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The ASI and Marketforce's conference

The Future of Utilities

Conference special report in association with IBM

Talking heads

It is a pleasure to introduce the findings of our research into the key issues facing the utilities sector, carried out in advance of the 14th annual Future of Utilities Conference. It may not, however, be quite such a pleasure to consider the findings, which reveal some serious concerns about the industry's prospects.

Our survey, of over 160 senior executives from the industry, highlights key challenges which Government and regulators, alongside the industry, need to address if objectives and policy commitments are to be met.

A clear majority doubts whether regulators will allow adequate investment in energy networks and the water industry over forthcoming review periods. And an overwhelming majority doubts whether, in the current climate, we will see sufficient investment in generating capacity to fill the looming gap expected in the next decade.

While at first sight utilities appear relatively resilient to the financial crisis, we still find real concern about the industry's ability to finance investment on the scale required. Gearing limits have been reached. The debt-funded party is coming to an abrupt end and new equity capital will be required.

To meet carbon reduction targets, the Government has committed to a rapid expansion in renewable energy. Much of that growth must come from offshore wind. But our research reveals a widespread view that this cannot be financed in the current climate, along with a big question mark about whether such development can be connected to the grid.

The water industry is committed to tackling water stress, but is unsure whether adequate investment to this end will be allowed. The competition agenda promoted by Ofwat meets strong opposition, with the industry regarding it as a diversion from its priority of ensuring supply.

The utilities sector has risen to challenges in the past, and I have no doubt it will do so again. Government and regulators will need to respond thoughtfully. Substantial levels of investment are required, all of which will come from private sources in a global market for capital. Most will come from major companies based beyond these shores. These companies have a choice as to where they deploy their increasingly scarce capital. The Government needs their enthusiasm – and their money. It will not come lightly.

All these issues will be discussed at our Future of Utilities conference, at which we will hear the views of the industry, advisers, financers, Government and regulators, as to how these challenges can be met.

I am grateful to all of you who took part in this research, and to IBM for their support.

David Saunders
Managing Director
Marketforce

The utilities industry is facing a number of challenges and is not immune from the impact of the current economic environment. It is time to take a smarter approach.

Governments around the world are collectively preparing packages totalling as much as $4,500bn in a bid to stimulate a global economic recovery. This climate represents the best opportunity in generations to reform our utilities infrastructure radically, in order to lay the foundations for a sustainable, responsible, twenty-first century nation.

Yesterday's infrastructure investment has left us facing an unworkable tension between meeting increasing energy and water needs, and checking the significant impact we are having on the environment. Policymakers are seizing the chance to transform and innovate. It is our view – and theirs – that now is the time to apply the digital revolution of the past two decades to the outmoded, industrial-age equipment that dominates our utility networks.

A smarter, digitised grid promises to allow utility companies to understand demand accurately, and thus manage power more intelligently. In addition, the possibilities from constant, two-way communication between the points of supply, transmission, and demand, will reach much further than merely improving network efficiency. Finally, it will give the industry the means to shave peaks in demand, help reduce carbon output, and ultimately increase levels of customer service. In turn, it will empower consumers to cut costs in unprecedented ways, providing a buffer against the long-term upward trend in commodities prices, to which we will in time revert. Getting smarter is possible across all our systems, allowing for much greater harmony across the entire utilities sector.

We doubt anyone would contest that business leaders need to become far smarter, and far more responsible, in their decision making. Yet surely now is the time to advocate a similar transformation within our own utilities industry.

John Granger
General Manager
IBM Global Business Services UK and Ireland

Only

26%

are confident that adequate investment will be made in new generating capacity over the next 5-10 years

82%

believe that the economic downturn has had a significant impact on the ability to raise capital to finance the infrastructure requirements of the industry

The infrastructure investment challenge

The utility industry is today facing an unenviable number of challenges. Not least of these, is the scale of the investment programme in its infrastructure required over the next decade. In addition to modernising ageing networks, electricity and gas networks face the challenge of accommodating fundamental changes in the pattern of supply. For water companies, all eyes are on PR09, in which the industry is seeking record levels of capital expenditure. And in electricity generation, an unprecedented level of investment is required to avoid a generation crisis in the next decade while meeting carbon reduction targets.

Our research reveals that, overall, the industry believes that the level of investment in energy networks and the water industry allowed by regulators over the last five years has been adequate. Despite this, 60 per cent believe that this investment will only meet the requirements of industry and match the expectations of consumers "to some extent".

