



Climate Change Adaptation Report 2021

Appendix 2
Interdependencies

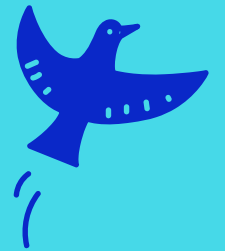
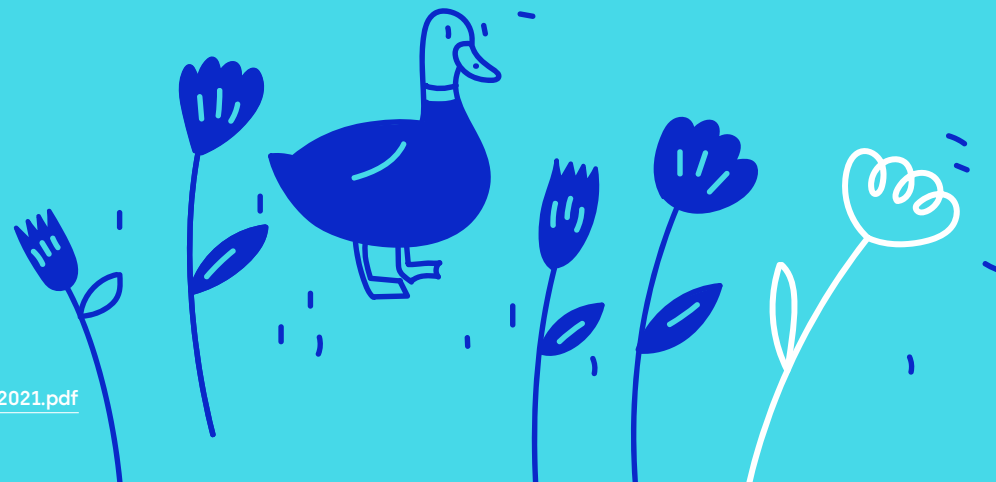
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Contents

Introduction	3	ID11 – Supply chains: other (materials, equipment, machinery)	18
Introduction	4	ID12 – Availability of relevant skills	19
Report structure	5	ID13 – Staff wellbeing	20
Relationship of interdependencies	6	ID14 – Agricultural policy	21
Interdependency Risks from climate change	7	ID15 – Water efficient goods and buildings policy	22
ID01 – External energy supply and third party infrastructure	8	ID16 – Tree planting	23
ID02 – Increased pressure on solar panel supply chain	9	ID17 – Deterioration in raw water quality due to foul water flooding (including combined sewer overflows and flooded cess pits and septic tanks)	24
ID03 – Automated operations reliant on mobile networks and internet (telemetry)	10		
ID04 – Data centres	11		
ID05 – Mobile phone and internet services	12		
ID06 – Electric vehicle infrastructure	13		
ID07 – Disruption to vehicle supply chain	14		
ID08 – Disruption to the highways network impacting ability of staff to reach our sites and offices	15		
ID09 – Disruption to shipping and road transport of supplies to operational sites	16		
ID10 – Chemicals supply chain	17		



Introduction



Introduction

The Third National Climate Change Risk Assessment for the UK (CCRA3) and the Intergovernmental Panel on Climate Change Sixth Assessment report highlight that under all scenarios of emissions reduction we will increasingly feel the impacts of climate change and need to adapt to these.

As the UK's largest water supply only company we recognise the important role we play, not only in providing an essential service but, also as stewards of the environment. We have therefore undertaken a risk-based review of the challenges posed by climate change to our business, both now and in the future.

Drawing on the results of this risk assessment, in December 2021 we reported to Defra on six headline risks that we face from climate change, as well as on progress we have made since 2015 in adapting to them. We also set out our plans for action and investment to further adapt to these risks and improve the resilience of our operations to climate change.

The six headline risks we reported to Defra in our Adaptation Report 2021 are:

1. Increase in demand due to higher temperatures throughout the year, exacerbated during summer peak demand periods
2. Equipment and asset failure due to extreme weather events
3. Increase in competition for, and price of, raw water imports
4. Reduced availability of ground and surface water due to drought
5. Outage due to flooding of sites
6. Deterioration in raw water quality due to changes in rainfall and temperature, leading to loss of sources.

However, beyond the six headline risks, our detailed risk assessment identified nearly 30 risks from climate change to our business. This Addendum Report describes these risks in more detail, setting out the potential impact on our business and the actions we are taking and plan to take to adapt to them to mitigate their impact.

For each additional risk, we have shown the findings of our risk scoring exercise using a graduated bar graphic. We have scored each risk based on its likelihood of occurrence and the consequence if it does occur in 2050, using a 1-25 scale.

We have scored each risk three times:

- An inherent risk score in 2050 if we take no action.
- A score that takes account of actions already committed to in Asset Management Period 7 [AMP7] between 2020 and 2025.
- A target risks score for the risk in 2050.

The gap between the second and third risk scores highlights where we need to target additional action to further adapt to the risk.

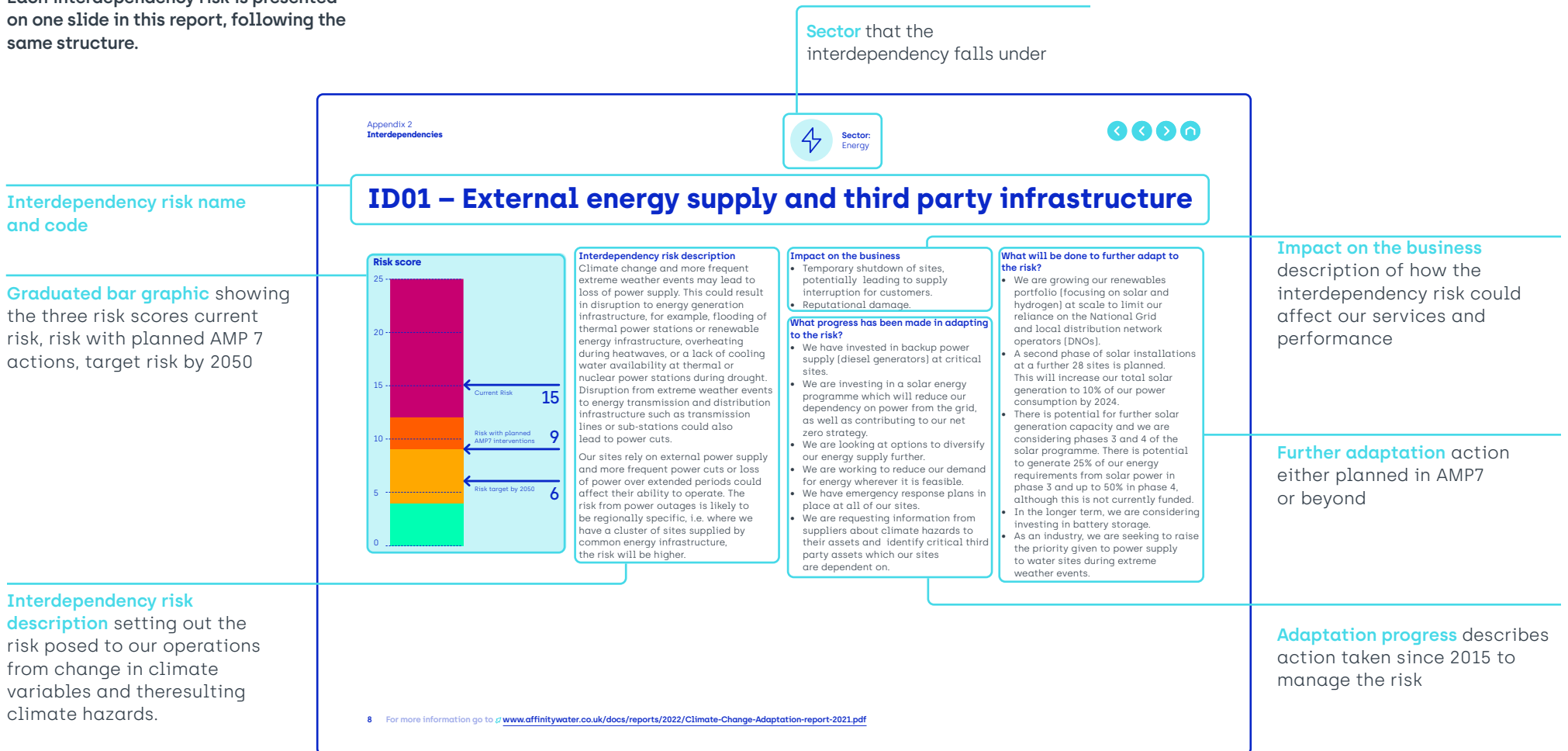
We know that we need to embed the actions identified in the Adaptation Report and this Addendum Report across our business and make managing climate risk part of business as usual. We have, therefore, assigned ownership of each risk in this report to a Director within our business. Responsibility and accountability for delivering the adaptation actions described for each risk lies with that Directorate, or in some cases, a combination of Directorates. By taking action through AMP7 and beyond, the risks that we have identified become manageable.

