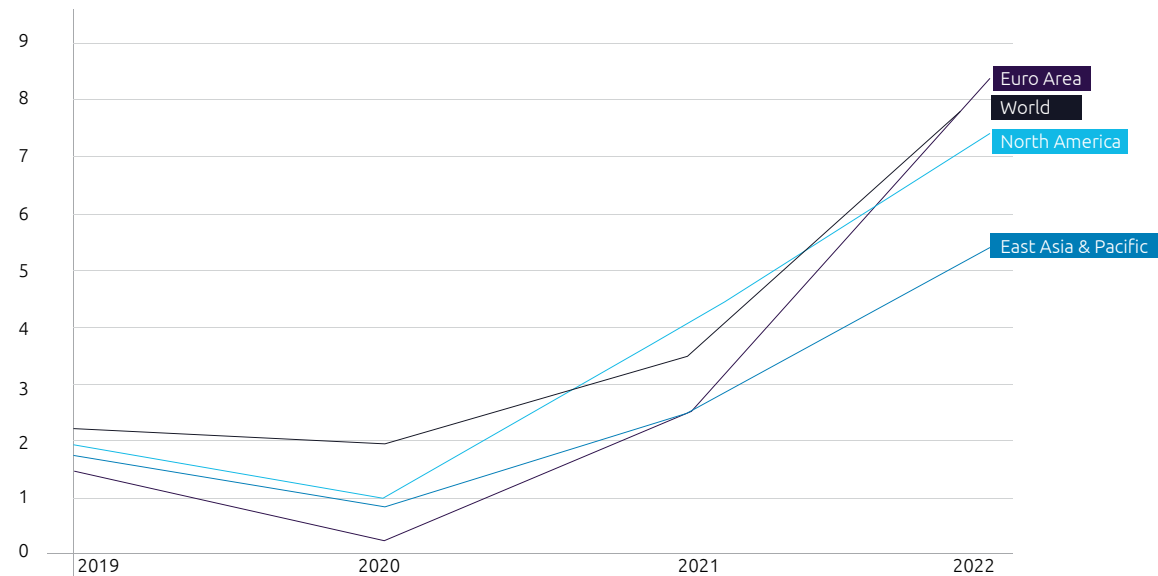
### Economically its been a very volatile year

Since the start of 2022, costs to consumers have increased significantly globally in multiple sectors to levels not seen in almost a decade. The global average **Consumer Price Index has risen to over 8%, double that at the start of 2022**

(figure 1), wholesale electricity prices have more than doubled (figure 2), with energy price volatility at levels not seen before (figure 3). In Europe, the war in Ukraine has had a significant contribution, and continuing concerns around global energy security have impacted markets further afield. Whilst latest forecasts indicate costs to be falling again this winter, there is no escaping how quickly they can fluctuate.

FIGURE 1

Inflation, consumer prices (annual%) - Euro area, North America, East Asia & Pacific, world  
International Monetary Fund, International Financial Statistics and data files.  
License: CC BY-4.0



Source: World Bank





**As a result of these increases, consumers are rapidly changing their behaviours and spending habits,** seeking to make smarter choices on what and where they spend money.

In particular, consumers are becoming more price conscious with regards to energy, and with sustainability and security on everybody's minds, there are increasing pressures on retailers to deliver greater value for money.

What's more, consumers no longer fit the old mould they used to – they are more engaged, more aware of trends and external factors and see the pace of change in other sectors. They receive a tailored experience elsewhere and want the same from their energy provider.

### Market challenges and constraints

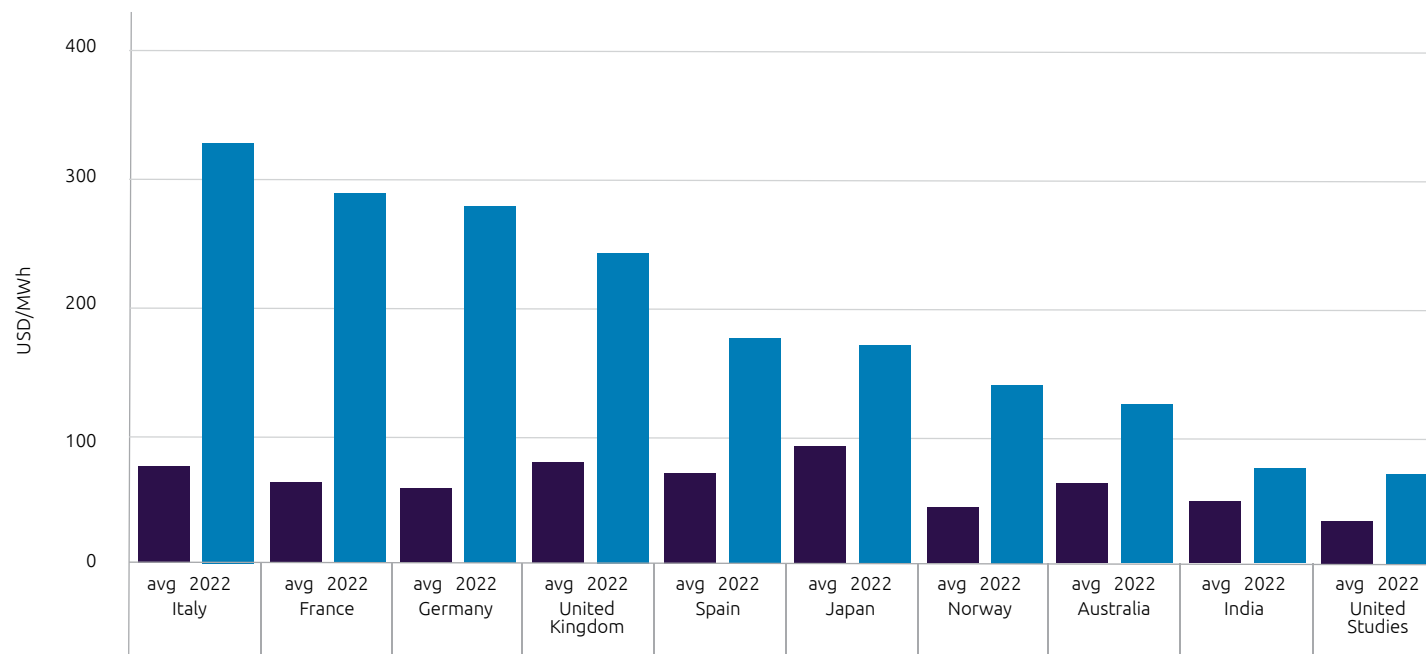
Consumers may not be aware (and may not care) that traditional energy suppliers are operating in a tough environment in which margins are small - as low as 2% for the majority of suppliers. The pace of change is slow and regulation has not kept up, designed more than 20 years ago for consumer behaviours that have changed significantly since then. It does not allow for agility and limits innovation.

Consumers have benefited from the roll-out of smart meters and connected technologies, which has given them unparalleled access to data, and provided them significant opportunity to understand how and when energy is consumed. Consumers want their suppliers to utilize the data and technology to provide

tailored services. However, many suppliers have not matured their service-based business models and capabilities in product management and analytics to deliver these value-add services to consumers.

**FIGURE 2**

Annual wholesale prices in selected countries, 2022 and 2017-2021 average

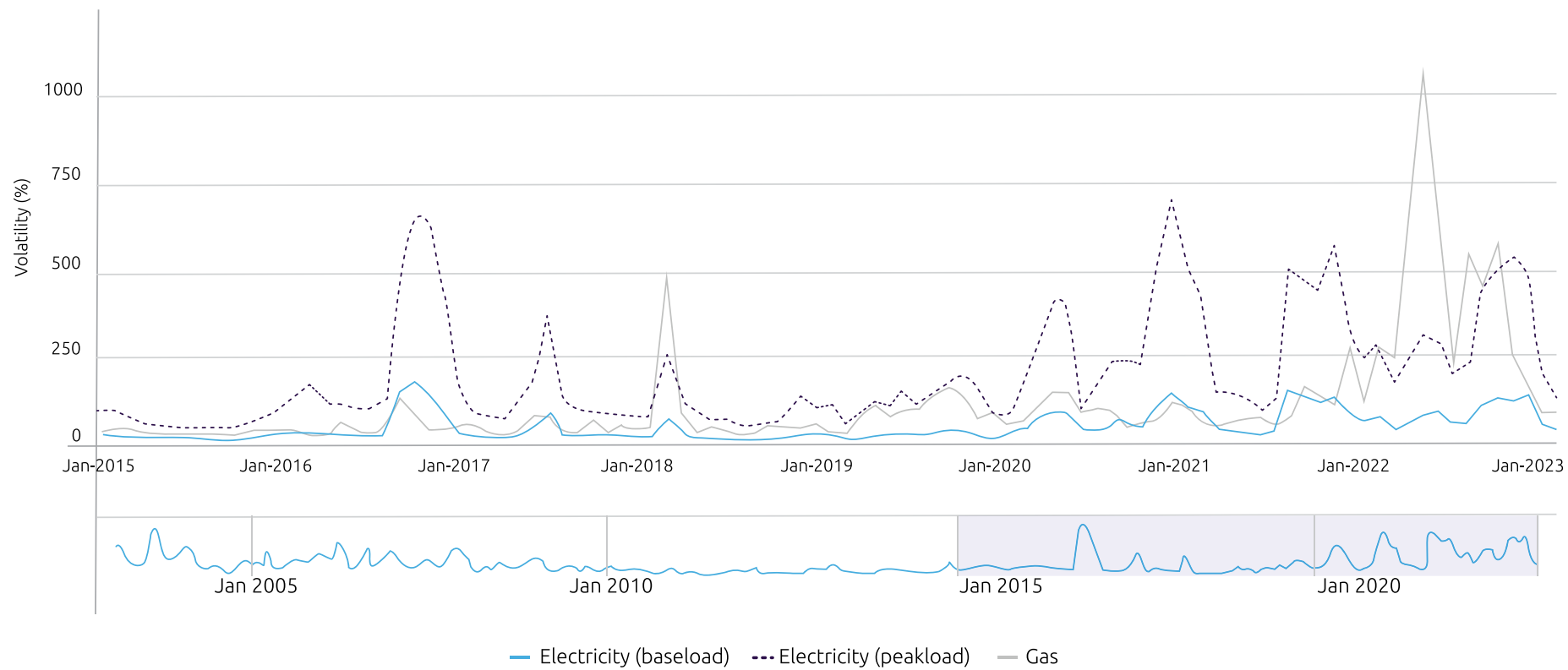


1 Source: World Bank May 2023    2 Source: International Energy Agency    3 Source: Ofgem May 2023



FIGURE 3

Price volatility of gas and electricity by month: Day-ahead contracts (GB)



Source: Ofgem

## Why consumers are taking control

Similar to other industries, consumers are demanding more tailored services and propositions, with off the shelf offerings provided by many energy suppliers no longer making the cut. As such, we are now witnessing a shift to consumers seeking their own solutions.

## Consumer-driven changes, combined with digital solutions, are leading the charge in introducing innovation in the energy market.

### Not just an energy company

Consumer-driven changes, along with the integration of digital solutions, are revolutionizing the energy market. As electrification, energy transition, distributed energy management, and digital transformation reshape the industry, energy retailers find themselves not only competing with each other but also with major technology companies. Consumers now expect the same level of innovation and convenience in their energy services as they experience in other sectors.

The 5 levers outlined here represent key factors that are driving the transformation of the energy market and empowering consumers. These levers highlight the fundamental changes occurring in the industry and shed light on the specific areas where consumers are gaining more control and influence. Let's take a closer look at each lever and why they are significant:

### Level 1: Increases in Technology Penetration

With approximately 68% of the global population using smartphones, and even higher adoption rates in Europe reaching 77%, with Australia higher still at 88%, consumers today have unprecedented access to technology. The decreasing costs of computer software and related items over the last decade have made technology more affordable and accessible. Advancements in technology, economies of scale, and increased competition have contributed to the reduction in hardware prices. The future of personal computers is expected to be influenced by factors such as the rise of quantum computing, increased integration of AI, and the development of more energy-efficient devices.

Great Britain's electricity market has reached a smart meter penetration rate of 55%, similar to levels seen in other European countries. The next generation of smart meters will leverage private data networks, such as the Data Communications Company (DCC) in GB, enabling real-time analytics and personalized services through edge computing. This increased technological integration is shaping consumer behaviors and raising their expectations in the energy sector. One such example is the Demand Flexibility Service (DFS), run by Octopus and National Grid ESO, which aims to reduce GB-wide electricity demand. Furthermore, Octopus has rolled out GB's first time-of-use tariffs through their Agile Octopus offering.

### Level 2: Rise of the conscious consumer

Consumers are increasingly conscious of their purchasing decisions, driven by both sustainability and cost considerations. The economic pressures experienced during 2022/23 have introduced new nuances into consumer mindsets, with an emphasis on eco-economic behaviour. Active reduction in consumption, including energy usage, is influenced by a desire for both eco-friendly choices and cost savings.