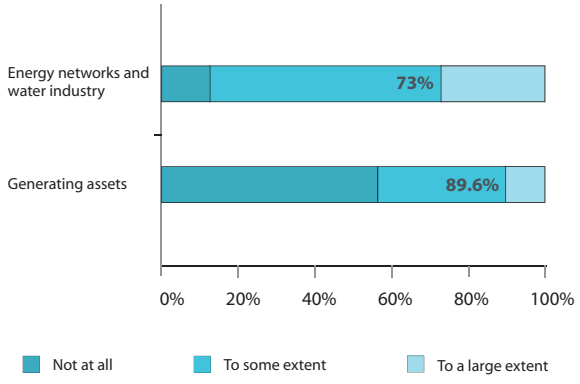
However there is much greater concern about the future. Only a third of those in the industry (34 per cent) are confident that the requirements for investment in water and energy networks will be met over the next 5-10 years.

For new generation, the industry believes that both the record and the prognosis are bleaker. 56 per cent believe investment in generating capacity has been inadequate to meet our future needs over the last five years. Only 26 per cent are confident that adequate investment will be made in new generating capacity over the next 5-10 years.

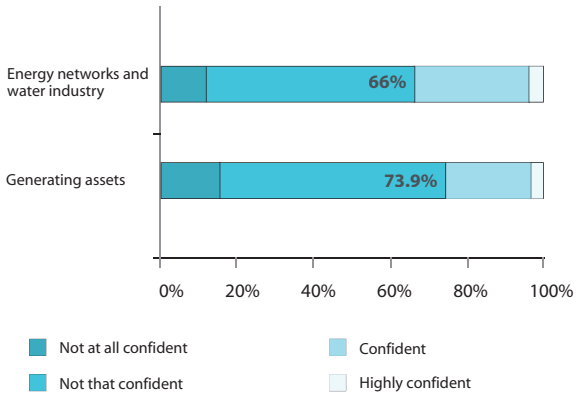
Accessing capital: utilities shake-up?

Looking explicitly at these challenges in view of the current financial crisis, is telling. An overwhelming 82 per cent believe the economic downturn has had a significant impact on the ability to raise capital to finance the infrastructure requirements of the industry. 74 per cent claim the credit woes have either made it harder to raise capital or caused some increased cost or difficulty. In particular, 86 per cent believe current conditions will make it harder and more costly to bridge the energy gap anticipated in the next decade.

The extent to which investment levels over the last 5 years have been adequate



Confidence in meeting requirements for investment over the next 5 - 10 years



The infrastructure investment challenge

The cost and availability of finance is a problem across the industry

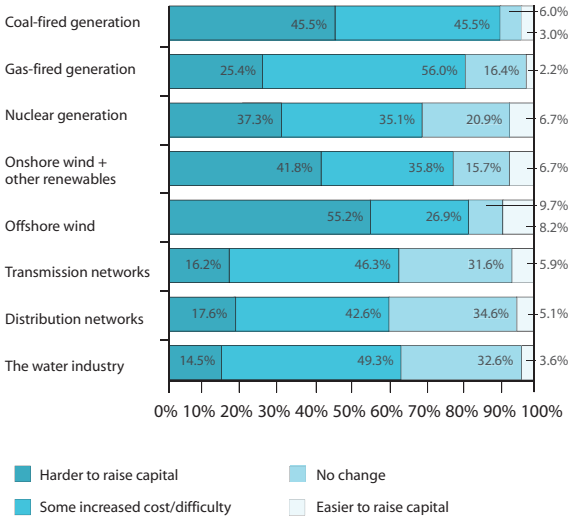
Current market conditions raise serious questions about the cost and availability of finance for the utilities industry. Putting new generation to one side, a rise in the cost of capital should only pose a real difficulty for the regulated water and energy network businesses if regulators fail to allow for this adequately in price reviews. Yet the threat of this is very real, with 91 per cent believing there is a risk that regulators' assumptions will prove too optimistic in view of current uncertainty in the financial markets.

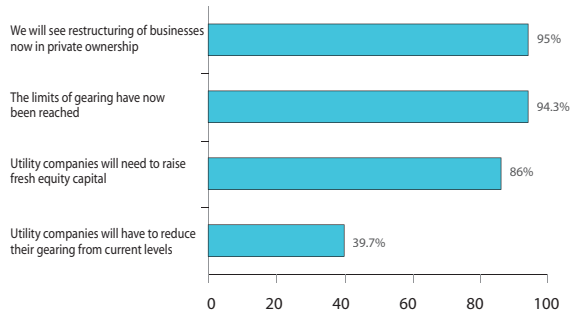
In recent years, steadily rising levels of investment had led to substantial increases in regulatory asset values. The industry has become accustomed to financing this entirely through debt, leading to significant increases in gearing. As the cost of debt finance has been less than that of equity, it is a trend with which both investors and regulators have been happy.

Our research finds a recognition that this party is coming to an abrupt end. 94 per cent of respondents believe that the limits of gearing have now been reached. 40 per cent believe that companies will in fact have to reduce their gearing from current levels.

