Utility Week

UK utilities risk report 2023

How water and energy companies view the impacts of environmental, societal, technological, and political trends on their businesses

Marsh

A Utility Week research report in association with Marsh

June 2023

Contents

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Foreword

At Marsh, we are proud to be partnering with Utility Week to publish this report into the evolving risk landscape facing UK utilities.

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The sector continues to evolve in response to multiple risk factors, testing utility companies' resilience and preparedness. The issues of climate change, cyber and security threats, reputational concerns, and people risks are set against a challenging regulatory landscape.

The complexities of environmental decline and climate change are exacerbating many critical challenges facing the sector. The threat of extreme and unpredictable weather, biodiversity loss, and increasing water scarcity are front and centre of utilities' minds. Additionally, concerns are increasing that the development of policy and regulation will only allow for inadequate preparation against environmental decline and climate change in the industry.

This report has exposed the sector's requirement to develop more robust risk identification and mitigation strategies to manage interdependency risks and increasing risk velocity. The immediate past has demonstrated global fragility. The Covid pandemic, resulting market shocks suffered due to the Russia-Ukraine conflict, heightened fragility of consumer finances and - more pointedly - the impotence of policy and regulatory frameworks to appropriately respond in times of crisis have all highlighted the current instability.

In view of the dynamic issues affecting utility companies, this report highlights the importance of proactively addressing emerging risks, which require focused consideration, analysis, and response. However, it's important to remember that change also creates opportunity for utility companies to re-think priorities and respond to the changing consumer and wider stakeholder demands.

Marsh draws upon deep industry and cross-sector expertise to support clients across the entire value chain. We help organisations to successfully navigate their risk landscape by addressing strategic and operational challenges, with bespoke people and risk management solutions to help deliver greater clarity and control.

We are delighted to partner and collaborate with Utility Week for the second Utilities Risk Report and thank all those that completed the survey and participated in interviews. We hope you enjoy reading the results.

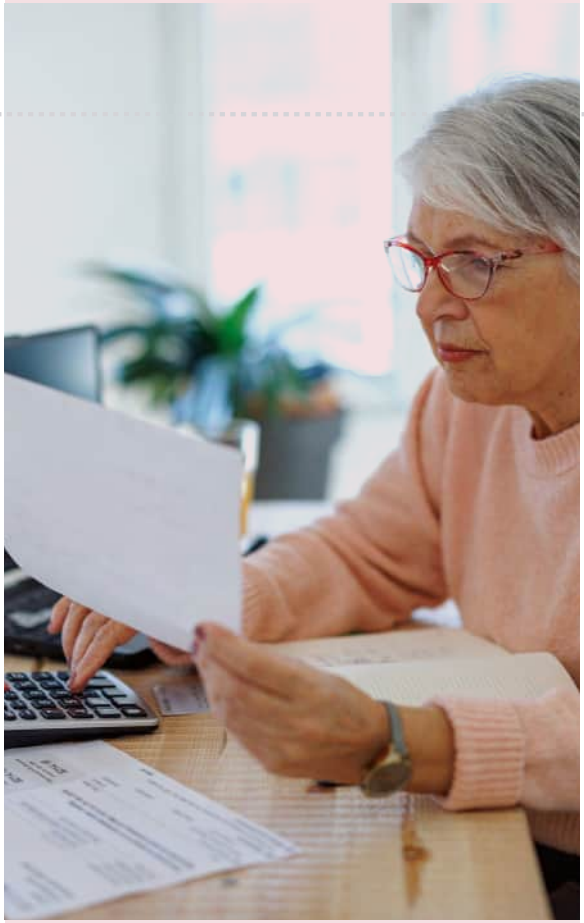
Introduction

Utility Week's second annual risk report, published in association with leading global risk and insurance broker Marsh, comes at a time of significant uncertainty for the sector and many of the challenges that afflicted utilities last year, clouding their view of the future, have continued well into 2023.

Since the publication of our last report, affordability challenges have cemented themselves as a key concern – most obviously for energy retailers. Runaway energy costs and market turmoil in the wake of the crisis in Ukraine have once again driven energy into the crucible of political debate and intervention. Despite the introduction of the energy price guarantee (EPG) in October, energy costs have become a key factor in a major cost of living crisis.

For energy infrastructure owners meanwhile a heady combination of extreme weather – including heavy snowfalls over winter – and international market volatility caused rumblings over energy shortages.

The spectre of rolling blackouts garnered significant media coverage following a worst-case scenario warning from National Grid which introduced the possibility of planned power cuts during periods of peak demand should supplies from Europe – heavily impacted by the ongoing crisis in Ukraine – fall short. In the event of a worst-case scenario, it was mooted, customers in targeted locations would be notified that supply would be temporarily shut off. Blackout locations would be rotated to ensure that the entire country would not be affected at the same time.



To get ahead of this undesirable scenario, National Grid's demand flexibility service (DFS) was rolled out, giving electricity suppliers the opportunity to offer customers discounts if they cut peak-time use on specified days over winter. While blackouts were avoided, the level of uncertainty was alarming for many customers.

Methodology

Senior leaders from across the energy and water sectors were invited to take part in our online survey which ran from 30 January to 21 February 2023. A total of 44 individuals responded, with the vast majority of these holding board, chief, director or head of function level roles.

Our online survey gathered insight from utilities on the major risks they expect to face in the next five to 10 years. Participants were asked to rate the likelihood of a specific risk occurring and, if it did happen, what the impact would be on their business.

The survey covered 29 different risk factors in total, split across five main areas:

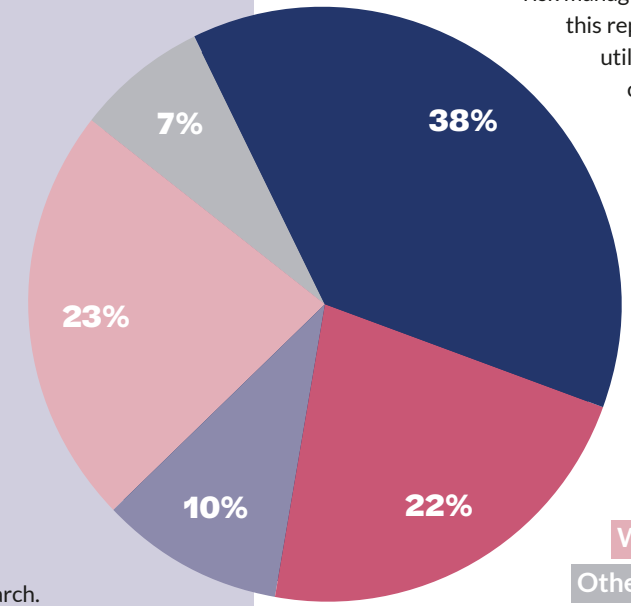
- Environmental risks
- Policy and regulatory risks
- Societal risks
- Digital and security risks
- Investment and skills risks

In all cases scores were given out of five, where one represented the least likelihood or impact a risk could have and five represented the highest. The survey also asked about the confidence of respondents in managing and mitigating risks.

The results of the online survey were supplemented with information gathered via in-depth interviews with selected respondents and other influential industry figures. These interviews have informed the narrative of this report and provide informed interpretation of the survey findings. These interviews were conducted between 8 to 23 March.

The water sector has also had its share of difficulty over the last 12 months. Last summer record-breaking high temperatures and lengthy dry spells resulted in water shortages and subsequent hosepipe bans. Public scrutiny of companies' management of the water network was exacerbated following a series of combined sewer overflow spills, leading the environment secretary to demand water and sewerage firms share their improvement plans.

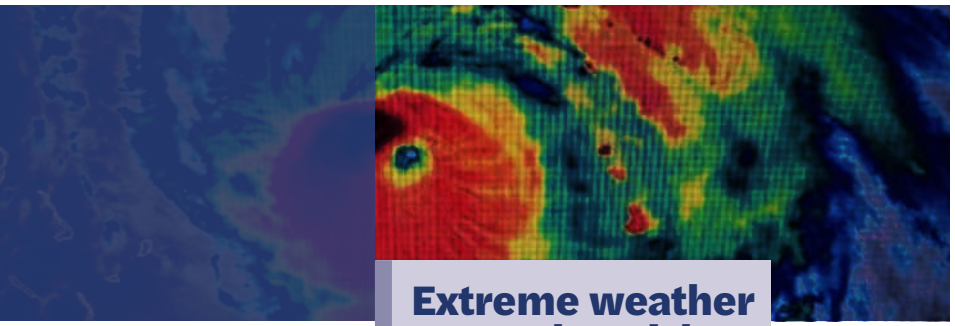
Undoubtedly, many of the views expressed by respondents to our survey have been shaped by the above issues. While this report sets out the key risks that will confront utilities in the next five to 10 years, it is important to view the findings through the prism of today's challenges. Each year, our annual risk report will explore how these long-term trends are flexing and evolving, and how utilities are responding. Through detailed exploration of the threats and opportunities influencing risk management across the sector, this report intends to support utilities as they plan beyond current turbulence and navigate an increasingly complex operating environment.



Survey participants categorised according to the following sector lines:

- Energy network
- Energy retailer
- Water only
- Water and sewerage company
- Other

Executive summary



Extreme weather tops cyber risk

In 2022, cyber security was seen as the number one risk facing the utilities sector. Now, while the need to deter bad actors and mitigate the potential impacts of a serious cyber breach remain high on the agenda, as illustrated by this year's survey results, these imperatives have been surpassed by the increasingly tangible threat of extreme and unpredictable weather.

Following a year of record-breaking storms and heatwaves, as well as heavy rainfall and flooding, it is unsurprising that utilities are increasingly conscious of the risks posed to infrastructure resilience and service delivery. It is notable that water companies feel most exposed to the impacts of extreme weather with an astonishing 100% of respondents attributing a score of 4 or 5 to the likelihood of major or recurring infrastructure and service delivery disruption over the next five to 10 years as a consequence.

Top risks in 2023

The below is a list of the overall top risks for combined impacts and likelihood, as identified by our 2023 survey respondents:

1. Increasingly extreme and unpredictable weather (16.83/25)
2. A serious cyber security breach (16.77/25)
3. Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest (15.63/25)
4. Geopolitical volatility or international conflict causes major disruption (14.66/25)
5. Regulatory environment is not agile enough to withstand market shocks (14.13/25)
6. International competition for investment draws interest away from the UK (14.05/25)
7. A politically driven reform agenda leads to major overhaul of regulatory structures (13.96/25)
8. Skilled workers and leaders are enticed or driven away from the sector (13.90/25)
9. Prices for essential resources continue to rise unsustainably on global markets (13.71/25)
10. Available returns become too low to justify new investment (13.70/25)

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Furthermore, water companies had significant concerns about the likelihood of impacts from other climate-related risks, including biodiversity loss and increasing water scarcity with 53% and 47% respectively saying the impacts from these are likely or extremely likely on a five-to-10-year horizon. Said one water director: "We have a climate-dependent system and we can absolutely see the impacts of changing weather. We are currently undertaking assessments of our climate resilience so we know the risk that we face and can take action."

While concerns about the impacts of extreme weather were less pronounced among energy networks respondents, they were still significant, with 70% saying there is a high likelihood that weather will drive substantial infrastructure and service delivery impacts.

Very notably, networks were also critically concerned by the prospect of slow-moving policy development becoming a barrier to timely investment. Given the burden of responsibility energy networks hold for the UK's net zero transition – via their role in delivering a smart, decarbonised energy system – it is unsurprising that respondents from this sector were extremely sensitive to this risk area, scoring it highly for both likelihood and impact. Indeed, networks were also most likely to exhibit concern about the risk posed by a political backlash against the cost of net zero.

More broadly, the increasing concern of all utilities about the implications of climate change are clearly tied to a perception that the development of policy and regulation will inadequately empower them to prepare for its ramifications. Slow-moving or vague policy development along with a lack of agility in regulation appeared third and fifth respectively in the sector's overall risk rankings, a result which came as no surprise to commentators.

All those interviewed for this report pointed to continued uncertainty in their policy and regulatory environments as a driver for multiplied challenges in addressing all other risk factors covered by this report. Interviewees felt strongly that lack of clarity and momentum in the development of policy and regulation will affect their ability to plan effectively and make the robust, long-term investment decisions necessary for resilience. "The uncertainty is huge – both regulatory-wise and policy-wise – and I cannot foresee that changing in the next 10 years," explained one interviewee. "Sometimes we will get certainty on a particular issue, but it often comes too late to support timely decision making."

Squeezing in between sluggish policy development and rigid structure, it was also no surprise to see the prospect of geopolitical volatility and international conflict enter the top five as a new and substantial risk factor in 2023. The start of the crisis in Ukraine in early

2022 and its ensuing impact on international politics, global markets and commodity costs has shown with alarming clarity that war, within the sphere of developed economies, is a real and ongoing threat. With climate change and associated impacts on the availability of key resources expected to drive population displacement and political friction far into the future, this is a risk factor likely to remain high on strategic registers for some time to come.

