



The Future of Utilities

Special Report 2014

marketforce
mobilising knowledge in business




CONTENTS

Foreword	4
One – Overview	5
Two – Improving Customer Operations	8
Three – Innovation in Asset Management	12
Four – Water Industry	15
Five – Energy Generation and Policy	18
Six – Energy Networks & Smart Grids	21

THE FUTURE OF UTILITIES

SPECIAL REPORT 2014 - FOREWORD



In 2011, Marketforce produced a special report on The Future of the UK's Energy and Water Industries. Our findings showed that both sectors sought a better market with more effective price signals.

Three years on, we wanted to take the pulse of these industries again: to understand how priorities and perceptions have changed for two sectors that are battling intense political pressure over affordability and security of supply and to look to the future in order to establish the areas of greatest concern in the long term.

At the beginning of this decade, those in the energy business felt that in order to incentivise both the scale and type of investment required to enable new capacity, market reforms to improve price signals were needed. Our water respondents were most concerned by the almost complete absence of price signals, from abstraction through to supply, which severely hampered their ability to match supply and demand.

In 2014 we have sought to understand how, and if, the mood of the utilities sector has changed. We also wanted to expand the scope of our research. We have covered not only generation, energy policy and the water industry but we have also looked in more depth at two themes with resonance for certain groups in both energy and water: improving customer operations and innovation in asset management. We have once again explored the issues affecting energy networks in our report but with a particular emphasis on smart grids.

The responses to our survey have been enlightening and thought provoking and for those of you who contributed to this research, we thank you. We would also like to thank WNS and IBM for their thoughtful responses to the survey findings in our chapters on Improving Customer Operations and Innovation in Asset Management. We hope that you find the following analysis insightful.

David Saunders
Managing Director
Marketforce

CHAPTER ONE

OVERVIEW

2014 started as 2013 ended, with utility companies under fire for rising energy bills and poor customer service¹.

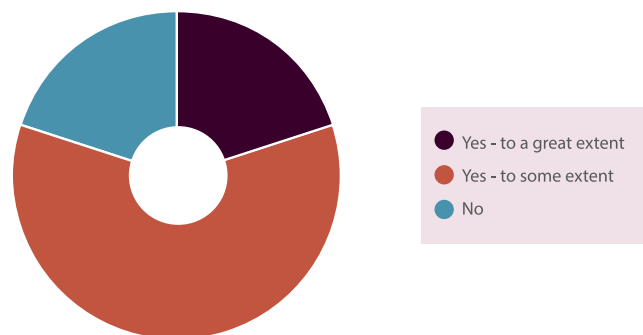
While some of this criticism may be deserved – a string of fines and admonitions from Ofgem for mis-selling, poor service and lack of transparency tells its own story – the debate has grown increasingly shrill and opportunistic. Media reporting of the industry now comes with its own lexicon of a 'broken' energy market which is failing to deliver for consumers. Politicians have stoked the emotive discourse, ensuring a highly publicised grilling of energy company bosses by the Energy & Climate Change committee in October 2013². The result is that consumers don't trust their utilities suppliers: 93 per cent of our respondents identified a trust deficit in the sector.

Whether deserved or not, there is no denying that this storm of criticism comes as our utility companies face a once-in-a-generation challenge. With a substantial proportion of current generating capacity scheduled for retirement over the coming decade, reducing our buffer to withstand supply disruption at times of peak demand, and looming legally-binding low carbon targets requiring a shift to new capital intensive low carbon technologies, energy companies must square this massive investment requirement with the affordability agenda. Water companies are not immune, maintaining ageing infrastructure and investing to meet the challenges of population growth, climate change and stringent water standards while also keeping a lid on bills. And respondents expect political ire to turn on the water companies next: 76 per cent expect the water industry to be the next sector to come under pressure from politicians over prices.

Yet utility companies fear efforts to tackle these challenges are being undermined by the current political firestorm:

- » 79 per cent said energy and water policy is largely driven by a desire to win votes in the short term rather than improve these sectors in the long term
- » 80 per cent believe it will be important to reduce politically-inspired attacks on utilities to restore public trust in utilities
- » Eight out of ten agree that the current political climate is threatening the ability of utility companies to secure investment

FIG 1 Is the current political climate threatening the ability of utility companies to secure investment?



Over the years there has developed a disconnect between the priorities of the utilities and those of the Government. These priorities were first identified as a "trilemma" by Paul Golby, then CEO of E.ON UK, when speaking at *The Future of Utilities* conference. While it was then felt that they could be successfully balanced, over half (55 per cent) of respondents to our survey now believe that the three aims of reducing carbon emissions, security of supply and affordability are often mutually exclusive and cannot be met together.

1. Which? Reported in February 2014 that the Big Six Energy companies had received almost 5.6 million complaints in 2013 and the latest consumer tracking from the consumer watchdog found eight in ten are worried about rising energy prices and just one in five trust gas and electricity suppliers. The Institute of Customer Service's Customer Satisfaction Index, January 2014, saw the utilities sector record the biggest drop to the lowest ranking sector and a growing deficit in customer satisfaction compared to other parts of the economy.
2. House of Commons, Energy & Climate Change Committee, 29 October 2013 oral evidence: energy prices HC 773



FIG 2

	Industry priorities to design a utilities sector fit for 21st century Britain	Industry perception of the Government's current priorities
Highest	Security of supply	Affordability
Middle	Affordability	Security of supply
Lowest	Climate Change	Climate Change

Indeed the Government's current emphasis on affordability, at a time when a substantial increase in investment is required, is widely seen as a threat to ensuring security of supply, which the industry sees as its first duty:

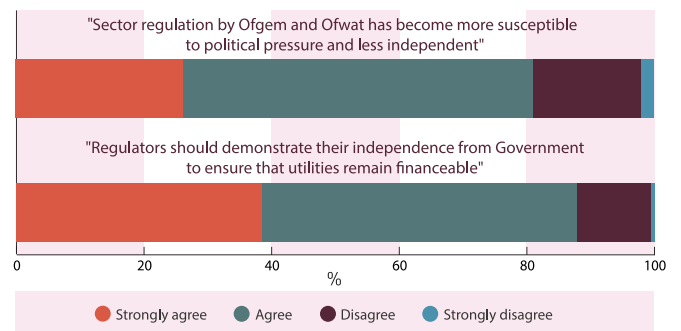
- » 69 per cent agree that the political pressure to keep prices down is having a negative impact on the attractiveness of the UK utility market to investors
- » 80 per cent believe the political climate is threatening the ability to secure investment

The regulatory response

While much of the above affects investment in the competitive power generation market, there is also concern about the perceived impact of the political climate on regulators, who not only set the framework under which utilities operate but also set the returns for the water sector and energy networks. The UK first developed the concept of independent regulation 30 years ago at the time of the British Telecom privatisation. While the structure aimed at protecting consumers from monopoly power, crucially it also sought to provide investors with confidence they would be allowed a fair return on their investment, free from political interference, by placing regulation at arm's length from government. Our survey found:

- » 81 per cent believe sector regulation by Ofgem and Ofwat has become more susceptible to political pressure and less independent
- » 88 per cent agree that regulators should demonstrate their independence from Government to ensure that utilities remain financeable

FIG 3 To what extent do you agree or disagree with the following statements on politics and regulation?



