December 2019

PR19 final determinations

Securing long term resilience

Ofwat

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PR19 final determinations: Securing long term resilience

1. Overview

Resilience is one of the four key themes of PR19. It is an integral part of water companies' functions in order to meet their statutory security of supply and service obligations. Further, resilience reflects on the priorities set by the UK and Welsh Governments in their Strategic Policy Statements, as well as on the additional duty for Ofwat to further the resilience objective.

This technical appendix covers key aspects of our approach to securing long term resilience for our final determinations, initially developed as part of the initial assessment of business plans, and subsequently built into the review of companies' resilience action plans. We outline our expectations and findings in relation to companies' plans on long term resilience in terms of:

- their ability to integrate elements of operational, financial and corporate resilience into their business plans;
- the quality of their resilience frameworks;
- the practical application of these frameworks in informing business decisions; and
- their ability to revise their approach and develop action plans that will deliver resilience improvements.

While companies have taken steps to develop their understanding of best practice in managing resilience in the round, more is needed to further develop and implement best practice into their business. Demonstrating an integrated approach to resilience that is effectively applied across the business is still a pending task for the sector. As a consequence, water companies should continue to work and to share best practice on resilience in collaboration with other stakeholders, including Ofwat and other water companies, and to continuously engage with customers in this area. The adoption of best practice approaches to resilience in the round should make it easier for companies to demonstrate value in their business cases at the 2024 price review.

The representations made on all our draft determinations, responses from companies to our queries and additional information provided following further engagement with companies and other stakeholders as part of the final determination process. In the interest of brevity, where no representations have been made on our draft determination proposals, we do not repeat our reasoning in all cases. Please see the PR19 draft determinations for further details.

2. Why resilience is important

The operational, financial and corporate resilience of companies affects all current and future customers' water and wastewater services. The impact of disruptions to services on customers, the environment, the economy and communities can be significant. Climate change and population growth may place increased demands on services such as surface water drainage and the resilience of infrastructure and services to drought. Water companies must maintain a water supply system and a wastewater system to meet their statutory security of supply and service obligations.[1] It is therefore vital that services remain resilient over the long term.

Alongside our other duties, we have a duty to further the resilience objective.[2] This is to secure the long-term resilience of water supply and sewerage systems "as regards environmental pressures, population growth and changes in consumer behaviour" in order to meet the needs of consumers in the long term.

The UK Government's strategic policy statement sets a priority for Ofwat to challenge the water sector to plan, invest and operate to meet the needs of current and future customers in a way which offers best value for money in the long term. It sets Ofwat objectives for resilience concerning water supply, wastewater, the full range of potential hazards, and threats and the resilience of ecosystems.

The Welsh Government's strategic policy statement sets a resilience objective for short-term and long-term challenges, including:

- companies ensuring their assets and services are resilient against, for example, natural hazards, asset failure and other threats including cyber security; and
- Ofwat encouraging and incentivising companies to maintain and enhance the resilience of ecosystems.

We consider resilience as the ability to cope with, and recover from, disruption. A resilient company should anticipate trends and variability in order to maintain services for people and protect the natural environment, now and in the future. The resilience of critical infrastructure and essential services can be secured through incorporating resistance, reliability, redundancy and fast and effective response to, and recovery from, disruptive events. Our approach, which supports the other key themes of PR19 (customer service, affordable bills and innovation), considers all aspects of resilience, including operational, corporate and financial resilience.

[1] Section 37 and 94 Water Industry Act 1991.
[2] s2(2A)(e) and s2(2DA) Water Industry Act 1991.

3. Our general expectations on securing long-term resilience

In our PR19 methodology, we set out our expectation that companies should consider components of resilience. This includes:

- operational resilience - the ability of an organisation's infrastructure, and the skills to run that infrastructure, to avoid, cope with and recover from disruption in its performance;
- financial resilience - the extent to which an organisation's financial arrangements enable it to avoid, cope with and recover from disruption; and
- corporate resilience - the ability of an organisation's governance, accountability and assurance processes to help avoid, cope with and recover from disruption and to anticipate trends and variability in all aspects of risk to delivery of services.

We expect companies to consider these aspects of resilience across all areas of their organisation. This means them having the right skills, the right leadership and the right systems, as well as having robust infrastructure. These factors are interdependent, so effective resilience requires companies to consider their systems as a whole, taking into account the relationship between different aspects of their business (as well as their interrelationships with external factors). We term this as having 'resilience in the round'.

We have worked extensively with the sector to develop our definition of resilience in the round. This included the establishment of a Task and Finish Group in 2015, and hosting a resilience sector event in 2017. We have published a number of documents to guide thinking, including Resilience in the round: Building resilience for the future.