Bob Sawers, crisis advisory lead at Marsh, says: "Looking beyond 2023, it is highly likely the changing climate and an increasingly fragmented and fraught geopolitical landscape will combine to continue exacerbating many aforementioned risks. These risks have also been analysed in this year's Top 10 Global Risks, as featured in The Global Risks Report 2023, published by the World Economic Forum in collaboration with Marsh McLennan.

"Recognising that we are now in an epoch of uncertainty, it is critical to understand both the individual and accumulated impacts of this new operating environment, as well as developing long-term and meaningful mitigations, and ultimately resilience."

Managing and mitigating risks

In addition to asking survey participants to score the likelihood and impact of the risk factors covered in this report, Utility Week also asked them how confident they are that their organisation will be equipped to manage and mitigate the most significant risks emerging on a five-to-10-year horizon.

While the top risk factors themselves have remained broadly similar – with some reordering – it is notable and slightly concerning that confidence in risk management capability has not improved. Indeed, it has dipped very slightly overall, with water respondents exhibiting significantly less confidence than their counterparts in energy networks and retail – less than half (40%) for water respondents.

Hugh Waggett, vice president – risk senior managing consultant at Marsh, believes these findings can be partly explained by the risks being outside the control of an individual, organisation and nation. He said: "The deterioration in international relations could be leading to increased despondency for the prospect of the international community coming together to find solutions to state sponsored cyber-attacks and climate change."

Furthermore, even where respondents expressed strong faith in their organisations becoming suitably equipped to handle their most pressing risks, this confidence hangs heavily on the development of significant new or extended risk management capabilities in the short term.

For example, while more than 75% of energy networks said they believed they will be adequately equipped to manage and mitigate major risks, 85% noted that this confidence will depend on delivering new or extended tools or approaches for the handling of risk. One executive from an electricity network owner said: "We are focused on building our resilience to risk across the board. We are already doing a lot around business continuity planning, supported by additional training which is being rolled out. From a technical asset management point of view, we also have regular climate risk engagements, as well as a network asset risk methodology which helps to identify critical assets that need to be replaced."

According to Waggett: " Remarkable growth in the range of risk modelling available from the tech sector has allowed more accurate, diverse, and data driven simulations to be performed. Cheap and available satellite imagery is one key driver allowing more agile consultancies to conduct new risk management techniques."

Environmental, social and governance requirements

Preparedness for future challenges will require utilities to extend their risk capabilities in key areas, such as environmental, social and governance (ESG) performance.

Interviewees for this report recognised the growing significance of ESG credentials. For instance, a water sector leader reflected that: "ESG is an important tool for us to communicate with stakeholders our impact on the environment and the communities we serve. It allows us to be transparent in our performance and be held accountable by stakeholders.

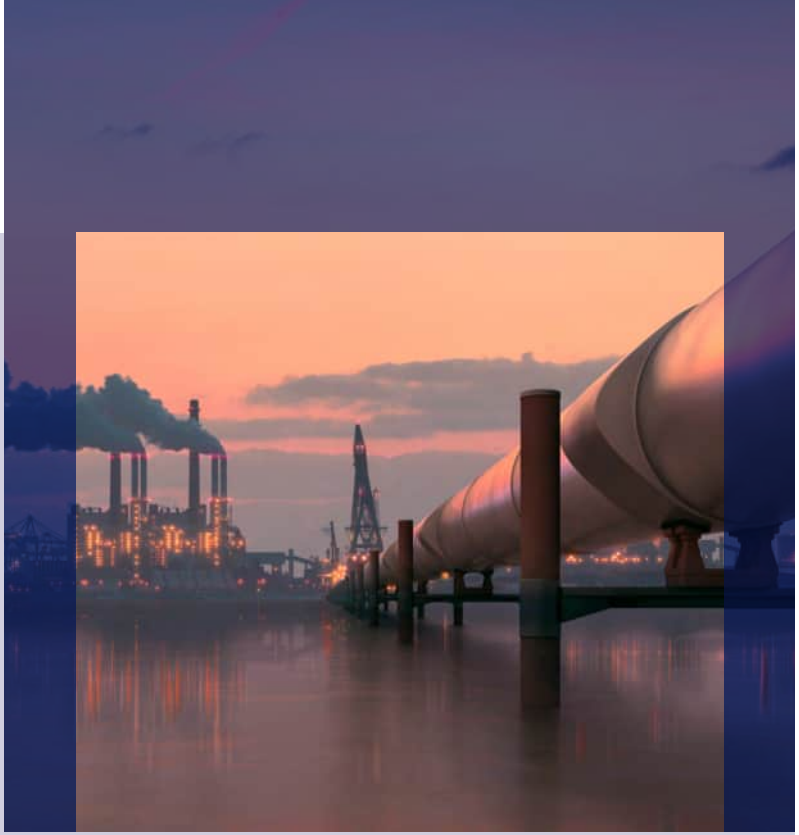
"We use ESG to show that we are addressing risks from climate change and population growth, meeting our environmental obligations, and delivering for customers and communities. It allows us to demonstrate that we are a good investment for long-term growth, and that this benefits customers, communities and the environment."

But how confident are utilities that they are building ESG expertise at the necessary pace to meet growing regulatory and public expectations in this space?

According to our survey, six in 10 feel that their business is well prepared for increasing ESG requirements. Reassuringly, none of our respondents believe their business is completely unprepared. The results were similarly consistent across water and energy retailers (both 60%), with networks marginally more confident (61.4%).

One utility director added that companies spend a great deal of time preparing for ESG requirements, but the focus must now be on "delivery, delivery, delivery".

Views from interviewees suggested that uncertainty about ESG preparedness is less reflective of a lack of confidence in their business' capabilities, but more linked to apprehension around future policy and regulation. One clear challenge is the role geopolitical instability will play in this area as it increasingly intersects with ESG concerns. The COP27 UN climate summit in November, for example, illustrated the complex relationship between geopolitics and ESG. The controversial climate deal brokered at the summit was criticised by some analysts for not going far enough, with claims that it had been watered down by oil-producing countries who lobbied for the removal of core commitments on greenhouse gas emissions.



For utilities in particular, the uncertain geopolitical landscape will undoubtedly shape companies' ESG priorities, as well as placing additional strain on the supply chains required to deliver these objectives.

Water and energy companies' successful delivery of long-term ESG goals will be closely linked to broader stability and certainty, not least from the UK government and regulators.

Marsh's Hugh Waggett says: "The 'E' has been the focus of ESG for the last 10 years and this trend will likely continue as organisations often overlook 'S'. Great societal change is highly likely in the medium term, stemming from: mass migration due to climate change, challenge to democratic values from authoritarian or populist leaders, and economic inequality. These will be key drivers to how societies operate, pay for, and consume water, energy, and other utilities."

Sector-specific risk outlook

The top 10 overall risk factors occupying the minds of utilities leaders reflect some key common interest areas around climate change, cyber security and the development of enabling policy and regulation. When looking at sub-sector specific risks, however, some notable shifts are clear in the weighting of certain risk areas. To highlight these differences, below we have set out the top three risks for both likelihood and impacts as identified by energy networks, energy retail and water companies respectively.

Energy networks

Policy and regulatory risks remain the most likely risks to negatively impact networks, according to our survey respondents. However, other risks have shifted significantly in the last 12 months. Last year, investor confidence and the cost of essential resources took second and third place, respectively, in the ranking of most likely risks facing the sector. However, this has been replaced by cyber security, geopolitical volatility, and international competition for investment.

On severity of impact, networks said a terrorist attack would cause the most disruption to operations and service delivery. Terror-related concerns did not make it into the top rankings in last year's survey, reflecting growing concerns around digital and cyber, coupled with mounting geopolitical tensions. It could also be argued that relatively fewer terror attacks within Western countries in recent years has shaped respondents' perception of this risk. Additionally, when considering previous terror incidents in the West, there is a broader trend of attacking people rather than infrastructure.

Top three network risks

Likelihood (1= Extremely unlikely 5= Extremely likely)

1. Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest (4.3)
1. Regulatory environment is not agile enough to withstand market shocks (4.3)
2. A serious cyber security breach occurs (4.0)
3. Geopolitical volatility and/or international conflict causes major disruption (3.9)
3. International competition for investment draws interest away from the UK (3.9)

Impact (1= Extremely low impact 5= Extremely high impact)

1. A terrorist attack successfully impacts operations/ infrastructure (4.5)
2. A serious cyber security breach occurs (4.4)
3. Increasingly extreme and unpredictable weather (4.2)
3. Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest (4.2)

Energy retail

Energy retailers have indicated a significant shift in the major risks that are likely to impact the sector. In 2022, customers' ability to pay their bills was considered to be most likely, as inflation skyrocketed and average disposable income plummeted. This year, concerns about the cost of living remain, but retailers' focus has shifted to the likely regulatory and policy risks that will shape the sector in the next decade.

In terms of impact, the threat of re-nationalisation – or another major overhaul of ownership structures - claimed the top spot, highlighting the political uncertainty that has settled in ahead of the next general election. Affordability was a persistent issue for retail respondents, both in terms of customers' ability to pay their bills and the potential for further government intervention to support customers.

Top three energy retail risks

Likelihood (1= Extremely unlikely 5= Extremely likely)

1. Regulatory environment is not agile enough to withstand market shocks (4.1)
2. Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest appropriately for the future (4.2)
3. Affordability drives further extreme government intervention in the market (4.1)

Impact (1= Extremely low impact 5= Extremely high impact)

1. Re-nationalisation of some/all segments of the utilities sector, or another significant change to market ownership and reward structures, becomes a dominant policy issue (4.4)
2. Available returns become too low to justify new investment (4.3)
3. Affordability drives further extreme government intervention in the market (4.2)
3. Perceived high risks around the sector cause investors to withdraw (4.2)
3. A collapse in customers' ability or willingness to pay their utility bills (4.2)

Water

The primary risk factor for water companies is extreme weather, both in terms of likelihood (4.6) and impact (4.6). This remains consistent with last year's survey, emphasising the scale of climate-related challenges facing the sector.

While skills-related issues remain a concern for water companies (see Investment and skills risks chapter), this has dropped out of the top three. This year's scores placed policy development and achieving consumer behaviour change in joint second, compared to cyber security in 2022. The likelihood of a cyber security breach this year ranked in third place, joined by anxieties around growing digital complexities and misinformation incidents.

Water companies' view of severity of impact remained largely unchanged. Extreme water shortage has climbed the ranking to share the top spot with extreme weather concerns. The risk of terror attack is new to the top three ranking, similar to energy networks.

Top three water risks

Likelihood (1= Extremely unlikely 5= Extremely likely)

1. Increasingly extreme and unpredictable weather (4.6)
2. Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest (3.9)
2. A failure to achieve necessary change in consumer behaviour and consumption patterns (3.9)
3. A serious cyber security breach occurs (3.7)
3. An inability to manage growing digital complexity (3.7)
3. Widespread and/or frequent misinformation incidents (3.7)

Impact (1= Extremely low impact 5= Extremely high impact)

1. Increasingly extreme and unpredictable weather (4.6)
1. Extreme water shortage (4.6)
2. A serious cyber security breach occurs (4.5)
3. A terrorist attack successfully impacts operations/infrastructure

Environmental risks

1

100%

of water companies believe extreme weather is likely to impact their business

Weather threat

Complex environmental issues are a pervasive concern for each segment of the utilities sector. Energy retailers, networks and water companies are all grappling with the dual challenge of mitigating the impact their businesses will have on the environment as well as the impact mother nature might have on critical infrastructure and service delivery.

Across the board, the impact of increasingly extreme and unpredictable weather was considered as posing the greatest threat to utilities, achieving an overall risk rating of 16.83 – the highest score for this year's survey.

This result was strongly influenced by water leaders who completed the survey. A resounding 100% of water respondents agreed that extreme and unpredictable weather is both the most likely and will have the most severe impact on their business compared to other environmental risks in this category.

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The significant impact on both service delivery and infrastructure is a pressing concern for both today and the decade ahead. However, there was agreement among those contributing to this report that investment in asset resilience and mitigating the impact of increasingly extreme weather events will require a difficult balancing act with priorities around affordability and the inevitable ramifications for customers' bills.

In March, chief executive of the National Infrastructure Commission (NIC) James Heath warned of a brewing water infrastructure crisis. Heath insisted that not properly balancing investment needs for water and wastewater infrastructure with the rising pressures on household finances could create significant infrastructure challenges.