These fears are not groundless: recent months have seen analysts and rating agencies express concern at the political pressure on the sector and the potential regulatory response³. This could have long-term implications for UK resilience should political and regulatory uncertainty translate into an increased cost of capital and reduced investment.

And there is no sign of this political pressure abating, with 98 per cent expecting affordability to remain a significant political issue for the next decade.

Taking back the initiative

Despite the shrill tone of the public debate, there is scope for the utility sector to restore public trust. Indeed, our survey found there is a real appetite within the industry to regain the initiative, with 93 per cent believing that utility companies should take the lead to re-establish confidence in the sector.

3. Liberum Capital warned in February 2014 that Britain's utility firms could become uninvestable because of political interference while Moody's has downgraded water companies Thames and Anglian because of the reduced cost of capital being used in Ofwat's price review for 2015-2020.



The good news is there is plenty of scope to achieve this. Many of the factors rated important to restoring public trust are within the control of the companies, be it quick and effective response to problems of supply such as those seen in the extreme weather events of early 2014, better explanations of why price rises are required or improved communication over consumption and billing.

FIG 4 Respondents could select all answers that applied

How important are the following to restoring public trust in utilities?	
Responding quickly and effectively to problems of supply	98%
Better explanations when price rises are required and investment is needed	94%
Improved communication with customers over consumption and billing	91%
Improved leadership within utility companies	86%
A reduction in politically-inspired attacks	80%

Affordability is clearly a priority, both for politicians and for restoring public trust in utilities: 85 per cent agreed that keeping prices low over a sustained period would be important to restoring public trust. Companies may not be able to control price rises but they can take action to put them into context: after all, British energy prices are among the lowest in Europe and, ironically given the affordability agenda, six out of ten respondents agree that Government-led initiatives bear significant responsibility for rising consumer prices. Technology can also temper some of the anxiety about higher bills, with smart meters providing consumers with more information about their usage and pricing, as well as delivering clearer and more accurate bills.

Regaining the initiative, communicating clearly with customers and restoring trust will, in some cases, require a complete cultural overhaul. Effecting this kind of corporate transformation will require high level commitment and leadership: 86 per cent agreed that restoring public trust will require improved leadership within utility companies. For some firms, this may mean some tough questions must be asked of those at the top.

There also needs to be a change in the political climate to allow a more considered debate about issues of national strategic importance and secure the investment needed to deliver a resilient, low carbon future. Some of this responsibility lies with Government: 86 per cent of respondents called for less political interference in the utilities sector and 87 per cent believe that greater understanding and acceptance of the need to make an adequate return on investment is important if the industry is to secure the investment it needs over the next decade.



CHAPTER TWO

Chapter sponsored by:



IMPROVING CUSTOMER OPERATIONS

Our survey comes as the utility sector faces, rightly or wrongly, a fire-storm of political outrage and public complaint.

Utility companies not only lag other sectors when it comes to customer satisfaction but they have also lost the trust of the public. Indices of customer satisfaction routinely score utilities bottom-of-class¹, the Big Six are rarely included in most admired company lists, while consumer watchdog Which? reports that just one in five customers now trust their gas and electricity suppliers².

Our survey shows that utilities executives are only too aware of this trust deficit. Respondents put their sector on a par with banking, an industry that has seen its reputation shredded by the global financial crisis and a series of mis-selling scandals, while retailers, airlines and telcos are all judged to enjoy higher levels of customer trust.

This trust gap has bottom-line consequences: over 90 per cent of respondents said lack of trust played a significant role in customers switching energy suppliers – and recent months have seen an increase in switching, with 1.3 million customers changing supplier in Q4 2013³ – and leaves companies vulnerable to increased calls for tighter or even punitive regulation⁴.

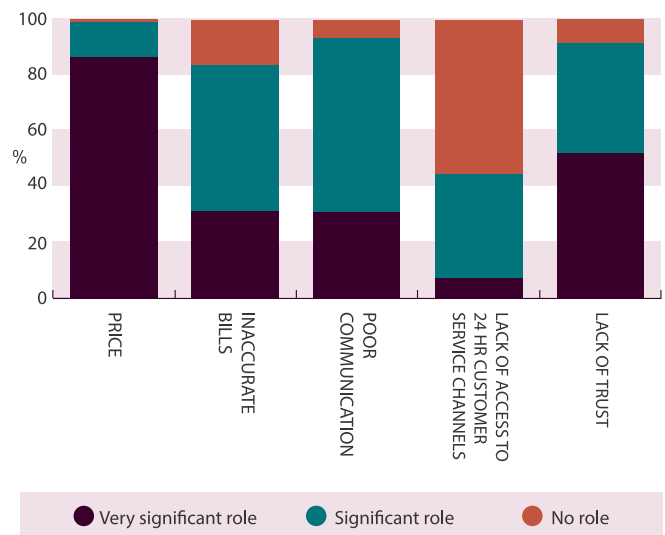
Reversing this tide of negativity will not be easy. Utility companies alone cannot address the structural and market factors that contribute to high energy prices but they can take steps to rebuild trust by improving communication and customer service.

Good to talk

Communication will be at the heart of this effort: poor communication was cited by 94 per cent of respondents as one of the most significant factors

driving energy customers to switch supplier, second only to price (99 per cent) and followed by lack of trust (91 per cent).

FIG 1 How significant a role do the following factors play in driving energy customers to switch supplier?



Good communication is a powerful tool. It has become a business truism that a well-handled complaint converts dissatisfied customers into brand ambassadors but effective communication also promotes understanding and builds trust even in difficult circumstances⁵.

Thin margins may leave little scope to reduce bills but customer anxiety about energy prices can be mitigated by good customer service backed by transparent and accurate bills. After all, utility companies not only supply essential services of water, heat and electricity but also build and maintain strategic national infrastructure, ranging from offshore wind arrays and North Sea gas fields to sewage works and high voltage transmission

¹ Institute of Customer Service, Customer Satisfaction Index, January 2014

² Which? Consumer tracking, January 2014

³ Energy UK, February 2014

⁴ The 14th Edelman Trust Barometer, January 2014, found 73 per cent of people in the UK want more regulation of energy businesses while Labour leader Ed Miliband wants an energy price freeze, a tough new regulator and a potential break-up of the energy giants should his party win in 2015

⁵ The Edelman Trust Barometer found CEOs can build trust in themselves and their companies by communicating clearly and transparently (82 per cent) and telling the truth regardless of how unpopular it is (81 per cent)



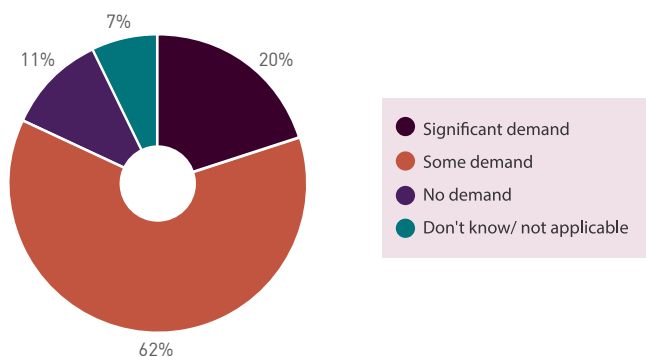
networks – and they do this at a price that is lower than the EU-wide average. Yet the debate, mystifyingly for our continental neighbours, is one about high prices rather than value for money, the factor that our respondents rated highest for its importance to customer satisfaction.