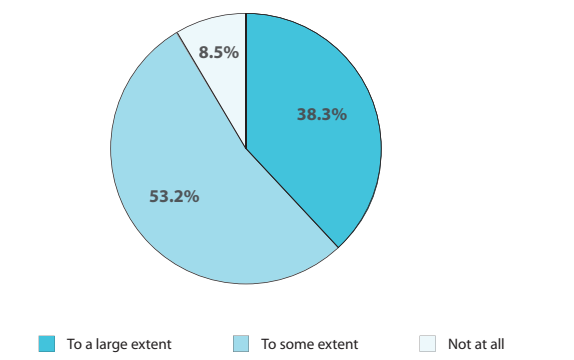
This of course poses the question of exactly how capital will be accessed in the future by utilities companies across the board. 86 per cent believe that utility companies will need to raise fresh equity capital. This will require a fundamental change in strategy for the major public companies, but nevertheless one that is achievable. But a large part of the industry has, in recent years, been taken private, and today lacks direct access to equity markets. 95 per cent of respondents believe that the need to raise fresh capital will cause problems and require restructuring of businesses now in private ownership.

The ability to finance investment through borrowing





Regulatory assumptions about the cost of capital will prove too optimistic



86%

the percentage of respondents who believe that current conditions will make it harder and more costly to bridge the energy gap expected in the next decade

94%

the percentage who believe the limits of gearing have now been reached

The infrastructure investment challenge

The capital intensive and more speculative nature of investing in new generation is having an impact

69%

support placing a floor on the price of carbon.

82%

believe it is harder to raise capital for offshore renewables

The impact on generation

Investment in new generating assets carries exposure to market risk. In the case of renewables, this is compounded by the fact that the technology involved is often unproven; its output in most cases is limited by its intermittency; and the long-term investment case is less established.

It is of little surprise therefore that the current economic climate is expected to pose the most serious threat to investment in new generation and, in particular, renewable energy. Our research shows that the industry believes offshore renewable technology (wind) will be the hardest area in which to raise capital. 82 per cent of respondents claim it is either harder to raise capital for offshore renewables or that the difficulty and cost has increased.

This reflects the significant speculative cost involved in backing offshore renewables. Recent estimates in the UK put the investment cost of offshore wind at around the same level or higher than that for nuclear power plant (£3m per MW of capacity) – double the cost of the most advanced coal-fired power stations.

By contrast, our research is much more upbeat on the funding prospects for new nuclear plant. Over a quarter of respondents suggested that raising capital in this area was either easier or there was "no change" in the current climate – which is significantly more optimistic than for any other area of new generation. As nuclear emerges as the best positioned solution to the anticipated energy crunch of the next decade, such optimism seems to suggest the industry is confident investment will emerge, regardless of the wider climate. Indeed, EDF's acquisition of British Energy, together with the commitments and partnerships announced by a range of major energy companies, bears testimony to this.

Carbon and fossil fuel prices

Permits to emit CO2 under the EU's emissions trading scheme, have recently tested record lows, falling 70 per cent from the summer of 2008 to lows of around 10 euros/tonne.

In our research, over two thirds (69 per cent) of respondents express support for placing a floor on the price of carbon, suggesting that greater stability in the price of carbon is now required to help smooth and bolster incentives to invest. Should prices remain stubbornly low, the economic viability of low carbon generation risks being insufficient to meet the country's long-term needs. A more interventionist approach may be required.

However, the research also reveals a rough 50:50 split between those that believe the impact of falling carbon and fossil fuel prices will be significant and those who are largely unconcerned. This suggests that funding woes are a much bigger threat to the future of the industry at present. It may also reflect a view in the industry that current prices are artificially low and will rise in due course when economic activity recovers from the current recession.

Energy: priorities for new generation

The twin challenges dominating the horizon for UK energy are those of filling the 'generation gap', and reducing greenhouse gas emissions in line with EU targets.

The retirement of a string of older nuclear stations, together with the closure of older coal-fired stations under the EU Large Scale Combustion Plant Directive, threaten Britain with an acute generation shortage expected to hit around the middle of the next decade. Some 30 per cent of coal capacity will need to close before the end of 2015. Indeed, some estimates suggest at current run rates a significant proportion of this could close by as soon as 2013. By 2015, 37 per cent of the UK's current generating capacity will have been lost. A commitment that 20 per cent of our total energy consumption be provided from renewable sources by 2020 will require a contribution of over 30 per cent by renewables to electricity generation.

Both challenges will require massive investment. The priorities for investment in the UK over the next 5-10 years will be determined to a large extent by the solution to these two problems.