We will incorporate the latest climate change scenarios into our next price review submission [PR24] and will look to make further improvements to our climate change resilience as more information becomes available.



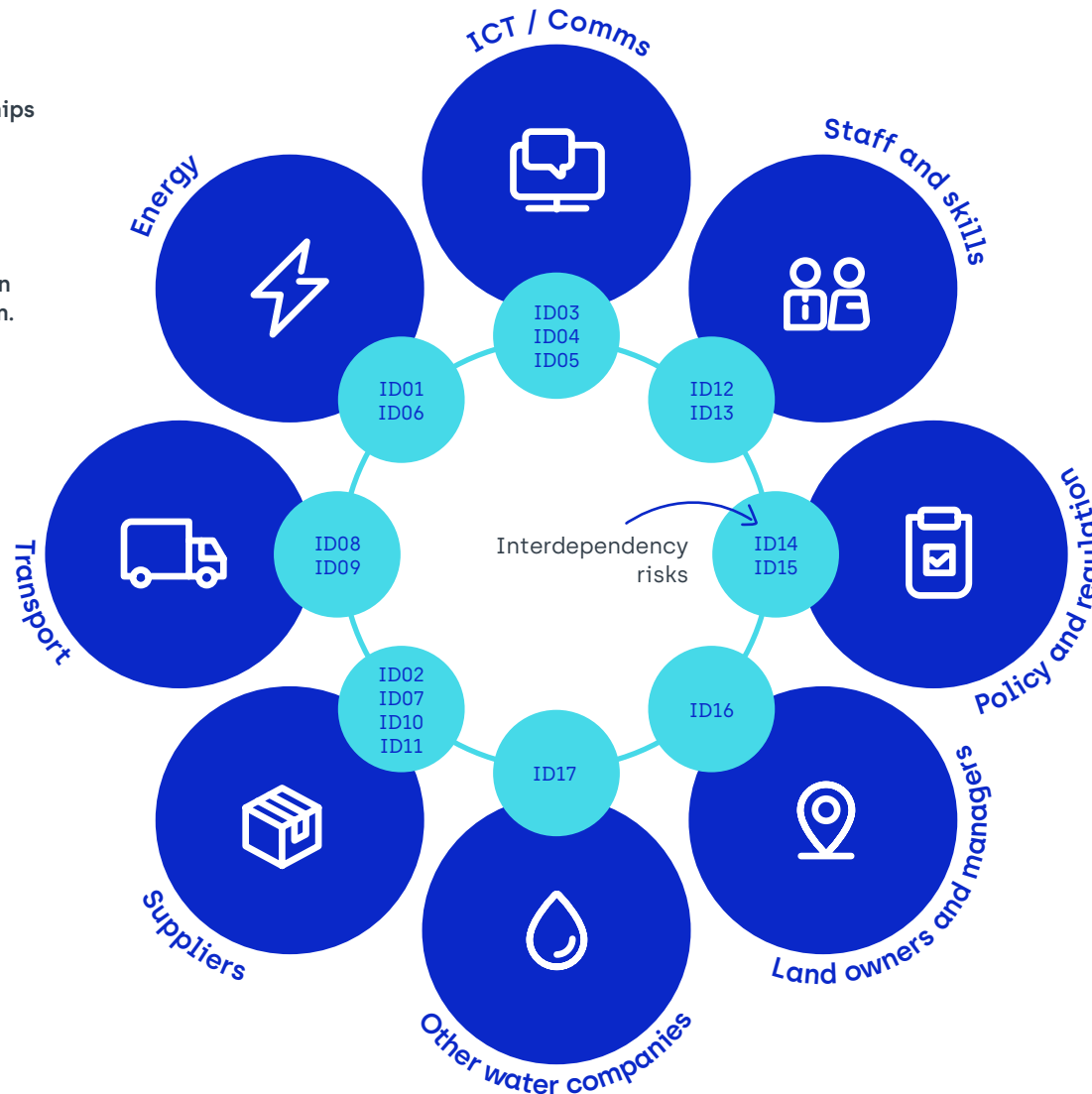
Report structure

Each interdependency risk is presented on one slide in this report, following the same structure.