Indeed, our survey revealed a significant disconnect between what customers value and what utilities feel capable of delivering across a range of satisfaction criteria.

FIG 2

What matters to the customer?	Judged to be very important to customer satisfaction	Judged to be very good at delivering
Value for money	83%	4%
Communication	59%	3%
Accurate bills	77%	10%
Easy switching (energy)	42%	7%
24 hour customer service channels	27%	8%

FIG 3 Is there demand from customers for communication via social media and other non traditional channels?



Our respondents certainly recognise the importance of communication yet six out of ten said the sector was poor at providing good, timely communication and judged retailers and airlines to be better at communicating with customers. Research by Which?

backs this self-assessment, finding that although energy companies receive 70 million contacts a year to their customer service departments, 90% of which are phone calls, current call centre configurations are failing to meet customer expectations⁶.

Our survey also finds utilities are reticent to engage with customers on their own terms: only a quarter felt it was very important to offer 24-hour customer service channels even though 82 per cent reported demand from customers to communicate via social media and other non-traditional channels. Consumers have embraced the immediacy and interactivity of social media: Facebook boasts 757 million daily active users, some 500 million tweets are sent per day, and over 6 billion hours of video are watched each month on YouTube, almost an hour for every person on Earth. In this fevered online space, corporate reputations can be shredded in minutes by relatively small service outages. Yet utilities that harness the power of social media will be able to react quickly to customer concerns, providing real-time reassurance and customer engagement.

Words must be backed by deeds

Good communication must be under-pinned by good customer service if it is not to quickly ring hollow. Good customer service brings in its wake many business benefits, with a quantifiable uplift in trust, loyalty and recommendation⁷.

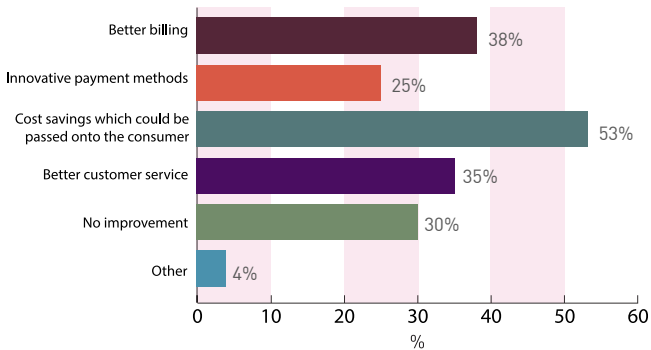
Outsourcing is an opportunity to address many customer concerns. Importantly, more than half of respondents (53 per cent) said greater use of outsourcing and shared services could yield cost savings that could be passed on to the consumer. Given that an overwhelming majority (97 per cent) identify price as the most important factor when consumers switch energy supplier, any measures that can reduce the cost to the customer should be a business priority.

⁶ The March 2013 research by Which? identified the biggest bugbears for customers as lack of free-phone numbers (39%), having to wait on hold for a long time (31%) and the use of automated choice systems (26%). Ten of the 16 energy suppliers included in the research took on average more than two minutes to answer the phone and some average call waiting times were 20 minutes or longer.

⁷ The Institute of Customer Service, January 2014



FIG 4 Which of the following improvements could be achieved through greater use of outsourcing and shared services?
Respondents could select all answers that applied



Our respondents also identified delinquency as a stress area that impacts billing: 65 per cent agreed that greater powers to collect debt and penalise non- or late payment would ultimately lead to lower bills. Given the political storm about the impact of price rises on hard-pressed households, utilities may fear to press this issue. Yet a sensitive collections approach combined with innovative pre-emptive customer contact, targeted assistance for struggling customers and the roll-out of user-friendly payment channels has the potential to improve payment rates and help nurse delinquent households back to credit and, ultimately, lower overall bills.

Smart metering, which allows customers to carefully track their usage, will also help, delivering the billing accuracy that 91 per cent of our respondents identified as being of high importance to consumers.

Yet our survey found that too many utilities are ill-equipped to offer these kinds of interventions:

- » 61 per cent agreed that utilities are good at enabling payment through digital channels. Yet given the near ubiquity of online payment in most sectors, it rings alarm bells that almost four out of ten disagree
- » Less than a third are equipped to enable mobile payments – yet analysts agree mobile payments are the future⁸
- » Only 17 per cent are using customer analytics to improve customer insight and deliver the kind of targeted interactions and customer segmentation that would improve service levels, target assistance to potentially struggling households and improve collection rates from delinquent customers

Smart metering is another technology with the potential to transform customer operations: 79 per cent of respondents agreed that smart metering and water metering represent opportunities to improve the customer relationship, particularly when it comes to improved billing accuracy, a key measure of customer satisfaction.

⁸ Forbes, January 2014, Cash is Trash: the future of mobile payment



FIG 5

The impact of product and service enhancements following the installation of smart meters and water meters	Value to consumers
More accurate billing	91%
Improved energy/water consumption data	87%
Benchmarking tools to compare consumption with other users	79%
Greater choice of tariffs	76%
Smart home products and services	75%
New payment channels	67%



WNS is a leading, top-tier, end-to-end consultative business process management company offering business value to 200+ global clients across 10 industry verticals. WNS

delivers a broad spectrum of technology, analytics and process solutions, and operates through 33 delivery centers spread across 10 countries.

www.wns.com

WNS Viewpoint

Errors in bill estimations, re-assessment of payment plans and inaccurate communication have contributed to low consumer confidence in the utilities sector. Getting these simple things right has never been more important to restore trust. Here, smart use of specific IT solutions can improve customer experience and more importantly, add real value to the business. For instance, a focused root-cause-analysis followed by designing an algorithm targeted at reducing exceptions, resulted in bringing down billing efforts by 70 per cent while reducing the exceptions backlog by over 14 million transactions for one of our clients.

Apart from providing a platform to better engage with customers, social media provides another exciting opportunity. It enables utility companies to track customer behavior and use debt propensity analytics to increase recovery rates. One of our clients has seen a 50 per cent increase in recovery rates and a 20 per cent reduction in operational costs by leveraging this model.

Legacy IT systems that impede customer service can be side-stepped by Value Stream Mapping to streamline workflow and deliver functional integration between sales, customer management, billing and other functions. Integrating customer feedback from all channels into analytical models can deliver new insights into the customer experience: we helped one client convert a negative Net Promoter Score into positive numbers and their highest NPS for ten years.



CHAPTER THREE

INNOVATION IN ASSET MANAGEMENT

The utility sector is responsible for much of the strategic national infrastructure that underpins our way of life.

The water industry, for example, supplies more than 17 billion litres of water to domestic and commercial customers and treats over 16 billion litres of waste water every day, while our gas and electricity companies generate and distribute enough light and power to fuel an economy ranked sixth in the world by GDP¹.

The sums involved in delivering a 21st century fit-for-purpose national infrastructure are eye-watering. In energy alone, private sector investment has averaged £8 billion a year between 2007 and 2011, before hitting £11.6 billion in 2012². More is needed: the UK's infrastructure pipeline identifies over £215 billion of forward investment in the energy sector, of which electricity generation accounts for £147 billion, and over £15 billion in the water sector³. Indeed, energy is by far the biggest ticket item in the National Infrastructure Plan, accounting for 57 per cent of the intended £375 billion spend.