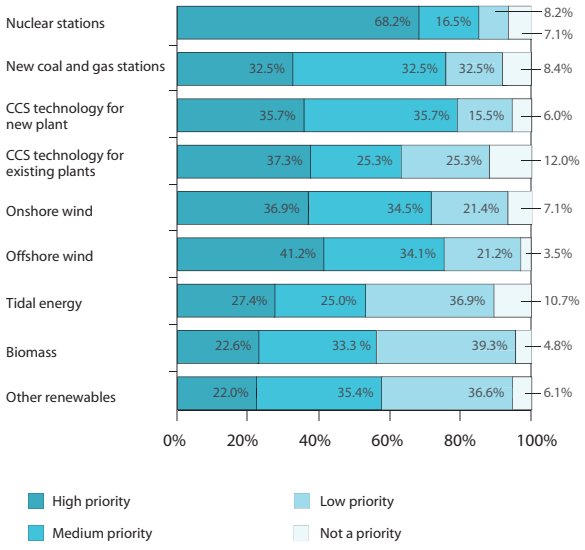
New nuclear build: the panacea?

With the challenge of meeting the energy gap ever present in the minds of utility companies, nuclear emerged in our research as the single highest priority for investment in generating assets over the next 5-10 years (68 per cent). Notably, this was followed by offshore wind, which three quarters described as either a "high" or "medium" investment priority, in spite of the funding problems for this technology.

Such a figure indicates a tension between what the industry recognises as its future, and the economics of achieving these needs in the current financial climate – and in the face of collapsed fossil fuel and carbon prices. It was hoped earlier in the decade that costs for offshore wind would fall as technology and skills improved, but this effect has to date been offset by supply chain shortages, leading in fact to rising costs.

Is nuclear the panacea? Clearly, the biggest problem is that it can only form part of the solution to the energy gap, due to the time it will take to build new reactors. The first new reactor is unlikely to be online before late 2017 at best – several years too late to meet the anticipated gap. As a result, continued investment in new coal and gas stations will remain an important aspect of the UK's energy mix – as recognised by the 76 per cent of respondents who describe this as a "medium" or "high" priority for investment over the next decade.

Investment priorities for generating assets over the next 5 - 10 years



68%

think new nuclear build is the highest priority for new generation in the next ten years

77%

see connection of new generation as the highest priority for grid investment

82%

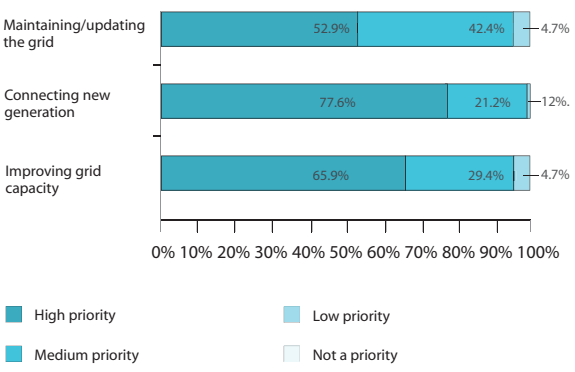
believe the problems in connecting renewables to the grid are a serious obstacle to meeting targets

New generation and the environment

The commitment to nuclear generation, continued reliance on new coal and gas stations, and the financing woes of offshore wind technology, together raise serious questions over the UK's ability to meet its renewables targets. However, our survey indicates that there is little chance of the UK meeting these targets through any other form of renewable energy. Over half of respondents claim that tidal energy is a low priority for investment, while over 40 per cent believe this is similarly the case for biomass or other renewables.

This pessimism may be explained by the fact that other renewable technologies, such as tidal energy and solar power, are very much in their infancy relative to wind, and are not yet viable on a commercial scale. By contrast, our research reveals that onshore wind technology is somewhat better recognised by participants, with just over a third (36 per cent) believing this to be a high investment priority for industry. Yet the reality of enabling onshore wind development in the face of numerous planning constraints would suggest that the ability to realise these ambitions may be limited.

Investment priorities in transmission over the next 5 - 10 years



Energy: Transmission and Distribution

Adapting the grid to changing needs

Our research reveals that the challenges facing new energy supply are, in turn, reflected in the priorities for transmission. Enabling the connection of new generation to the grid emerges as the single most important priority for investment going into the next decade, with 77 per cent of industry describing this as a "high priority". This is followed by a significant majority (66 per cent) who wish to see investment made in improving grid capacity, so as to meet changing trends in generation and usage.

Our research thereby highlights a further obstacle for renewables beyond immediate financing woes, as new renewable plant faces a continuing uphill battle in getting connected to the grid. Renewable plant typically favours remote locations, and the fact that most future development will come from offshore wind will exacerbate this trend. Yet the grid is already full to capacity and was designed for more central, coal-based technology. Should microgeneration take off, this problem will only intensify. Respondents acknowledge this difficulty and the problem of expanding renewable generation in remote locations. 87 per cent claim that heavy investment will be required for transmission networks to meet the challenges posed by the expansion of renewable generation.

