



Climate Resilience Strategy

December 2021

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How this strategy impacts other areas of our plan

Our focus is to achieve the best possible positive outcomes for our customers, by utilising innovative solutions and smarter working practices to drive efficiency in all we do. This strategy forms part of a suite of wide ranging, ambitious and interconnected strategies that we will be implemented in RIIO-ED2. Each one is designed to contribute towards the delivery of the same four overarching strategic outcomes we will achieve for customers:



1. Sustainability

Lead the drive to net zero as early as possible.



2. Connectability

Customers can easily connect their electric vehicles, heat pumps and renewable generation.



3. Vulnerability

First class vulnerable customer support programme where everyone benefits in a smart future.



4. Affordability

Maintain excellent customer service, safety and network performance and transform the energy grid for future generations, while keeping bills broadly flat.

Each of our strategies is embedded across our operations and never delivered in silos. This will lead to joined up delivery, utilise opportunities to share knowledge and expertise across WPD teams, and achieve maximum benefits for customers. By doing so we will ensure each of our strategies has a far reaching impact and identifies opportunities to improve our service, performance and efficiency in every possible area of our business. Our strategies are therefore highly interrelated and co-dependent.

The following table provides a snapshot of some of the extensive impacts of this Climate Resilience Strategy, and signposts to other areas of our plan upon which its successful delivery will be dependent.

Strategy	Reference within the strategy:		
Climate Resilience	-	-	-
Customer Vulnerability	-	-	-
Destination Net Zero: Business Innovation and Efficiency	-	-	-
Digitalisation Strategy and Action Plan	-	-	-
DSO	-	-	-
Environment & Environmental Action Plan	✓	Enhancing our approach to flood mitigation and more targeted and efficient vegetation management	Page 9
Innovation	-	-	-
Major Connections	✓	Considering the impacts of climate change when planning new installations	Page 5
Network Visibility	-	-	-
Net Zero Communities	-	-	-
Social Contract	✓	Improving network reliability as a result of better flood protections and vegetation management	Page 9
Whole Systems	-	-	-
Workforce Resilience	-	-	-

WPD is leading the way in tackling climate change, having first introduced our robust Climate Resilience Strategy (CRS) alongside the 2008 Climate Change Act. In our CRS we set out strategies to minimise the impact of environmental change on our operations, ensuring we can continue to provide a safe and reliable power supply to all our customers. WPD have an obligation in Adaptation Reporting Power as set out in the Climate Change Act 2008 and this CRS should be read as the third round report along with the Energy Networks Association (ENA) produced report.

In addition, Ofgem's RIIO-ED Sector Specific Methodology Annex 1 (page 116) requires WPD to continue to provide a CRS in order 'to ensure DNOs consider the risks and impacts of climate change to their networks and take appropriate steps towards mitigation and adaptation.'

WPD's strategies are driven by five key imperatives:



The overriding need to keep our customers, employees and the public safe.



Continuing to provide industry leading service levels.



Driving the transition to a low carbon economy, and leading the way to net zero.



Meeting and surpassing the requirements of regulatory frameworks.



Asset life cycles span many decades and will see the impact of climate change.

How our CRS is implemented

WPD's CRS sets out how we are addressing the impact of climate change across our business, meeting and surpassing national and international climate resilience targets.

Summary

With the decarbonisation of transport and domestic heating, reliance on electricity is becoming ever more important.

Our customers want us to ensure climate change has minimal impact upon their electricity supply, and that our networks remain fit for purpose, even if the environment in which we operate changes.

The WPD CSR analyses how changes to the environment may impact on our business activities, and sets out robust and measurable steps to ensure we maintain our industry leading service levels.

We have considered The Paris Agreement's 'central aim to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels', and the additional focus by government in the National Infrastructure Strategy regarding flooding and the decarbonisation of heat and transport.

Further details on our ambitious environmental targets and our path to net zero can be found in our published strategies listed below:

- Environment Strategy
- Environmental Action Plan (EAP)
- Electric Vehicles Strategy
- Heat Pumps Strategy

WPD uses Met Office UKCP18 climate predictions. The Representative Concentration Pathways (RCP) used for modelling is RCP8.5 – which estimates the highest predicted greenhouse gas concentrations and global mean surface temperature increases of 4.3°C by 2081-2100. This scenario is at the 'high emissions scenario' in this model and will ensure mitigation addresses the worst case scenario modelling output from UKCP18.

Electricity networks' assets in general are well maintained and monitored and as such have very long lives, typically 40 to 80 years, with assets situated in the same location.