The challenge of maintaining, upgrading and expanding the infrastructure to deliver the essential utility services to a growing population⁴ cannot be over-stated: 72 per cent of our respondents said existing utility infrastructure is poorly placed to cope with population increases in the UK's cities. They identified a number of challenges ahead:

- » Almost half (48 per cent) said access to funding and capital is the biggest challenge facing utility infrastructure today
- » The vast majority – 93 per cent – are concerned that the industry is facing a skills shortage which needs to be addressed in order to create infrastructure fit for the 21st century

- » 86 per cent believe that there is not at present enough innovation in asset management

These challenges could not come at a more pressing moment for today's asset managers, who face the costs of overhauling ageing infrastructure and investing in new capacity at a time when a highly politically-charged affordability agenda⁵ will inevitably limit the funds available.

FIG 1 To what extent do you agree or disagree with the following statements about the challenges facing asset management?

Statement	Strongly agree	Agree
It is too expensive to prioritise carbon reduction in the current climate	9%	30%
The existing utility infrastructure is poorly placed to cope with population increases in the UK's cities	15%	57%
Access to funding and capital is the biggest challenge facing utility infrastructure today	15%	33%
The industry is facing a skills shortage that will need to be addressed in order to achieve infrastructure fit for 21st Century	44%	49%
The 5 year and 7 year review periods are too short term to develop the infrastructure we need in the 21st century	36%	38%

1. World Bank, World Development Indicators database, December 2013

2. EY, Powering the UK 2013

3. HM Treasury, National Infrastructure Plan 2013

4. The Office for National Statistics forecasts the UK population will reach 73 million in 2035

5. In November 2013, the National Audit Office pointed out that the Treasury expects that over two-thirds of the planned infrastructure it has identified will be privately financed, owned and operated but paid for by consumers through their utility bills. The spending watchdog said projections showed energy and water bills will continue to outstrip inflation, on average, up to 2030.



The impact of regulation

It has long been recognised that innovation is difficult to incentivise in monopoly networks which are subject to rate-of-return regulation and lack the stimulus of competition. Both Ofgem and Ofwat have responded by devising new methodologies through RII0 and a new outcomes-based approach respectively, in both cases seeking to give companies greater freedom to devise solutions and reward innovation through the price mechanism. However our respondents are sceptical as to whether regulation, even with these reforms, can deliver the innovation they seek.

- » Two-thirds (67 per cent) think that the new regulatory approaches of Ofgem and Ofwat will only succeed “to some extent” in rewarding innovation while 27 per cent say they will have no impact at all
- » In assessing the potential of developments to revolutionise asset management, the new regulatory structures ranked lowest, with a quarter believing they were not very important in delivering a step change in the discipline
- » Despite totex and outcomes-based approaches being designed to remove a capex bias and reward whole lifecycle planning, over half (51 per cent) believe that there will still be a bias towards capex which will only be reduced to a small extent. 16 per cent believe the capex bias will remain the same while just 28 per cent believe that the new methodologies will have a significant impact in reducing the capex bias
- » 74 per cent think that the five and seven year regulatory review periods are still too short to develop the infrastructure we need in the 21st century

Cause for optimism

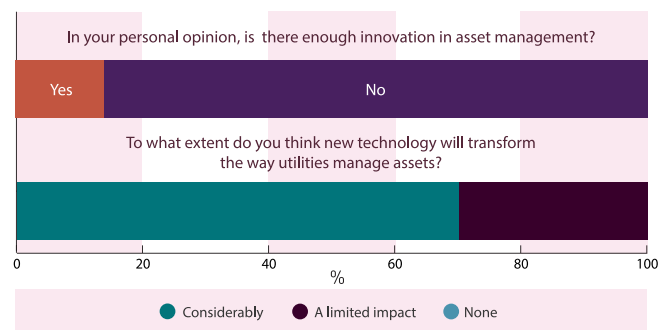
More positively however, our survey found confidence that sustainability targets can be met cost-effectively. Only four out of ten think that it is too expensive to

prioritise carbon reduction in the current climate, suggesting clear majority support for implementing the green agenda in the face of cost pressures.

And there was also widespread confidence that the discipline of asset management can make its own contribution to affordability. 97 per cent believe that effective asset management can contribute to keeping down consumer bills, with 43 per cent of the opinion that it can make a significant contribution.

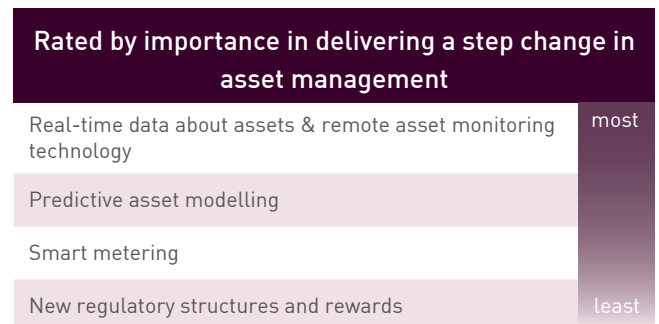
Adapting to change

FIG 2



Our respondents were very clear that new and developing technologies are the key to delivering the required infrastructure transformation. In ranking the most significant developments in the industry, technology solutions dominated and were seen as of much greater potential than new regulatory structures and rewards.

FIG 3



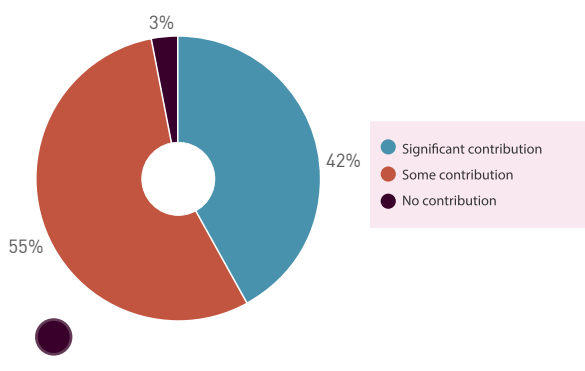
71 per cent see real time data about assets and remote asset monitoring technology as very important in delivering a step change. Sensors that can monitor



and relay real-time information about an asset's integrity and performance appear to have come into the mainstream. Combine this with predictive analytics, and utilities can make smarter decisions about maintenance, intervention and renewal of their infrastructure to reduce costs and improve reliability. Predictive asset modelling and the smart meter rollout are also seen as important.

Overall there was a confidence that the discipline of asset management can reap the rewards of the digital age, with over two-thirds (70 per cent) of the opinion that new technology will transform the way utilities manage their assets.

FIG 4 Given cost pressures, how significant a contribution can more effective asset management play in keeping down consumer bills?



The amount of data available to organisations today —about customers, competitors, operations, risk, regulations, and the market— is overwhelming. But once harvested, organised and analysed, it can help you take decisive action and improve outcomes. IBM Global Business Services applies deep business and industry knowledge to identify where critical insights can be found and delivers robust business analytics and optimisation solutions to capture and act on those insights and produce better outcomes across your enterprise. www.ibm.com

IBM Viewpoint

The survey results are in line with the views that IBM has seen expressed by Energy & Utilities companies throughout the developed world. Ageing assets and an increasing loss of knowledge in an industry beset by change are fundamental issues shared by many. The provision of high quality Energy & Utility services are essential for the development of the UK economy and the continued quality of life we have all come to expect. To meet this challenge we need to ensure optimal investment in infrastructure and asset operations, and we need to work smarter to make sure bills remain affordable.