In the here and now, the large backlog of (mainly renewable plant) we are waiting to see connected to the grid is clearly troubling the industry. 66 per cent regard the timescales involved as a significant hurdle in planning and developing new generating assets.

Energy: Transmission and Distribution

Grid allocation is a key theme for the future

82 per cent of respondents believe the problems of connecting renewables to the grid are further proving an obstacle to meeting renewables targets.

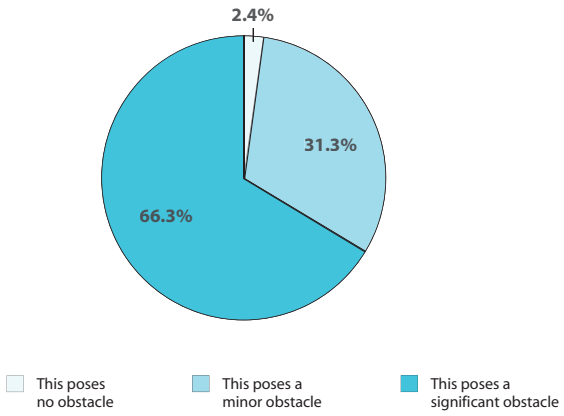
Part of the problem is that the National Grid and the Scottish transmission operators are always playing catch-up. A decision to build a link is not taken until after a generator comes forward and requests a connection – and then it must embark on a difficult and time-consuming planning process. If the UK's renewables targets are to be met, then system operators will have to invest on a more speculative basis.

Ofgem is proposing reform along these lines, with the aim of signing off investments for connections in anticipation of future plant production. Financial incentives will be strengthened, allowing substantial rewards based on the success of the link once new generation is then connected. Our research shows that utilities companies welcome this kind of overhaul, with 74 per cent believing the UK's transmission networks should build connections in advance of, rather than after, a request has been made.

This reflects a broader desire within the industry for Ofgem to do more to incorporate long-term goals into the regulatory cycles for the electricity and gas sectors (much like the 25-year business plans that will inform water investment under PR09). Every single participant in our research championed the notion of bringing long-term goals into the regulatory cycle, while continuing to approve more immediate investment projects.

Turning our attention to the gas sector, we see similar pressures on the transmission side to adapt – in this case, in relation to new sources of supply. 86 per cent believe that the gas transmission network needs to be modernised to reflect changing sources of gas, while 83 per cent think that providing new connections for LNG terminals are a high or medium priority for industry. This would suggest that the political implications of relying on gas transited across Eastern Europe will ensure Liquefied Natural Gas remains attractive as a means of ensuring security of supply.

The obstacle posed by the typical timescale involved in securing connections to the grid



The allocation of existing capacity

Another key theme that emerges from our research is the need to improve existing grid capacity, and reform its allocation so as to improve grid efficiency. 64 per cent of respondents believe it is important to see a system created for booking, sharing and trading grid capacity.

At present, all rights tend to lie with incumbent generators and grid operators lack incentives to use new technologies to squeeze more out of the existing grid. Grid capacity is also typically allocated on a "first come, first served" basis, rather than on the basis of efficiency. Allocation is a confusing and ill-defined process.

The alternative is to create a system for auctioning capacity rights, but this is a slightly unpopular option within the industry. Our research shows that 59 per cent believe auctioning capacity is not important to the future reform of utilities.

74%

believe the UK's transmission networks should build connections in advance of, rather than after, a request has been made

86%

believe that the gas transmission network needs to be modernised to reflect changing sources of gas

63%

claim that differences in pricing methodologies between Distribution Network Operators pose a significant barrier to the introduction of smart technology

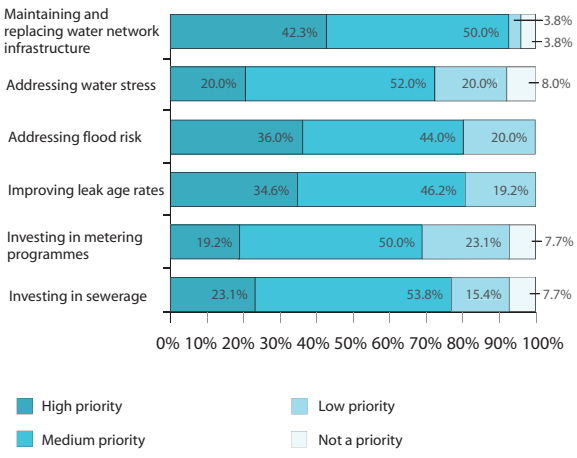
Meanwhile, our research mounts further pressure on the UK's Distribution Network Operators to move towards a standardised pricing methodology. Price fragmentation can deter potential new entrants to the retail market. It also acts as an obstacle to the potential roll-out of smart metering and microgeneration. The frustration of the industry is clear, with 63 per cent claiming that these price differences pose a significant barrier to the introduction of smart technology.