Research by OFGEM and Citizens Advice reveals that 84% of consumers have taken proactive steps to reduce their energy bills. Affordability is a key driver, with half of consumers expressing concerns about their energy costs. Owing to this consumers are now exploring energy-efficient tariffs, adopt energy-saving hardware, and adjust their energy consumption behaviours.

### Level 3: Accessible Services

Modern consumers are not only eco-conscious and cost-conscious but also social media-savvy and demanding convenience. Consumers want accessible services that cater to their own evolving expectations. Things they are expecting include seamless digital interfaces, personalized energy management solutions, and innovative pricing models that empower consumers to actively engage with their energy usage and costs.





## Level 4: Decentralized Energy Generation

The increasing adoption of decentralized energy generation, such as rooftop solar panels and residential wind turbines, gives consumers more control over their energy production and reduces their reliance on traditional energy sources. Since the start of 2022 installed domestic solar PV capacity has increased by over 700MW, the same volume seen over the previous 5 years<sup>4</sup>. The shift towards self-generation aligns with consumer desires for sustainability, energy independence, and cost savings.

The trend towards decentralized energy generation is not just limited to developed countries. In many developing nations, decentralized solutions like solar panels and mini-grids are bridging the energy gap in remote areas where extending the national grid might be challenging. For instance, in parts of Africa and Asia, solar home systems are providing electricity to households for the first time. This not only empowers consumers with energy independence but also promotes sustainable development. The rapid decline in the cost of solar panels globally has further accelerated this trend.

## Level 5: Data-Driven Solutions

The integration of data analytics and artificial intelligence (AI) allows for more accurate energy forecasting, personalized energy recommendations, and optimized energy management. By leveraging consumer data and AI algorithms, Consumers share their data in expectation of tailored solutions, so they can improve energy efficiency, and be empowered with insights to make informed decisions about their energy usage.



## The Power of Consumer Led Initiatives

Consumer knowledge and engagement with energy products and services have significantly increased. Advancements in digital capabilities and lower setup costs have empowered consumers to exercise greater control over their energy choices. Traditional relationships with energy providers are undergoing a transformation as consumers proactively seek alternative solutions.

These examples demonstrate how consumers are taking control of their energy choices across the globe, shaping the industry landscape, and driving the transition to a more sustainable and consumer-centric energy future.

### Local Energy Networks

In California, community solar projects have witnessed a remarkable 45% increase in installations over the past two years. By collectively generating clean energy, communities reduce their dependence on traditional utilities and foster a sense of energy independence.

### Energy Management Systems

The adoption of smart thermostats has grown by 23% annually, empowering homeowners to optimize their energy usage and save up to 15% on their energy bills. By taking control of their home's energy management, consumers contribute to a more efficient and sustainable energy ecosystem.

### Distributed Energy Resources

Germany has experienced a significant surge in rooftop solar installations, with over 1.9 million households producing their own renewable energy. By becoming energy producers themselves, consumers actively participate in the transition to a decentralized and cleaner energy system.

### Energy Efficiency and Sustainability

The "EcoMode" campaign in the UK demonstrated the power of consumer-led conservation efforts. Through their participation,

households achieved a remarkable 12% reduction in energy consumption, highlighting the significant impact of individual actions on energy efficiency and sustainability.

### Demand Response Programmes

In Texas, a successful demand response programme has been implemented, this reduced peak energy demand by 20%. By voluntarily adjusting their energy usage during high-demand periods, consumers played a crucial role in avoiding the need for additional power plants and enhancing grid reliability.



## What do retail energy players need to do?

The 5 levers outlined here represent key factors that are driving the transformation of the energy market and empowering consumers. These levers highlight the fundamental changes occurring in the industry and shed light on the specific areas where consumers are gaining more control and influence. Let's take a closer look at each lever and why they are significant:

### Opportunities for Innovation and Expansion

Expanding service offerings beyond energy supply opens opportunities for energy suppliers to meet emerging demands of consumers. Offerings can include real-time energy management tools, smart home integration for optimized consumption, energy efficiency audits, and advisory on sustainable practices. Suppliers can also meet consumer needs by being enablers for renewable energy solutions, electric vehicle charging infrastructure, heat pumps and energy storage options, further adding to their services. These offerings empower consumers, promote energy efficiency, and contribute to a transition towards cleaner and sustainable energy solutions.

An enabler would be through multi-party partnerships across industry and cost efficiencies achieved by restructuring and transitioning to a service-based model.

### Embracing Energy as a Service (EaaS)

Energy suppliers can enhance this shift to services by adopting an Energy as a Service (EaaS) approach. Such a service could involve offering energy performance contracts, subscription-based energy plans, participation in demand response programs, and energy financing options. Advanced analytics, AI-driven technologies, and microgrid solutions optimize energy usage and enable localized energy generation and distribution. Embracing EaaS enables energy suppliers to deliver personalized, flexible, and value-added services that prioritize consumer needs, energy efficiency, and sustainability.

### Embracing Digital Transformation

Digital transformation plays a crucial role in empowering consumers. By developing user-friendly platforms, similar to popular apps like Deliveroo and Uber, energy suppliers can enhance the consumer experience matching users to wants, such as smart tariffs, or peer-to-peer trading. Providing consumer choice, flexibility, and intuitive interfaces simplifies energy management tasks and enhances user engagement through self-sufficiency. Coupled with agile development practices, it ensures continuous innovation and responsiveness to evolving consumer expectations.







## Engagement

To effectively engage with consumers, energy companies can draw inspiration from other regulated industries such as Financial Services, as well as learn from tech firms like Apple and Netflix that prioritize consumer-centric approaches. By studying their strategies, energy companies can gain insights on how to adapt and keep up with the ever-changing expectations of consumers.

## Data

Including research data on consumer engagement and its effectiveness can provide valuable insights. Highlighting successful case studies and data-driven findings can demonstrate the impact of consumer engagement and the importance of aligning business practices with consumer needs.

## Call to action

In today's dynamic energy landscape, consumers are taking control like never before. Through digital transformation and platform strategies, energy suppliers can empower consumers, drive innovation, and meet evolving demands. We must:

- Provide user-friendly platforms, personalized options, and real-time data
- Engage consumers, expand services and leverage technology
- Promote self-sufficiency in energy management

In doing so we will need adaptable governance structures to adapt to consumers and to drive sustainable growth.

The risks of inaction are clear—irrelevance, loss of market share, and ultimately, business failure. It's time for energy retailers to

seize the moment and embrace digital transformation to secure their position in the market.

Companies need to empower Consumers taking control and embrace a new approach to retail energy.



# TRANSFORMATION FOR ALL? WHAT DOES THE FUTURE HOLD FOR THE ATYPICAL CONSUMERS?



MICHAEL VEIT, GERMANY

**In an era of dynamic change, the energy sector is undergoing an unprecedented transformation that is reshaping the very definition of energy consumers. The catalysts for this revolution are numerous: geopolitical shifts, fluctuating energy prices, an amplified social consciousness concerning climate change, and evolving consumer preferences.**

**The convergence of these factors is propelling us toward a future characterized by a class of consumers that is dramatically distinct from the conventional norm. The rise of this new energy consumer class is irrefutable and inevitable, fueled by technological innovation, changing market dynamics, and a compelling drive toward sustainability.**

## **The Paradigm Shift: The Rise of the New Energy Consumer Class**

Traditionally, energy consumers were relegated to passive roles, reliant on standardized offerings from utility companies. This archaic model is on the cusp of extinction. The metamorphosis is tangible, as more energy consumers embrace novel solutions to fulfill their energy needs. Enter the "New Energy Consumer Class." This class embodies diverse personas: the prosumer who generates electricity through solar panels, the pioneer of renewable technologies, the electric vehicle aficionado, the energy storage advocate, and those with unique energy preferences. These atypical individuals, armed with the tools to generate, store, and manage their energy, are rewriting the rules of the game.

## **An Unavoidable Transition: The Erosion of the Old Consumer Paradigm**

The inevitability of this transition lies in the convergence of various compelling factors. Solar energy's accessibility and plummeting costs have made renewable generation an enticing prospect for many. As battery storage technology matures, individuals can store surplus energy, gaining autonomy from the traditional grid. The electric vehicle revolution is accelerating, making clean transportation a practical reality for a broader audience. Heat pumps and geothermal systems, driven by renewable energy, are revolutionizing heating. These developments signify a profound shift toward decentralized energy systems.

## **The Advent of New Winners: A Glimpse into the Future**

The market landscape is witnessing the ascendancy of new players who are adeptly navigating these transformative waters by constantly developing and testing new services with beta versions and MVPs. These entities are not mere energy providers; they are orchestrators of comprehensive energy ecosystems. They understand that the allure of the new energy consumer class is not solely about data but about taking stewardship of the energy asset on behalf of the consumer. Effective cost management is paramount, as these players leverage data to optimize energy consumption patterns. Bundling energy services with innovative solutions is their hallmark, making energy management a seamless and rewarding experience.



### Hyper-Personalization: The Bedrock of Transformation

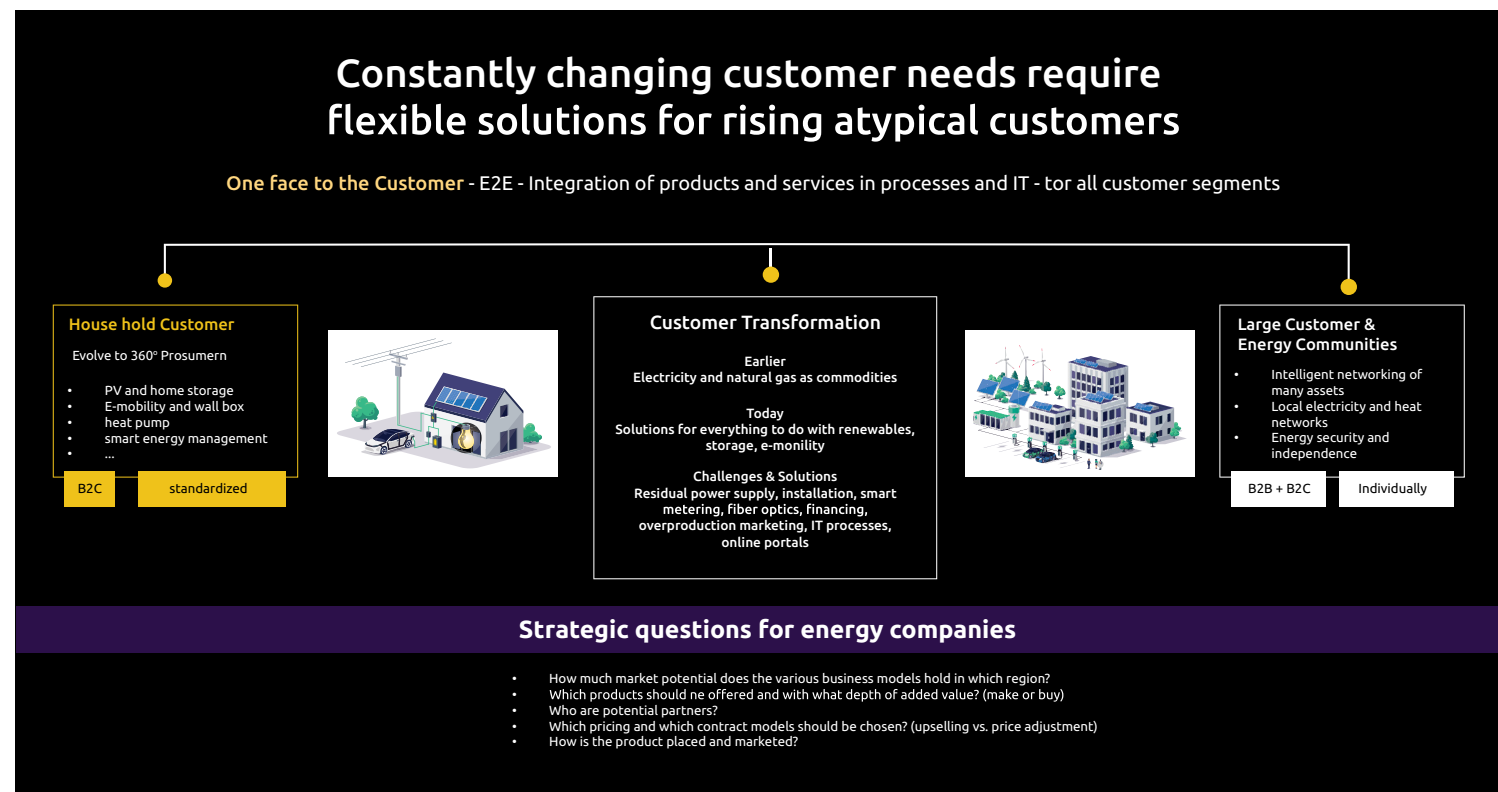
The bedrock of this evolution is hyper-personalization, which transcends mere data analytics. Hyper-personalization, fueled by advancements in data analytics and artificial intelligence, has revolutionized customer experiences across various industries. It involves utilizing advanced technologies, data analysis, and real-time personalization to tailor offerings, services, and communication based on specific customer needs, preferences, and behaviors. It engenders a unique service experience that resonates with individual consumers. By leveraging AI and real-time insights, hyper-personalization crafts bespoke energy journeys. It empowers typical consumers with energy-saving insights, tailored pricing plans, and user-friendly tools. For the atypical, it opens doors to renewable energy options, electric vehicle integration, and energy storage management. By leveraging customer data and predictive analytics, energy providers can optimize the customer experience and enhance engagement.