The Energy & Utility network businesses are going through a transition similar to that which those of us in the Information Technology industry have already experienced. We are moving from a centralised to a distributed business model, from a model where network assets were managed, maintained and operated centrally, to one where embedded “smart” technologies will increasingly monitor and control the assets, whilst generating very large volumes of data.

The new Information Technology and Operational Technology (IT and OT) capabilities that Energy & Utility companies will need to develop are the management and exploitation of that data, creating information to enable predictive asset management, secure, optimal network operations, and a “knowledge base” that will become increasingly essential to support the full life cycle of assets in the new, more complex, operating model.

Jeremy Willsmore
Associate Partner
IBM Energy and Utilities
willsmore@uk.ibm.com

CHAPTER FOUR

WATER INDUSTRY

Our report comes as the UK has endured one of its wettest winters on record, with large swathes of the country under water, the Government under fire for poor flood management and insurers under pressure to meet at least £500 million in claims¹.

Yet this inundation has done nothing to ease the industry's fears about long-term water stress.

Population growth, climate change and the Government's housing push mean that dealing with water stress remains a priority. The typical lead time to cover the planning, investment, permitting, design and construction of a new reservoir is 25 years². Other potential solutions, including reuse of treated waste water, desalination and the construction of a cross-country water grid, would need to scale significant regulatory, financial and carbon footprint barriers.

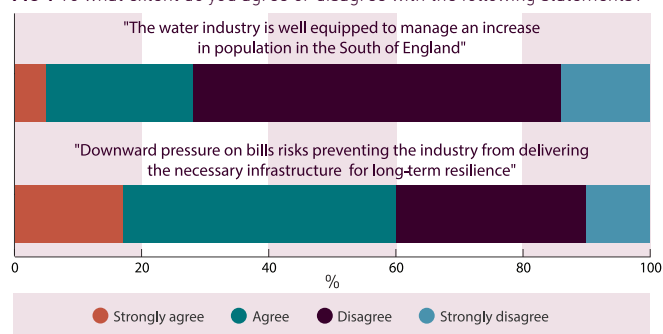
And while the water industry has escaped the negative headlines that have engulfed the energy companies in recent months³, it remains under scrutiny with significant infrastructure investment and regulatory challenges ahead. Water companies are committed to keeping costs low while also investing heavily to make sure an extensive and ageing infrastructure can meet regulated leakage targets and clean water directives. This is no small task: there are 335,000 km of mains and millions of joints with more than half of the mains below London, as in many other major cities in the UK, reckoned to be over 100 years old and one third over 150 years old⁴.

Our survey finds considerable anxiety about how the industry will weather this perfect storm of operational and regulatory pressures:

- » 73 per cent believe the industry is ill-equipped to manage an increase in the population in the south of England
- » 61 per cent agree that downward pressure on bills risks preventing the industry from delivering the necessary infrastructure for long-term resilience.

- » There is little room for manoeuvre on bills, with three-quarters (76 per cent) agreeing that the water industry will be the next sector after energy to come under pressure from politicians over prices.

FIG 1 To what extent do you agree or disagree with the following statements?



Solving water stress: demand side

Water meters are widely anticipated to reduce demand for water, by making customers more aware of their water usage and helping identify leaks. They can therefore temper anxiety about price rises and water stress⁵. Smart meters, connected to a wireless network, could yield even greater dividends, providing real-time water usage data that customers can monitor online, ensuring more considered usage, more accurate bills and enabling water companies to better pinpoint and tackle leakage.

Our survey recognised the potential benefits of universal water metering, with respondents expecting improvements across a range of key affordability, sustainability and operational criteria.

1. Deloitte February 2014, Association of British Insurers January 2014, and others

2. Water UK

3. The Consumer Council for Water praised the industry for keeping a lid on bills (February 2014) while the watchdog's latest numbers found complaints in 2012-13 were down for the fifth year in a row and down 45 per cent since 2007-8

4. Water UK

5. Thames Water, which wants to meter 80 per cent of its customer by 2025, up from 30 per cent now, reports that on average customers with ordinary water meters tend to have lower bills and use 12 per cent less water. Anglian Water estimates its metered customers save around £100 a year

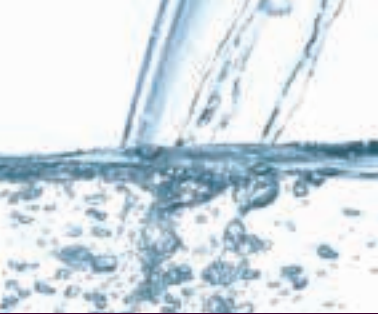
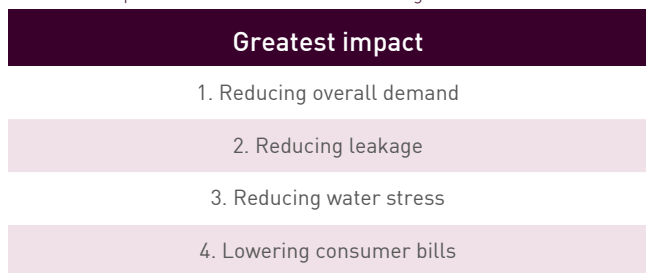
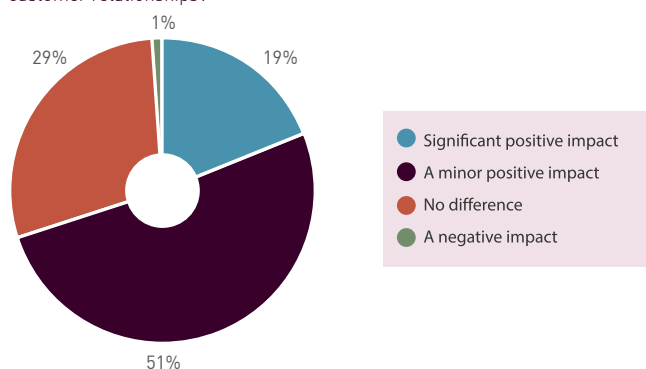


FIG 2 What impact would universal water metering have?



The greatest impacts are to be felt in lowering water demand and leakage – only 16.5 per cent expect universal water metering to have a significant impact on consumer bills and 28 per cent expect it to have no impact at all. This suggests water companies will need to provide clear customer communication that water meters, while an important way to manage and value a precious resource, are not in themselves a panacea for rising water bills. This is particularly important now that customer service, enshrined in the Service Incentive Mechanism (SIM), is part of the regulatory process. Our survey found support for the SIM, with 51 per cent reporting a minor positive impact on customer relationships and an encouraging 19 per cent reporting a significant positive impact at this early stage.

FIG 3 What impact is the Service Incentive Mechanism (SIM) having on customer relationships?



Solving water stress: supply side

Supply side solutions to water stress focus on market mechanisms to encourage trading of water between areas with an abundance of water (typically the North and West) and those where water is already scarce, and predicted to get scarcer⁶ (the South and East). Water trading is constrained by the bulky nature of the commodity, a lack of incentives, contractual complexity and the lack of a clear pricing model. Yet given that our respondents clearly believe market mechanisms will play a significant role in tackling water stress, complemented by greater connectivity between water-rich and water-poor regions, there is growing urgency to tackle these barriers.