Whilst being a positive for customers in terms of replacement programmes, it is important that WPD considers the predicted climate change impacts when planning new installations or safeguarding existing key equipment. As an example, flood protection currently being provided is designed to be resilient to the end of this century based upon current environmental forecasting models (WPD will continue to monitor forecasting to ensure changes to these models are considered in our business planning programmes for future years).



WPD's Climate Resilience Strategy is built on five pillars

These five pillars are discussed in more detail on the following pages to show how WPD will achieve each of them.



1. Improve our understanding of the likely environmental effects of climate change, including the development and ongoing support of a cross-industry climate resilience working group.



2. Continue to assess risks and impacts to our network associated with climate change.



3. Further develop our already industry leading adaptation pathways to represent short, medium and long term climate change projections and challenges across WPD's four licence areas.



4. Develop and implement cost effective and impactful climate resilience initiatives in conjunction with other business activities and investment plans.



5. Review climate resilience initiatives and strategy to ensure progress and value for customers.

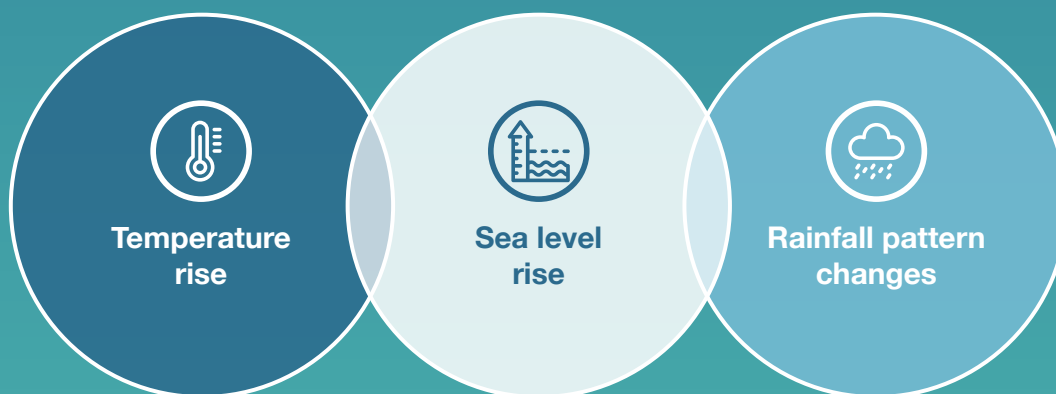


1. Improve our understanding of the likely environmental effects of climate change, including the development of a cross-industry climate resilience working group.

We will continue to consult scientific and industry publications to determine the potential environmental effects of climate change and their likely severity.

For example, to date, WPD has considered a number of climate change projections through involvement in the Adaptation to Climate Change Task Group, which makes use of the Met Office UK Climate Projection 2018 (UKCP18). Other useful sources identified include the Paris Agreement, the National Infrastructure Commission, and the UK government and committee on climate change. WPD will also continue to liaise with local authorities to ensure future planning decisions and development are factored into our adaptation strategies. Nonetheless, WPD will continue to assess a range of valid publications to account for the greatest possible range of projections.

Figure 1: Predicted changes to the UK climate (source: UKCP18)



Due to the interdependencies of different industry sectors such as gas, telecommunications, water and road networks, with the operation of the distribution network, it is important to assess common climate change risks. Therefore, a cross-industry climate resilience working group has been established and met virtually for its inaugural meeting in April 2021.

The group will work to assess the risks of climate change and the potential or simultaneous impacts across the different industry sectors.



2. Continue to assess implemented mitigation solutions, risks and impacts to our network associated with climate change.

As the UK's largest DNO, WPD covers a large geographical area (more than 25% of the UK) with diverse topographical features. Climate change has impacted, and will continue to impact, this area in slightly different ways, dependent on regional geography, historic development and demand requirements.

Understanding how the common risks will affect WPD's assets and the identification of our specific risks has led to us prioritise and implement adaptation for three issues:



Extreme events.



Temperature increase impact on overhead lines.