Comparing hyper-personalization across telco, insurance, and energy industries, there are both similarities and differences. All three industries rely on customer data to develop personalized offerings. However, telco and insurance have been at the forefront of leveraging data analytics to create targeted -products, -prices and services, while the energy industry is still exploring the full potential of hyper-personalization.

Additionally, the telco industry heavily relies on real-time customer interactions, while insurance and energy focus more on long-term relationships and data-driven insights. Hyper-personalization is not a fleeting trend; it is the new paradigm that fuses technology with personalized service.

However, it does not imply that every energy customer in the future will become atypical. Rather, hyper-personalization helps utility companies understand and address individual needs while still delivering a reliable and efficient service to a diverse customer base. By embracing hyper-personalization, energy providers can adapt to the changing landscape, deliver value to customers, and drive the sustainable energy transition.

FIGURE 1





### The Ineluctable Horizon: A Glimpse into the Future

Five to ten years from now, the energy landscape might be virtually unrecognizable. The tipping point toward the new energy consumer class will be heralded by widespread adoption of solar, storage, electric vehicles, and heat pumps. The traditional model will crumble further as the majority transitions to atypical consumers. Decentralized energy systems, driven by diverse energy assets, will be the norm. Utility companies will have metamorphosed into dynamic energy orchestrators, offering holistic solutions that span generation, storage, and consumption. The consumer's role will evolve from passive recipient to active energy manager.

### Cost: The Ever-Present Consideration

In this brave new world, cost remains a constant concern for all consumers. The new energy consumer class is not just about embracing sustainability; it is about effectively managing costs through empowered energy choices. The ability to generate, store, and consume energy efficiently translates into economic advantages, underpinning the attractiveness of this transformation.

### Embrace, Adapt, Thrive: The Imperative for Incumbents

The incumbents must not merely adapt; they must redefine their role. Embracing renewable energy, championing energy efficiency, and forging transparent relationships with consumers will be crucial. The winning strategy hinges on understanding the new energy consumer class and catering to their multifaceted needs. The interplay of solar, storage, electric vehicles, and

heat pumps will create an integrated energy ecosystem that empowers all.

In this realm of relentless transformation, the emergence of the new energy consumer class is not just a trend; it is the future. The march toward sustainability, energy autonomy, and hyper-personalized service is unstoppable. Embrace it and be at the forefront of an energy revolution that promises a more inclusive and sustainable world."

FIGURE 2

Heat Pump Sales in Europe in 2021, by technology

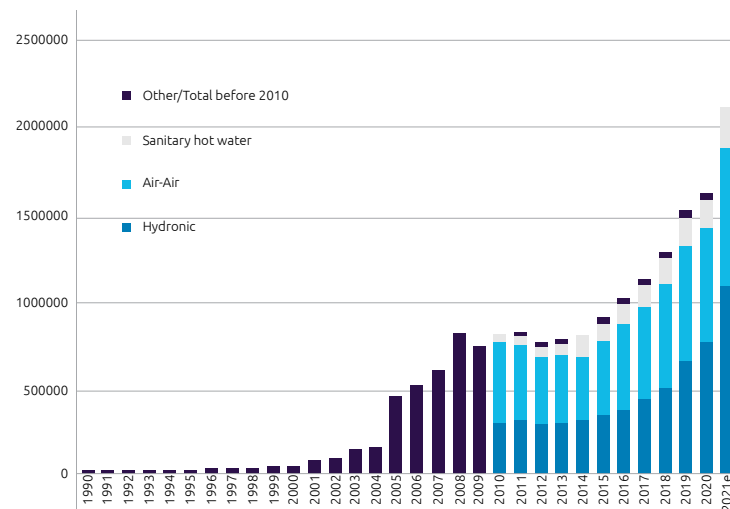
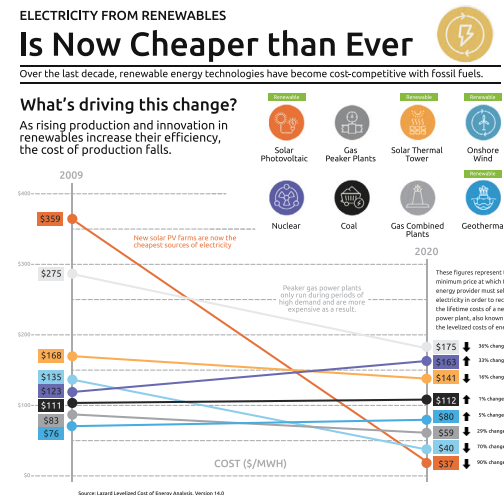
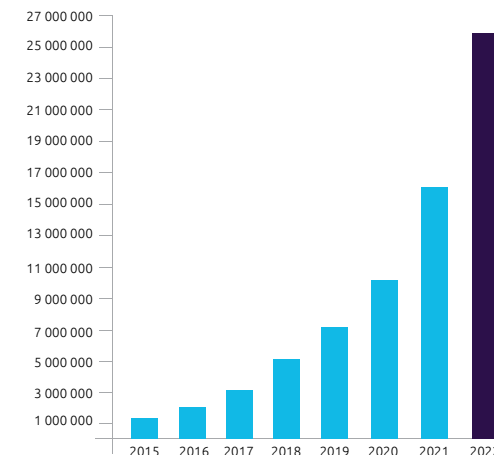


FIGURE 3

Global electric car fleet



# RETAIL ENERGY: LEARNING LESSONS FROM THE U.K. TELCO TRANSFORMATION



IAN MIDDLETON, UK



YARA JAMALEDINE, UK

## Current status of the energy retail market

Historically, much of the world's energy retail market was a monopoly. In the U.K., the market was dominated by six players: British Gas, E.ON, Npower, SSE, ScottishPower, and EDF. The evolution of competitive markets in the U.K. and elsewhere greatly impacted the energy retail landscape. It provided the opportunity for many smaller players to come into the market. At its peak in 2017, there were 68 energy retailers in the U.K., compared to fewer than 20 players in the early 2000s. This number has now decreased, partly as the result of the recent wholesale price volatility combined with the lack of solid finances underpinning some utilities.

In addition, traditional retail energy providers around the world are facing increased competition from a range of new, non-traditional market entrants such as Tesla, telecoms, and oil giants. All of these players are positioning energy provision as simply another part of a more comprehensive services bundle and encouraging customers to switch away from traditional suppliers.

Together, these issues mean that electricity and gas retailers increasingly have to rethink their business model and how they engage with customers. The rise of Octopus from its U.K. roots has set the bar high in customer engagement and end-user proposition. Still, others such as E.ON, Enel, EDF, and

Centrica, are all moving to more sustainability-focused offers that encompass a wider in-home footprint. This is encouraged by research that shows a willingness of customers to pass control of devices to their energy retailer. Indeed, Centrica's 2015 change in strategy to become a customer-facing business powered by technology and innovation has been followed by actions such as refocusing on sustainability programs and divesting some legacy assets.

As price volatility subsides, the battle for customers will step up. It will include attracting customers who feel they were poorly treated during the recent crises, leading to increased churn. Incumbents have to face up to the fact that the market is fundamentally changing. They need to reposition if they wish to stay relevant in the transforming energy market, working out how to improve historically low margins to free up funds for investment.

To survive and thrive in the future, energy retailers must either become super-efficient utilities with a narrow focus to maintain and potentially grow their business, or transform, maximizing the value of their customer base by extending their value proposition from a single product, electricity and gas supply, into a broad portfolio of products and services that can create increased value for customers.

Any change of strategy should consider the learnings from other industries that have undergone a similar transformation.



## The telecommunication sector

The telecommunications sector has undergone significant technological transformation over the past decade to 15 years. This transformation has largely been driven by the emergence of global technology companies, which, while relying on the foundational infrastructure provided by communication service providers, have been able to capture the majority of the market's value.

In addition, this period has also coincided with a huge increase in competition and increasingly cost-conscious customers, who see connectivity as a commodity and fundamental right, similar to the provision of energy. The result is that consumer prices have remained largely flat – customers don't want or expect to pay more for 4G vs 5G or copper vs fiber. This negatively impacts average revenue per user (ARPU) (Figures 4 and 5).

New players also arrived and disrupted the telecom sector, changing the way business was done. They offered new services with simple consumption-based payment models with limited commitment. For example, in France, the operator Free (part of Iliad) disrupted the peaceful competition between incumbents with low-cost triple-play offers that were simple to understand and consume due to their low-cost base and social marketing.

Top internet companies also succeeded in grabbing market share from telecom services and connectivity, offering a more customer-centric, omni-channel and gamified experience (Figure 6).

So far, the introduction of 5G has failed to reverse the consumer mobile ARPU decline, despite the fact that the amount of data transferred across the network has significantly multiplied. In other words, customers are now receiving a lot more service for their money. They appear hesitant to pay higher prices because there haven't been any truly revolutionary applications that leverage 5G's capabilities. The primary advantage has been an increase in bandwidth, which is largely anticipated as technology advances over time.

What is proven is that customers will pay more, but only to access additional services such as content (video streaming, gaming), which is usually provided by the big technology companies rather than the telecommunication companies.

FIGURE 1

Number of active domestic suppliers by fuel type (GB) (Ofgem, 2023)

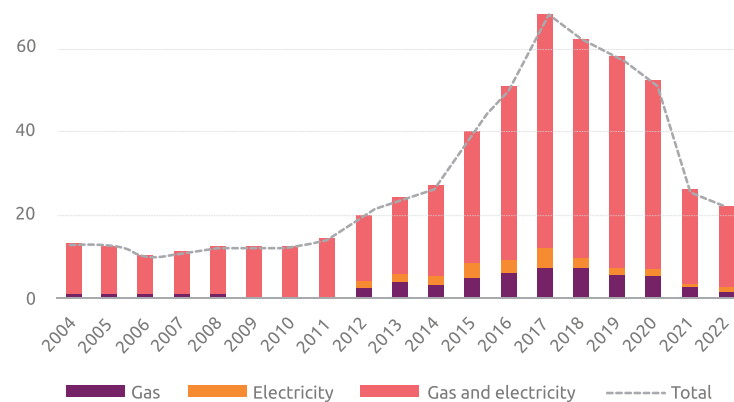


FIGURE 2

Gas supply market shares by company (% data for Q4 of each year, Ofgem 2023)

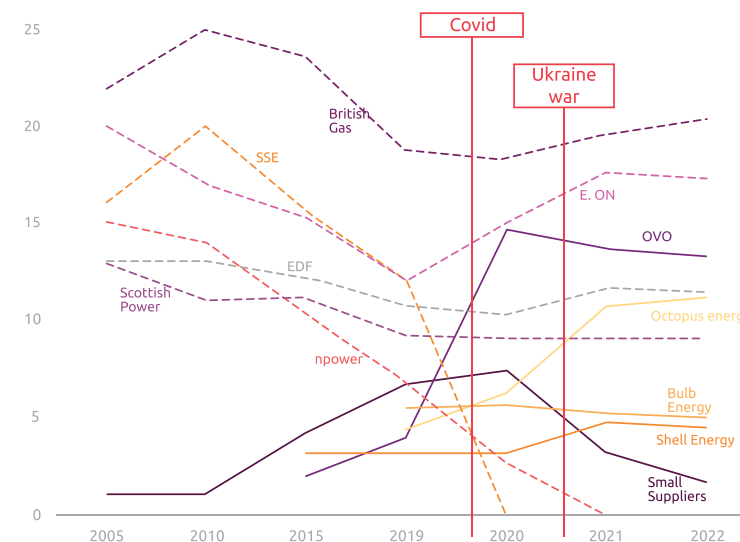




FIGURE 3

Gas supply market shares by company (% , data for Q4 of each year, Ofgem 2023)