FIG 4

Water stress solutions: what would work?	Agree or strongly agree
There should be greater connectivity between water regions	92%
Bulk water trading between water companies should be better incentivised	90%
There needs to be a market price for water if water stress is ever to be dealt with effectively	70%
Trading of water abstraction rights to deal with water stress should be prioritised	66%
There should be a national transit system or grid for water to combat water stress	58%

6. Thames Water forecasts show that if nothing is done to reduce water demand, by 2020 there will be a shortfall of 133 million litres per day, trebling to 414 million litres by 2040, equivalent to the water needed by two million people. A report from The Carbon Trust, Opportunities in a Resource Constrained World, February 2014, warns of a possible 40 per cent deficit between available water supplies and water needs by 2030.

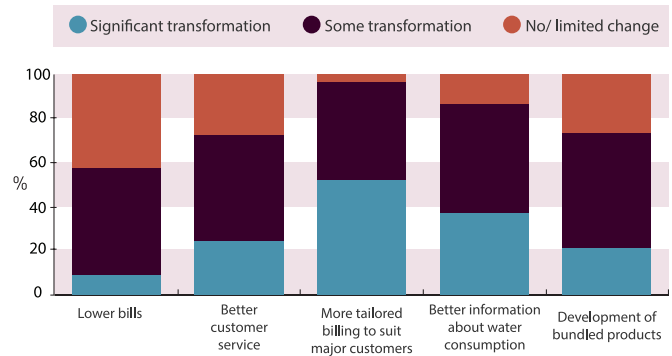


Open for business?

The next major reform for which the industry is preparing is of course the opening to competition of the market for supply to non-household customers from 2017. Despite the public stance of most water companies in welcoming this reform, our survey revealed a degree of caution as to the impact it will have. While respondents see benefits to competition they believe that the proposed regulatory regime does not afford the freedom to realise those benefits. For example, 57 per cent believe that water companies should be able to opt out of competing for non-household customers through so-called modular licences, a step that the Government has decisively rejected. Over half, 56 per cent, do not believe that competition will lead to significant efficiency gains unless there is greater freedom for mergers and acquisitions to secure economies of scale⁷.

However a majority, 57 per cent, think that competition will have at least some impact in lowering prices for non-household customers, although only 9 per cent think this impact will be significant. The greatest impact is anticipated to be in delivering more tailored billing to suit major customers, which 96 per cent of our respondents believe will be transformed. There was also confidence that competition will lead to improved customer service (73 per cent) and better information about water consumption (86 per cent).

FIG 5 The Government is proposing to open the non-household water market to competition from 2017. How big a transformation do you anticipate in the following areas?



7. A report by Deloitte in 2011, Lessons for the water and sewerage industry from retail competition in the utility sector, suggested efficiency gains are likely only to be achieved by substantial consolidation of retailing businesses – with perhaps an initial 21 businesses concentrating into around six

CHAPTER FIVE

ENERGY GENERATION AND POLICY

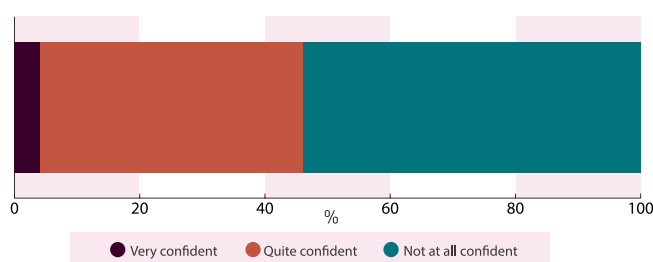
Politicians, of all hues, have in recent years been accused of dithering and delay on UK energy policy by an unlikely alliance of green energy advocates, captains of industry and trade union leaders¹.

All have charged our policy makers with a failure of leadership in tackling a looming energy gap, which has been decades in the making. There is now an urgent need to build new capacity to fill that gap, yet investor appetites have been unsettled by uncertainty and soured by political rhetoric.

The long-overdue Electricity Market Reform (EMR) is designed to fill the policy vacuum and ensure a market structure to attract the investment needed to replace ageing energy infrastructure, incentivise new low carbon generating capacity and meet the projected future increases in demand created by the proposed electrification of transport and space heating. Yet the policy reform received a muted reaction from our cohort. Over half are “not at all confident” that EMR will deliver the investment the UK requires in power generation over the next decade. More worryingly, 85 per cent believe that political uncertainty has done long-term damage to the investability of power generation in the UK.

Given that power generation accounts for the bulk of energy sector investment, the sums involved are significant: of the £43 billion invested between 2007 and 2011, some 57 per cent was spent on power generation assets, compared to 20 per cent on distribution networks and 20 per cent on transmission networks².

FIG 1 How confident are you that Electricity Market Reform will deliver the investment the UK requires in power generation over the next decade?



Demand management a priority

When it comes to the priorities that should underpin UK energy strategy in order to build sufficient generating capacity and meet decarbonisation targets, our respondents were clear that demand reduction, building on a roll-out of smart meters, should be at the heart of policy-making. Paradoxically, the most favoured solution to a prospective shortfall in generating capacity is to reduce demand rather than build more plant.

FIG 2

Policies that should be high priority	
Demand reduction, building on the smart meter roll-out	52%
Major expansion of nuclear generation	49%
Incentives to encourage shale gas exploration & production	28%
Encouraging decentralised and small scale generation	28%
Incentivising early stage renewable technologies	28%
Significant expansion of offshore wind	21%
Backing carbon capture & storage technology	17%

1. Greenpeace, British Chambers of Commerce, CBI, TUC, Energy UK
2. EY analysis, Powering the UK, 2012



Smarter energy use, at all levels, has the potential to provide a win-win by making a direct contribution to emissions reductions and, because demand is reduced, so too is the required level of new generation capacity. The Government's own figures are compelling, estimating that there is enough energy efficiency potential to reduce energy generation by the equivalent of 22 power stations by 2020³.

Nuclear first

When it comes to generation, our respondents identified nuclear technology as the top priority, with almost half, 49 per cent, saying a major expansion of nuclear generation should be a high priority. Furthermore, 56 per cent believe that the only way to ensure long-term security is to develop a new fleet of nuclear stations. This perhaps reflects the fact that nuclear is the only low carbon technology that can be rolled out in a sufficient scale to meet the large amount of generating capacity required: the three developers that are currently in the market – EDF Energy, Horizon and NuGen – have plans to build up to 20GW of capacity from the first five sites alone. It may also reflect that amongst the low carbon technologies, nuclear alone can deliver baseload capacity and that, with the exception of Sizewell B, the existing fleet of nuclear power stations are set to close by the mid 2020s.