The NIC chief executive highlighted the need for investment levels to be around two to three times greater at the next asset management period than the current one. However, at a time when public trust in the sector is low and 1.5 million households are already in water poverty, increasing water bills could prove difficult. That's despite water bills being a fraction of the cost of electricity and gas bills, which have been the subject of much debate in the past 12 months or so.

He summarised the most pressing issues for the sector as "too much, too little, and too dirty water" that each

"Short-term solutions and tinkering at the edges won't solve the fundamental challenges facing the sector. The water sector will need to do different things, not just do the same things a bit better or a bit cheaper."

James Heath, chief executive,
National Infrastructure Commission

require complex, interlinked solutions that themselves need investment.

"Short-term solutions and tinkering at the edges won't solve the fundamental challenges facing the sector," Heath said, stressing the need for new approaches. "The water sector will need to do different things, not just do the same things a bit better or a bit cheaper."

The need for a genuine "step-change" to the water sector's approach was reiterated during interviews for this report. "Our historic approach is not adequate to deal with the challenges ahead. We really need to switch up our approach to asset management and drive a step-change in infrastructure quality," said one water company executive. "This is not just what our customers demand, it is what the environment demands."

However, as outlined by the NIC's chief executive, the erosion of public confidence in the water sector will make it increasingly difficult to justify future hikes in water bills.

Despite a series of recent high profile combined sewer overflow (CSO) spills that have been costly for water companies, both financially and in terms of their reputation, just 53.3% of water respondents are concerned about major loss of biodiversity or ecosystem damage leading to a significant negative impact for their business.

In interview, one water executive insisted that companies fully appreciate the risks associated with this "sensitive issue" and are not complacent about their responsibilities to protect the environment.

"We know there has been an erosion of public trust in the water sector more generally and that has been rightly and reasonably outlined by Ofwat. Last year, various spills and droughts with subsequent hosepipe bans did little to improve trust and confidence in the sector," they said.

As it stands, there is a clear gap emerging between the sector's current performance and the resilience that will be required to mitigate future environmental risks. However, with increased public scrutiny, there is a growing desire for companies to not just exceed environmental targets, but also share more data and insight on performance.

Going forward, the interviewee added, it will be critical for water companies to be more transparent. "It is important that customers understand our journey and some of that starts with being really upfront about where performance is today. We would readily accept that performance is off-kilter. We know we are not currently delivering for our customers, communities, or the environment.

"We are probably more impatient than anyone to see performance improve, but we have to get some of the basics done right. Only when you fix the basics can you start to deliver the step-change in performance that we all want to see.

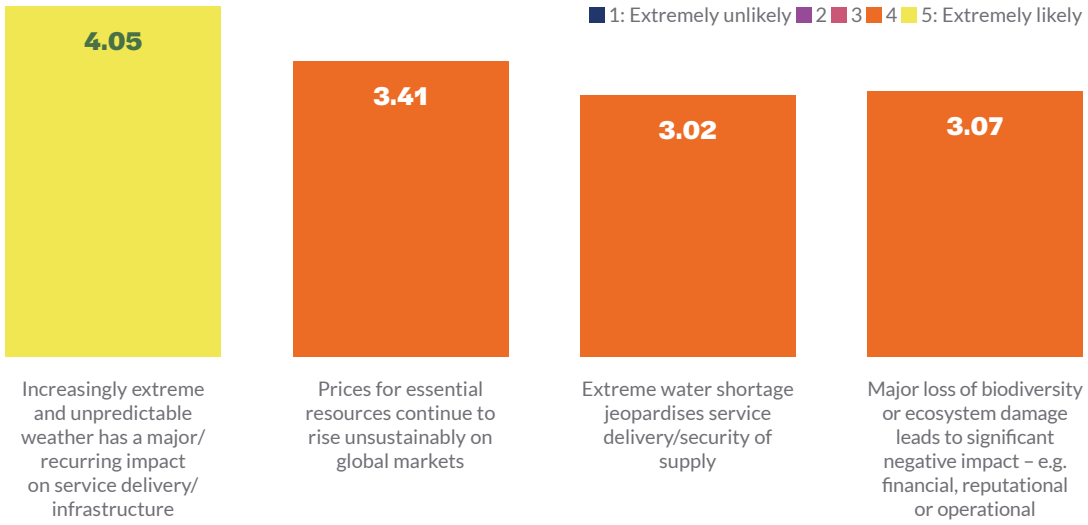
"We recognise that there is a problem. We do not accept it or tolerate it, but this is where we are now, and we know we need to shape that and move it on for the future."

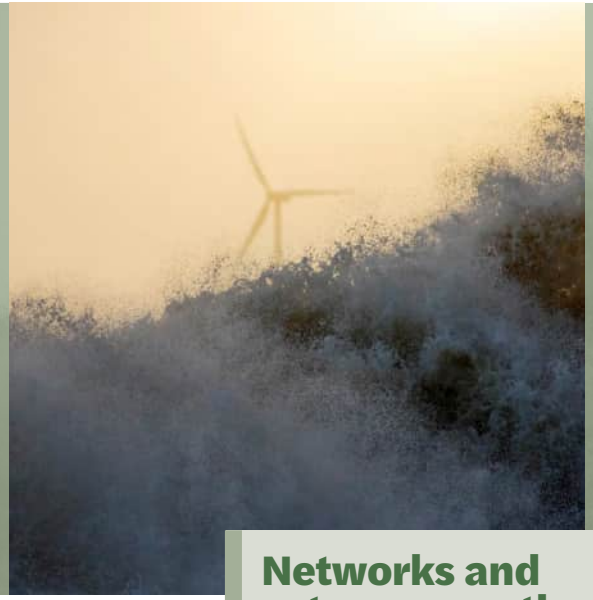
Marsh's Bob Sawers agreed that a more transparent and empathetic approach is needed. Drawing on post-pandemic lessons in crisis communications he highlighted post-pandemic lessons in crisis communications to draw key parallels from this type of approach. Accordingly, water companies should focus on transparency (especially on the journey required to develop a long-term solution), care, and a commitment to addressing the specific issues.

"An emphasis on empathy with impacted stakeholder groups is also required. The traditional approach centring on heavily legalised language is inadequate for a highly connected audience well-versed in corporate obfuscation."

Environmental risks:

likelihood to become a risk –3.39/5 (average score)





Networks and extreme weather

Environmental risks:

The severity of the below risks on in terms of their likelihood to occur

Percentage likely / extremely likely to become a risk	Overall	Energy Networks	Energy Retailers	Water Companies
Increasingly extreme and unpredictable weather has a major/recurring impact on service delivery/infrastructure	81.8%	70.6%	70.0%	100.0%
Major loss of biodiversity or ecosystem damage leads to significant negative impact e.g. financial, reputational or operational	34.1%	11.8%	30.0%	53.3%
Extreme water shortage jeopardises service delivery/security of supply	34.1%	29.4%	20.0%	46.7%
Prices for essential resources continue to rise unsustainably on global markets	45.5%	47.1%	40.0%	46.7%

As with water, extreme weather events represent a significant challenge for the sector. With memories of the damage brought by Storm Arwen and the record-breaking winds of Storm Eunice fresh in the minds of industry leaders, this understandably ranks high on the priority list for networks.

While 70.6% believe the risk of extreme weather is likely to occur, this jumps to 88.2% when asked about the severity of impact on their business.

Said one electricity networks interviewee: "Extreme weather is an enduring concern for our business. Resilience will definitely play a strong role in our next price control submission because we have the commitment from BEIS and the government around the Accelerated Strategic Transmission Investment Framework [see box], which gives us a huge amount of scope for development for 2030 and beyond."

Looking back to the impact on the network from pervious storm events, they said that their transmission network had performed well, but there is still room for improvement.

"We are looking at enhancements that we can make to our business continuity planning. There are always areas where improvements can be made.

"We also undertake a whole host of operational activities around asset management to make sure our networks are as resilient as possible."

> **"Marsh's reputational risk leader highlighted post-pandemic lessons in crisis communications. Water companies should focus on transparency (especially on the journey required to develop a long term solution), care, and a commitment to addressing the specific issues."**

Bob Sawers,
crisis advisory lead, **Marsh**

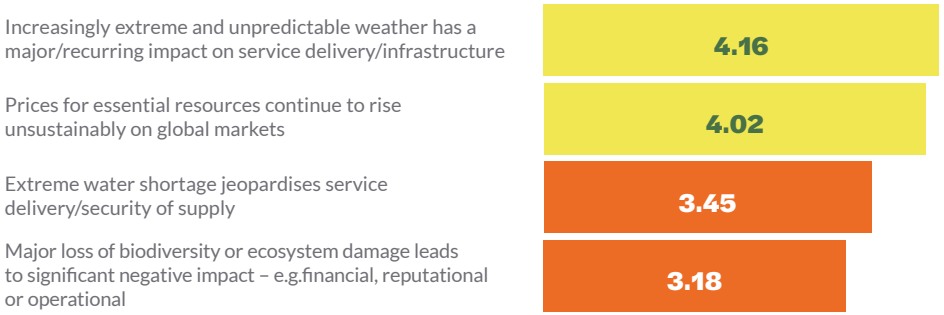
Reflecting much of the sentiment that is explored in the policy and regulation chapter, one DNO director remarked that increased certainty from both the regulator and government will support networks' response to extreme weather by accelerating investment into the sector for the delivery of major resilience projects. "Investors do not necessarily expect perfect conditions, but they do want to see there is some stability and there is mature policy and a mature regulatory framework," they said.

The changing climate, plus the increasing frequency and severity of extreme weather events, demand a holistic approach to both generating and maintaining resilience. Marsh's head of resilience advisory Will Healy notes that traditional efforts – which solely focus on business continuity – are no longer viable. Instead, resilience should be viewed as the sum of threat and hazard monitoring, incident response, IT disaster recovery, business continuity, and crisis management. This integrated framework requires significant investment in time, people, and processes, but the results offer a proportionate retort to the changing environmental risk landscape.

"Government and regulators play a vital role in directing efforts as many utility and energy companies operate within a web of stakeholders. All parties must adapt in a timely manner to allow companies to reach their net-zero goals. For instance, power grid conversion to renewables to allow water utilities dependent on grid power to deliver clean water at a low carbon cost," Healy adds.

Environmental risks:

likely impact of risk –3.70/5 (average score)



Accelerated Strategic Transmission Investment

In December 2022, Ofgem published its decision to introduce a new Accelerated Strategic Transmission Investment (ASTI) Framework. Within this framework, Ofgem will assess and fund large, strategic onshore electricity transmission projects that are required to deliver the government's ambition to connect up to 50GW of offshore generation to the electricity network by 2030.

In March, Ofgem opened an informal consultation that set out the proposed changes to the electricity transmission owners' RIIO-ET2 licence conditions required to implement the ASTI Decision.

As this report was published, Ofgem was considering the responses to the informal consultation. Additional working group meetings and a subsequent statutory consultation were also expected to be held in due course.

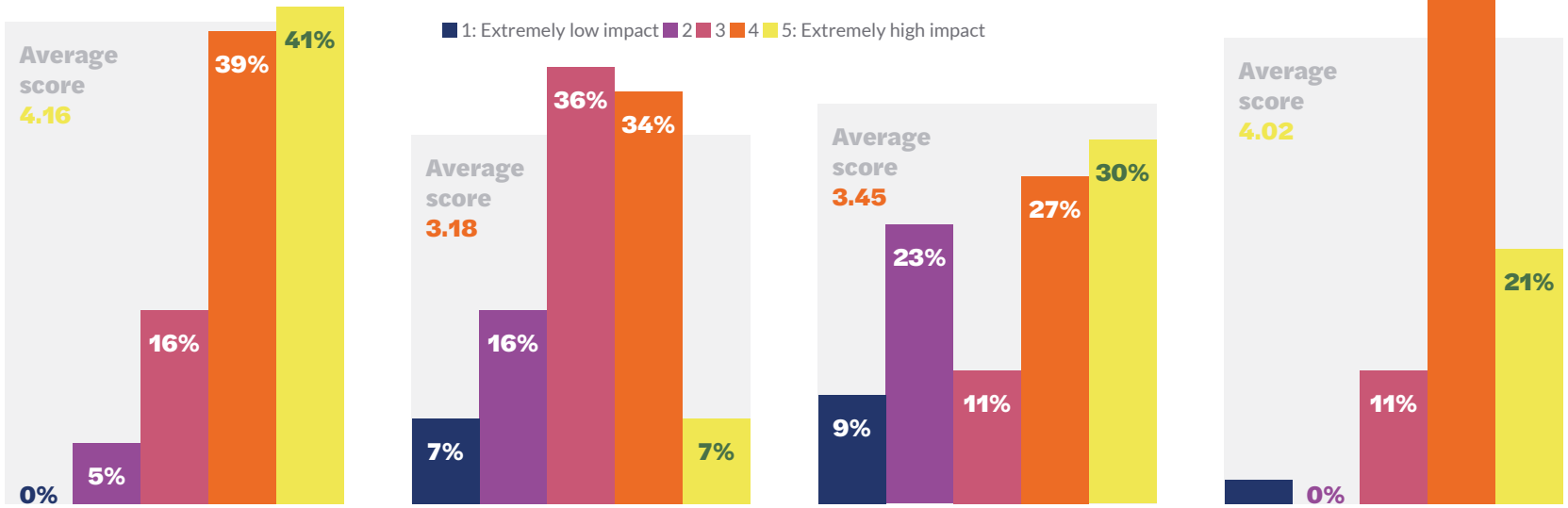
Natural resources

Spiralling prices were a huge concern when last year's survey and interviews took place. However, this consternation appears to have abated slightly over the last 12 months. Overall, the likelihood of an unsustainable hike in costs for essential resources was considered to be a moderate risk, with just under half (45.5%) saying this was likely or extremely likely to occur. For energy networks and water, this was slightly higher, ranking 47.1% and 46.7% respectively.