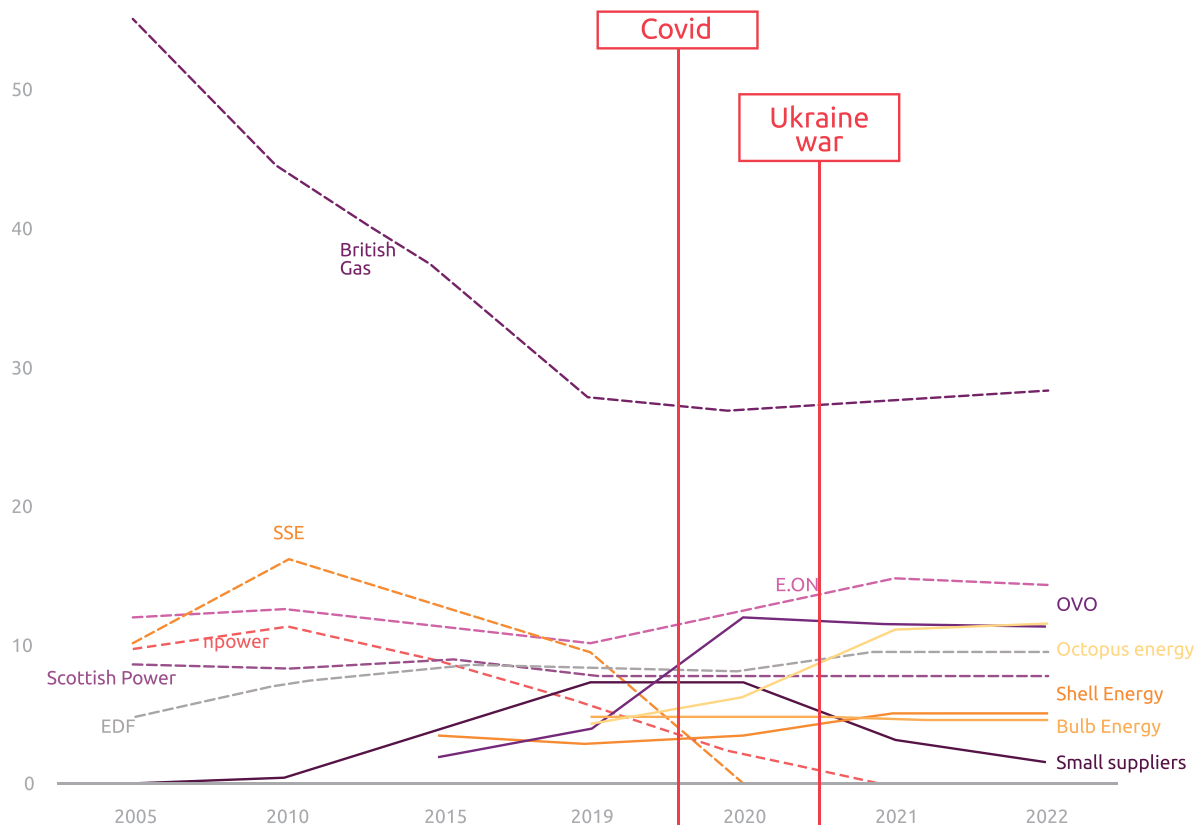


FIGURE 4

ROIC to WACC spread for top 25 global telecom operators McKinsey, A blueprint for telecom's critical reinvention, 2021

ROIC<sup>1</sup> to WACC<sup>2</sup> spread for top 25 global telecom operators, <sup>3</sup>%

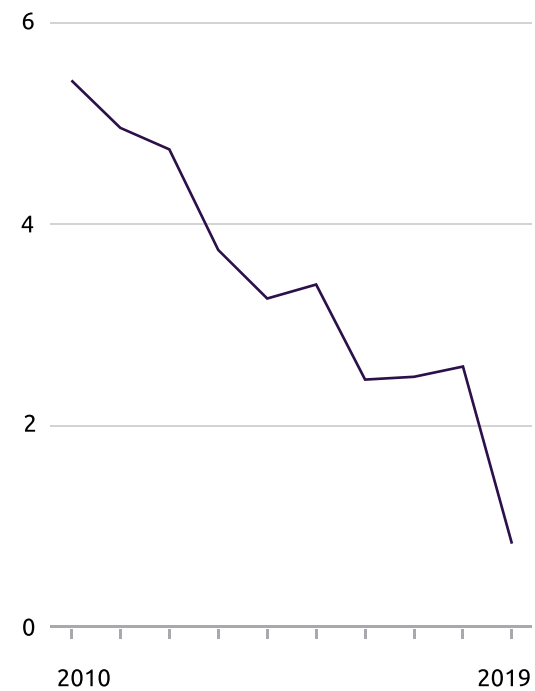
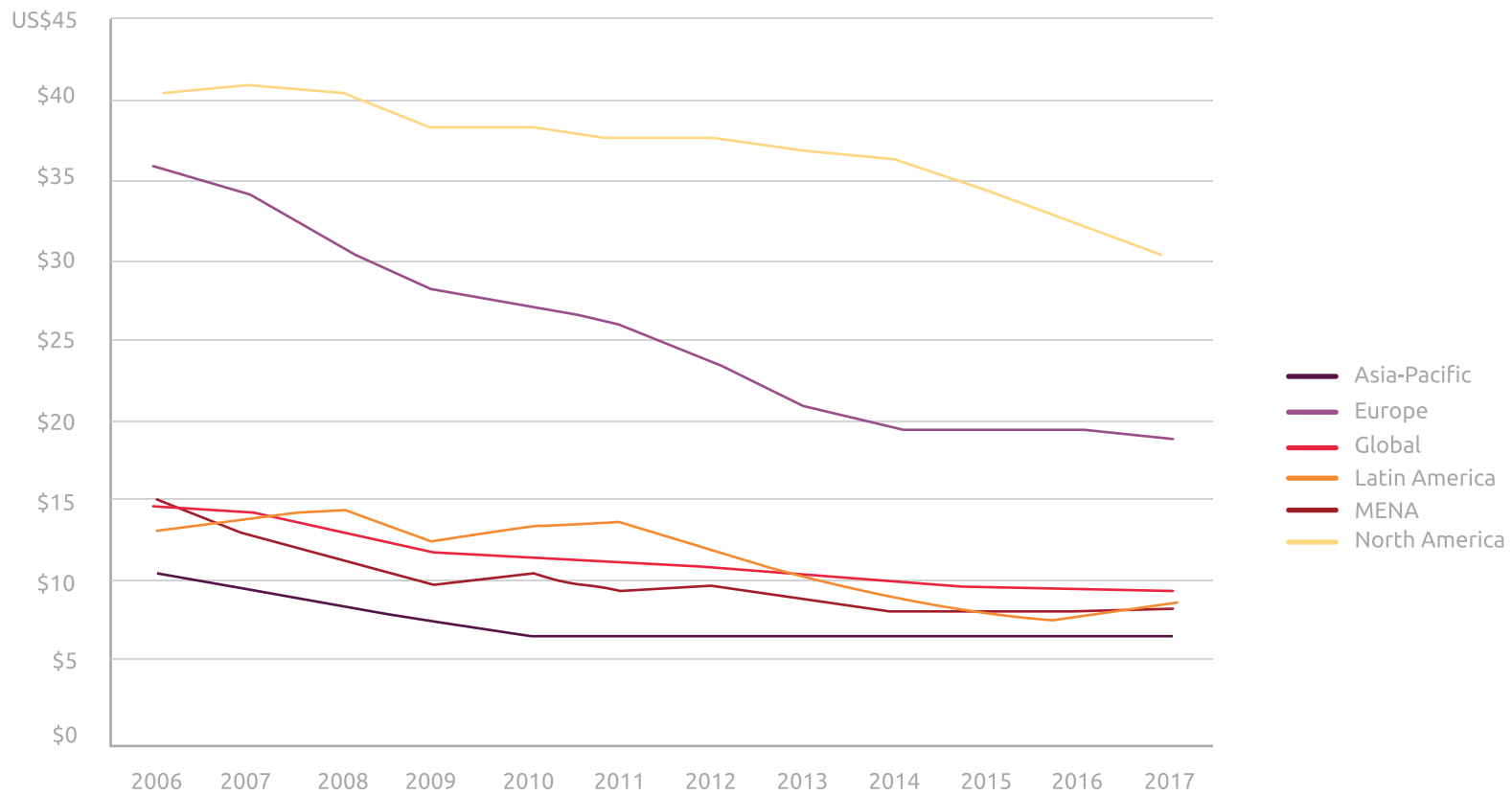




FIGURE 5

Shrinking ARPU by region, 2006-2017



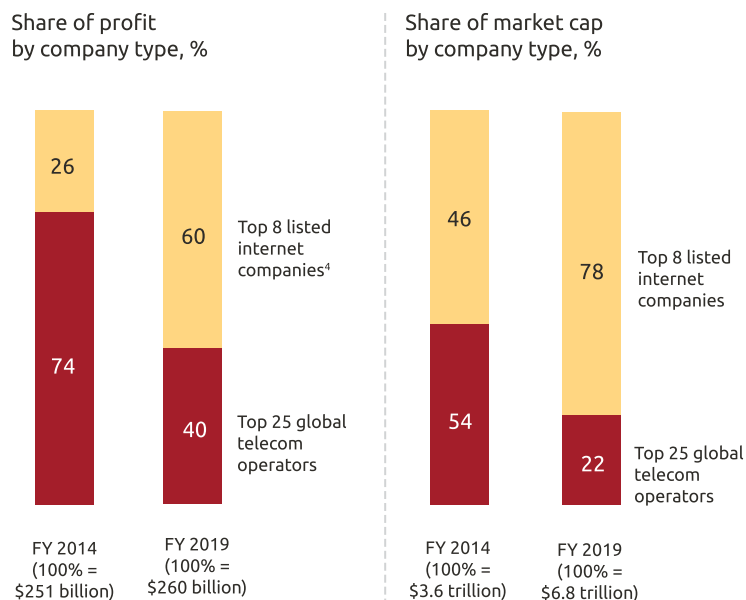
Source: TeleGeography; Strategy & research and analysis, [strategyand.pwc.com/wirelesscommoditization](http://strategyand.pwc.com/wirelesscommoditization)





FIGURE 6

Share of profit and market capitalisation, by company type  
McKinsey, A blueprint for telecom’s critical reinvention, 2021



### How the telecommunications sector tried to adapt

To address the increased churn and reduction in ARPU, communication service providers (CSPs) have been forced to look at how they can improve their customer experience and stickiness by unlocking new sources of revenue outside their core business. These have included forays into financial services, television, IoT and many others to try and generate increased ARPU and stickiness with their customers.

The industry has undergone, and to some extent, is still experiencing a significant transformation. Enormous investments have been made in digitizing their operations, aiming to enhance efficiency and the customer experience. Concurrently, they've also dedicated resources to creating a plethora of entirely new services, such as BT TV by British Telecom.

In many ways, considerable improvements have been achieved, including the implementation of omni-channel and self-care solutions. Moreover, there is now a heavy focus on customer experience supported by the highly advanced analytics of customer interactions. These analytics help identify opportunities for increasing sales and gaining valuable insights. In fact, in certain instances, the insights derived from data analytics have prompted CSPs to introduce secondary digital-native brands featuring more affordable and simplified offerings tailored to specific customer segments, especially younger customers who were previously underserved.

The CSPs have increased the breadth of services offered, including new products and services not always directly linked to their core activities. Some operators proposed bundles with access to media and entertainment platforms (for instance, BT TV in the U.K. or OCS by Orange in France), gaming bundles with fiber connection and a game console, or even energy bundles.

However, in many cases, the resultant revenue and profit increase did not meet expectations and many services have since been retired. Indeed, Arthur D. Little’s benchmark of telecom diversification initiatives shows that less than 15% of initiatives generate sizable revenue 24 months after launch. In many cases, new services never really got beyond the trial stage. In many cases, new services never really got beyond the trial stage. Many CSPs miscalculated the strength of their brand. While existing customers trusted them with their core services, they often did not when it came to newly created products.

Now, when we look back at what the industry did, we can say that, in many ways, the changes undertaken were the right ones. However, these companies did not transform their culture and business approach. They simply transformed their technology, still operating as CSPs and providing additional services without creating brand alignment for those services. They should have transformed their business – and the technology should have been a consequence of that transformation rather than the goal.