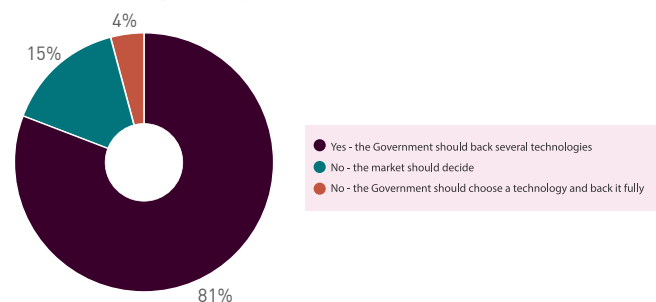
However we found a widespread concern that the high cost of the nuclear programme could render it undeliverable given the current political emphasis on affordability. Six out of ten believe that nuclear strike prices are too high. The agreed strike price for Hinkley Point C in Somerset of £92.50 per MWh, reducing to £89.50/MWh should Sizewell C be

consented, is almost double the current market price. Our respondents were concerned that the premium agreed for this 'First of a Kind' investment will be unsustainable across a fleet of reactors unless the industry is able to deliver the long promised 'Next of a Kind' cost savings as a fleet is rolled out. The Hinkley deal is currently awaiting State Aid clearance from the European Commission, and a failure to deliver cost savings could cause future projects to fall at this hurdle.

Diversity of supply

Beyond nuclear, our respondents are clear that they want to see Government backing for a mix of technologies until the cost and practicality of each becomes clearer, rather than simply letting the market decide or choosing a single technology and backing it fully.

FIG 3 Do you think it is right for the Government to back some development of a number of technologies (such as offshore wind, nuclear, CCS, shale gas) until the cost and practicality of each becomes clearer?



Prime among these is the potential of shale gas. Although respondents have yet to be convinced that it is a solution to the looming supply shortfall, given its transformation of the energy market in the United States, 62 per cent do want to see more incentives to encourage exploration of this potentially vast resource⁴.

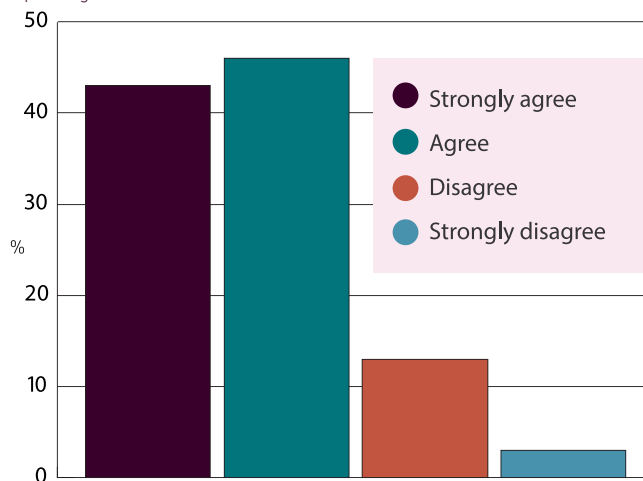
3. DECC, Energy Efficiency Strategy, October 2012

4. The British Geological Survey's central estimate for shale gas in the UK is 1,329 TCF; by contrast remaining proved gas reserves in the North Sea are around 9 TCF. It is unknown, however, how much of the shale gas resource could be economically extracted.



However, 84 per cent agreed that we should invest in renewables now to ensure long-term security of supply and mitigate the risk of rising fossil fuel prices. There appears to be greater support for incentivising early stage renewable technologies, which 28 per cent think should be a high priority for Government policy.

FIG 4 Political uncertainty has done long-term damage to the investability of power generation in the UK



Meeting carbon reduction targets

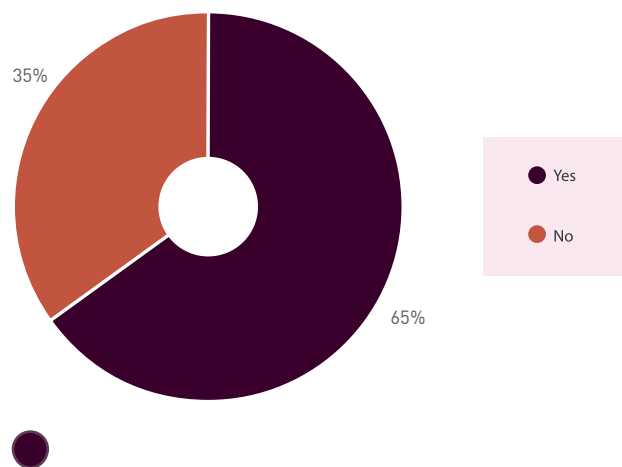
Despite concerns about the impact of the policy vacuum on investment in the power sector, our survey does find measured optimism about our shift to a low carbon economy in line with EU commitments. Just over half, (52 per cent and 53 per cent respectively), believe it is likely or very likely the UK will meet its 2020 target of cutting CO2 emissions by 20 per cent from 1990 levels and generate at least 15 per cent of its total energy from renewable sources by 2020.

However, the longer term target of an 80 per cent cut by 2050 as enshrined in the 2008 Climate Act, the world's first legally binding climate target, currently looks to be out of reach, with 71 per cent saying it is unlikely or very unlikely this aim will be met with a

further 10 per cent saying this is impossible.

To help unlock investment by restoring confidence and certainty, respondents are keen to see the roadmap to 2050 signposted by interim milestones, with two-thirds (65 per cent) believing the UK should commit to decarbonisation targets in the generation sector for 2030⁵.

FIG 5 Do you think the UK should commit to decarbonisation targets in the generation sector for 2030?



5. A number of business organisations, including the CBI and BusinessEurope, back an emissions target of 40 per cent across the EU, underpinned by an effective emissions trading system.

CHAPTER SIX

ENERGY NETWORKS & SMART GRIDS

Most of the discussion about energy policy has focused on supply and generation, be it over rising consumer bills, the closure of existing plants, the cost of offshore wind arrays or repeated delays in delivering a nuclear new build programme.

The outcomes of these debates have clear implications for both transmission and distribution companies, charged with distributing our energy, whatever its source, efficiently, reliably and safely.

Given the UK's legally binding decarbonisation targets, there is no escaping the need for investment to extend and upgrade the network in order to connect new and remote coastal wind and nuclear generation facilities¹. Investment in the transmission grid will also have to accommodate the supply intermittency that comes with greater renewable energy while distribution companies face the challenge of accommodating small scale energy generation.

The energy grid of the low carbon Britain of 20 years hence will look very different from today. Yet, given the long lead times required to plan, finance, permit, design and build major energy infrastructure projects, 20 years could well prove to be a stretch target to effect these changes: it took a generation to greenlight the 400,000 kV Beaulieu - Denny power line in Scotland², just one example of how these much-needed major transmission projects take many years of planning, environmental assessment and public consultation before soil can break on new projects to connect remote renewable energy.

Our respondents are only too aware of the strategic importance of the challenge ahead, with systems resilience and the replacement of ageing infrastructure rated the highest priorities for the coming decade to keep the lights on in the UK. The need to renew infrastructure nearing the end of its design life has long been on the agenda of the transmission network owners: after all, much of the existing system is still the first generation network. This renewal of ageing infrastructure has, however,

collided with the need to accommodate renewable energy targets, which are forcing a reconfiguration of the grid to connect remote wind generation and adapt to the new order of consumer becoming small-scale producers.

FIG 1

High priority areas for energy networks in the next five to ten years

Improving system resilience	70%
Replacing ageing infrastructure	66%
Integrating renewable generation	62%
Integrating distributed generation	52%
Extending the life of existing infrastructure	46%
Improving emergency response capability	38%
Carbon reduction	34%

This collision is well illustrated by our respondents' assessment of the priority areas for energy networks over the next five to ten years. While improving system resilience and replacing ageing infrastructure are the top priorities, it is clear that the expansion of renewable generation and the move to a low carbon economy are also shaping the future of the transmission and distribution business. Only a third of our audience cited carbon reduction itself as a high priority, but the role of networks in delivering the overall low carbon agenda is nevertheless a key priority for the industry. The challenge facing transmission is clearly recognised by respondents, with almost two-thirds identifying the integration of renewable generation as a high priority. When it comes to distribution networks, over half (52 per cent) said integrating distributed generation was a high priority.