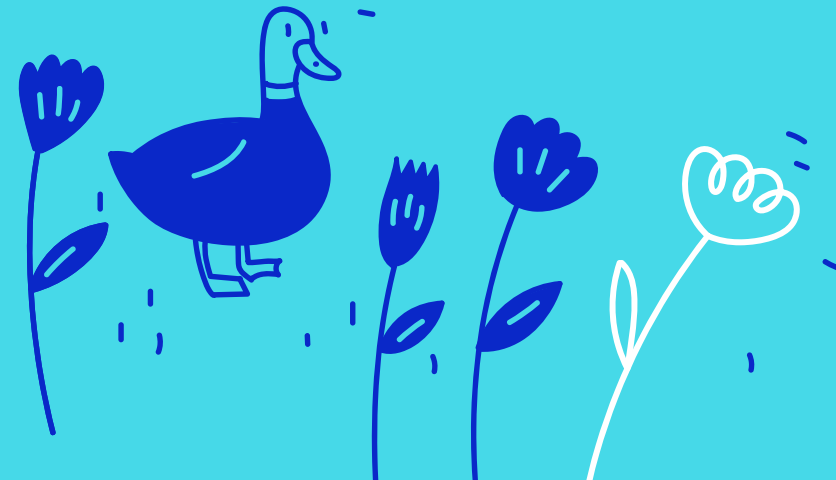


Relationship of interdependencies

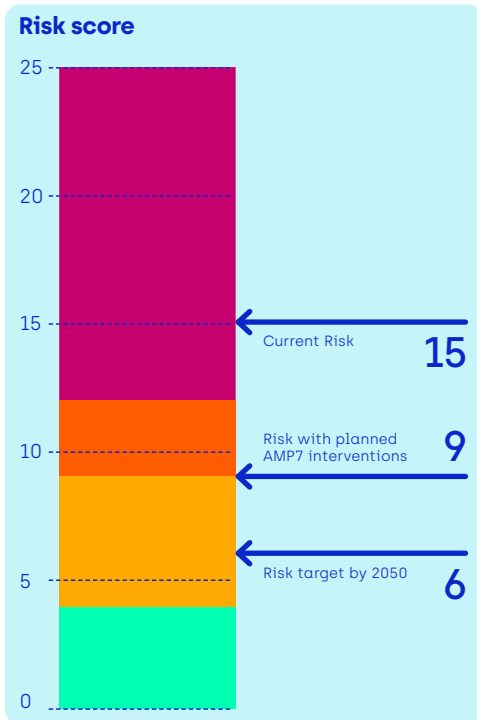
We cannot provide our service to customers without interdependencies. This diagram shows the main relationships that we rely on to deliver our services and the climate change related interdependency risks that we have identified in this report. The slides that follow set out detailed descriptions of these risks and the action we have taken and will take to build resilience to them.



Interdependency Risks from climate change



ID01 – External energy supply and third party infrastructure



Interdependency risk description

Climate change and more frequent extreme weather events may lead to loss of power supply. This could result in disruption to energy generation infrastructure, for example, flooding of thermal power stations or renewable energy infrastructure, overheating during heatwaves, or a lack of cooling water availability at thermal or nuclear power stations during drought. Disruption from extreme weather events to energy transmission and distribution infrastructure such as transmission lines or sub-stations could also lead to power cuts.

Our sites rely on external power supply and more frequent power cuts or loss of power over extended periods could affect their ability to operate. The risk from power outages is likely to be regionally specific, i.e. where we have a cluster of sites supplied by common energy infrastructure, the risk will be higher.

Impact on the business

- Temporary shutdown of sites, potentially leading to supply interruption for customers.
- Reputational damage.

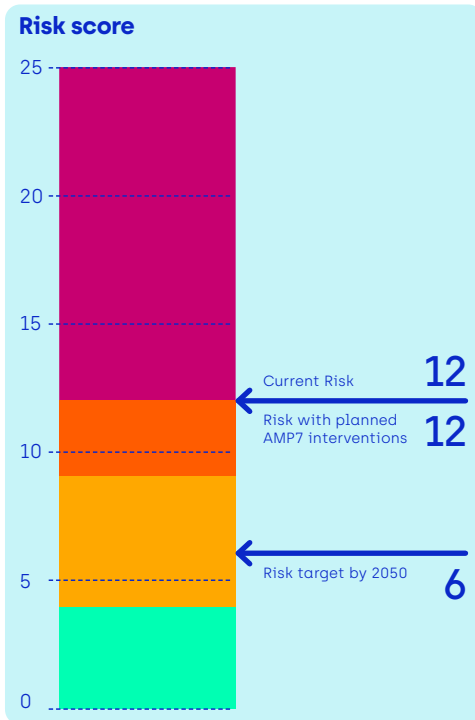
What progress has been made in adapting to the risk?

- We have invested in backup power supply (diesel generators) at critical sites.
- We are investing in a solar energy programme which will reduce our dependency on power from the grid, as well as contributing to our net zero strategy.
- We are looking at options to diversify our energy supply further.
- We are working to reduce our demand for energy wherever it is feasible.
- We have emergency response plans in place at all of our sites.
- We are requesting information from suppliers about climate hazards to their assets and identify critical third party assets which our sites are dependent on.

What will be done to further adapt to the risk?

- We are growing our renewables portfolio (focusing on solar and hydrogen) at scale to limit our reliance on the National Grid and local distribution network operators (DNOs).
- A second phase of solar installations at a further 28 sites is planned. This will increase our total solar generation to 10% of our power consumption by 2024.
- There is potential for further solar generation capacity and we are considering phases 3 and 4 of the solar programme. There is potential to generate 25% of our energy requirements from solar power in phase 3 and up to 50% in phase 4, although this is not currently funded.
- In the longer term, we are considering investing in battery storage.
- As an industry, we are seeking to raise the priority given to power supply to water sites during extreme weather events.

ID02 – Increased pressure on solar panel supply chain



Interdependency risk description

Our solar programme aims to provide 10% of our total energy requirement by 2024.

As the country transitions to a net zero economy, there will be an increase in demand for renewable energy, including solar power.

The solar panel supply chain is complex and heavily reliant on both national and international players. As climate change is increasing the frequency and severity of extreme weather events, the availability of materials and manufacturing of solar panels could be disrupted and there may be longer lead times. Shipping and transportation of solar panels to our sites may also be disrupted by extreme weather events.

Other global factors, such as conflict, add further pressure to the supply chain. The sustainability of these resources and supply chain need to be considered as part of our forward programme.

Impact on the business

- Delays to our solar programme and failure to meet our net zero target.
- Increased or prolonged reliance on external energy providers and infrastructure networks (see ID01).
- Increasing costs and reduced cost efficiency of our solar programme.

What progress has been made in adapting to the risk?

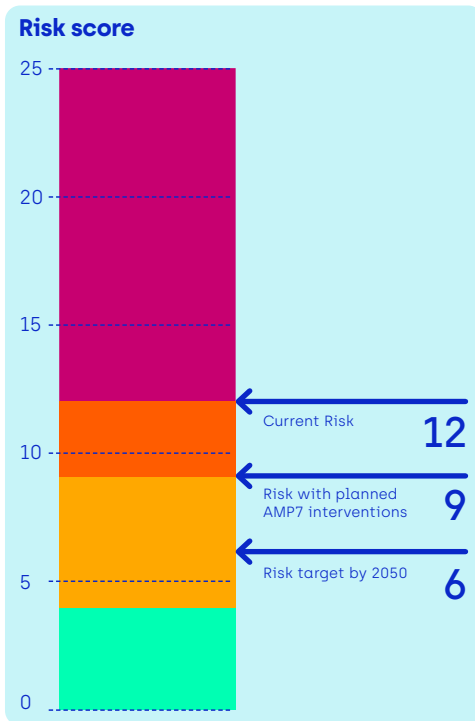
- We have been proactive and invested in backup power supply (diesel generators) at critical sites.
- We are pursuing smart networks to create a 'calmer' network which leads to a reduced demand for energy.
- We are working to reduce our demand for energy wherever it is feasible.

What will be done to further adapt to the risk?

- Manage supplier performance through procurement. Request information from suppliers about their understanding of their climate risks and adaptation measures in place.