In terms of potential impact, eight out of 10 of all respondents believed that this would be high or extremely high for their business. For water, this was higher, with nine of 10 indicating that the impact would be high or extremely high.

Environmental risks:

Extreme and unpredictable weather will have the biggest impact on the sector overall



Increasingly extreme and unpredictable weather has a major/recurring impact on service delivery/ infrastructure

Major loss of biodiversity or ecosystem damage leads to significant negative impact – e.g. financial, reputational or operational

Extreme water shortage jeopardises service delivery/security of supply

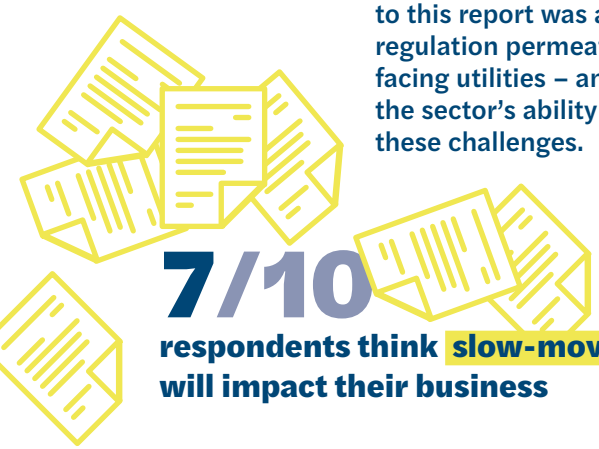
Prices for essential resources continue to rise unsustainably on global markets

Policy and regulatory risks

2

Policy and regulation outlook remains downcast

A common thread running through the discussions with contributors to this report was agreement that regulation permeates all risks facing utilities – and, ultimately, the sector's ability to respond to these challenges.



7/10

respondents think slow-moving policy will impact their business

The rapid rate at which risk factors can change and proliferate requires companies to be agile in their approach to risk mitigation. However, interviewees expressed concerns that slow-moving policy decisions and subsequent regulation is often the enemy of agility.

This sentiment is illustrated through our survey results which show that one of the major risk factors for the sector is a concern that policy will not develop fast enough or will lack the necessary detail to enable utilities to invest appropriately for the future. Overall, 72.7% of respondents believe slow-moving policy will have a severe impact on their business. Even more – 84.1% – think this risk is likely to occur in the next decade. Average scores for likelihood and impact were four out of five, consistent with last year's survey findings.

Marsh's Hugh Waggett says: "Strategic risk discussions between clients and our Enterprise Risk Team over the last 12 months, have often included the risks from politicians being too distracted to form proactive policies that drive necessary change.

"However you view Brexit, a decade of political instability, and the results of the next UK general election, there is a common concern that all politicians are distracted."

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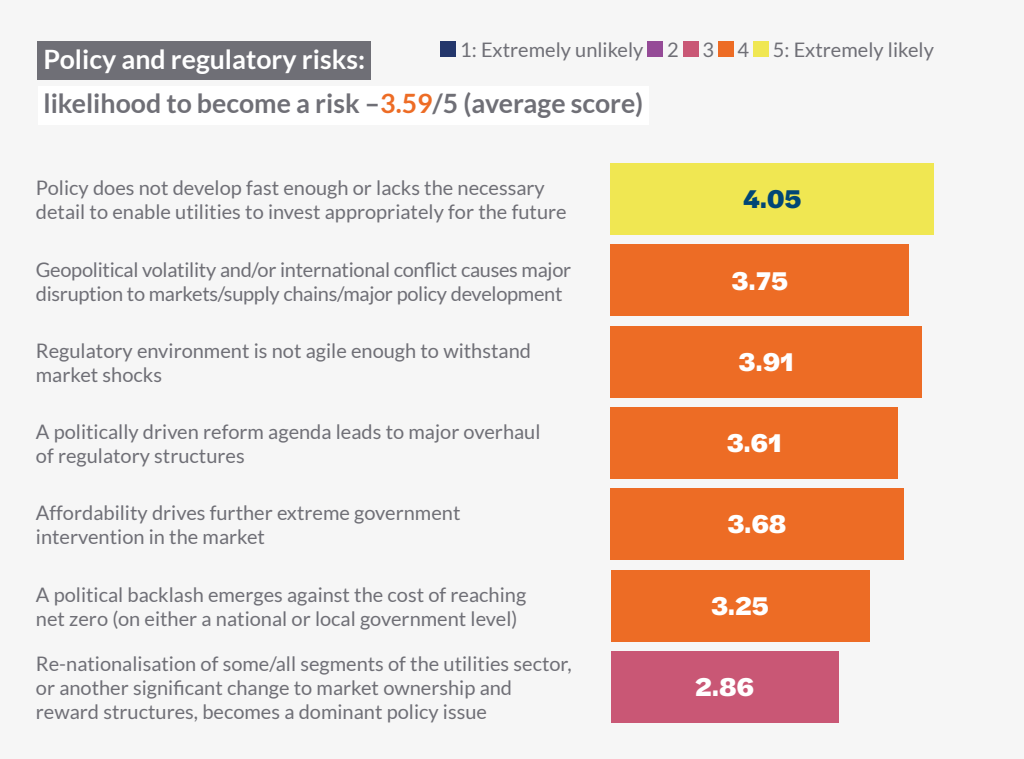
Politicisation of regulators

Policy and regulatory challenges feature prominently in the 2023 survey findings with energy networks apparently most alive to them in term of both likelihood and impact. Almost all network respondents (94.1%) said it is likely that policy will develop too slowly or lack the necessary clarity to support appropriate investment. Meanwhile, 88.2% of network leaders said a lack of agility in regulation will cause problems on a five to 10 year horizon.

One risk and assurance chief from a distribution network operator (DNO) said that the underlying issue is the lack of clarity from the regulator and government. While policy is deemed as being too slow to develop, Ofgem is accused of being often "unpredictable".



> **"I have never seen as much uncertainty as we have experienced in the last few years, and I don't expect that to change in the next five to 10 years."**
>
> Risk and assurance chief from a distribution network operator

"I have never seen as much uncertainty as we have experienced in the last few years, and I don't expect that to change in the next five to 10 years," they said.

Compounding this enduring uncertainty is the sometimes fraught relationship between the regulator and network companies. The DNO chief described this as an "incredibly challenging" predicament. "It often feels like there is a willingness from the regulator to read more into obligations, which makes it very difficult for networks," they said. "When the expectations of the regulator can shift at relatively short notice, or in an unpredictable way, it can make it challenging."

They added that the increased politicisation of the regulator will continue to "up the ante on everything". "There is always some degree of regulatory risk associated with all the other risk factors. With extreme weather, for example, there is an element of regulatory risk around whether or not the business has invested appropriately [in mitigation measures]," they said. "However, if

you think back to the way that Storm Arwen was handled, the regulator behaved very much like many of the other stakeholders, in terms of criticising the sector.

"It would be completely wrong and self-defeating in an independent regulatory regime to have a regulator always say that companies are doing an amazing job. That isn't the right answer, but there is a spectrum between utilities and politicians; it feels like the regulator is sitting very much towards politicians and popular media."

This view was shared by a regulatory director from a gas network operator, who questioned the regulator's approach to key issues such as decisions around heat policy. "This is a huge decision because there will be a transformation of the gas networks in one form or another. However, there is very little clarity over which pathway we are going to take.

"There is a question over whether we are going to strategically plan what consumers will do in the future, or if we are going to allow consumers to decide for themselves. There is a fundamentally different nature of setting out a strategic plan compared to just creating market mechanisms and going with the flow. That is causing huge uncertainty."

When asked to provide commentary for this report, an Ofgem spokesperson insisted that as part of the civil service the regulator is "completely apolitical". They added that its role is to "licence energy companies and make sure they stick to the rules of their licence and other duties the government sets or is the law".

"[Utilities] should focus on scenario planning using a reasonable worst-case narrative. This can subsequently inform the development of contingencies, enhanced business continuity measures, and the stressing of crisis plans through desktop-exercising."

Will Healy, head of resilience advisory, **Marsh**

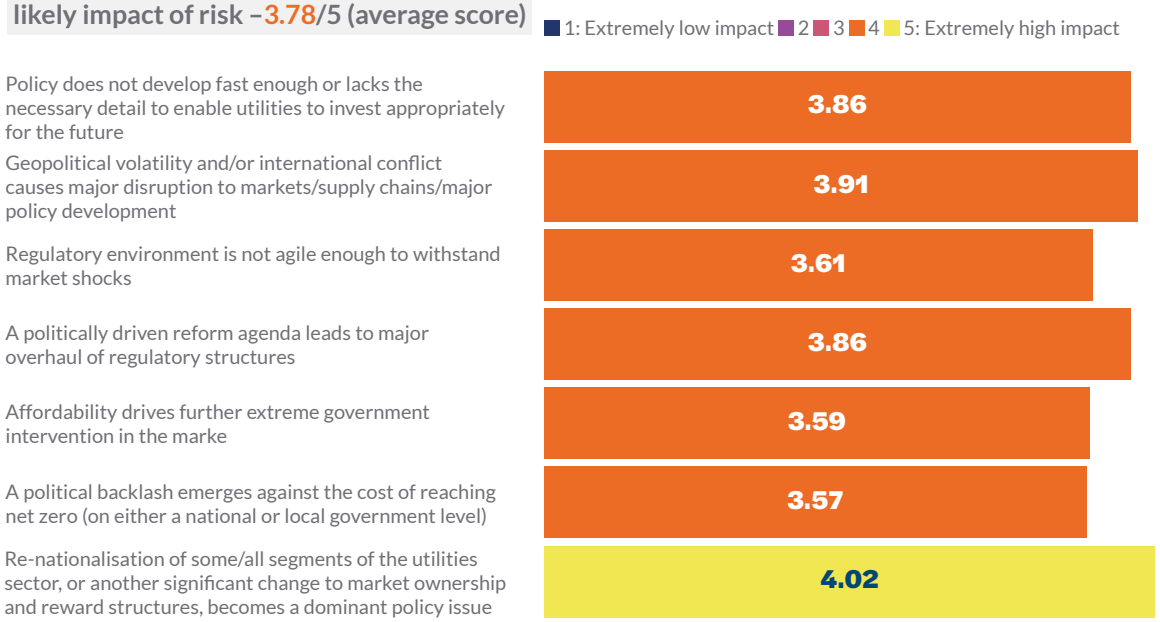
Policy and regulatory risks

Likelihood of policy and regulatory risk

Percentage likely / extremely likely to become a risk	Overall	Energy Networks	Energy Retailers	Water Companies
Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest appropriately for the future	84.1%	94.1%	90.0%	80.0%
Affordability drives further extreme government intervention in the market	61.4%	58.8%	80.0%	46.7%
Re-nationalisation of some/all segments of the utilities sector, or another significant change to market ownership and reward structures, becomes a dominant policy issue	25.0%	23.5%	20.0%	26.7%
A political backlash emerges against the cost of reaching net zero (on either a national or local government	38.6%	58.8%	10.0%	33.3%
Regulatory environment is not agile enough to withstand market shocks	72.7%	88.2%	90.0%	53.3%
A politically driven reform agenda leads to major overhaul of regulatory structures	54.5%	58.8%	80.0%	40.0%
Geopolitical volatility and/or international conflict causes major disruption to markets/supply chains/major policy development	59.1%	70.6%	60.0%	53.3%

Policy and regulatory risks

likely impact of risk –3.78/5 (average score)



Geopolitical volatility

The turbulent geopolitical landscape has heightened uncertainty across the board, not just for utilities. However, over the last 12 months, the UK's strained relations with countries such as Russia and China have shone a stark light on the perils of overreliance on certain nations for critical resources.