Source: 2023 Lazard’s Levelized Cost of Energy Analysis

## What are the learnings that could be applied to energy retailers?

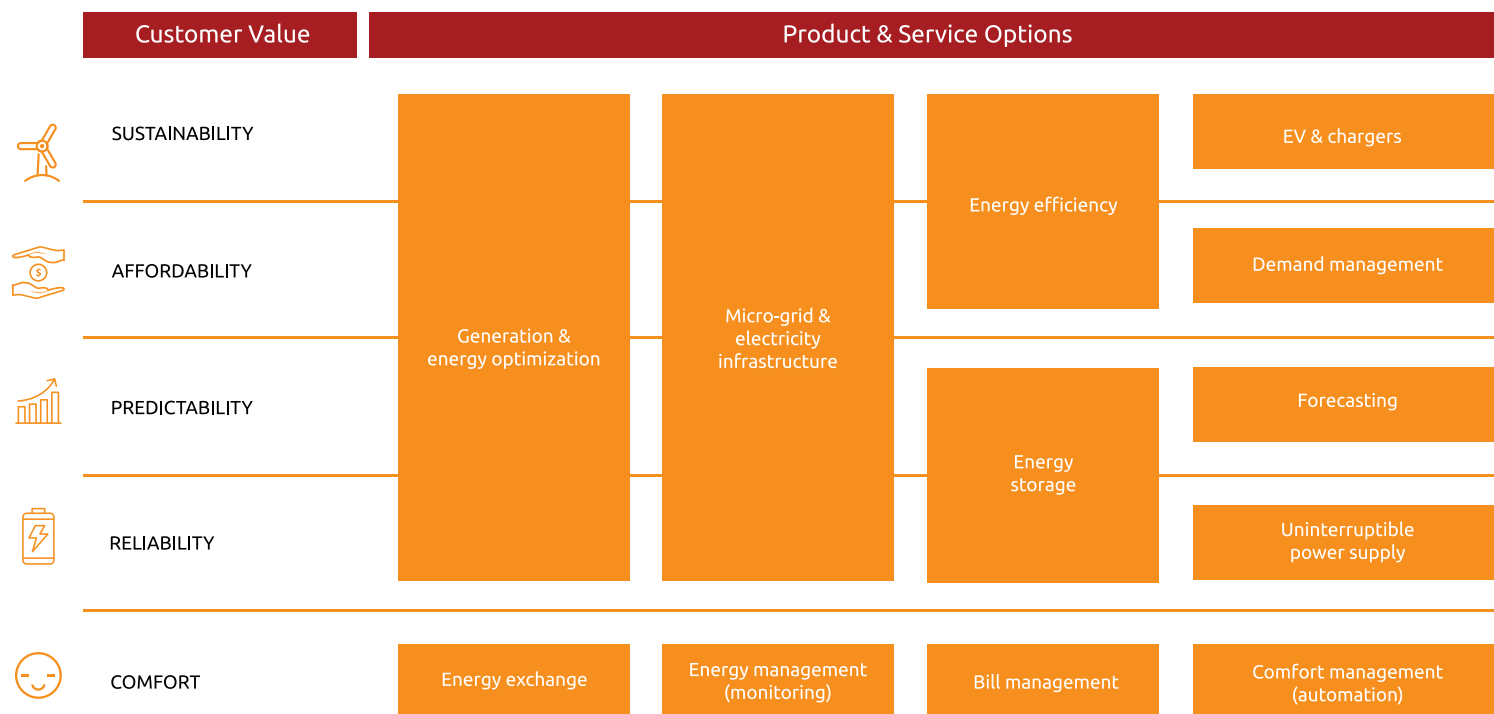
A vital lesson from this sector is that technology upgrades and the introduction of new services, while needed, are insufficient to truly transform your business. There is a need to transform your brand, business processes, and culture. The services delivered were often viewed as an addition to the core business rather than a fundamental change in the business approach, resulting in a lack of significant improvement in their business

Energy retailers have gleaned valuable insights, indicating they can diversify into new markets. This could encompass telecommunications services, as some have already done. Yet, to undergo a genuine transformation, they must prioritize investments in reshaping both their business and corporate culture. Subsequently, they can embark on the technological changes required to support their revitalized business approach.

The Telecom sector has undergone persistent transformation over the last 30 years following the widespread privatization of many of the world's incumbent service providers. However, the transformation over the last 15-20 years is primarily due to the emergence of global technology companies, who rely on the underlying infrastructure of the telecoms service providers but have managed to claim the lion's share of the value. This period coincides with an era of cost-conscious, savvy consumers.

FIGURE 7

Energy products and services' response to today's customer challenges

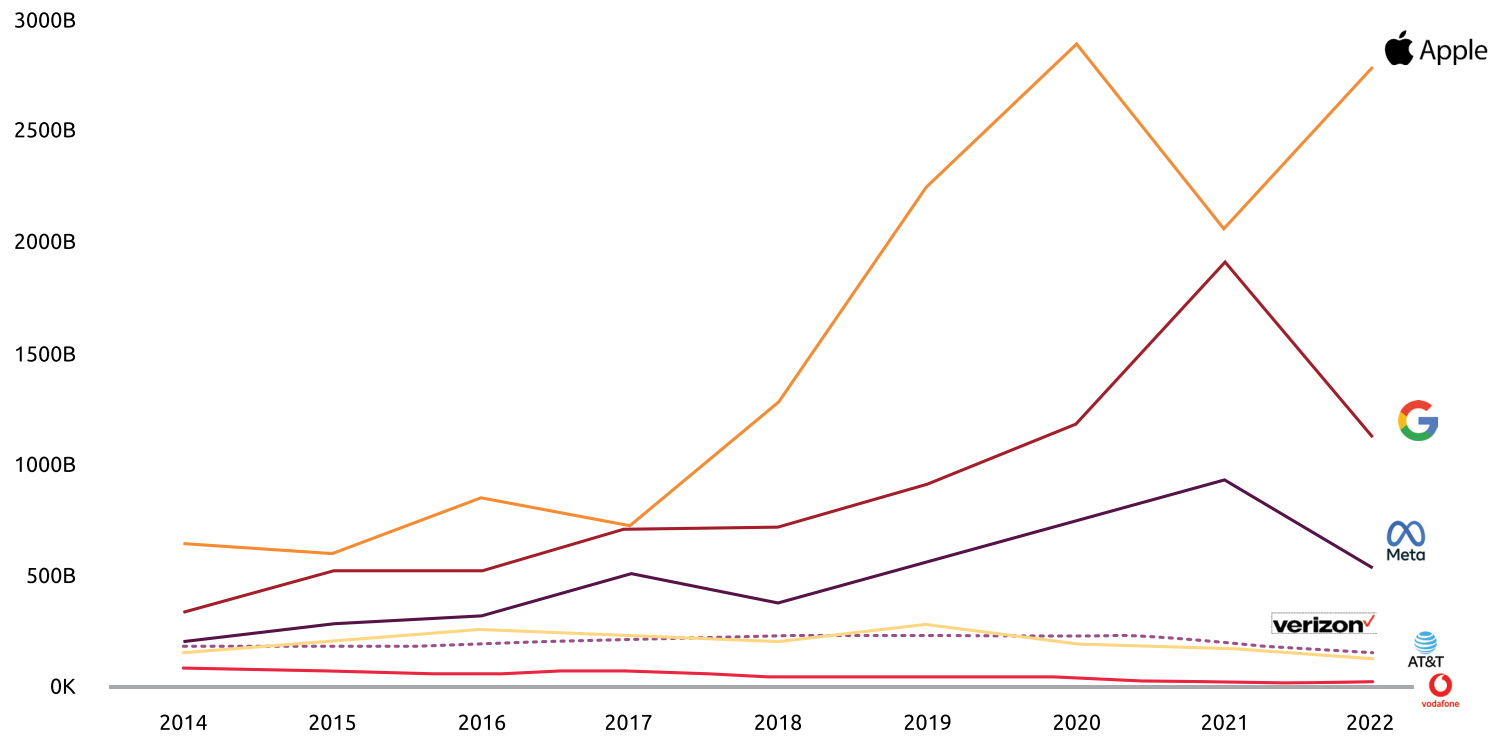


Source: Arthur D. Little



FIGURE 8

End of year market capitalisation



Source: <https://companiesmarketcap.com/>

## What telco has done well (... and not so well)

- They have tried to expand into different domains. However, if you look at their revenue, the vast majority is still from core services – the new services have not been successful.
- Why is this the case? Their systems are set up to support a small number of products that have a long lead time – telcos typically take 18 months to bring a new product to market.

Telcos have undergone digital transformation, but the resulting systems support processes similar to the original services.

The transformation has not yielded the substantial efficiency savings that were promised, even though the technology has the capability to deliver them. The challenge lies in the lack of transformation within businesses. A key takeaway for the energy sector is the importance of prioritizing business transformation over technological advancements. Technology changes should only be considered when they align with the specific needs of the business processes.

## Similarities and differences

- Mobile virtual network operators (MVNOs) are the same as retail energy providers in that they do not own the infrastructure that provides the service.
- The telco industry leveraged technology to reduce costs and increase efficiency (including AI).
- The telco industry is utilizing big data to enhance the customer experience (personalized services such as customized smart home solutions lead to increased customer satisfaction and loyalty).
- Telcos took advantage of service-as-a-platform to provide enhanced services.
- Telcos tapped into opportunities by identifying emerging technologies and trends. For example, they already use blockchain technology and AI.
- Telcos have transformed products and services by offering all-inclusive bundles – not just broadband or voice, but also media and other services.



## Conclusion

If energy retailers truly desire to transform their business away from providing energy, they need to explore what other services could be appropriate for the brand. They should determine whether they must create a new brand to support the new offerings, identify necessary business processes and cultural changes, and define the technology changes required to support these shifts.. Technology change is often mistakenly seen as the critical feature of transformation. Instead, it should be the business change that is the crucial feature that technology supports.



# CUSTOMER BIG BETS: WHAT ARE THE PAYOFFS?



VINNIE NAIR, AUSTRALIA



GAUTAM GANDHA, AUSTRALIA

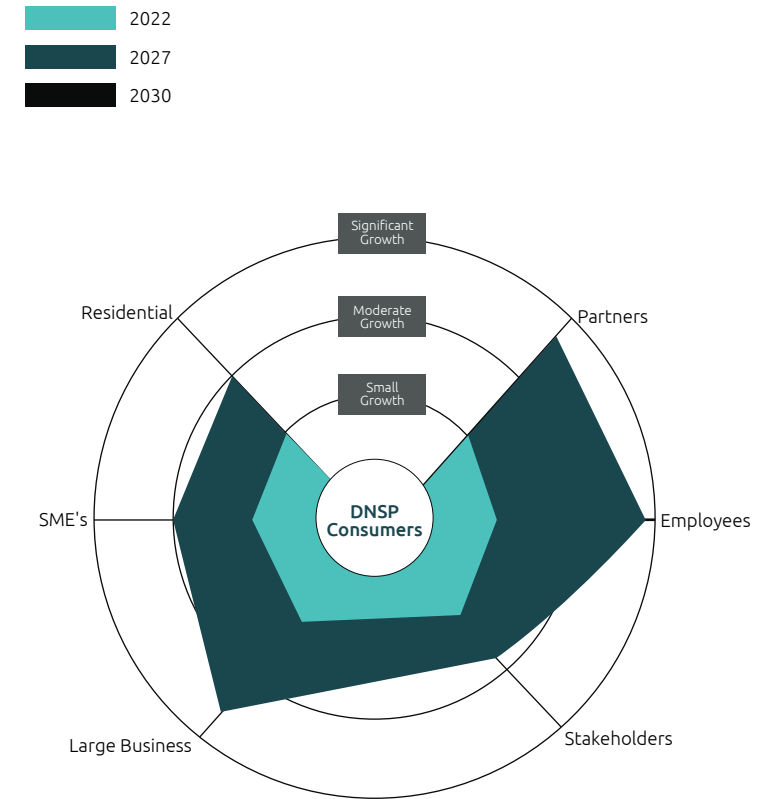
## Who are the customers?

With the changing demands, compounded by market shifts and innovation, engagement with different groups will change in the lead-up to and beyond 2030. But before we dive into those changes, who are the customers we're talking about for a typical Distribution Network Service Provider (DNSP)?

- 1. Core Customers:** Core Customers include those who are the direct recipients of the electricity and energy a DNSP distributes and are the end users of the power grid services.
- 2. Employees:** Employees of the DNSP that ensure the organisation effectively delivers its services, maintains and improves upon the grid, and provides value to customers.
- 3. Partners:** Partners include individuals and groups who assist the DNSP to provide services and maintain the grid to ensure each partner can service their customers efficiently.
- 4. Stakeholders:** Stakeholders, whilst not direct customers, have a direct interest in the organization, including, interest groups, board members, regulators, and others.