ID03 – Automated operations reliant on mobile networks and internet [telemetry]



Interdependency risk description

Our business is reliant on ICT and communications services. Many of our sites are automated and are operated remotely using telemetry. We rely on these systems to provide alerts in the event of emergencies or site failures and to monitor water levels in reservoirs and towers. On a day to day basis, we use these systems to tell us how our assets are operating (e.g. water levels in reservoirs or water towers) and if there are any failures at sites.

As climate change is leading to increased frequency and severity of extreme weather events such as floods, storms and heatwaves, there is a greater risk of damage to ICT and communications assets and disruption to the service we receive. Climate change may also lead to more frequent or prolonged power cuts and disruption to power supplies to our sites (see Slide 8) which may also affect ICT and communications services.

Impact on the business

- Shutdown of equipment can lead to interruption of supply to our customers.
- Loss of data means that we may be unable to meet legal reporting regulations.
- A lack of alarms during extreme weather events or emergencies means that our response may be delayed, potentially leading to supply interruption.
- Loss of network and operating asset visibility.
- Health and safety risks for staff if they unable to make or receive emergency calls.

What progress has been made in adapting to the risk?

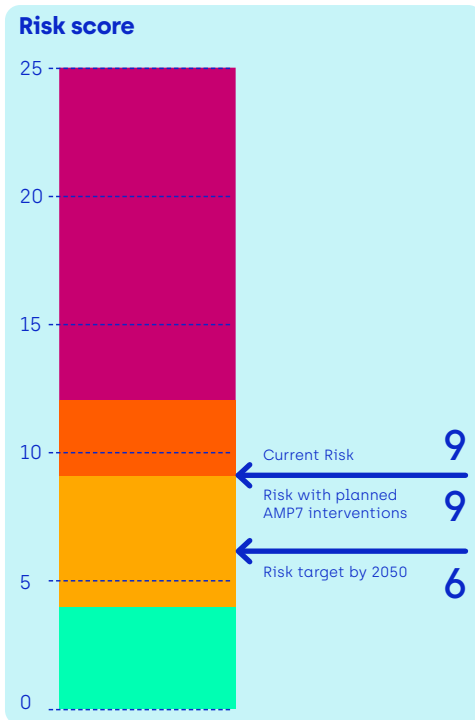
- We are investing in ongoing improvements to telemetry across the network.
- We are investing in backup IT and communication service providers at critical sites.

What will be done to further adapt to the risk?

- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.
- Continued investment in telemetry system improvements.
- We will consider the need for greater redundancy in communications services e.g. using additional suppliers or multiple platforms.
- We will review the need for chillers and improve insulation with green roofs at our sites to reduce the risk of ICT equipment overheating as and when evidence becomes clear that these will be required in the short to medium term.
- We will review our emergency response procedures to inform long-term business as usual strategy and staff training needs.



ID04 – Data centres



Interdependency risk description

As climate change is leading to increased frequency and severity of extreme weather events such as floods, storms and heatwaves, there is a greater risk of damage and disruption to data centre operations. Data centres are also at risk from overheating as a result of higher temperatures and more frequent heatwaves.

Impact on the business

- Loss of business critical information, potentially leading to shut down of equipment and supply interruption for customers.
- Loss of data means we may be unable to meet legal reporting regulations.
- Potential for GDPR breach.

What progress has been made in adapting to the risk?

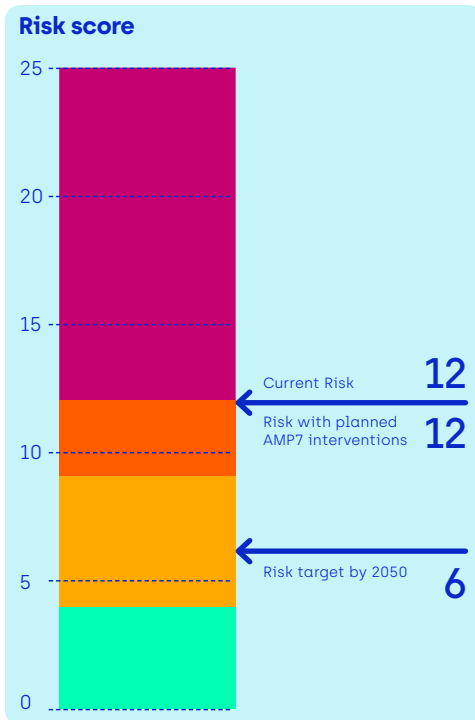
- We have invested in backup systems at critical sites.

What will be done to further adapt to the risk?

- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.



ID05 – Mobile phone and internet services



Interdependency risk description

Our business is reliant on mobile communications. We use mobile phones and internet to communicate with operational staff.

As climate change is leading to increased frequency and severity of extreme weather events such as floods, storms and heatwaves, there is a greater risk of damage to mobile phone and internet infrastructure and assets. Communications assets such as masts located on our assets are particularly vulnerable to extreme storm events and high winds.

This could lead to disruption to the service we receive and mean that we are unable to communicate with operational staff.

Impact on the business

- Loss of business critical information, potentially leading to shut down of equipment and supply interruption for customers.
- Loss of data means we may be unable to meet legal reporting regulations.
- Potential for GDPR breach.

What progress has been made in adapting to the risk?

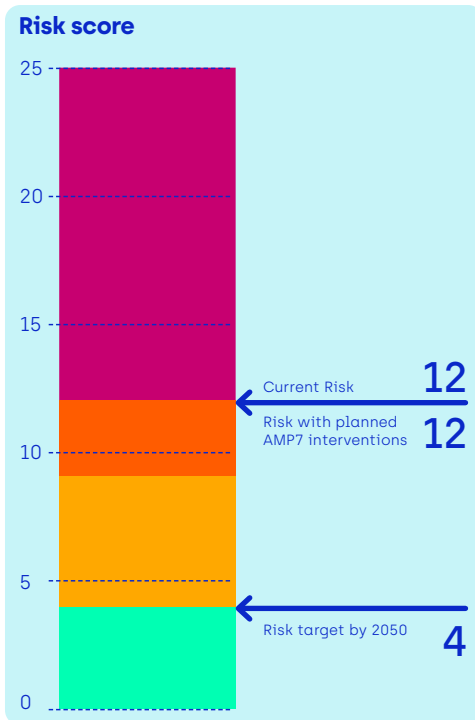
- We are investing in backup IT and communication service providers at critical sites.

What will be done to further adapt to the risk?

- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.
- We will consider the need for greater redundancy e.g. using additional suppliers or standalone communication systems for critical sites.
- We will review our emergency response procedures to inform long-term business as usual strategy and staff training needs.
- As an industry, we are seeking to raise the priority given to mobile phone and internet services to water sites during extreme weather events.



ID06 – Electric vehicle infrastructure



Interdependency risk description

As part of our net zero strategy, we have a target to have a completely electric fleet by 2030, 20% by 2025.

As climate change increases the frequency and severity of extreme weather events, there is greater risk of damage to the charging point infrastructure that we rely and interruption to vehicle charging. This could mean that we are unable to use our fleet vehicles and that staff will be unable to access our sites. Electric vehicle batteries also have a limited lifespan posing a risk of failure in the future and difficulty in replacing the batteries.