One water interviewee raised the concern that geopolitical risks will expose fragility within the supply chain. "It is becoming increasingly important that we are not dependent on one company, let alone one country."

One energy director agreed that diversifying supply chains is key to alleviating the risk of geopolitical volatility, as well as ensuring that utilities' resilience is reviewed "in the round". "It needs to include everything required by an organisation to recover from an external shock," they added.

Marsh's head of resilience advisory agreed, noting the need to both map and model exposures throughout an organisation's supply chain. "This should focus on scenario planning using a reasonable worst-case narrative. This can subsequently inform the development of contingencies, enhanced business continuity measures, and the stressing of crisis plans through desktop-exercising," says Healy.

Government intervention

The uncertainty detailed by network companies earlier in this chapter was echoed by energy retailers, but primarily through the prism of how policy and regulatory risk will impact customers. The prospect of affordability driving further extreme government intervention was flagged as a major risk by eight out of 10 (80%) energy retailers, both in terms of likelihood and the severity of the impact on their business.

One energy director criticised the missed opportunities for the government and regulator to provide greater clarity on policies, such as the energy price cap and price guarantee [see box], before they are revealed to the public.

"I have to brief our teams ahead of these big announcements, but often without key details. People often look at you incredulously because they cannot believe that we receive the finer details about a policy at the same time as the public," they said. "This undermines our relationship with our customers because they start to think we must be trying to hide something, or that we are just incompetent. It all feeds into issues of trust."

Another regulatory director agreed that any future intervention from government should be clearly communicated to the sector. "If we are not clear on what new policy is being rolled out, how on earth can we confidently communicate it to our customers?" they questioned. "These interventions are often revealed at short notice and suppliers do not have a clue what is going on. That triggers huge uncertainty in the market."

However, the director acknowledged the challenging constraints facing regulators. "It is very difficult when you have stakeholders who have got very short-term focuses and needs, but that is the reality. The regulator has to take decisions that often focus on delivering outcomes in the short term, which might potentially be at odds with the right solutions for the long term.

"Traditionally, the regulator has done a fairly good job of juggling those two factors. But the more it gets dragged into the political cycle, the more difficult it is to step back and make those tough decisions.

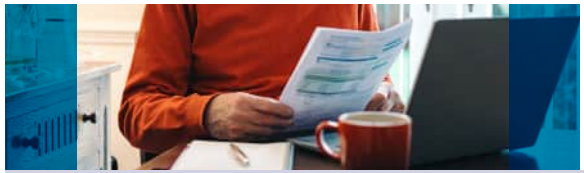
"This challenge has manifested itself in a really difficult trade off due to the current cost of living crisis. It is very difficult for the regulator to consider anything that is going to increase costs or result in an additional burden on customers. However, if you can drive that investment to provide more options for customers in the future and effectively lower future bills, then that is the correct long-term decision. However, it is difficult to make that decision in the current environment."

Net zero approach

Just 38.6% of utilities believe a political backlash will emerge against the cost of reaching net zero. This rose to half (50%) of respondents when considering the impact of the risk on their business.

Despite not ranking in the top 10 overall risks identified by utilities, slow-moving policy and cumbersome regulation did feature prominently – this combination of overall risk factors threatens to delay or deter investment into the sector. Contributors to this report insisted that timely action is needed as part of a joined-up effort to decarbonise the sector.

Across the board, contributors also raised the concern that uncertainty around



Energy price cap and price guarantee

In March, the government announced that the energy price guarantee (EPG) would be kept at £2,500 for an additional three months from April to June, saving a typical household £160.

The three-month extension of the EPG, announced as part of the Chancellor's spring budget, means households will not feel the full force of Ofgem's price cap between April and June.

At the Autumn Statement, the Chancellor announced that the EPG was due to rise to £3,000 on 1 April, with the government then expecting to borrow £12 billion to fund this support. Since then, energy prices have fallen by 50%, cutting the borrowing needed to fund energy support by two-thirds to £4 billion.

The EPG announcement also follows the latest Ofgem price cap of £3,280 from April to June which, in large part, sets the cost for this three-month extension. Households would pay the full Ofgem price cap rate if there was no EPG.

From July, households will pay the lower of the Ofgem price cap or the energy price guarantee, which will revert to £3,000 from July 2023 until the end of March 2024.

Policy and regulatory risks

Please indicate your views on the severity of the impact these risks would have on your organisation should they come to pass

Percentage likely / extremely high impact on organisation	Overall	Energy Networks	Energy Retailers	Water Companies
Policy does not develop fast enough or lacks the necessary detail to enable utilities to invest appropriately for the future	72.7%	82.4%	50.0%	80.0%
Affordability drives further extreme government intervention in the market	59.1%	47.1%	80.0%	60.0%
Re-nationalisation of some/all segments of the utilities sector, or another significant change to market ownership and reward structures, becomes a dominant policy issue	79.5%	82.4%	90.0%	66.7%
A political backlash emerges against the cost of reaching net zero (in either national or local government)	50.0%	58.8%	50.0%	40.0%
Regulatory environment is not agile enough to withstand market shocks	63.6%	64.7%	60.0%	66.7%
A politically driven reform agenda leads to major overhaul of regulatory structures	68.2%	76.5%	70.0%	60.0%
Geopolitical volatility and/or international conflict causes major disruption to markets/ supply chains/major policy development	68.2%	70.6%	70.0%	66.7%

net zero will make it difficult for utilities to know which new technologies and processes they should invest in.

Without "bringing everyone to the table" and "agreeing on the route to net zero", it will be impossible to achieve, according to a strategy and regulatory director from a water company.

"Our drainage water management plan requires significant sustainable urban drainage. This requires massive investment in supply chain capability, materials, and customer education. You cannot do it all and line everything up unless you have certainty around what the next five years and beyond will look like, but we have not got that at all."

Across the board, interviewees were in agreement that long-term policy frameworks are needed to support the delivery of net zero objectives and ensure investors and the supply chain are primed.

The key issues relating to these resource challenges are discussed in more detail in the investment and skills risks chapter.

Societal risks

3

80%

of energy retailers see customers' ability or willingness to pay as likely to impact their business

Energy and affordability

Last year, water and energy companies were broadly consistent in their view of the biggest societal risk facing utilities. The top concern was a major shift in the proportion of customers struggling to pay their bills, which earned a risk factor score of 3.6. However, elements of this year's findings show a mixed picture, with each segment of the utilities sector seeing potential for distinct areas of societal risk.

Behavioural change is undoubtedly a pan-utility issue, which is central to addressing complex energy and water challenges. For energy companies, tackling capacity constraints and delivering net zero equitably is closely interlinked with customer demand and expectations. This is equally the case for the water sector where combating water shortages and easing the pressure on ageing infrastructure is critical.

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Our survey results reflect this theme: a failure to achieve necessary change in consumer behaviour and consumption patterns was identified as the societal risk most likely to occur, gaining a score of 3.66.

Echoing last year's findings, the collapse in customers' ability or willingness to pay their utilities scored highest in terms of the severity of impact, according to 72.7% of those surveyed.

However, when the findings are broken down across energy retailers, networks, and water companies, the scoring is inconsistent, reflecting the differing societal challenges facing each part of the sector – and whether or not they own a billing relationship with customers.

For retailers, affordability is unsurprisingly high on the agenda. Of those surveyed, 80% determine customers' ability or willingness to pay as the risk most likely to have an extreme impact on their business. This issue features in retailers' top five risks, with an overall risk score of 15.96.

> **"Solving this affordability challenge is beyond what any supplier can do alone, or indeed what the industry can do – it needs action from government. In the short term, we need to target support at vulnerable customers this coming winter, essentially to replace the Energy Bill Support Scheme payments of £400 that will simply not be there."**
>
> Senior director from a major energy supplier

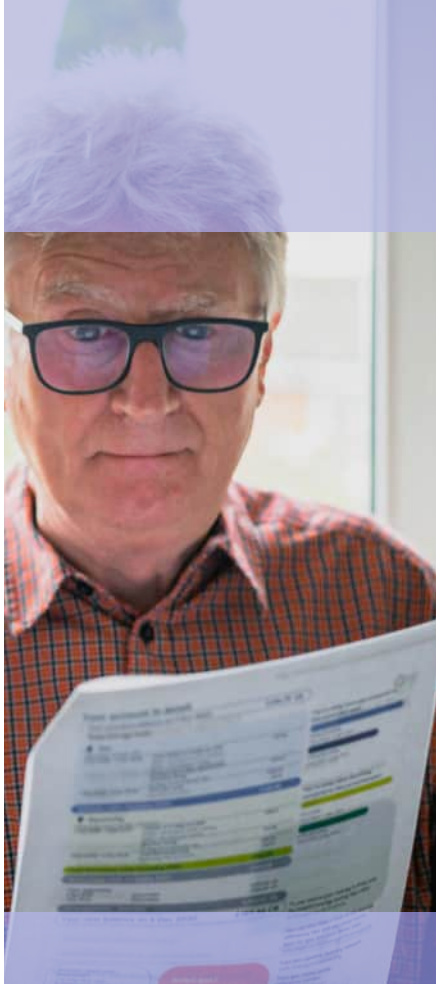
Certainly, with the current cost of living and high inflation levels influencing responses, concerns remain that complex affordability challenges will linger beyond the next five-year period.

According to a senior director at a major energy supplier, the stark outlook for customer affordability will require a combination of both short- and longer-term solutions. "It is clear customers need help paying their energy bills. Even at the current forward curve levels – which are some way off their peak – prices to end customers will be roughly double the pre-crisis level, and beyond the means of some customers," they said.

"Solving this affordability challenge is beyond what any supplier can do alone, or indeed what the industry can do – it needs action from government. In the short term, we need to target support at vulnerable customers this coming winter, essentially to replace the Energy Bill Support Scheme payments of £400 that will simply not be there.

"Beyond that, we want to see a social tariff to support less well-off customers on an ongoing basis, and also to see greater investment by government in energy efficiency. We all know if there is such a thing as a silver bullet for this crisis, it is energy efficiency – warmer homes, cheaper bills, less reliance on imported fossil fuels, jobs and skills."

Beyond action from government, a customer director from another energy supplier said it is also incumbent on utilities to "embed [what is best for] the customer into all organisational decision making". On the issue of customers who become unwilling to pay, the director believes the key is "communication, communication and communication". "The only way you can combat this negative feeling among customers is by providing clear information and ensuring call centre teams are equipped to have fact-based conversations."



This feeling also rings true when considering the need to shape consumer behaviour and consumption patterns. "As utilities, we have to approach a lot of this really creatively, thinking about how we

can engage with different customers in very different scenarios," remarked the energy customer director.

"For example, with our app we are focusing on presenting information visually, but with much more granularity. So, you are not just tracking what your smart meter is saying, you are tracking which parts of your house are using the most energy. Armed with that information, customers can then start to make different choices about their usage. As more customers connect to a smart meter, we will have more insight and we can help those customers make more informed choices."