As it stands, each DNO has its own methodology for calculating charges. Moves to encourage DNOs to develop common systems voluntarily have stalled, and earlier this year Ofgem threatened the sub-sector with a referral to the Competition Commission should it fail to reform. Ofgem intends to place a license condition on distribution network operators obliging them to work towards a single methodology, with fines for non-compliance. The alternative would be Government legislation to force the issue – a distinct possibility.

59%

lack confidence that Ofwat will allow adequate capital expenditure in the next price control period

Investment priorities for water over the next 5 years



The water industry

In the water sector, our research shows that maintaining and replacing water network infrastructure is the single most important priority for investment over the next 5 years, with 92 per cent citing this as a high or medium priority as we approach the next price control period. This is followed by improving leakage rates (81 per cent) and addressing flood risk (80 per cent).

In the face of an array of competing pressures, a clear majority of respondents in the water sector (59 per cent) lack confidence that Ofwat will allow adequate capital expenditure in the next control period.

"Water stress" has been an ongoing theme for the industry – largely a result of the imbalance of supply and demand between the North and South, and heightened in the context of the heavy droughts and summer flooding witnessed in recent years. However, our research shows considerable scepticism regarding the extent to which efforts to combat leakage rates will in any way alleviate water stress. Some 62 per cent believe tackling leakage will have at best only a small impact on the UK's supply/demand imbalance.

Moreover, over half (54 per cent) of respondents are resistant to seeing the regulator back improved connections between regional water networks, reflecting the considerable cost of such an approach in comparison with alternative strategies in network investment or tackling leakage.

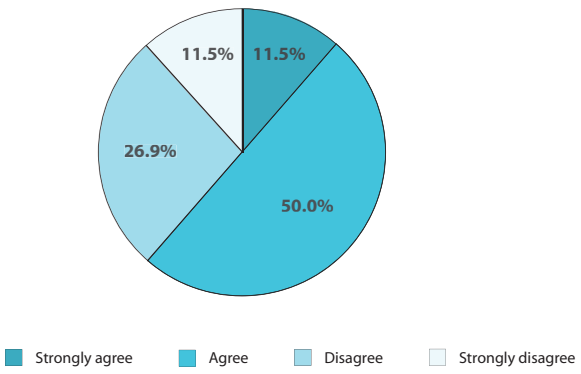
One suggestion for tackling growing water stress is to kick-start abstraction trading. A recent joint report by Ofwat and The Environment Agency found that in areas where water is relatively plentiful, abstractors are charged almost twice as much to abstract than from where it is scarce. This sends entirely the wrong signals about the value of water in various different regions.

The water industry

The water sector is better protected, but still concerned, about its prospects

Proposed powers include the ability to obtain and publish trade price information, facilitate reverse auctions and to make discretionary payments to abstraction licence holders who voluntarily agree to give up their rights for environmental reasons. However, our research reveals a lukewarm response from industry, with 65 per cent regarding abstraction trading as being unimportant for the industry. For now, it would appear that water stress will remain but a longer term ongoing concern, with little commitment as to how it can be addressed.

Tackling leakage will have at best only a small impact on the UK's supply/demand imbalance



Financial and regulatory pressures

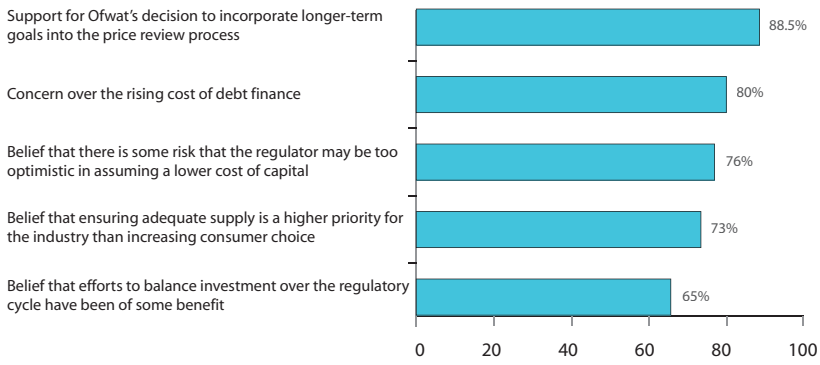
The general consensus among the broader utilities industry has been that the stable water sector will remain the "sweet spot" for investment as the economy contracts.