As well as directly affecting vehicle charging infrastructure, climate change may also affect electricity generation, transmission and distribution [see Slide 8]. Power cuts could mean that we are unable to charge our electric vehicles. Our operational practices may need to change to ensure vehicles are always charged and available when needed.

Impact on the business

- We miss our fleet electrification and wider net zero targets.
- We may be unable to operate sites or respond in an emergency if vehicles cannot be charged, increasing the risk of supply interruption or outage.
- Potential for increased costs and reduction in cost efficiency of our electric fleet.

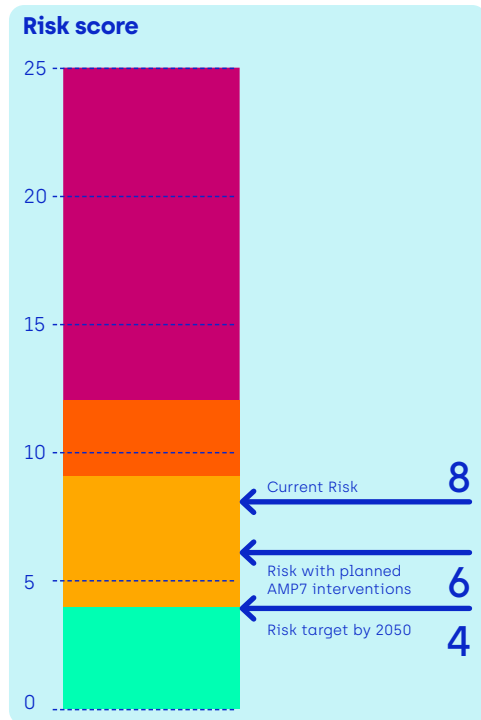
What progress has been made in adapting to the risk?

- We are investing in a solar energy programme which will reduce our dependency on power from the grid, as well as contributing to our net zero strategy.
- We are looking at options to diversify our energy supply further.
- We are working to reduce our demand for energy wherever it is feasible.

What will be done to further adapt to the risk?

- We plan to grow our renewables portfolio [focused on solar and hydrogen] at scale to limit our reliance on the National Grid and local distribution network operators (DNOs).
- A second phase of solar installations at a further 28 sites has now been approved. This will increase our total solar generation to 10% of our power consumption by 2024.
- In the longer term, we are considering investing in battery storage.
- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.

ID07 – Disruption to vehicle supply chain



Interdependency risk description

Climate change may result in increased frequency and severity of extreme weather events such as floods, storms and heatwaves. These events may cause disruption to the global vehicle manufacturing supply chain, as well as shipping, resulting in delays and lack of availability of suitable vehicles. A particular risk as we implement our net zero plan and move towards electric fleet is availability of both electric vehicles and the materials needed for electric vehicle maintenance such as batteries.

A shortage of suitable vehicles in our fleet means that our staff may not be able to access sites during periods of normal operation or during emergency events. We may also be deploying leased vehicles beyond the current lease period which may incur extra costs and reduce cost efficiency.

Impact on the business

- Inability to operate sites if they cannot be accessed, increasing the risk of supply interruption or outage.
- Increased cost to business from higher vehicle costs.
- Increased downtime if vehicles are unavailable, leading to delays in scheduled maintenance and operations.

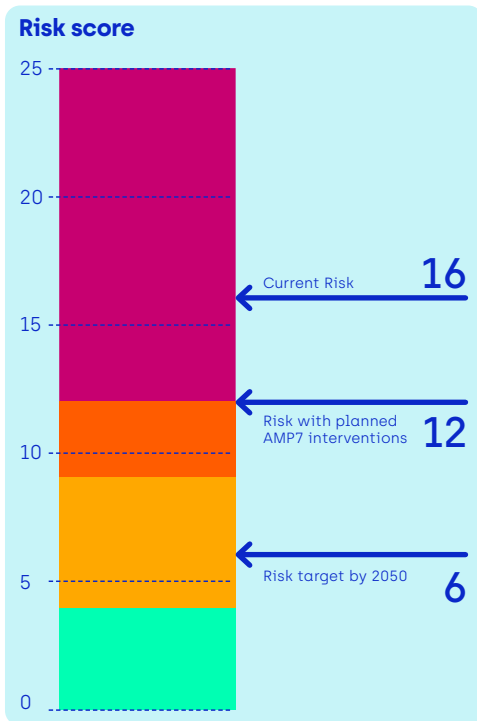
What progress has been made in adapting to the risk?

- We maintain several 4-wheel drive vehicles which are made available to the business if needed during an emergency.
- We also rent 4-wheel drive vehicles when we do not have suitable fleet vehicles available. However, hire companies are likely to face similar supply chain risks.

What will be done to further adapt to the risk?

- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.

ID08 – Disruption to the highways network impacting ability of staff to reach our sites and offices



Interdependency risk description

Most of our sites are accessible only by road. Climate change will result in increased frequency and severity of extreme weather events such as floods, storms and heatwaves. These events may cause disruption to the strategic road network and local routes due to roads being flooded, surface melting and deformation, sink holes or embankment failure.

Disruption can potentially prevent staff from reaching offices and sites. This could have a significant effect on our ability to operate sites and respond during emergencies.

Impact on the business

- Delayed access to sites, increasing the risk of supply interruption for customers.
- Reduced ability to provide customer services if staff are unable to reach offices.

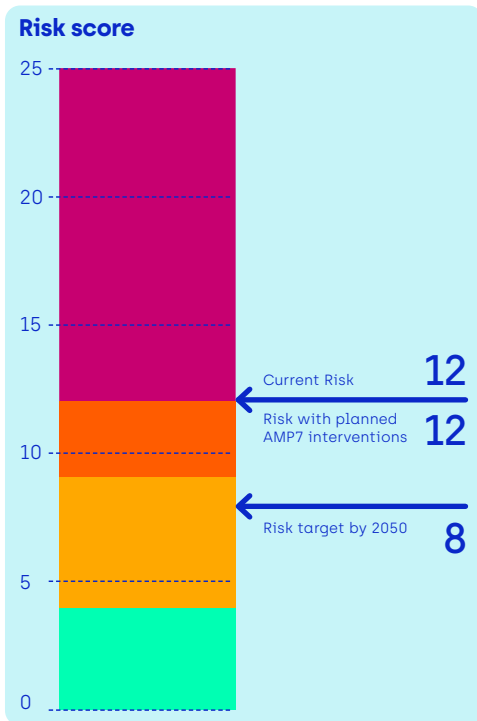
What progress has been made in adapting to the risk?

- We have an ongoing programme of training and upskilling our staff in emergency response, increasing the pool of people able to respond.
- Remote working and working from home arrangements are standard across our office-based staff, enabling many functions to continue if staff are unable to reach offices.
- We have hazardous weather and Winter Readiness plans in place.
- We liaise with highways authorities regarding the criticality of routes for water supply, enabling them to prioritise clearing access to critical sites. However, we are not responsible for road networks in the vicinity of our sites and rely on highways authorities to maintain access.

What will be done to further adapt to the risk?

- We will continue to liaise with highways authorities regarding maintaining access to our priority sites.