FIGURE 1

Indicative Rates of Customer Growth





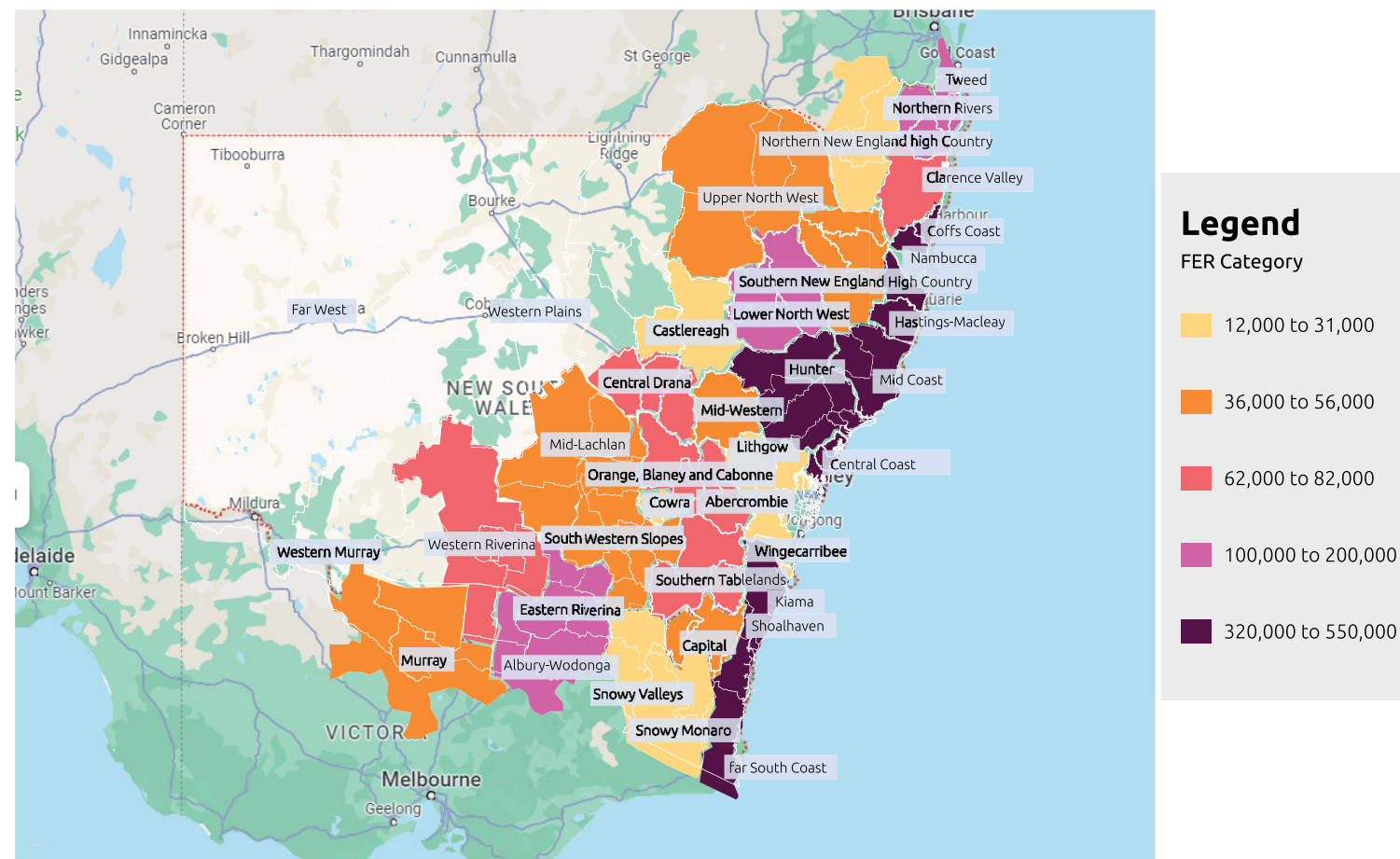
## Where is the growth occurring?

Interestingly, the numbers show that while businesses make up a much smaller percentage of the total customer pool, their impact on consumption and revenue is outsized. This will continue to gain strength over the coming decade.

## Renaissance in manufacturing?

We also predict there will be substantial growth not only in regional corridors around most states in Australia, but also a huge boom in the C&I sector due to a renaissance in the manufacturing sector. Above figure represents the projected population growth across all regions in the state of NSW.

**FIGURE 2**  
Projected population 2038





## Revenue per customer segment type

Utilities therefore need to consider the full spectrum of their customer base, not just their residential customers who, in numbers, make up the bulk of their constituents.

Consumption by business will make up 65% of total energy consumed on the network, and NUOS (Network Use of System) revenue - the revenue derived from the tariff applied to energy delivery - will reach 54% of total revenue derived for DNSPs.

## The case for an increase in the regulated asset base over the next two decades?

The energy volume to be served by electricity distribution networks evolves and space as presented in the figure. Electrification of the building and transport sectors translates into higher annual electricity demand for all net-zero scenarios, as compared to the reference case, REF.

For the E+ Scenario, the volume of electricity delivered through the distribution network more than doubled between 2020 and 2050, from 230 to 482 TWh/year. This signifies an exponential growth in the RAB across most DNSPs.

FIGURE 3

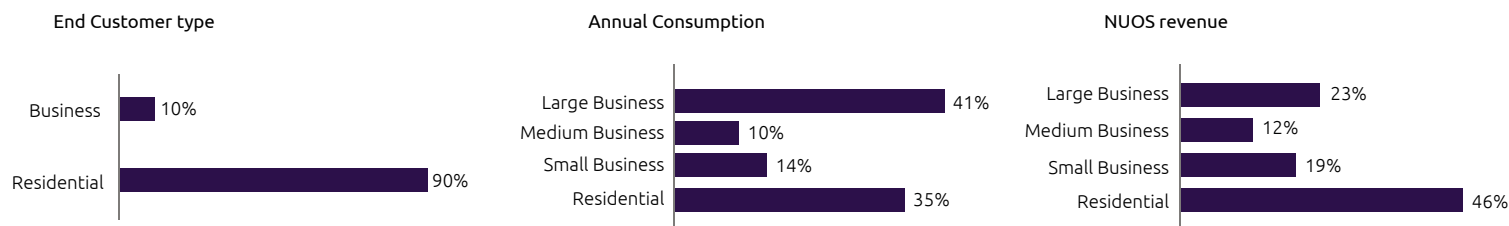


FIGURE 4

Time and space evolution of electricity demand to be served by electricity distribution networks.

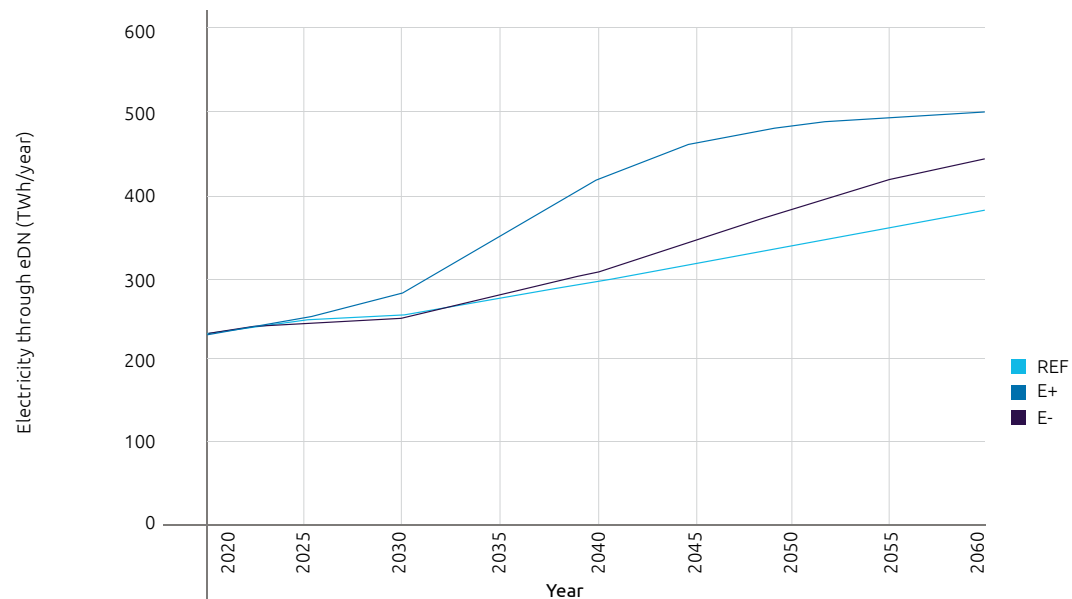
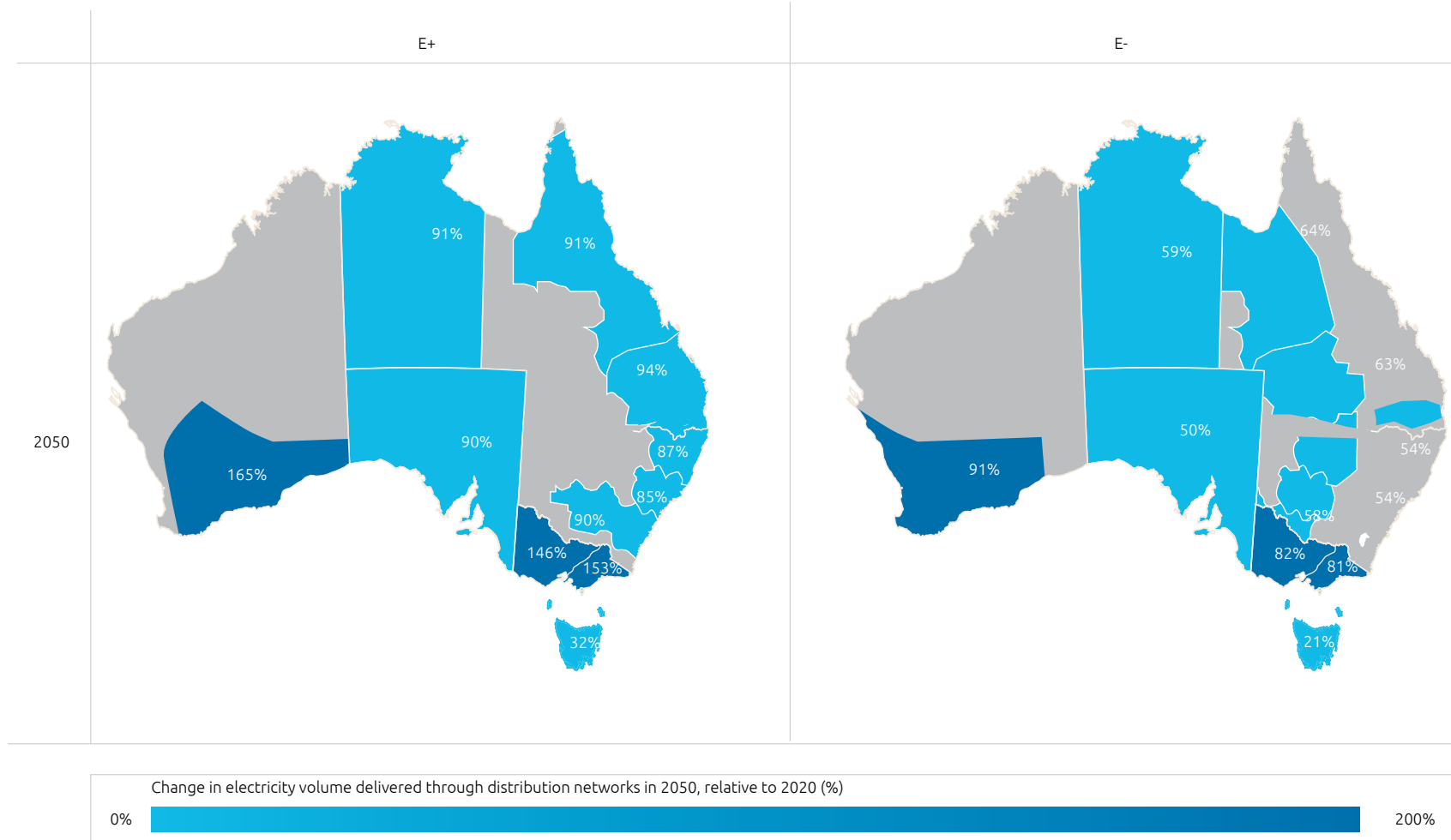




FIGURE 5

Change in electricity volume delivered through distribution networks in 2050, relative to 2020 (%)





## What investments do utilities intend to make to tackle this growth?

For any utility of the future, there are several investments they could potentially prioritise in the customer space. These investment areas represent “customer touchpoints” i.e., where the customer domain intersects other areas within the business.

**There are 4 key areas where due to rapid growth, we see consequent investment:**

- 1. Connections:** There is a significant pipeline of major projects which will need to be connected to the grid, additionally the time taken to complete large DER connections can be up to 24-60 months. Given the expected backlog, and future importance of successfully connecting DERs to the grid, investment in tools, platforms and digitising the value chain is critical. This is now emerging as one of the key risks of energy transition not just in Australia but across the world.
- 2. Call center Automation & Optimisation:** Digital tools and access to data have improved significantly, hence there is more scope for automating and optimizing call centers. Use cases can range from customer sentiment analysis, improved average handling time, and better workforce planning and sequencing. With the advent of generative AI and associated large language models there is merit in examining investment in conversational AI-like tools in a call center environment to increase efficiency gains.