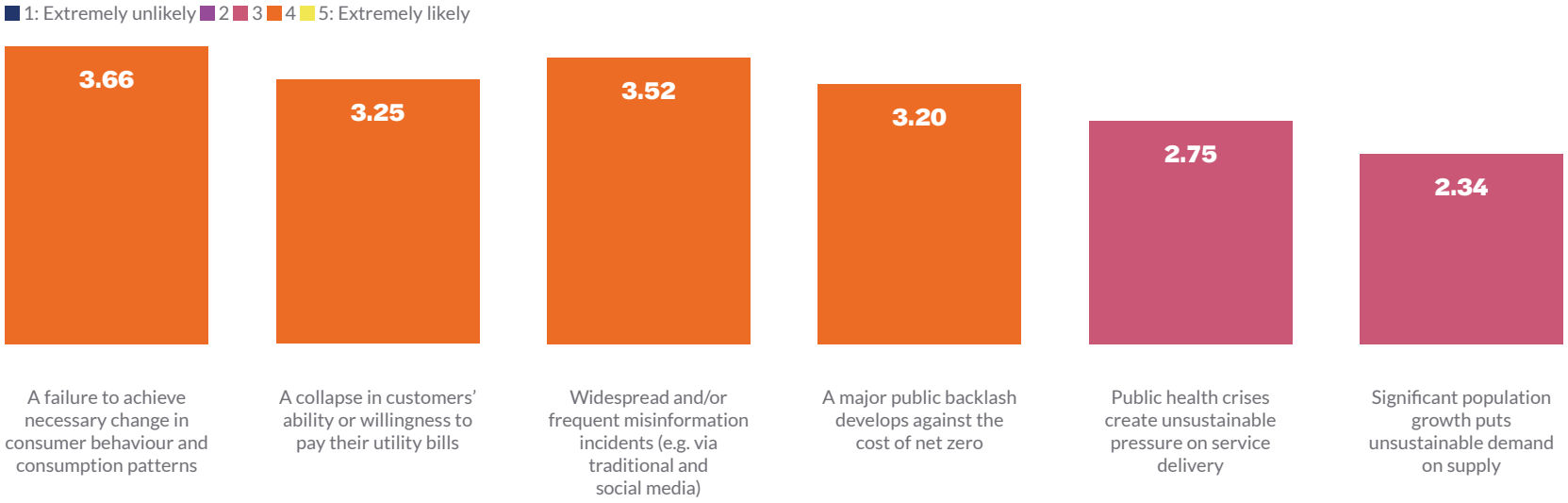
Societal risks

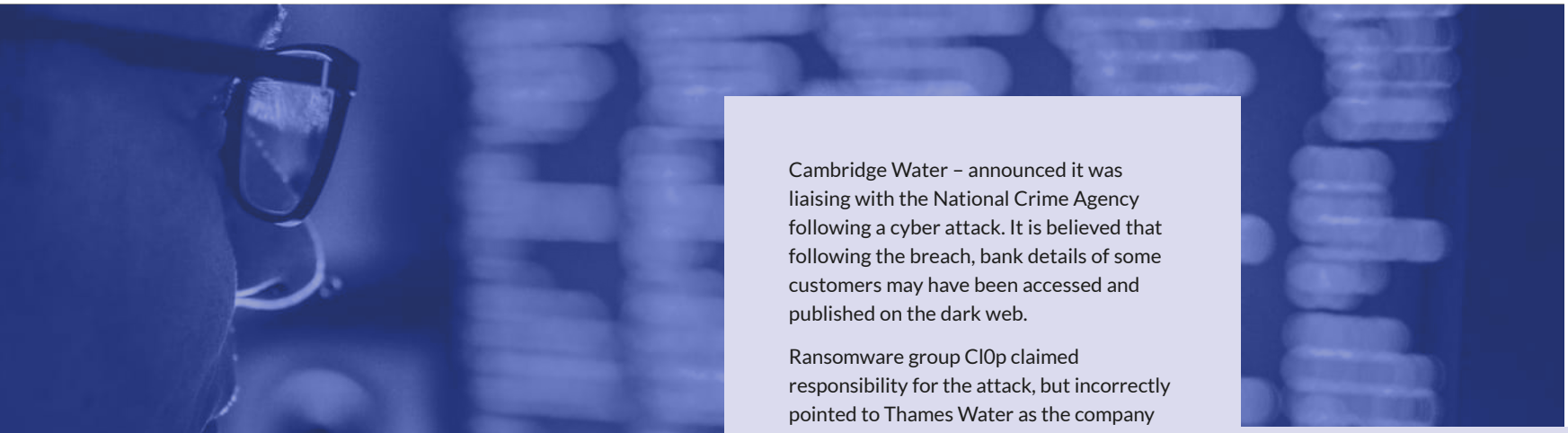
Percentages for likelihood of societal risk

% likely / extremely likely to become a risk	Overall	Energy Networks	Energy Retailers	Water Companies
A collapse in customers' ability or willingness to pay their utility bills	50.0%	52.9%	80.0%	33.3%
Significant population growth puts unsustainable demand on supply	20.5%	5.9%	0.0%	40.0%
Widespread and/or frequent misinformation incidents (e.g. via traditional and social media)	56.8%	58.8%	50.0%	60.0%
Public health crises create unsustainable pressure on service delivery	25.0%	35.3%	20.0%	20.0%
A failure to achieve necessary change in consumer behaviour and consumption patterns	59.1%	58.8%	70.0%	60.0%
A major public backlash develops against the cost of net zero	38.6%	52.9%	20.0%	40.0%

Societal risks

likelihood to become a risk –3.12/5 (average score)





The proliferation of misinformation

An increase in misinformation incidents was highlighted by our survey as a significant risk that could hamper progress on overcoming the erosion of public trust in utilities and encouraging customers to engage with their energy and water usage.

Just over half (56.8%) of respondents believe widespread or frequent misinformation incidents are likely to become a risk for utilities in the next five to 10 years. Unlike 'disinformation', which is defined as the intentional spread of false or inaccurate information, 'misinformation' refers to false information that is spread, regardless of the intention.

The havoc caused by incidents of misinformation was exemplified by a recent – and rather confusing – water company hack. Last summer, South Staffordshire Plc – the parent company of South Staffs Water and Cambridge Water – announced it was liaising with the National Crime Agency following a cyber attack. It is believed that following the breach, bank details of some customers may have been accessed and published on the dark web.

Ransomware group Cl0p claimed responsibility for the attack, but incorrectly pointed to Thames Water as the company that had been the victim of the breach. Thames swiftly disputed the claims, referring to the incident as a "cyber-hoax".

However, the scourge of misinformation is not unique to water companies. One energy leader explained that the rise of financial influencers and advisors like journalist Martin Lewis has been a double-edged sword for the sector.

"Martin Lewis is generally fantastic, with really clear information. But sometimes, if the messaging is not completely aligned with what we are saying, it can be challenging. We will get an influx of calls and then we have to manage that," they said. "Where we know that there are people who can influence customers, we are trying to work with them closely to make sure that the messaging is consistent. Generally, their intent is the same as ours and they genuinely want to help customers."

Marsh's Bob Sawers believes recognising that both disinformation and misinformation are perennial factors in an increasingly interconnected world is an important step to building "a meaningful, agile and adaptable reputational risk capability". Sawers adds: "This should transcend a traditional public relations function to be fully integrated with an organisation's incident and crisis response processes, so that speed, accuracy, and authority can begin to characterise the outward facing response."

Water and behaviour change

Behind affordability, a failure to achieve necessary change in consumer behaviour and consumption patterns was the highest rated societal risk, reflecting the increasingly important role that consumers will have to play in modulating demand to ease security of supply issues and easing constraints on aging infrastructure.

Water respondents were most alert to the need to influence consumers, attributing a rating of 14.18 to the overall risk of failure in this regard. This compares to 12.24 for networks and 12.60 for energy retailers.

Undoubtedly, the water sector's concerns around motivating behaviour change and influencing consumption are, at least in part, driven by the stretching per capita consumption reduction target set by the Department for Environment, Food and Rural Affairs (Defra) and Ofwat in 2021.

By 2050 water companies are expected to have reduced household water consumption to 110 litres per person per day (lppd) to mitigate water scarcity challenges and pre-empt the impacts of population growth.

Well over half – 60% - of water respondents to our survey said that it is likely they will fall short on influencing necessary changes to behaviour and consumption over the next five to 10 years. However, looking to the longer term, industry commentators were relatively bullish. Interviewees spoke with confidence about a variety of tools and approaches to facilitating per capital consumption reduction and felt that these will mature in time to keep the sector on track for its 2050 goal.

"Last summer, we saw a massive spike in demand in those days where we had 40°C weather and lots of people, understandably, making use of their water supplies. We can intervene with things like hosepipe bans, but there is definitely a question about how effective that approach is," remarked a regulatory director from a water company. "But in terms of a real step-change in consumer behaviour, I'm confident there is a lot we can do in this space. For example, the rollout of smart metering will really help customers see in real-time how much water they are using, and how much they are paying for that water."

The water director said they believe monetising water usage is key to engaging customers and encouraging a shift in consumption. "Just as energy companies

Societal risks

Percentages for likelihood of societal risk

% likely / extremely high impact on organisation	Overall	Energy Networks	Energy Retailers	Water Companies
A collapse in customers' ability or willingness to pay their utility bills	72.7%	64.7%	80.0%	80.0%
Significant population growth puts unsustainable demand on supply	63.6%	64.7%	30.0%	80.0%
Widespread and/or frequent misinformation incidents (e.g. via traditional and social media)	43.2%	52.9%	30.0%	26.7%
Public health crises create unsustainable pressure on service delivery	45.5%	41.2%	40.0%	53.3%
A failure to achieve necessary change in consumer behaviour and consumption patterns	56.8%	52.9%	60.0%	60.0%
A major public backlash develops against the cost of net zero	54.5%	76.5%	60.0%	26.7%

are driving engagement through smart gas and electricity meters, people really start to think carefully about what they switch on, when they switch it on, and how long it is on for. We need to create that kind of dynamic around water.

"There are also lots of things we can do by working with [appliance] suppliers to focus more on water efficiency in the home. For example, washing machines which utilise less water, tumble dryers which allow water to be saved and recycled, or dishwashers and showers that use water more efficiently.

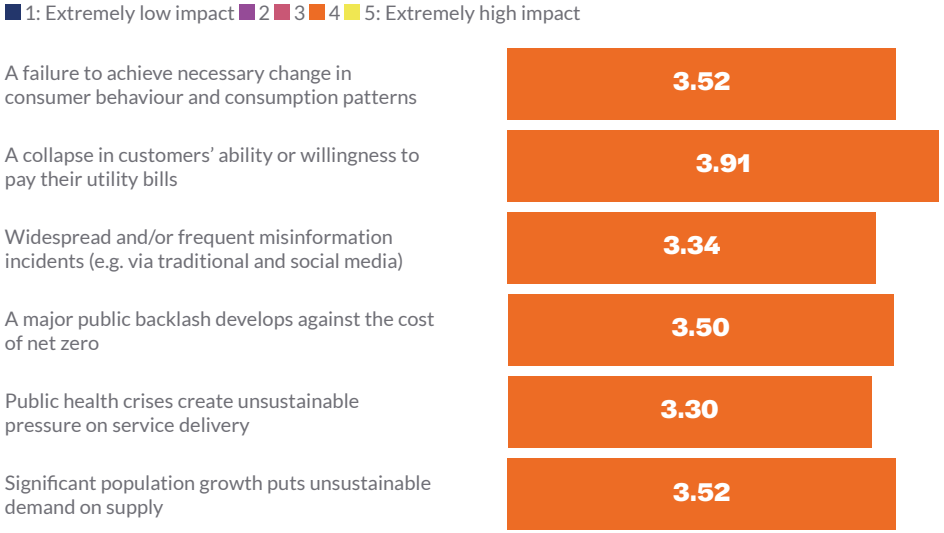
"At the moment, I do not think the average consumer sees their water in the same way they see their gas or electricity, so there is a lot of scope to do more in this area."

As part of these conversations around consumer behaviour, another major priority is customers' responsibilities around leakage. "We really need to drive that behavioural change in terms of people fixing those leaky loos and dripping taps. Again, it goes back to monetisation," insisted the water director. "If you actually look at that dripping tap and consider how much water is wasted each day, then multiply that by 365 days a year, you have got material quantum of water which is being leaked away from our network.

"As a water company, we are only accountable for a portion of the water leakage across the network. A significant portion is also leaked on the customer supply side. So, trying to drive those interventions to facilitate lower consumption is really important to us, and I think there is so much scope for us to deliver against those targets."

Societal risks

likely impact of risk – 3.52/5 (average score)



Another water company director admitted there will undoubtedly be some "challenging conversations" with customers. "A lot of them think, 'well, what are you [the water company] doing about this?', which is fair enough. But it just highlights the customer dismissal challenge that we have got to face," they said, adding: "None of these risks are independent. It is all woefully interdependent.

"It all goes back to the challenges around the regulatory framework; I am increasingly worried that it is not acting as an enabler of better management of risk and, in some ways, might be getting in the way.

"But equally, I do not see how we achieve any of these things without customer legitimacy. All of these risks are fundamentally linked."

Marsh's Will Healy explained that multiple factors are converging against fully satisfying current water demand. He says: "Demand on water services is likely to grow within city populations as urbanisation rises. Additionally, increased acute weather events, due to climate change, will reduce supply and likely impact operations of existing assets. Storm flooding of combined sewers or contamination of reservoirs are two examples of potential fallout. Weather pattern changes will lead to longer, hotter summers, resulting in both less rain and increasing evaporation from reservoirs; also further reducing supply."

Digital and security risks

4

Cyber security

As operators of critical infrastructure and the custodian of vital services, water and energy companies are tasked with making difficult decisions in response to a raft of complex security challenges. So, as the use of more digital technologies ramps up across the sector, the battle to protect service delivery has never been more challenging.

Despite being toppled from the top spot in this year's survey as the number one risk factor, cyber security remains a major priority for utilities. With an overall risk score of 16.77, cyber risk is just behind extreme weather (16.83), according to our survey.