ID09 – Disruption to shipping and road transport of supplies to operational sites



Interdependency risk description

Climate change will result in increased frequency and severity of extreme weather events such as floods, storms and heatwaves. These events may cause disruption to the transportation of goods and materials that we rely on to operate our sites. Goods supplied from outside the UK may be affected by weather related disruption to shipping and aviation but more local supply chains may also be affected by disruption to road and rail routes within the UK.

More frequent or prolonged disruption to our supply chains increases the risk of interruption to customers' water supply as well as maintenance and repair of our assets.

Impact on the business

- Supplies are unable to reach operational sites, leading to water supply interruption or outage.
- Delays to maintenance and repair of assets.
- Increased costs.

What progress has been made in adapting to the risk?

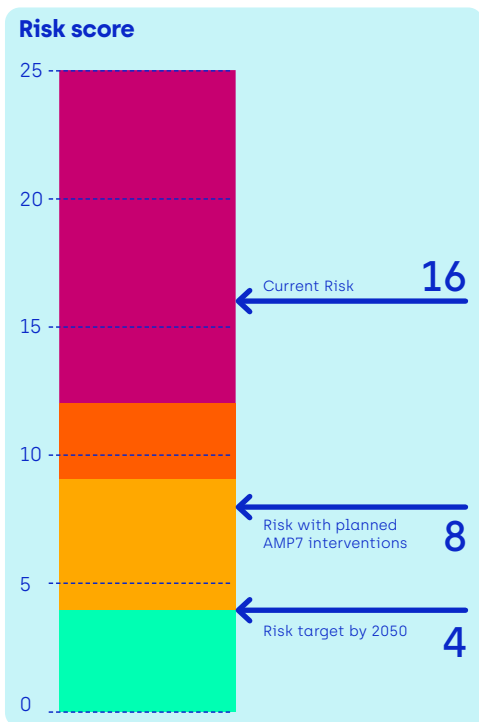
- We liaise with local highways authorities regarding the criticality of routes for water supply, enabling them to prioritise clearing access to critical sites. However, we are not responsible for road networks in the vicinity of our sites and rely on highways authorities to maintain access.

What will be done to further adapt to the risk?

- Ongoing liaison with highways authorities.
- As an industry, we are seeking to raise the priority given to supplying water sites during extreme weather events.
- We will consider increasing the amount / volume of critical supplies we store on our sites, where feasible.
- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.



ID10 – Chemicals supply chain



Interdependency risk description

Treatment of raw water to drinking water standard requires a range of chemicals. We are reliant on the delivery of chemicals to our sites by a small number of chemical suppliers.

Climate change is likely to result in increased frequency and severity of extreme weather events such as floods, storms and heatwaves. These events have the potential to disrupt the manufacturing and transportation of chemicals to our sites. Whilst we hold some supplies of chemicals at our sites, more frequent or prolonged periods of extreme weather pose a risk to our operations.

Impact on the business

- Insufficient supply of chemicals leading to outage or supply interruption.
- Increasing costs of chemicals and transportation.
- Alternative treatment processes may be required.

What progress has been made in adapting to the risk?

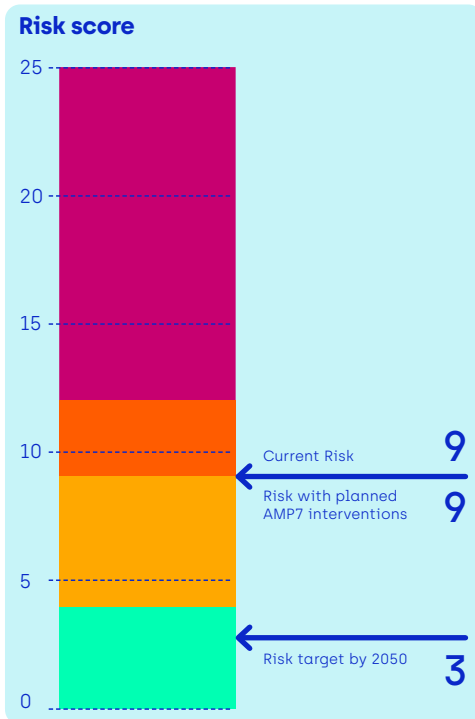
- We maintain chemical supplies to enable us to maintain water supply to customers during periods of extreme weather.
- We have contractual arrangements with our suppliers to provide at least four weeks supply of chemicals, increasing our resilience to supply chain disruption in the event of a supply chain issue.
- We have invested in flood resilience measures to reduce the risk from flooding at our sites, including installing concrete slabs in chemical storage areas.
- We have arrangements in place with military to supply chemicals during extreme weather events.
- We have mutual aid agreements with other water companies to secure chemical supplies.

What will be done to further adapt to the risk?

- As a water industry, we will lobby for national level policy changes to secure chemical supplies.
- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.
- We will consider investing in on-site chemical production facilities (e.g. sodium hypochlorite) where feasible.
- We will consider investing in low-chemical or non-chemical treatment, e.g. using ozone.



ID11 – Supply chains: other (materials, equipment, machinery)



Interdependency risk description

As well as chemicals, vehicles and solar panels (which are covered in other slides), our supply chains include other materials, e.g. building materials, equipment and machinery.

Increasing disruption to global manufacturing and supply chains as a result of more frequent and prolonged extreme weather events such as floods, storms and heatwaves means that we are likely to face increasing competition for supplies. The cost of resources is also likely to increase.

Impact on the business

- Our operations have to be temporarily halted leading to supply interruption.
- Increasing costs.

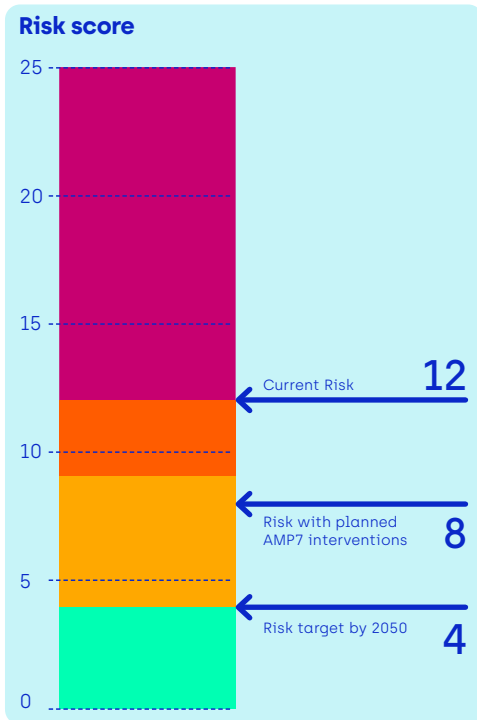
What progress has been made in adapting to the risk?

- See slides ID02, ID07 and ID10 for specific measures in relation to solar panels, fleet vehicles and chemicals.

What will be done to further adapt to the risk?

- As an industry, we are seeking to raise the priority given to power supply to water sites during extreme weather events.
- We plan to manage supplier performance through our procurement process, including requesting information from suppliers about their understanding of their climate risks and adaptation measures in place.

ID12 – Availability of relevant skills



Interdependency risk description

As well as supplies of materials and services, our operations depend on the availability of appropriately skilled staff. The industry is facing a skills shortage in some areas, partly due to an aging workforce, and climate change may exacerbate this. For example, more frequent or prolonged periods of extreme weather may mean that we need more operational staff to maintain our assets and respond during emergencies.