However, our research shows that the water sector, while less affected, is still concerned about the impact of the recession. 80 per cent express either strong or "some" concern over the rising cost of debt finance. 76 per cent believe there is some risk that the regulator may be "too optimistic" in assuming a lower cost of capital, given the uncertainty in the financial markets.

Notably in the light of the Cave review, the industry is sceptical of the competition agenda of both the Government and Ofwat. 73 per cent of participants argue that ensuring adequate supply is a higher priority for the industry than increasing consumer choice.

The industry is nevertheless strongly in favour of longer term support to help it achieve its objectives. As PR09 progresses, our research shows that an overwhelming 89 per cent back Ofwat's decision to incorporate longer-term goals into the price review process, via the submission of 25-year business plans. This reflects widespread desire for more long-term thinking from the regulators among the broader industry, as we have seen from energy participants.

However, this positive nod in Ofwat's direction is counter-balanced by a degree of scepticism from industry over efforts to balance investment over the regulatory cycle. 65 per cent claim efforts to balance investment over the regulatory cycle have been of "some benefit", while over a quarter (27 per cent) regard it as having had no significant impact.



73%

argue that ensuring adequate supply is a higher priority than increasing consumer choice

The utilities infrastructure of the future

74%

believe that the UK should adopt the kind of government-led investment to secure energy supplies now being made in the US

94%

identify smart metering as a significant opportunity to maximise efficiency and benefit the consumer

The utility of the future will look very different to the industry we know today. In the water sector, essential improvements must be made to transform ageing Victorian infrastructure into networks that can match the needs and expectations of today's population. Our energy sources will change radically, requiring considerable infrastructure investment. Rightly, these are the issues focusing the minds of senior management today.

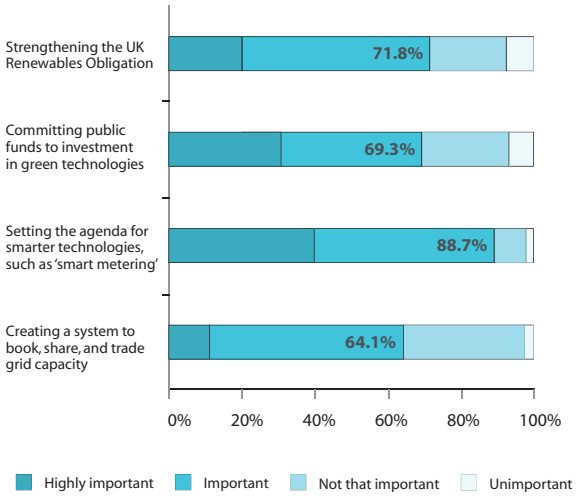
But the extent to which the industry looks to innovate and court more ambitious reform is an interesting one, not least as we see commitment emerging from governments around the world to commit huge swathes of public money to stimulus investment as a means of getting the global economy back on track. Our research reveals that 74 per cent of industry believes the UK should adopt the kind of Government-led investment to secure energy supplies now being made in the US. Tellingly, 62 per cent also believe that industry has not been successful in dealing with change and bringing about real innovation, suggesting there is real scope for more ambitious reform.

Our research shows that there are two principal areas in which utilities companies champion more aggressive reform. The first references some of the challenges posed by meeting environmental and climate change commitments. 69 per cent believe public funds should be spent here on green technology, as part of this more ambitious agenda. Three quarters (72 per cent) of respondents would like to see the UK's Renewables Obligation strengthened to enhance incentives for investment to meet emission reduction targets.

Secondly, the industry advocates much greater commitment to smart technology – the first step towards a smart infrastructure almost certainly being the roll-out of smart meters in the UK. 89 per cent of respondents would like to see a clear agenda set for smart technologies, while 94 per cent identify smart metering as a significant opportunity both to maximise efficiency and to benefit the consumer in the process.

The capacity to further transform utilities through smart grid technology is drawing increasing interest from policymakers on both sides of the Atlantic. The industry welcomes this support, with 96 per cent arguing that UK policymakers should take a long-term view and help create a framework for the development of smart energy and water networks. 55 per cent of the industry believes it is realistic for this kind of transformation to be achieved within the next 10 years, and one fifth even believe it could be realised within the next five.

Priorities for a more ambitious agenda going forward



The utilities infrastructure of the future

The consumer relationship is currently under duress – demand management is fundamental here

The future of utilities and the consumer

In the here and now, our research shows that the significant industry and economic challenges facing utilities will result in a tougher deal for the consumer.

83 per cent believe that the extent of new investment required combined with the increased cost of finance means that higher prices will need to be passed on to consumers in the medium term. A vicious cycle is also at work here, with 68 per cent being concerned that utilities will themselves be affected by an increase in bad debts as consumers suffer in the current economic climate.