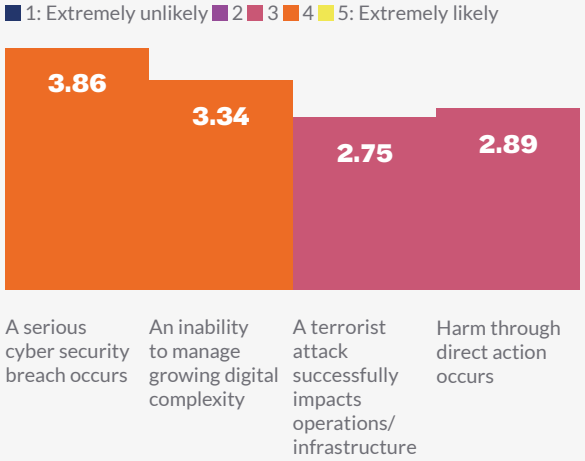
In the digital and security risks category, a serious cyber security breach remains the most likely risk event. Overall, seven out of 10 (72.7%) believe this is likely to happen, while 86.4% admitted it would have a major impact on their business. For networks, this ranked even higher, with 94.1% indicating the severe effect it would have on their business. Water companies were just behind at 86.7%, and energy retailers trailed at 70%.

7/10

utilities believe a serious cyber security breach is likely

Digital and security risks

likelihood to become a risk –3.21/5 (average score)



The likelihood that utilities will be unable to manage growing digital complexity was highlighted by 47.7% of respondents, while 61.4% said this has the potential to have a major impact on their business. Again, the perception of severity ranked higher among networks (70.6%), compared to energy retailers (50%) and water companies (53.3%).

According to a risk and assurance director at a DNO, these figures reflect networks' uncertainty around cyber risks. "I would be lying if I said we really know the extent of cyber risk and I think that is why everyone is so concerned. There is a clear knowledge gap here," they said. "You can put in all the defences you want, but the reality is that if someone really wants to break into your house, they will find a way. Unfortunately, it is the same situation with cyber risk."

Another interviewee agreed, noting that the focus for utilities should not be on eradicating cyber security breaches, but controlling how the business responds to a breach. "A lot of your control has to be on that first breach and how you contain it and ensure that it does not cause widespread damage," they added.

One interviewee expressed surprise that the risk factor was not ranked higher across the sector, particularly among water companies. "In terms of cyber risk, I would have expected 100% of people to say this is likely. It is more a question of how we limit the impact, rather than how we completely stop it from happening."

All of those interviewed referenced their business' heavy investment in cyber security, with acknowledgement that upskilling the workforce will be vital. "People are key when it comes to tackling cyber risk," said one. "We can do lots technically, but we are also investing in the education of our people to keep themselves and the system safe against bad actors."

One DNO leader believes the survey findings reflect an underlying tension that is facing utilities: how do you drive digitalisation while also maintaining cyber security? "We have not nailed how these things fit together. There is a huge push to move to open data and having everything at your fingertips. If managed in the right way, that is absolutely the right thing to do. But I think there needs to be more joined-up thinking about how digitalisation and cyber security fit together. The more digital controls you add to a system, the more routes you then have to shut down if there is a failure or if the system gets hacked."

Digital and security risks

Percentages for likelihood of digital and security risks

Percentage likely / extremely likely to become a risk	Overall	Energy Networks	Energy Retailers	Water Companies
A serious cyber security breach occurs	72.7%	82.4%	50.0%	73.3%
An inability to manage growing digital complexity	47.7%	41.2%	50.0%	60.0%
Harm through direct action occurs	22.7%	23.5%	0.0%	33.3%
A terrorist attack successfully impacts operations/infrastructure	25.0%	17.6%	0.0%	40.0%

10 steps to cyber security

The National Cyber Security Centre (NCSC) has summarised its advice for medium to large organisations. The NCSC recommends that companies start by reviewing their approach to risk management, along with the other nine areas of cyber security below, to ensure that technology, systems and information are protected appropriately against the majority of cyber attacks and enable organisations to best deliver business objectives.

1. **Risk management:** Take a risk-based approach to securing your data and systems.
2. **Engagement and training:** Collaboratively build security that works for people in your organisation.
3. **Asset management:** Know what data and systems you have and what business need they support.
4. **Architecture and configuration:** Design, build, maintain and manage systems securely.
5. **Vulnerability management:** Keep your systems protected throughout their lifecycle.
6. **Identity and access management:** Control who and what can access your systems and data.
7. **Data security:** Protect data where it is vulnerable.
8. **Logging and monitoring:** Design your systems to be able to detect and investigate incidents.
9. **Incident management:** Plan your response to cyber incidents in advance.
10. **Supply chain security:** Collaborate with your suppliers and partners.

Gareth Bateman, UK cyber growth leader at Marsh, notes that there are many other cyber security frameworks and standards, including the British ISO27001, the US National Institute of Standards and Technology (NIST), and the European Network and Information Systems (NIS) NIS2. “All represent systems for achieving cyber security maturity,” he says. “In addition, the insurance industry has taken a keen interest in promoting cyber security maturity and establishing minimum standards, particularly around the control areas that help prevent data breaches and ransomware attacks. One example of this is Marsh’s 12 key controls framework which distils the common controls that insurers scrutinise during the application process for cyber insurance.”

Bateman adds: “Organisations wishing to enhance their cyber security posture – beyond that stipulated by the NCSC – should consider integrating the technical response with the strategic – focusing on an entire organisation effort to both respond to and recover from an attack. This should centre on the training, planning, and ultimately combining of exercises which seek to stress the interfaces between organisational functions and geographies.”

Other security risks

Last year's survey found that energy networks were more concerned about harm through direct action compared with other parts of the sector. This is primarily because networks' assets are typically above ground and more easily susceptible to acts of vandalism, for example.

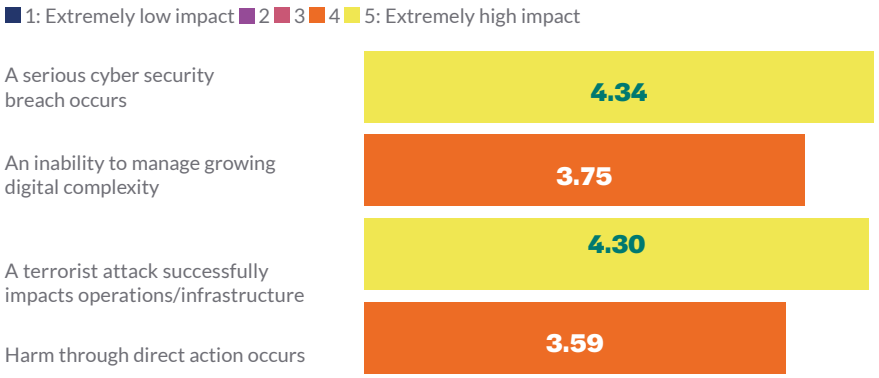
However, this year's findings show a shift in the perceived likelihood of this risk. Overall, just 22.7% believed harm caused by direct action is likely or extremely likely. However, 33.3% of water companies think this is a high risk factor, compared to 23.5% of networks and no energy retailers.

According to contributors to this report, this change in the security perception of the water companies is likely due to risks associated with increased open data providing more visibility of and access to critical assets, such as open source satellite imagery. One concern is that the cost of living crisis is increasingly driving the theft of high value materials used by those in the sector. Another survey respondent highlighted threats linked to fractured public trust in the sector, with activist groups potentially using individual employees to penetrate security. Such an 'insider' threat is notoriously difficult to identify and mitigate, but failure to do so can result in far-reaching ramifications.

Other contributors understandably raised concerns that their transparency on this topic could further exacerbate security concerns for the sector by revealing potential weaknesses. However, continued debate and sharing of best practice in this area will be critical to ensuring long-term security risks are alleviated.

Digital and security risks

likely impact of risk –4/5 (average score)



Digital and security risks

Percentages for high or extremely high impact of digital risks

Percentage high / extremely high impact on organisation	Overall	Energy Networks	Energy Retailers	Water Companies
A serious cyber security breach occurs	86.4%	94.1%	70.0%	86.7%
An inability to manage growing digital complexity	61.4%	70.6%	50.0%	53.3%
Harm through direct action occurs	50.0%	64.7%	30.0%	46.7%
A terrorist attack successfully impacts operations/infrastructure	88.6%	100.0%	80.0%	80.0%

Investment and skills risks

5

80%

of energy companies believe international competition for investment would have a high impact on their business

Investor confidence

In this category, there is a growing dichotomy between energy and water. Broadly, energy networks and retailers saw greater potential for investment-related risk, while water companies were more focused on skills-based risks.

Overall, international competition for investment was considered to be the greatest risk for utilities, gaining a combined risk score of 14.05. Our survey shows that if this risk were to occur, it would have a high or extremely high impact on networks (82.4%) and energy retailers (80%). In contrast, just 66.7% of water companies believe the impact on their business would be severe.

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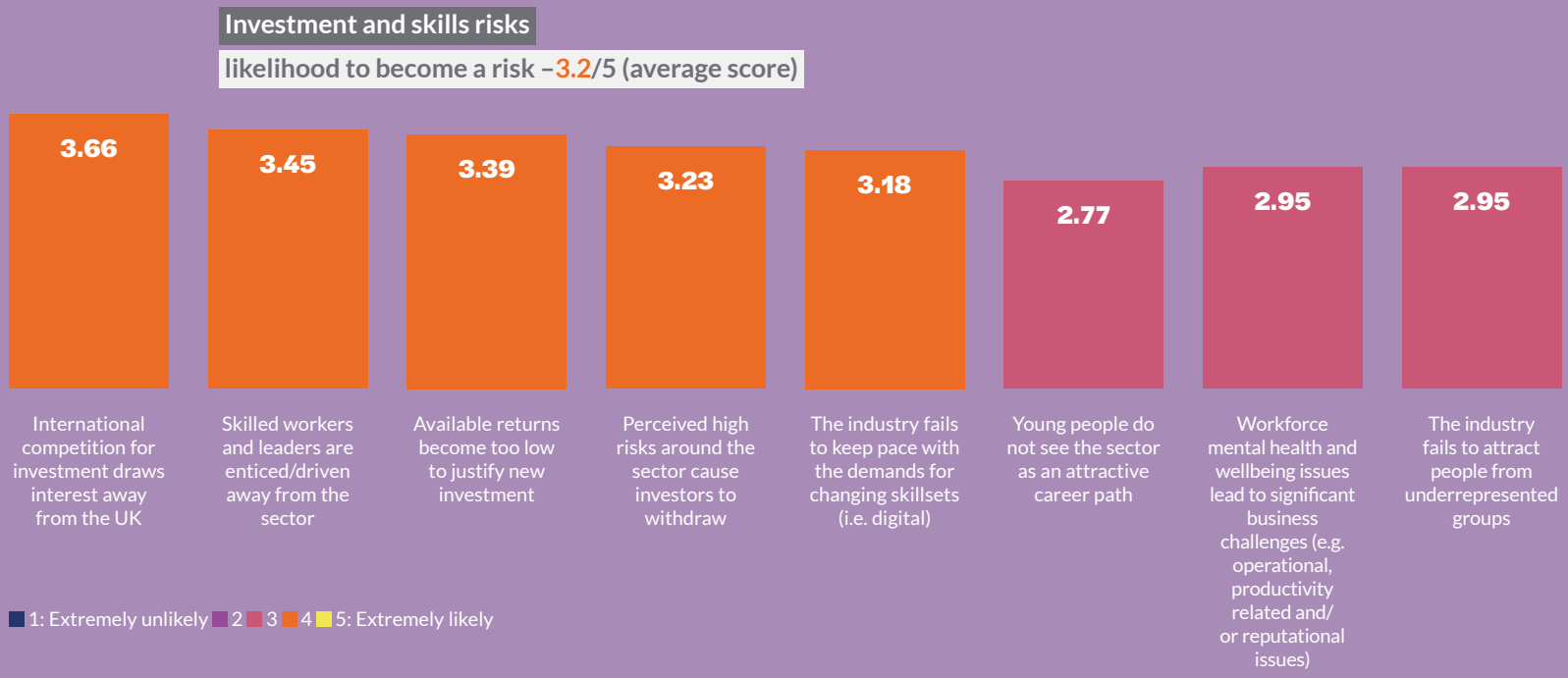


International competition for investment also scored high among energy companies (retailers and networks). In terms of likelihood, 70% indicated that this risk is likely or extremely likely to occur. When the severity of impact was considered, over 80% of energy companies said the impact would be high or extremely high.

Again, the interconnectedness of risk was at the forefront of discussions with interviewees. There was emphatic agreement that clarity and certainty from the government and regulator will play a significant role in driving investor confidence.

> **"If you are unable to answer [regulatory] questions with any real certainty, then they will either say they are not confident in investing or they will charge you a huge risk premium."**
>
> Gas distribution company director

One director from a gas distribution company said: "The main questions from investors are 'what are the regulatory frameworks around these issues?' and 'what do you expect to happen in the future?'. If you are unable to answer these questions with any real certainty, then they will either say they are not confident in investing or they will charge you a huge risk premium if they are going to lend you any money."