As more organisations face the climate emergency and if environmental regulation becomes more stringent, there is likely to be an increased demand for skills in sustainability, ecology and environmental science and engineering.

Impact on the business

- We are unable to find suitably skilled operational staff potentially leading to supply interruptions.
- Failure to meet regulatory requirements and legal obligations.
- Reputational damage.
- Staff welfare and wellbeing may deteriorate.
- Overworked staff and reliance on external consultants.

What progress has been made in adapting to the risk?

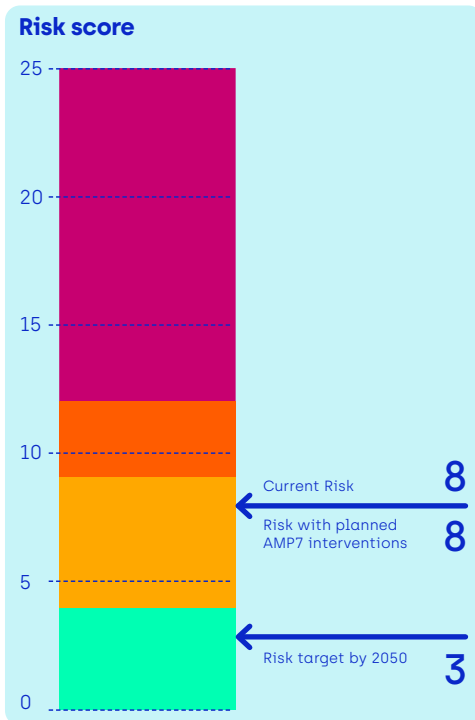
- We are already working to build relationships with local academic institutions to foster skills and attract potential staff.
- We offer apprenticeships, undergraduate placements and graduate schemes in a number of areas to grow the pipeline of skills we need.

What will be done to further adapt to the risk?

- We want to work with other water companies to build a reputation for the water sector as an attractive and rewarding industry to work in.
- Promote enhanced knowledge retention and internal opportunities for progression.



ID13 – Staff wellbeing



Interdependency risk description

The service we provide to customers depends on our staff and their wellbeing.

Climate change, leading to more frequent and prolonged periods of extreme weather, may put our staff under increasing pressure. Responding to weather related emergencies is challenging. With emergency responses being initiated more regularly, staff wellbeing and job satisfaction may deteriorate if not properly supported and trained. Staff health and safety is also at risk through increased exposure to potential diseases from a potential rise in tropical insects such as mosquitoes.

Impact on the business

- Higher turnover of staff leading to increasing costs and loss of skills.
- Overworked staff and reliance on external consultants.
- Potential for inadequate response to repeated or more frequent emergency events, potentially leading to supply interruption.

What progress has been made in adapting to the risk?

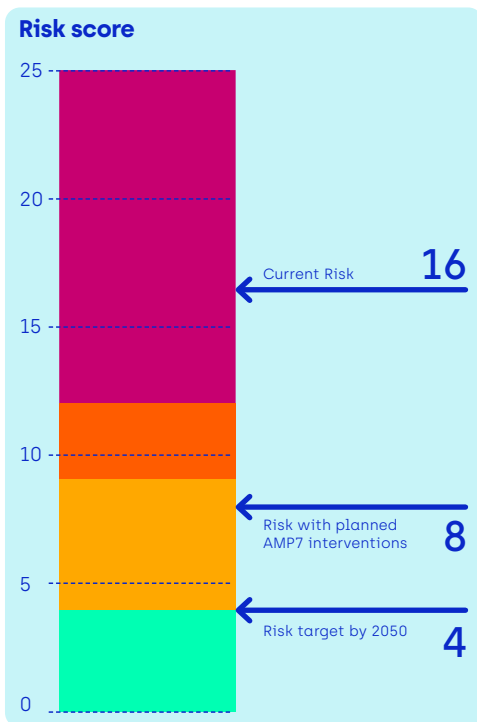
- Staff contracts include stand-by requirements during emergency events.
- We have an ongoing programme of training and upskilling our staff in emergency response, increasing the pool of people able to respond.
- Promote enhanced knowledge retention and internal opportunities for progression.

What will be done to further adapt to the risk?

- We will investigate alternative employment and flexible arrangements to cover emergency response as extreme weather events become more common.
- We will review our emergency response procedures to inform long-term business as usual strategy and staff training needs.



ID14 – Agricultural policy



Interdependency risk description

Water resources and raw water quality are significantly influenced by land use and land management. Climate change, including more frequent and severe droughts, has the potential to exacerbate adverse impacts of land management on water resources and quality.

The potential responses of farmers and land managers in response to climate change may be detrimental to both water resources and water quality. For example, alternative, climate resilient crops could be grown which can increase pressure on water resources.

Global pressures on agriculture may also increase pressures on domestic supply. Conflict or loss of crops due to climate change can disrupt food imports, placing greater reliance on growing domestically.

Agricultural policy set by national government (Defra) plays a significant role in influencing land management practices and we would like to see policy that drives land management that is beneficial to water resources and quality.

Impact on the business

- Reduction in water availability.
- Deterioration in raw water quality and increase in treatment requirements.
- Increasing costs.

What progress has been made in adapting to the risk?

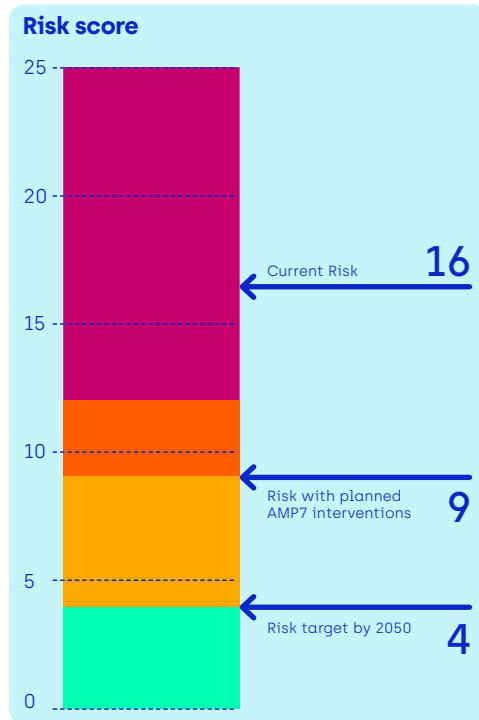
- We have invested significantly in catchment management to improve water retention for crop growth during droughts and incentivise land management that improves water quality. Our cover crop funding scheme has prevented an estimated 119 tonnes of nitrogen reaching watercourses and aquifers.
- For PR24, we are undertaking a modelling and mapping project which will help target investment in Nature-based solutions at the landscape scale, primarily for the Water Supply ecosystem services, but will also include measures to hold more water on the land. This will form the basis for our catchment options development for WRMP.
- Through our LENS initiative, we are funding natural flood management measures such as the installation of surface cross drains, silt filtration dams, sediment filter barriers and seepage barriers.

What will be done to further adapt to the risk?