1. According to DECC, the UK's net energy import dependency hit 43 per cent in 2012. In October 2013 National Grid forecasted that electricity supply over the 2013-14 winter months would be at its tightest in six years while Ofgem has warned of a capacity margin pinch point in 2015-16.
2. The Beaulieu - Denny line was the subject of Scotland's longest public enquiry. EDF Group's Hinkley Point C in Somerset will be the first new nuclear station to be built in the UK since Sizewell B in 1995. It is due online in 2023. Renewable projects are quicker but still decades in the making: London Array, for example, was conceived in 2001 and commissioning completed in 2013.



Smart grids

Smart grids are a facilitator of the low carbon network, with proponents highlighting how the technology will optimise the use of our variable and varied renewable resources by enabling energy load balancing³, helping network companies anticipate and identify peaks and problems, and promoting demand side management.

FIG 2 Respondents could select all answers that applied

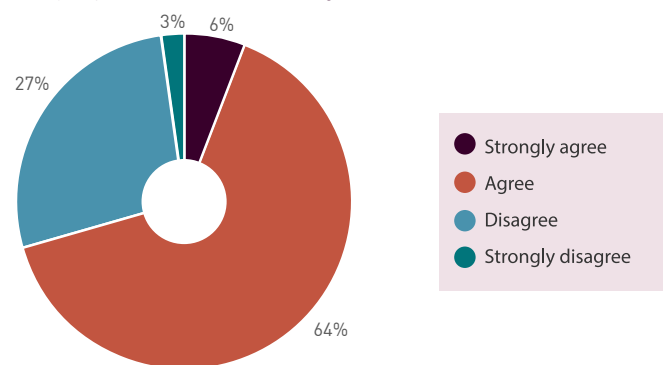
What are the main drivers for smart grid development?	
Enabling demand management & peak shifting	99%
Meeting the challenge of distributed generation	96%
Integrating renewable energy	92%
Carbon reduction targets	92%
Extending the life of existing infrastructure	81%
Changing population size and/or distribution	66%
Demand from customers	64%

Demand management and peak shifting, key elements of maintaining system resilience⁴, were almost unanimously seen as the main drivers of smart grid development. By reducing demand when allied to the roll out of smart meters, smart grids will help meet the low carbon agenda. Peak shifting, incentivised through time-of-use tariffs, brings the prospect of delaying or rendering unnecessary both major system upgrades and additional generating plant. Smart technology is also essential to meeting the challenge of a significant growth in distributed generation. The overlaying of a digital network onto the electricity grid also brings core benefits to the network operator itself, as it becomes possible to remotely monitor assets to improve efficiency and resolve outages more quickly.

Yet there are challenges to implementing a smart grid in the UK:

- » 83 per cent said energy networks are not ready for a large increase in consumers becoming energy generators
- » 86 per cent called for closer partnership with local government to drive smart city development. While there are undoubtedly challenges to working with all the different organisations, both public and private, to make a smart city work, only a third, (32 per cent) said the challenges of working with local government would outweigh the benefits of smart grids
- » 83 per cent said smart metering will not make grids smarter without the roll out of time-of-use tariffs, which is beyond the scope of the network companies alone

FIG 3 The biggest challenge facing energy networks is in connecting more widely dispersed forms of low carbon generation



Despite these challenges, however, our respondents are optimistic about the UK's smart future:

- » 59 per cent think that the £500 million Low Carbon Network Fund has been instrumental in the development of the new technology
- » 76 per cent believe smart grid technology is viable for system-wide deployment, with less than a quarter believing it is only viable for micro-grid solutions

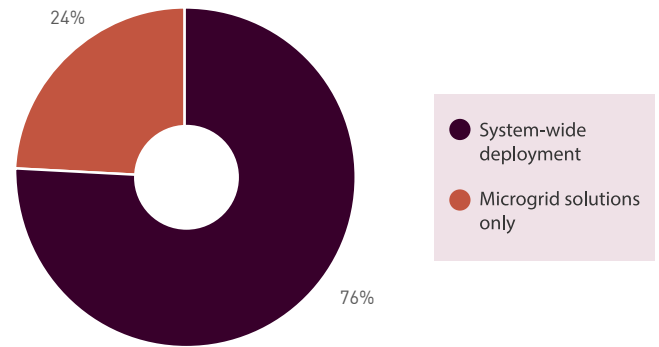
3. Cisco's Internet of Everything scenario says smart appliances will be able to automatically switch to alternative energies like solar and wind- based on energy demand, availability and the lowest price

4. In the US, it is reckoned that demand-side management programmes could cut end-use energy consumption by 9.1 quadrillion BTUs, over one-fifth of total projected demand, while FERC estimates that demand response programmes could cut peak demand by up to 20 per cent within 10 years. McKinsey, The smart grid and the promise of demand side management, Summer 2010



- » Electric vehicles are also seen as integral to the future of the smart city, with 74 per cent saying they should play a central role in smart grid development in urban areas.
- » Half of our respondents already believe that smart grids can be financially viable without subsidy.

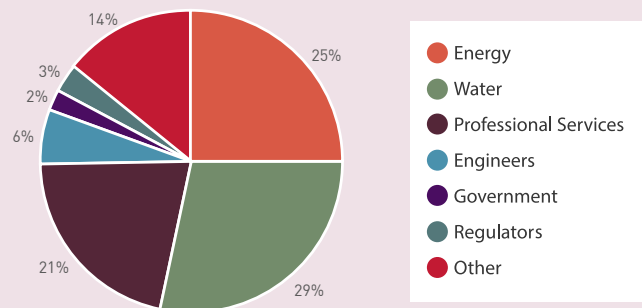
FIG 4 Is smart grid technology viable for system-wide deployment or will it remain suitable only for microgrid solutions?



About The Research

The research was conducted online by Marketforce Business Media in January 2014. The results are based on the views of 218 senior figures from across the UK utilities sector.

Industry Breakdown



The opinions reflect a broad cross section of the industry, with participation from senior management across many key utilities players, including:

South East Water
Electric Ireland
Wessex Water
Dwr Cymru
RWE Generation
Energy Saving Trust
Affinity Water
Yorkshire Water
Nuclear Industry Association
Kelda Group
E.ON
Climate Change Capital
Northern Ireland Water

Ofgem
Bristol Wessex Billing Services
Thames Water
Aquamarine Power
EDF Energy
DEFRA
United Utilities
National Grid
Asda Stores
Infracapital
Horizon Nuclear Power
RWE Npower
Good Energy

The Crown Estate
Electricity North West
UK Power Networks Services
Energy UK
SSE
Centrica Energy
Northern Powergrid
Scottish Water
Consumer Council for Water
Southern Water Services
Oxford Institute of Energy Studies

For further information on Marketforce conferences, reports
or webinars please visit www.marketforce.eu.com

© Marketforce Business Media Ltd March 2014

marketforce
mobilising knowledge in business