The PR19 methodology sets out our expectation that companies should demonstrate their approach to securing resilience in the round based on seven principles of good resilience planning. We expect companies to show, as part of their business plans, a good understanding of the condition of their systems, assets and finances; to carefully identify risks to their resilience; and to consider a full range of measures to manage these risks over the next five years and for the long term.

Our expectation is that companies should undertake a systematic and integrated assessment to understand the risks to resilience across their entire business, and mitigate these risks in a way that provides long-term value for money for customers. We expect this assessment to consider the full range of diverse risks faced by

companies, including risks associated with infrastructure and assets and those associated with systems, processes and people.

Companies should demonstrate that they have robust plans in place to mitigate and manage those risks. We expect companies to demonstrate that they have engaged and worked with customers on developing their approach to resilience. They should also demonstrate how they are innovative in the way they manage and address risks by, for example, exploiting opportunities to collaborate with third parties and other water companies, and by better integrating water and wastewater resources. We expect companies to demonstrate how they are promoting environmental and ecosystem resilience and developing nature-based solutions where this is appropriate.

We expect companies' plans for managing resilience to inform the outcomes that they propose to deliver for customers and the environment. The proposed outcomes on resilience, and the associated stretching performance commitments that they set, should also take into account future risks and customer preferences.

4. Overview of frameworks to support resilience planning and decision making

We expect companies to demonstrate that they have developed a robust framework for resilience that includes a systems-based approach to resilience in the round. This should account for systems interactions and interdependencies across corporate, financial and operational aspects of their businesses. It should show an understanding of current and future resilience ambition, while considering short, medium and long-term risks. The resilience framework should be integrated in everything that companies do, from improving their long term resilience to dealing with day-to-day activities.

In our initial assessment of plans we found that companies' business plans generally lacked a systems-based approach to resilience that accounted for systems interactions and interdependencies. We found limited evidence that companies had considered cascading risks, knock-on impacts or joint development of options to address multiple risks. Consequently, there was also less evidence of the integration of resilience elements in companies' frameworks concerning operational, corporate and financial resilience. We found that these were generally treated and analysed independently, with little regard for their intrinsic interdependencies.

We found that some companies had assessed the maturity of their systems in relation to resilience (for example, helping to identify those at a low level of development or where best practice is not used), however, we found that this was rarely then used to inform their action plans. Companies did also propose maturity targets for future improvement, but these were generally only short-term (i.e. rarely beyond 2025) and it was not clear that there were tangible measures and proposals to deliver such targets.

We found that companies had generally considered of a wide range of hazards within their resilience frameworks (both short-term and long-term) affecting operational, financial and corporate elements of their business. However, due to the lack of a systems-based approach to resilience, such considerations had limited value in informing in the round assessments of risks, nor in creating synergies between operational, financial and corporate aspects of resilience.

We found that companies generally described well-established sets of systems and processes to identify and assess risks to resilience, but it was less clear to us how these were quantified or prioritised to make effective decisions. We found that companies generally presented appropriate Board assurance of their resilience systems. However a general lack of assurance of Boards' roles in delivering

resilience was consistent with poor evidence to demonstrate that the identification, assessment and mitigation of resilience risks were embedded in companies' decision making and oversight.

Overall, we had significant concerns around companies' ability to demonstrate that they had a framework in place to secure long-term resilience in the round. We concluded that 15 of the 17 companies provided evidence that fell short or significantly short of high quality. We provided companies with feedback from our assessment to help them identify specific areas for improvement.

Following our initial assessment of their plans, many companies took action to revise their resilience frameworks in order to improve their approach. This included, for example, taking steps to understand systems interrelationships and to map and assess system interdependencies and interactions in order to help them evaluate areas of vulnerability and the knock-on impacts of system failure, and to develop a more integrated systems approach to build resilience.

4.1 Examples of good practice

Yorkshire Water's systems approach to resilience demonstrates good practice. It incorporates clear mapping of interactions between the company's external and internal systems (within and outside of the company's control) and a comprehensive decision-making framework that embeds natural capital accounting.

Dŵr Cymru's strategic document on resilience, 'Welsh Water 2050', underpins its plan with a high-level analysis of threats and strategic responses across its business. The document's approach demonstrates that Dŵr Cymru has developed a long-term vision around resilience which supports its plans.

South West Water also provides high-quality evidence of collaboration with stakeholders to develop efficient options and integrated systems around resilience. One example is its collaboration within the multi-stakeholder SIM4NEXUS research project to improve its understanding of the inter-relationships and interdependencies of water, energy and land management in the South West of England.