- We will continue to invest in catchment management - extending to more catchments and more targeted interventions.
- We will investigate the inclusion of upfront design requirements for biodiversity in scheme development.
- We will work with other water companies to influence agricultural policy to incentivise and deliver land management practices which benefit water resources and water quality.



ID15 – Water efficient goods and buildings policy



Interdependency risk description

Without intervention, climate change is likely to lead to an increase in demand for water – see headline risk 1 in our Adaptation Report. We are particularly concerned about the impact of higher temperatures on peak demand in the summer.

We have an extensive Demand Management Programme in place and a target to reduce the amount of water used by each person per day (per capita consumption, or PCC) by 12.5% compared to 2019/20 by 2025.

We propose continuing to further reduce PCC through concerted action, focused around developing wider collaboration to achieve a more challenging goal. This includes aspirations to reduce PCC (potentially as low as 110l/p/d) depending on policy support for demand management, involving measures such as mandatory water efficiency labelling and retailing of white goods and fittings.

Impact on the business

- Increasing pressure on water resources and the environment.
- Failure to meet demand reduction targets.
- Reputational damage.

What progress has been made in adapting to the risk?

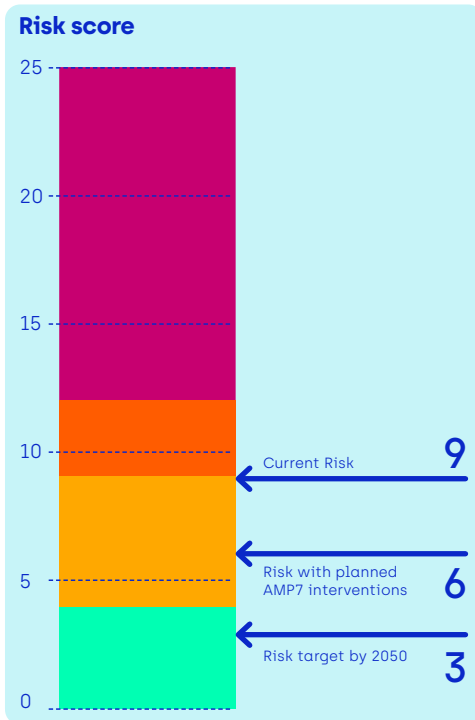
- Our #WhyNotWater campaign sets out a call to action, asking for key changes to legislation and policy to help ensure long-term water sustainability. Some of the “asks” we set out are being incorporated into legislation, with mandatory water efficiency labelling on all goods and the target of restricting water use to 110 l/p/d in water-stressed areas now on the Government’s action list.

What will be done to further adapt to the risk?

- We will continue to invest in the demand management programme and reach our PCC reduction target.
- We will continue to work with other water sector companies to lobby for policy change.
- We were successful in Ofwat’s water innovation challenge and received funding to deliver sustainable, water-saving solutions with new cutting-edge technology.



ID16 – Tree planting



Interdependency risk description

As part of our net zero strategy, we are signed up to the water industry commitment to plant 11 million trees by 2030. Tree planting on this scale will also help mitigate risks from climate change to water resources and water quality, potential cooling of assets and buildings as well as delivering wider environmental and social benefits.

However, the impacts of climate change, including more frequent floods, droughts and heatwaves may challenge achievement of the target. More frequent extreme weather events such as high winds may lead to the loss of trees making it more difficult for trees to become established and thrive. The effects of climate change may also make it more difficult to source trees. The choice of tree species to plant should consider future climatic conditions, including drier conditions in future and resilience to pests and diseases.

Impact on the business

- Failure to meet the WaterUK tree planting commitment of 11 million trees by 2030.
- Increase in costs associated with tree planting.
- Active management of a widening land asset for tree management could increase both costs and staff required.

What progress has been made in adapting to the risk?

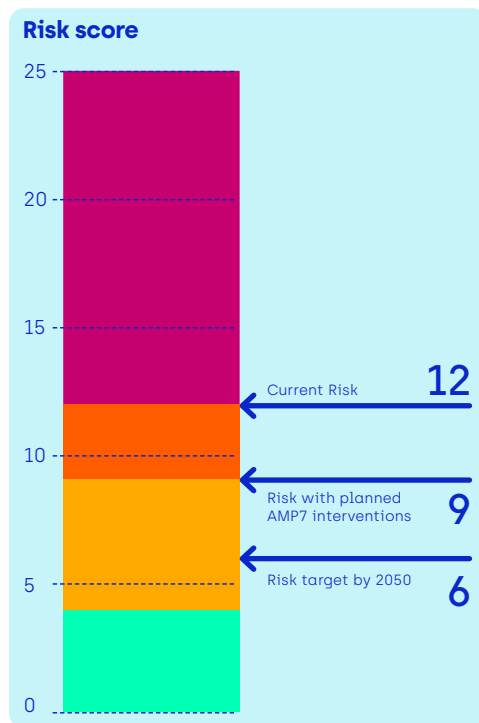
- We have an industry-wide tree planting commitment to have a net increase of 110,000 trees by 2030 against a 2018 baseline. We are creating diverse habitats and ecological landscape, through our tree planting programme.

What will be done to further adapt to the risk?

- We will investigate the inclusion of upfront design requirements for biodiversity in scheme development.
- Consider future climatic conditions when choosing tree species to plant.



ID17 – Deterioration in raw water quality due to foul water flooding (including combined sewer overflows and flooded cess pits and septic tanks)



Interdependency risk description

Changing rainfall patterns and more extreme rainfall events will exacerbate the risk of flooding at our sites including our surface water intakes. As well as flooding caused by rivers, the sea or surface water, there is potential for foul water flooding at our sites from flooded cess pits, septic tanks, combined sewer overflows and waste water system storm tanks.

Foul water flooding poses a risk to the health of our staff working on site, as well as leading to deterioration in raw water quality we abstract if it reaches groundwater sources. Catchments that are not on First Sewerage and have a prevalence of domestic cess pits are particularly at risk. We experience significant coliform and ammonia issues in catchments in our Dour community that are not on mains sewage.

Flooding may also cause direct damage to equipment and assets critical to the supply chain.

Impact on the business

- Potential failure to meet drinking water standards if foul water enters groundwater sources –this would lead to reputational damage and more significantly, could affect our license to operate.
- Increased treatment requirements, potentially leading to increased cost, energy requirements and both operational and embedded carbon.
- Temporary loss of sources.
- Operational outages, which could interrupt the supply to customers.
- Damage to assets and equipment, potentially leading to outage.
- Costs associated with clean-up operations.

What progress has been made in adapting to the risk?

- We have site-based flood management plans and will update these following updates to our regional flood risk assessment (FRA), including additional recovery measures if necessary.

What will be done to further adapt to the risk?

- Update region-wide FRA to include latest climate change projection data and Environment Agency allowances for climate change, as well as further information on surface water flooding.
- Risk assess sanitary seals on borehole headworks.
- Raise the level of critical equipment above flood level.
- We are developing a framework for measuring resilience to customers and communities. Flooding and the extent to which it will affect our assets and our service is part of the framework approach. As a result, we will be able to identify which assets, at risk of flooding, will have the biggest impact on our communities and customers. Work to address the risks posed to these assets will be proposed for inclusion in our PR24 business plan.

Affinity Water