- 3. Omni channel:** With the growing number of customers needing to interact with utilities, introducing omnichannel capabilities will provide increased options for interaction. Given utilities need to interact with a multitude of customer types there is benefit in exploring one landing platform for all customer interactions.
- 4. C- Data ,CRM and API:** Investing in customer data, a CRM platform and APIs to draw data from separate sources will enable utilities to better segment their

customers, hence enabling a single voice of the customer from a platform perspective. For example, a query run to look up the list of life support customers will yield different results each time due to the disparate nature of systems. The cost of regulatory burden is exponentially increasing, and it is imperative that utilities employ innovative methods to manage their ever-demanding customer base.

FIGURE 6

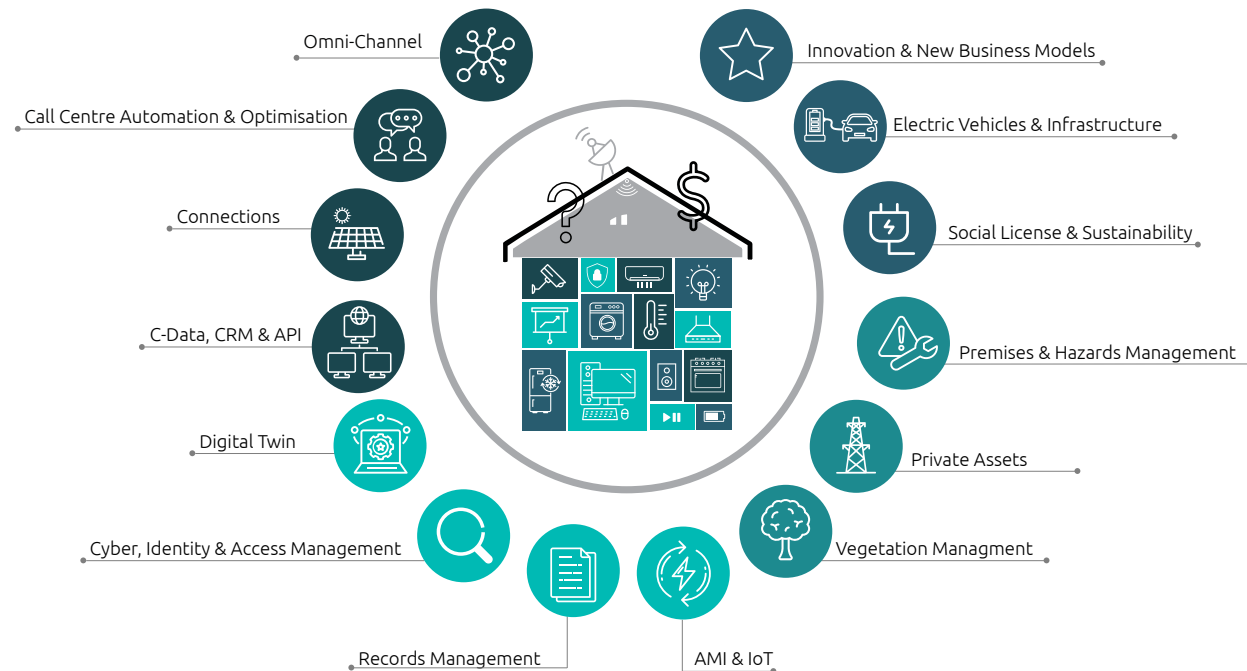
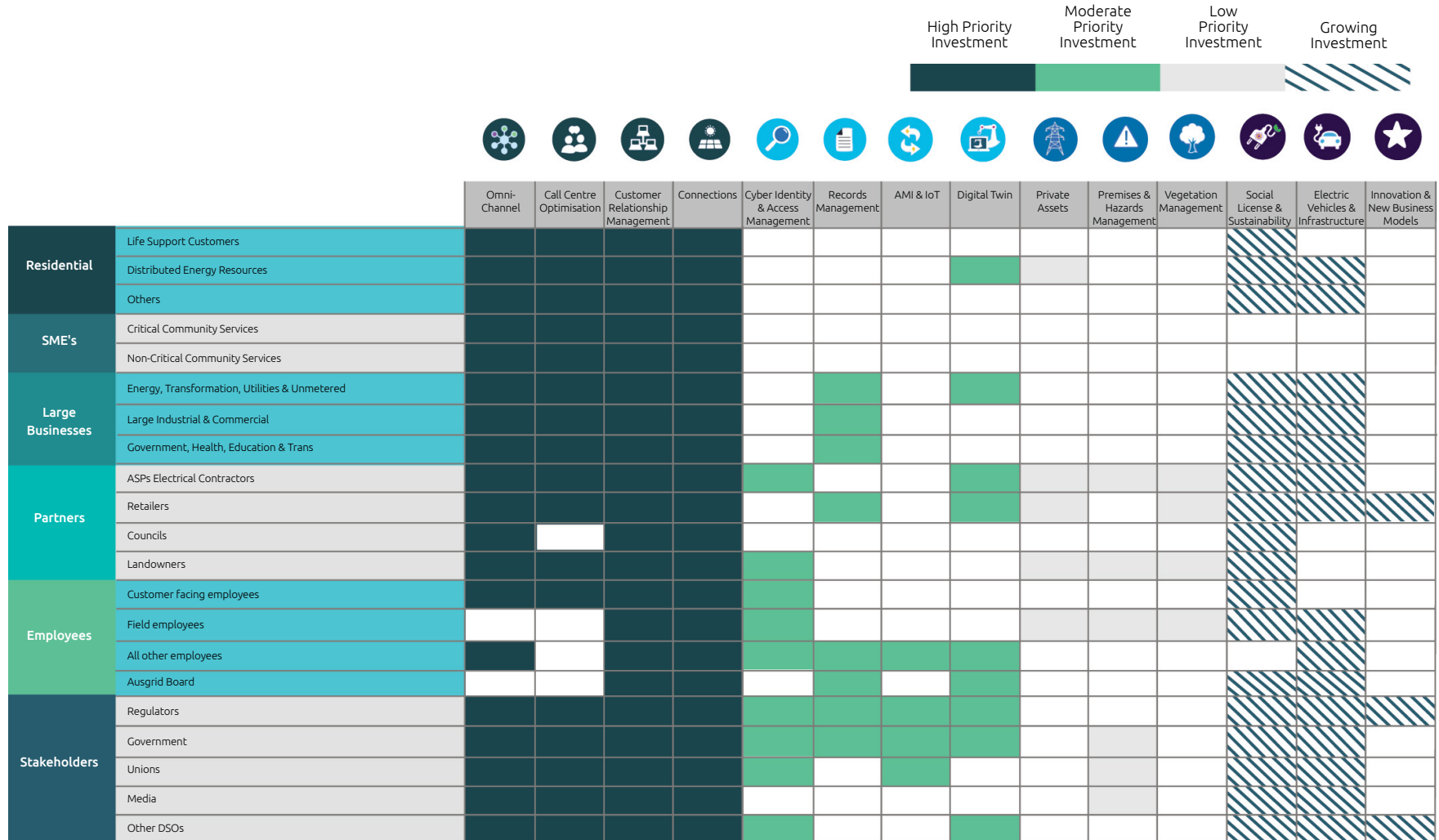




FIGURE 7





## Deep dive on investments & their priority to utilities



### OMNI-CHANNEL

- The uplift and consolidation of multiple channels (website, call center, email, etc.) through process automation, customer sentiment analytics, self-serve, customer-centric language and post-interaction surveys to enable customers and partners to utilize a single source of truth for their needs whilst iteratively improving and streamlining the overall experience.



### CALL CENTER AUTOMATION & OPTIMIZATION

- Uplifting, optimizing, and automating processes and technology to improve the call center experience before, during, and after call center interactions along with improved workforce management, modernized training, accurate forecasting, scheduling, and workload management. Enabling call center staff to ensure customer satisfaction with minor manual effort.



### CONNECTIONS

- Prioritizing improvement to the end-to-end connections process through automation, manual effort removal, safety risk reduction, digitized forms, efficiency management and reduction of cycle times to improve the customer experience and move customers forward.



### C-DATA, CRM & API

- The consolidation of direct and related customer data in a singular digital platform used to manage customer and stakeholder relationships, interactions, data and requests. Enabling a CRM system with an API infrastructure to create a single view of customers and bring together the necessary data with a clear understanding of the customer journey.

DESCRIPTION

TRENDS

- Deploying chatbots and other automated services to provide 24/7 support available for customers and facilitate faster response times.
- Enabling automatic payment options and receipt generation.

- Machine learning to develop consistent, programmable answers to FAQs, freeing employees to focus on more high-value queries.
- Operationalising real-time data analytics to send context-appropriate auto-recommendations and notifications to customers.

- Many Australian distributors are prioritizing improving their connections process due to renewables, EVs, and 2-way energy.
- Utilizing new technology to optimize and automate parts of the connection processes to increase the speed of connections setup and operational safety.

- Connecting the CRM to different systems using APIs within a strategic API architecture means getting access to the right data via automation with reduced manual handling
- Proactive notifications and service requests

EXAMPLES

- The Australian Gas Light Company (AGL) is using full Khoros Platform (digital customer engagement platform) to plan content on social media, respond to customer concerns, and deflect volume from their contact center. **AGL responds to 72% of inquiries within an hour and has a calculated ROI of over \$1 million in just one year of partnership with Khoros.**

- Origin Energy has deployed Amazon Connect, a cloud-based contact center platform that will provide smart interactive voice response (IVR) capabilities for the company.
- Origin, in partnership with UK's Octopus Energy developed Retail X in 2020 for the rollout of Octopus' cloud-based platform 'Kraken' across Origin's retail business to improve the customer experience. **The company in February 2022 said, the Kraken platform saved \$70m to \$80m.**

- In February 2022, Evie Networks selected Sitetracker for rapid push towards Nationwide EV charging network. Sitetracker will provide Evie Networks with a cloud foundation for their rapidly scaling business, managing their increasing **volume of sites and ultrafast chargers with intelligent project templates, access to real-time data from the field, and financial data and asset management in a single platform.**

- In June 2023, AGL switched its **CRM platform to Salesforce** as they intend on improving CRM interface and the user experience for the frontline staff. Further AGL is implementing Appian for low-code process automation as part of the same retail transformation effort.

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# COMMODITY TO SERVICES – HOW THE MARKET CHANGES ARE POINTING TO A VERY DIFFERENT PLAYBOOKS FOR UTILITIES.



HARI KRISNAMURTHY, USA



DRAKE RYANS, USA



ALEXANDER HOWARD, USA

## What role are you going to play?

**As the utilities industry confronts the necessity to move toward a net zero future, the law of conservation – that energy can neither be created nor destroyed – becomes even more relevant. In the context of the electricity market, the forces of decarbonization, decentralization, and digitalization, are analogous to energy forces. Then, the question in the U.S. market is: How long do market leaders have to respond to these forces? As we recognize that these market pressures will not disappear.**

While U.S. utilities have been navigating deregulation for over two decades, it has primarily affected the demand side of the value chain. So, vertically integrated utilities have been insulated as owning transmission and distribution lines protects their market position. Compared to the rest of the world, the rhythm of the U.S. market is different for this reason. However, the energy transition could create a dynamic where these leaders cannot lean on their infrastructure as a form of protection.

Decarbonization has introduced a new market segment in the utility space where status quo advantages might not prevail. It is creating a new rhythm in the U.S. utilities market: new services, a new class of players, and a different class of investors. Technology companies with battle-tested engagement models, leveraging IoT infrastructure to enter the space, are working to position themselves as a layer in between customers and their electricity providers.

Automotive companies can also not be ignored. More specifically, electric vehicle manufacturers as they have the potential to accelerate energy disintermediation. In a not-too-far-away future, electric vehicle owners will be less dependent on their utility company as the singular source of electricity. Venture capital firms are also entering the utility industry, via energy management startups – ready to capture the deregulated, energy services market segment. The barriers to market entry have been lowered by energy management and electrification.

There will also be competitors that market leaders could not have predicted. Just look at what happened in Sweden, where IKEA sells renewable energy directly to consumers. But as we previously mentioned, the U.S. market is different from the rest of the world, so the change will not be as severe, and competition will not come from as unlikely places. Still, change is inevitable. In the next era of the utilities industry, market leadership will be defined by adaptability. While there will always be a role for a Utility to play, what is will be determined by how they respond to market changes.