5. Application of companies' resilience frameworks to inform business decisions

Our expectation was that companies would demonstrate how they apply their resilience frameworks by showing clear links (which we refer to as "a clear line of sight") between the risks to resilience that they identified, their planned mitigations for these risks, the package of outcomes they proposed, and their corporate governance framework.

In our initial assessment of business plans, we found that most companies sought to engage with their customers on resilience risks and on their plans to mitigate these. As a result, companies propose performance commitments to improve day-to-day resilience seeking to do so in line with their customers' expectations.

However, we found that most plans lack a clear line of sight between the risks, the proposed mitigations, and how these affected outcomes for customers and the environment. This undermines the quality of specific investments which companies propose to maintain and enhance operational resilience. In particular we found that:

- Many companies' proposals have limited quantification of the risks in terms of the impact on, and consequences for, customers. As such, investment proposals frequently fall short of comprehensive and risk-based evidence that support the need for investment. Weak proposals typically fail to clearly demonstrate:

    - the specific causes (and associated probability) of service failures that the investment is to address;
    - the consequences of failure for customer service; and
    - how the failure and its consequences are currently beyond the management's control.

- While companies' resilience frameworks frequently note that they consider a wide range of options and mitigations (including solutions to change customer behaviour), business plans generally focus on conventional infrastructure that increase reliability and redundancy. Only a few companies propose to implement response and recovery or nature-based solutions. Proposals typically focus on selecting least cost options rather than best value options by, for example, addressing multiple risks, assessing future uncertainty, or seeking broader partnerships. Companies' proposals do not always provide sufficient evidence that their costs are robustly identified and efficient, such as by including supporting assurance from external parties. Companies fail to provide a clear

assessment of the residual risk remaining after existing and planned mitigations have been applied.

- Business plans show commitment to deliver better outcomes for customers in some areas of resilience, e.g. through drought and sewer flooding resilience performance commitments. However, the majority of business plans do not quantify in detail future resilience ambition and residual risks, meaning the links between risk reduction mitigations and performance improvement are poorly demonstrated.

- We were concerned that bespoke resilience performance commitments did not generally reflect companies' approaches to resilience or their asset management strategies. As a result, we asked companies to commit to work with the sector to develop robust forward looking asset health metrics and provide greater transparency of how their asset health indicators influence their operational decision making. All companies commit to deliver better asset health metrics in these terms.

- While a few companies present generic information on their line of sight, the link to their resilience frameworks (and support from their maturity assessments) is weak. We considered companies fail to demonstrate the benefits of implementing a programme of resilience improvements in the context of a wider framework.

  We were concerned that some companies' plans did not contain convincing evidence that they had assessed all factors relevant to their financial resilience, or that they had not considered all risks relevant to their circumstances. In our initial assessment of business plans, we commented on the information companies provided and challenged a number of companies to demonstrate that they were taking account of all relevant factors in their assessment of financial resilience. Where necessary, we sought further evidence and assurances from companies in relation to their management of financial risks; risks that could arise as a result of their group financial structures; their ability to access new finance; the potential for equity support; and major development projects. This is explained in more detail in the PR19 final determinations: Aligning risk and return technical appendix.

5.1 Examples of good practice

United Utilities uses qualitative and quantitative approaches to assess a wide range of risks associated with operational, financial and corporate resilience issues. The company also uses these approaches to develop options that include collaborating with third parties and promoting solutions that take advantage of, and work with, natural processes (by incorporating natural capital valuation or developing nature-based solutions).

South East Water has a summary of its project screening process in the form of a spreadsheet that brings together a clear and systematic selection of options on the basis of multiple criteria, including: feasibility; deliverability; cost; environmental and social concerns; a measure of resilience improvement; the ODIs attached; and customer support. While the metrics for each category are mainly focussed on qualitative scores and the approach has room for improvement, it is a positive step in providing transparency and clarity to ensure that the best projects are selected.

Dŵr Cymru has developed bespoke resilience metrics ('Asset resilience' performance commitments) that incorporate future risks to the assessment of water and wastewater assets, including those related to flood, security, asset failure, power, treatment and accessibility.

6. Overview of resilience action plans

Following our initial assessment of business plans, to provide confidence that frameworks are being applied we asked companies to develop specific action plans to demonstrate that tangible measures are in place for implementation of their resilience frameworks. We requested that action plans build on the companies' revised resilience plans and that they provide a set of actions to address key elements of our feedback from the initial assessment of plans. In particular, we asked companies to:

- develop and implement a systems based approach to resilience in the round;
- demonstrate that they had an integrated resilience framework underpinning their operations and future plans; and
- demonstrate a line of sight between risks to resilience, planned mitigations, packages of outcomes and their corporate governance framework.