Yet the passing on of costs to the consumer will prove problematic. 89 per cent believe the wider market simply does not understand the challenges facing the utilities industry and the levels of investment required, while 78 per cent identify an increasing political pressure on the industry, which could deter investment or lead investors to demand a greater return on capital to cover political risk.

However, our research suggests that more ambitious reform will have a welcome impact on the consumer relationship, as well as to the improvement and efficiency of the industry directly.

Part of the solution to managing tomorrow's infrastructure in fact rests with the consumer directly. 91 per cent of respondents argue that curbing peaks in end energy use will prove an important means of getting the most out of tomorrow's infrastructure mix. When then asked about the anticipated benefits of smart networks, the prime benefit in the view of the industry was its capacity to smooth peaks in demand (60 per cent), followed by the benefit to the industry of having more efficient allocation of network capacity.

For all the rhetoric of becoming more customer-focused, such a view would suggest that smart technology has an essential role to play in the future customer relationship. Such a self-aware, self-correcting system would allow utilities to take on a genuine role of service, advising customers as to where and when they are wasting energy and suggesting steps to help minimise unnecessary spend. A smarter grid would allow these companies to identify problems as soon as they occur, as well as identify who it will affect. Tomorrow's energy infrastructure may well see power companies able to contact customers first to inform them of the details of the problem, and even give an estimated repair time. The possibilities are exciting.

Early experiments have been a roaring success. The largest present example of a smart grid, the Telegestore project in Italy, delivers annual savings of €500m at a project cost of €2.1bn, as well as significant cuts in overall usage and thus carbon output.

Smart water?

Getting smarter is possible across all our systems and has significant potential for the water industry too. Smart grids are not simply limited to energy networks – similar principles can be applied to water networks, and the two tie together.

As the South East becomes more water stressed, greater interconnection between the water-rich Northern networks and the water-stressed Southern networks has gained traction. Yet the industry remains unconvinced, as we saw from the majority of respondents (54 per cent) who are resistant to seeing the regulator back improved connections between the various regional water networks. Meanwhile, a national water grid is unfeasible, due to the sheer difficulty involved in transporting water around.

Yet a smart grid that encompasses both water and energy networks would allow them to operate more

60%

think the prime benefit of smart networks is the capacity to smooth peaks in demand

Top five issues that respondents believe the rollout of smarter technology will tackle:

a. Smoothing peaks in demand
b. Efficient allocation of network capacity
c. Meeting UK energy demand
d. Long-term, effective infrastructure planning
e. Reducing carbon output

harmoniously together, not least as the sector is itself a major energy user. Water, in effect, could "piggyback" off smarter energy and gas. In some counties, up to 5 per cent of energy is consumed by the local water operator. Smart networks would allow excess power to be used by the water sector at minimal cost. Areas such as water migration could be shifted off-peak to coincide with better tariffs. The degree of water purification could be reduced from constant treatment, to automatically reacting as appropriate to achieve legal thresholds.

Like energy consumption, a more harmonious approach to tackling water stress can also be found in better demand-management. In our research, water metering is identified as a high or medium priority by 7 out of 10 respondents from the water industry. As in energy, it would allow customers to take greater control of their consumption.

Smart technology benefits both the consumer directly and the industry through the efficiency – and radicalism – it brings.

Endgame

We have inherited an energy infrastructure designed and built for an Industrial Britain, at a time when power was cheap, environmental concerns minimal, and the consumer did not enter into the equation. The energy infrastructure of the next century will operate on an entirely different premise: in a situation where power is precious, environmental concerns paramount, and in which consumers desire to take a more active role.

At present, the industry must focus on the challenges it faces today to meet the infrastructure needs of tomorrow. Yet our research is hugely supportive of much more ambitious and long-term reform of the industry. It is a wake-up call to policymakers in the UK to recognise both the need, and the appetite, for some careful, smart thinking about the direction of this industry in the future.

About the research

The research was conducted online by Marketforce Business Media, in association with IBM, in February 2009. The results are based on the views of 167 senior figures across the UK utilities sector. The opinions reflect a broad cross-section of the industry, with participation from senior management across many key utilities players, including:

EDF
Centrica
Iberdrola
British Energy
E.ON
RWE
United Utilities
BP
Northern Gas Networks
British Gas
Anglian Water
Scottish Water
Yorkshire Water
Thames Water
South East Water
South West Water
Severn Trent Water
Wessex Water
Bristol Water
Southern Water
Veolia Water
Water Choice
National Grid
Scottish Power
Electricity North West
Scottish and Southern Energy
Manx Electricity Authority
ESB
The Consumer Council for Water
The Environment Agency
The Nuclear Decommissioning Authority
The Gas Strategies Group
Clipper Windpower
Ecotricity
Ceres Power
Agrilek
Eco Securities
Pelamis Wave Power
Good Energy
Regen SW
uSwitch
CE Electric

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