### Market value follows the technology.

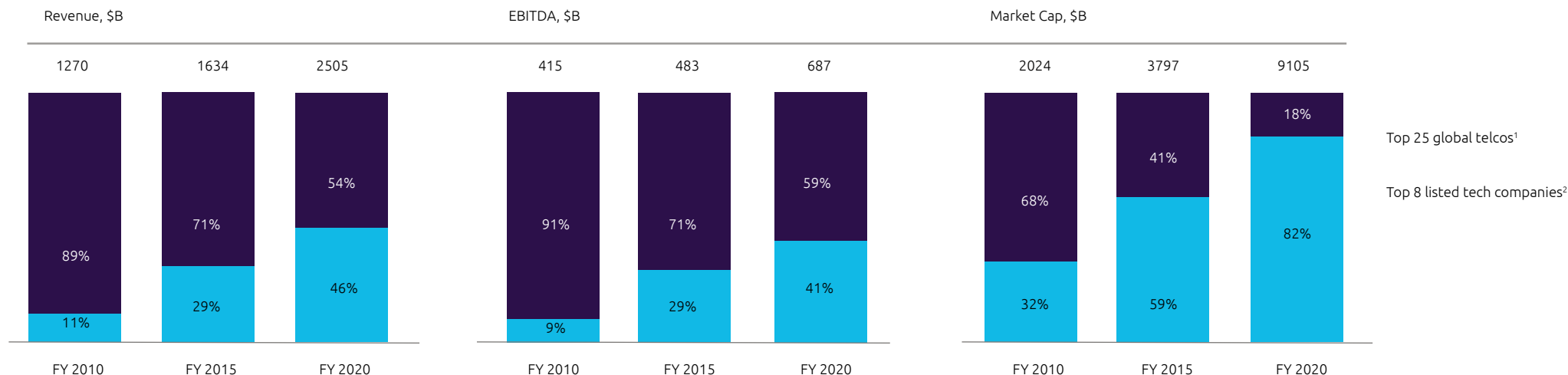
Leading utilities must acknowledge the transformative power of technological advancement. And the utilities market could learn from the recent experience of legacy telecommunication providers, where the proliferation of new services and applications upended market dynamics.

Despite relying on telecommunications infrastructure, companies like Apple, Google, and Facebook— technology companies focused on products and services that connect with consumers emotionally and improve their lifestyles – have emerged as market leaders over the last decade.

### On several measures, the growing performance gap between telco and big tech companies is stark

In the utility industry, with distributed energy resources and AMI bi-directional communication, new firms could emerge as leaders by using existing utility infrastructure to generate enormous value and opportunities.

FIGURE 1



## Shareholders, regulators, and moving toward the future.

Historically, utilities have succeeded by playing it “safe.” Unlike, other industries, where companies flourish by innovating to meet the needs of their customers. In fact, investors expect utilities to exhibit signs that resemble bonds more so than a technology company

It’s not just conservatism that’s at odds with technology-driven business model innovation, it’s the profit structure of the traditional business model. Rather than adapt to a changing landscape and innovate on behalf of consumers, investor-owned utilities are required to maximize shareholder value through infrastructure investments. Under cost-of-service regulation, utilities are expected to stay the course and introduce improvements via centralized capital expenditures instead of developing a technology ecosystem that could better meet the needs of customers.

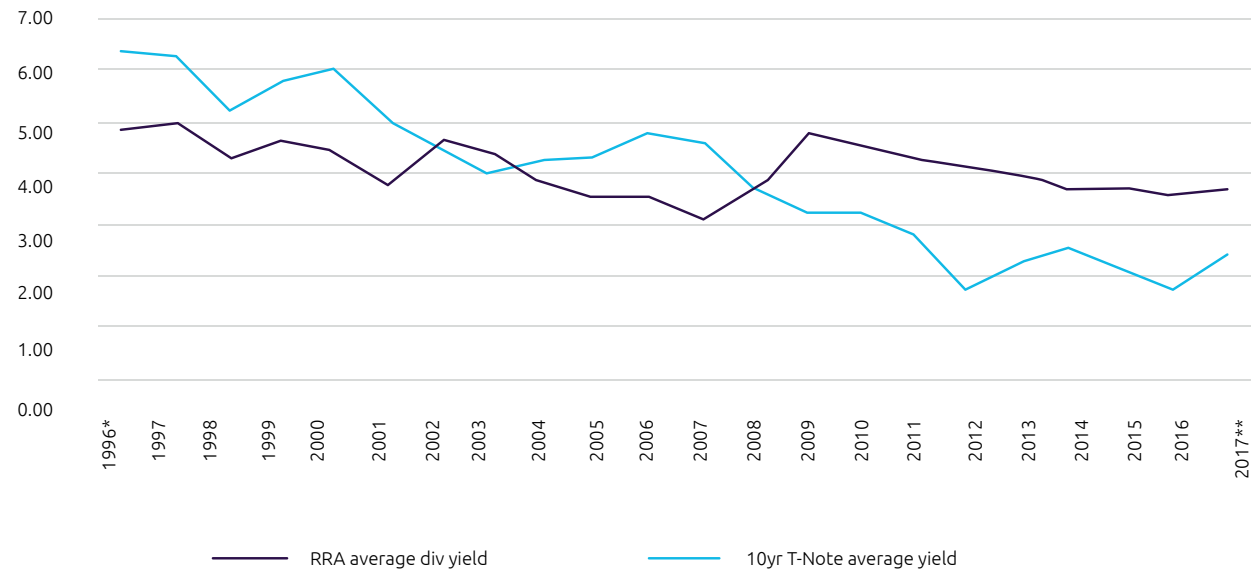
Despite the concentrated market power of investors, services and applications are still on course to transform the utilities industry. Because this market disruption exists beyond the control of shareholders, a different governing force is evolving to accommodate this structural change: regulation.

Policy changes are unfolding alongside these technical developments. Overall, changes in technology and policy operate symbiotically, with grid advances driving changes in policy, and the grid evolving with new policies.<sup>2</sup> What we’re witnessing today with the growing adoption of renewable resources, DERs, and grid modernization technologies is the interconnectedness between technology and policy.

While policy intervention could enable market changes that help advance socially beneficial innovation for investor-owned electric companies, they could also create an environment for utilities to adopt a new playbook.

FIGURE 2

Average Utility Dividend Yield vs 10-year Treasury Yield 1996 - 2017



Source: SNL Energy, an offering of S&P Global Market Intelligence



## Transportation electrification accelerating industry transformation

A new dimension is being ushered into the utility sector due to the electrification of transportation and the growing adoption of electric vehicles (EV): services that create a multibillion-dollar opportunity for individual utilities and third-party companies. If utilities don't evolve their service model, they could cede the opportunities created by EVs not only to energy-as-a-service startups but also to the technology industry and car makers.

### The Tipping point

By 2030, EVs are projected to represent 53% of the transportation market<sup>3</sup>, and the scale of impact will be unprecedented. The electrification of transportation provides consumers with flexibility and monetization opportunities to become prosumers and redefine their relationship with electricity providers and the grid. This paradigm shift will accelerate the industry's transition to a consumer-centric model, meaning consumers will start having a different relationship with their traditional electricity providers.<sup>4</sup>

*“Utilities will eventually not be so much control anymore as they used to be in the past.”*

### Time to Change

The commercialization of new services means traditional investors and utilities cannot rely on the predictability and comfort that comes from their current positioning. As these changes develop, this deregulated segment of the utilities industry could reflect the governance seen in other industries, where customer expectations are the guiding force. While the timeline of technology maturation and regulatory changes is uncertain, what is clear is that the electricity sector is overdue for transformation, and maintaining market leadership will require customer-driven service model evolution.

Technology-driven transformation also attracts the venture capital ecosystem. Early-stage venture capital investments in startups developing solutions for distributed energy resources (DER) and grid management have more than doubled since 2015.<sup>2</sup> In contrast to traditional utilities, these software-based organizations operate have digital business models, and this provides them a strategic advantage when it comes to designing intuitive and desirable experiences for end-customers.



## Finding a north star in shifting market dynamics

In this changing environment, there will be constants and optionality, the constant being that utilities must change fundamentally, the optionality being that there are many viable paths forward.

### Ecosystem services

Octopus Energy, one of the fastest-growing companies in Europe, evidences the power of pairing a customer-centric software-enabled business model with clean energy products and services.

To support electric vehicle owners, Octopus Energy partnered with leading automakers to create Intelligent Octopus. This service helps consumers optimize their charging time and save money on energy bills. By building an ecosystem of products and services on the foundation of its software model, Octopus Energy has gained an 18% share of the U.K retail energy market.<sup>3</sup>

### Strategic partnerships

Green Mountain Power has taken the partnership approach to developing cutting-edge DER services for its customers. Its collaboration with Tesla should serve as an example of the potential of cross-sector partnerships.

Green Mountain Power allows its customers to acquire a Tesla Powerwall through the utility's power-sharing program, and in 2021, this program saved the utility over 3 million dollars. When taking into consideration, the size of Green Mountain Energy's customer base, 270,000 residents, it's an impressive result.

### Innovation from within

Duke Energy and National Grid, represent two examples of efforts made by traditional utilities to pursue customer-centric innovation and industry disruption, from within, albeit with different risk profiles.

Duke Energy's Lighthouse, a digital transformation program, accelerates innovative solutions across the enterprise and challenges the status quo with smart solutions for customers. National Grid's National Grid Partners is its corporate venture and innovation arm, and today it is the only VC with a global network of over 100 utilities. The way it got there was by building a portfolio of startups that focus on the end-customer of utilities.

### Utilities as a platform

The platform model approach could be the revolutionary opportunity that enables utilities to pioneering cutting-edge service offerings. In the context of the utility industry, the concept of a platform business model should be interpreted as defining new methods for how market participants meet

and exchange value; one key implication of this model is that business success is not completely dependent on the traditional economies of scale utilities have relied on in the past. Still, they can achieve a different form of scale by playing the role of the orchestrator: connecting various stakeholders and third parties to deliver a compelling energy management value proposition.

Utilities in vertically integrated markets are exploring the concept, and the distributed system platforms proposed under New York's Energy Vision provide one of the most visionary examples.

New York's Reforming the Energy Vision initiative is catalyzing a shift away from the traditional utility model to innovative business models compatible with a more distributed energy future. A core tenet of this effort is to focus on market-based solutions as they enable utilities to diversify their revenues and become less dependent on the rate base for profitability. What this program and other similar initiatives are trying to overcome is the underlying reasons why utilities don't pursue innovation.

What differentiates this approach is that utilities could establish new revenue streams through the value they help each ecosystem player generate for end customers.





## Are market changes pointing to a different set of playbooks for utilities?

Over the next ten years, the nature of the utility sector will continue to evolve as new dynamics will introduce competition across the utility value chain and spur more demand for services.

Several types of industry leaders are poised to deliver these key services: innovators at scale, integrated electrification companies, and digital utilities. We can briefly examine three companies that embody each persona.

### Innovation at Scale

NextEra Energy is positioned for continued success in the utility industry. The company's advanced software system and energy storage solutions not only improve the reliability of its operation but have also made it possible for the company to deliver outstanding customer value and shareholder returns. Services that create that value include allow their customers to integrate DERS into their infrastructure, while also allowing their customers to engage with a wide variety of renewable generation sources. NextEra's services align with the environment, customers, and shareholders, creating a powerful combination for value creation. It also is evidence that just the electricity commodity is no longer enough. As the industry-leading company, their willingness to push the needle and pursue renewable service innovation has resulted in a 17.4% 10-year Avg. Annualized Return.<sup>1</sup>

### Integrated Electrification

Tesla is leveraging battery storage, generation assets, software, and complementary energy management services to build a vertically integrated electrification company that gives customers unprecedented transparency to their own generation and energy consumption. As the world's only major integrated energy storage provider, Tesla's vast software offering integrates with its hardware to deliver a seamless experience for its customers across variety of services including energy storage solutions, virtual power plants, and smart grid integration. Tesla's rise also evidences the role virtual power plants will play in the future as the company is building a compelling retail energy services business without massive infrastructure investment. According to Elon Musk, his vision is for Tesla Energy to become a distributed global utility that could outgrow the company's automotive business.<sup>2</sup>

### The Digital Utility

TOctopus Energy owes a great deal of its success and meteoric growth to its proprietary Kraken Software System. In 2022, the Kraken Software platform expanded to become Kraken Utilities, the first all-service dedicated technology platform for the utility industry. This model enables the company to innovate rapidly, integrate with third parties to expand its service value proposition, and provide a consumer-centric electricity experience that is transparent and continuously improving. While still in its first year since inception, experts believe that a digital utility could one day be valued at more than

\$200 billion and deliver top-quartile reliability and customer experience while keeping customer rates among the lowest in the industry. <sup>4</sup>

### Conclusion:

The utility industry's future will be defined by players who adapt their operating models and adopt playbooks that chart a path beyond pure commodity, toward a suite of services. As a result, they will remain strategic partners to their customers as their needs and expectations evolve. Shareholder returns and market value will follow technology, which continue to be even more interconnected with policy and customers. So, services are the future of the utility relationship between consumers and electricity providers; the companies that will succeed and emerge as market leaders amidst the energy transition will be the ones that provide them.



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