For water companies, investment risks ranked significantly lower than their energy counterparts. Just over half (53.3%) of water companies expect international

competition for investment or low returns deterring investors are likely or extremely likely to become a risk for their business.

However, in interview, one water director pointed to nervousness around the regulator's proposals on financial resilience as a possible red flag for future investors.

"Investors have lots of choice as to how and where they invest, so we have to ensure the UK water sector remains an attractive option for investment. That means they have to have some certainty – not absolute certainty – with regards to the overall regulatory regime that is in operation in the UK. We are hearing that loud and clear at the moment," they said.

"I am concerned that Ofwat's proposals around financial resilience may affect our ability to attract equity into the sector. We really need to ensure that any solutions have a long-term view and create trust and confidence in the sector. We want to create a welcoming environment for investment."

Commenting on the regulator's approach to financial resilience, an Ofwat spokesperson said: "All water companies need to be in good financial health, to deliver on their obligations to provide a good service to customers, to invest in improvement works and to protect our natural environment.

"Modifications to company licences have recently been introduced to strengthen resilience, to allow Ofwat to intervene sooner when required, and to maintain the attractiveness of investing in water and wastewater companies."

The fierce competition for investment, both in the UK and internationally, is reflective of a broader concern over limited resources and capacity, with pipelines for materials and skills becoming increasingly strained. One interviewee remarked that mega-projects, like the delayed High Speed 2 scheme, do little to ease demand.

"Modifications to company licences have recently been introduced to strengthen resilience, to allow Ofwat to intervene sooner when required, and to maintain the attractiveness of investing in water and wastewater companies."

Ofwat spokesperson

6/10

water companies think skilled workers and leaders are likely to be enticed or driven away from the sector

Skills shortages

The scale of skills shortages across utilities and their supply chains is already impacting the sector and looks set to continue. According to 60% of water companies, the threat of skilled workers and leaders being enticed or driven away from the sector is likely or extremely likely to occur. If this comes to fruition in the next five to 10 years, 86.7% of water respondents said this would have a severe impact on their business.

One water leader said that the skills gap, particularly for construction-related roles, has grown following the UK's withdrawal from the European Union and the coronavirus pandemic. "A lot of the Eastern European workforce returned to Eastern Europe as a result of Brexit or Covid. Due to the UK's migration rules, we have struggled to get those people back into the UK."

In March, the government announced plans to tackle chronic skills shortages in the construction industry by easing immigration rules for overseas labourers. It is hoped that the move will reduce the skills deficit by supporting international recruitment.

Another pressure for companies is the loss of highly skilled workers when they reach retirement age. Said one water leader: "We, like many other companies, have an ageing workforce so we have to replace those people who are coming close to retirement. We have a very active programme around attracting apprentices into the organisation, making sure they are appropriately trained.

"More recently, we have also been doing a lot of work to bring some of our key skills back in-house. For example, our customer contact centres were previously outsourced, but we have brought them all back to the UK. We know that, for a lot of customers, it can be frustrating when you are unable to speak with someone who knows the local area. Now that we have brought that back into the organisation, we can control more of our business ourselves, rather than relying on an outsourced model."

"There is significant risk concerning the industry's ability to attract, develop, reskill and redeploy talent with the future skills at the pace required by the energy transition."

Dan Blobaum, global energy operations director, **HR consultancy Mercer**

Investment and skills risks

likely impact of risk

% likely / extremely likely to become a risk	Overall	Energy Networks	Energy Retailers	Water Companies
Perceived high risks around the sector cause investors to withdraw	45.5%	52.9%	70.0%	33.3%
Available returns become too low to justify new	45.5%	41.2%	60.0%	53.3%
The industry fails to attract people from underrepresented groups	27.3%	23.5%	50.0%	26.7%
Young people do not see the sector as an attractive career path	27.3%	17.6%	20.0%	46.7%
Skilled workers and leaders are enticed/driven away from the sector	50.0%	47.1%	40.0%	60.0%
The industry fails to keep pace with the demands for changing skillsets (i.e. digital)	31.8%	35.3%	10.0%	46.7%
International competition for investment draws interest away from the UK	63.6%	70.6%	70.0%	53.3%
Workforce mental health and wellbeing issues lead to significant business challenges (e.g. operational, productivity related and/or reputational issues)	22.7%	23.5%	30.0%	26.7%

Compared to water companies' cautious outlook regarding skills challenges, energy companies are largely more optimistic. Only 17.6% of networks and 20% of retailers think it is likely that young people will not see the sector as an attractive career path. For water companies, this ranks as a higher concern, according to 46.7%.

There is a mixed response to the risk of the industry failing to keep pace with the demands for changing skillsets. Just under half of water respondents (46.7%) think this is likely or extremely likely to occur, while 35.3% of networks and 10% of retailers are in agreement.

Dan Blobaum, global energy operations director at HR consultancy Mercer, a part of Marsh McLennan, recognises there are important nuances between different utilities. However, he says, "one theme is clear across our research and discussions. There is significant risk concerning the industry's ability to attract, develop, reskill, and redeploy talent with the future skills at the pace required by the energy transition."

Workforce mental health and wellbeing scored consistently low when respondents were asked about the likelihood of these issues leading to significant business challenges. Overall, 22.7% believe this is likely to become an issue for the sector. However, energy companies scored slightly higher than the average, with 30% indicating employees' mental health and wellbeing is likely to cause operational productivity or reputational issues for their business.

This slight deviation in scoring is possibly related to the challenges facing energy companies in the current cost of living crisis, particularly for those employees in customer-facing roles.

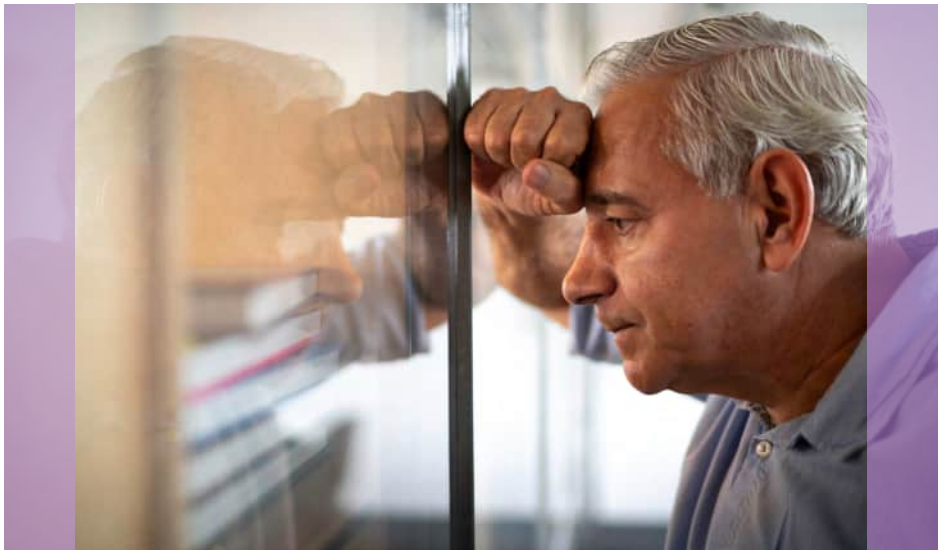
"It is so important to look after their [call centre staff] welfare because they handle some really challenging calls, and the numbers are just increasing," explained a customer director from an energy retailer. "The situation is aggravated because not only are you serving a customer who is in financial hardship, but you might also be in

that situation yourself. If you consider the distribution of wages across a company, call centre staff are probably not on the highest salaries. So, they are listening to a customer who is struggling to pay their bills and they might be sitting in exactly the same situation themselves. It is just a horrible cycle."

Despite the difficulties associated with customer-facing roles, the energy director revealed that their organisation is not struggling to fill these positions, whereas recruitment for technology and field operations roles has become challenging.

"For our contact centre roles, we have re-worked all of our onboarding training and we have heavily invested in a new structure for career progression, which gives people more choice and flexibility. In the last year, I essentially ripped up our entire people structure and rebuilt it into a model that will be able to evolve into the digital future where the simple stuff is automated," they said.

"We have put in place additional support for our people. Traditionally, coaching was focused on complaint handling and dealing with different customers. That is still available, but we now also have a wellbeing series that covers burnout and stress, for example. If you really believe the mantra that 'if your people are happy, they will deliver the right thing for your customers' then I think that can make all the difference."



"77% of UK employees and 85% of energy employees globally self-reported feeling at risk of work burnout in the next 12 months. The leading causes in the UK were expressed as: mental or emotional exhaustion, workload overload, and insufficient rewards for time and effort exerted."

Mercer's 2022 Global Talent Trends (GTT) survey

According to Blobaum, the added emphasis many companies are now placing on wellbeing comes at a vital time." According to Mercer's 2022 Global Talent Trends (GTT) survey, 77% of UK employees and 85% of energy employees globally self-reported feeling at risk of work burnout in the next 12 months. The leading causes in the UK were expressed as: mental or emotional exhaustion, workload overload, and insufficient rewards for time and effort exerted.

"However, quick fixes toward resolving the skills gap and ensuring employee wellness are unlikely. Human resources professionals in Mercer's 2023 GTT survey revealed that enabling a skills-based organisation (23%) and addressing workforce fatigue (11%) were their most difficult areas to make progress in.

Concluding remarks

As illustrated throughout this report, the most significant overall risks have remained broadly consistent with those identified in 2022.

However, concerns about the resilience of infrastructure to the rigours of climate change-induced extreme weather are clearly growing. Meanwhile, the severe market shocks suffered in the wake of Russia's invasion of Ukraine have heightened awareness around the widespread fragility of consumer finances and, more pointedly, the ability of policy and regulatory frameworks to respond appropriately in such times of crisis.

For companies themselves, there is a recognised need to develop more robust risk management and mitigation strategies to bridge the gap between current capabilities and those that will be needed by the end of the decade. Survey respondents clearly acknowledged this capability gap in their responses around organisational preparedness for the future risk landscape. As explored in the preceding chapters of this report, building capabilities in areas such as: threat and hazard monitoring, crisis response, reputational risk management, and ESG, will be key to generating true resilience as utilities continue to face both a complex and evolving risk landscape.

9.1%

of utilities say they are extremely confident in their business ability to manage future risk

Overall, the major challenges facing utilities show little sign of abating and the interconnected nature of these challenges is compounding the severity of risk factors across the board.

Alleviating this will require robust strategies, which incorporate a multifaceted view of risk across business interests and a focus on proactively building public trust – a valuable if intangible commodity which will play a critical role in the ability of utilities to step up to the challenges in their future.

Marsh closing remarks

This report has again highlighted the many challenges that utility companies are faced with today and those issues that have the potential to cause concern over a longer period. It is interesting to see the respondents' views change regarding the likelihood and severity of risks that were a part of the 2022 report. In addition, the emergence of some risks highlighted in this year's report illustrate the changes that have been experienced in the last 12 months.

What is clear from the report is utilities need to be ready to combat these risks. During the past 12 months, the feedback we have received suggests that utilities require clear direction from policymakers to aid their long-term investment strategies. In addition, during a roundtable event hosted earlier this year there was a feeling that a need to reassess the current regulatory framework may be required and the duration of regulatory periods to be changed. With climate change a concern for 100% of the respondents and the likelihood for more prolonged periods of intense temperatures, perhaps the time has come for utilities to ask these questions.

There are many measures that can be taken, but there are also opportunities for utility companies to capitalise on. One theme running through this report is an apparent need for greater cross-industry collaboration to work through issues in partnership for mutual benefit, but also ensuring delivery to consumers and the communities in which utilities serve continues to be effective in such a challenging environment.

Confidence in risk management and mitigation

Percentage high / extremely high (ranked 4 or 5)	Overall	Energy Networks	Energy Retailers	Water Companies
Confidence in being equipped to manage and mitigate the most significant risks	56.8%	75.6%	60.0%	40.0%
Confidence dependent on building significant new or extended capabilities	68.2%	82.4%	50.0%	60.0%

Marsh

Marsh McLennan is the world's leading professional services firm in the areas of risk, strategy and people. The company's 81,000 colleagues advise clients in 130 countries. With annual revenue over $20 billion, Marsh McLennan helps clients navigate an increasingly dynamic and complex environment through four market-leading businesses. Within the group, Marsh provides data-driven risk advisory services and insurance solutions to commercial and consumer clients. Guy Carpenter develops advanced risk, reinsurance and capital strategies. Mercer delivers advice and technology-driven solutions and Oliver Wyman serves as a critical strategic, economic and brand advisor to private sector and governmental clients.

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