All companies, with the exception of Thames Water, submitted their resilience action plans by the deadline of 22 August 2019. Thames Water submitted its resilience action plan on 30 September 2019.

We expect the resilience action plans to include a detailed set of actions, informed by the revised resilience framework, to deliver resilience improvements. These include:

- dates and accountable roles for delivery within the organisation;
- resource requirements to deliver within the timescales proposed; and
- an approach to monitoring, assuring and reporting against the progress of the plan.

Overall, there is significant variation in the level of detail, robustness and credibility of the action plans submitted. Many companies fall short of our expectations in the following areas:

- providing only high level actions which focus on what needs to be delivered rather than how it will be delivered;
- failing to identify accountable owners for the improvement actions identified;
- failing to outline the resource requirements required to deliver the plan; and
- failing to provide detail on how the plan will be monitored, assured and progress reported against.

There are good examples of action plans, such as Southern Water's, which include sufficient detail to provide confidence that the plan is credible and deliverable. Most companies need to develop their plans in more detail to build confidence around their robustness and deliverability.

6.1 Examples of good practice

Southern Water's resilience action plan shows significant improvements from its original business plan submission. The company clearly addresses areas of concern highlighted in the initial assessment of plans and, by considering lessons from the financial services sector, looks beyond the water sector to identify good practice. It also demonstrates how learnings from other sectors have been used to inform the development of its integrated resilience framework.

Most companies have improved their approach to resilience since the initial assessment of plans. However, some common issues remain. These include:

- A failure to demonstrate how best practice approaches to resilience from beyond the water sector have informed the development of action plans. We expect companies to be informed about best practice resilience approaches and demonstrate how this understanding informs the development of their plans;
- A failure to clearly demonstrate how action plans are informed by an understanding of baseline maturity. We expect resilience action plans to clearly demonstrate an understanding of baseline maturity and to show how the gaps identified could be addressed effectively by appropriate actions; and
- A failure to demonstrate a line of sight between risks to resilience, baseline maturity, mitigation actions, and delivering their package of outcomes.

6.2 Examples of good practice

Bristol Water links the delivery of its resilience action plan to executive pay and dividends, which demonstrates good practice. Also, it commits to including progress in the delivery of the resilience action plan as part of its mid-year performance reporting. This provides credibility that the improvement requirements identified in the plan will be delivered into an applied framework.

We consider that there is more work to be done by companies to understand a best practice approach to resilience in the round and the practical implementation of this approach.

In general companies demonstrate that they have taken steps to develop their understanding of best practice in managing resilience in the round. However, they need to improve their articulation of how this learning has influenced the development of their plans. We acknowledge that developing and implementing a more mature systems-based approach to resilience will take longer than the time between receiving feedback on our initial assessment of plans and the deadline for submission of resilience action plans. While, as part of the PR19 process, we will not set out further specific actions for companies to develop their action plans, we expect them to share learning to accelerate best practice across the industry. We also may consider the progress companies have made as part of assessing company business plans in the 2024 price review.

7. Next steps

Developing and building resilience is a priority for the water sector. The delivery of resilient water services for customers now and in the future will require water companies to:

- continue to improve and develop their understanding of resilience, within and outside the water sector, seeking wider partnerships to share and accelerate the implementation of resilience best practice;
- continue to engage with customers on resilience and their expectations for the future, whether this is in relation to levels of service, risk priorities, co-delivery of mitigations, or bespoke resilience commitments;
- develop and integrate natural capital, zero carbon and environmental resilience in their decision-making and within their approach to resilience;
- review and adopt resilience best practice at all levels of their organisations, including the development of resilience frameworks and within operational teams delivering services on the ground;
- develop resilience frameworks that truly inform their plans and integrate these frameworks into the operation of their business;
- ensure that resilience action plans are reviewed and improved in line with revised resilience frameworks and that delivery is regularly monitored and progress measured;
- work with the sector to ensure operational resilience (including doing more to address regional and national resilience) and to maintain stable and improving asset health that will provide expected levels of service, taking account of impacts from climate change and population growth; and
- work with Ofwat and the sector to develop robust forward looking asset health metrics and provide greater transparency of how their asset health indicators influence operational decision making.

We expect companies to do this in collaboration with other stakeholders, including Ofwat and other water companies, and to continuously engage with customers in this area.

The adoption of best practice approaches to resilience in the round should make it easier for companies to demonstrate value in their business cases at the 2024 price review. We expect companies to engage with the water sector and share best practice. We consider this is the best approach to achieve a more resilient water sector which must meet the needs of customers and the environment both now and in the future.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.

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December 2019

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