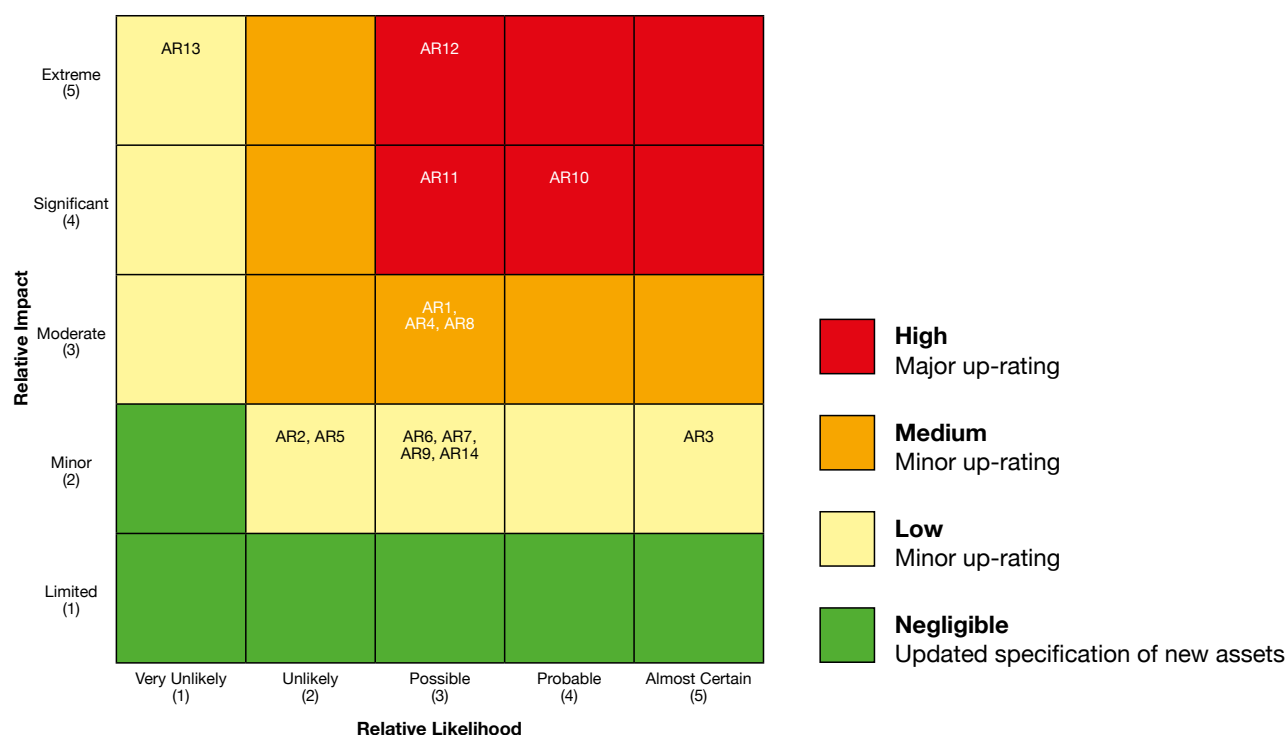
Major substation sites at risk from fluvial or sea breach flooding.

We also look at the broader range of risks associated with climate change, such as engineering challenges, socio-economic risks and managerial risks. This will enable us to identify and prioritise the greatest risks and develop successful mitigation measures to avoid the worst impacts of climate change on our network.

This will be achieved through the continued use of risk assessment matrices (figure 2) to prioritise risks, such as the one developed with input from WPD through the Adaptation to Climate Change Task Group in the second Round Climate Change Adaptation Report. The third round report has been published in 2021 with an updated risk matrix. Detail on the identified risks within the matrix can be found within ENA report, third Round Climate Change Adaptation Report, March 2021.

Moreover, the working group that is chaired by WPD will be instrumental to identifying cross-sector risks and mitigation measures to be taken by each party.

Figure 2: Template risk matrix to categorise climate change risks on network





3. Further develop our already industry leading adaptation pathways to represent short, medium and long term climate change projections and challenges across WPD's four licence areas.

By reviewing the outputs of part one (understanding) and part two (risk assessment) of the strategy at strategic intervals, the likelihood of climate change projections and the associated risks can be assessed.

This will trigger different adaptation pathways (figure 3) to implement the best mitigation options and investment decisions in line with the most likely effects on the network. For example, a review may follow the publication of a new Met Office UK Climate Projection (UKCP), ENA Climate Change Adaptation Report or similar publication.

The aim of these adaptation pathways is to identify the key areas of focus to which potential strategies can be applied for climate change mitigation based on certain criteria being met within the short, medium and long term. Short term adaptation challenges are considered relevant over the RIIO-ED2 regulatory price period, medium term adaptation challenges are considered up to 2035 and long term adaptation challenges are considered up to 2050 and beyond. This is to coincide with the UK government's net zero target and consider any shifts in global climate change predictions due to global actions taken. A decision can be made once criteria are met that changes the area of focus giving flexibility in a long term strategy.

WPD has the following existing pathways on which it has completed actions and is now monitoring for signals that will cause a change to policy direction or strategic action:

- **Temperature increase.**
- **Increased precipitation (flooding).**
- **Lightning.**
- **Vegetation management.**

For the existing pathways we have already made changes that we expect to meet the UKCP18 worst case forecast to our specifications for overhead lines design and vegetation management processes. For flooding we also have programmes of work through RIIO-ED1 and new sites identified for protection within RIIO-ED2.

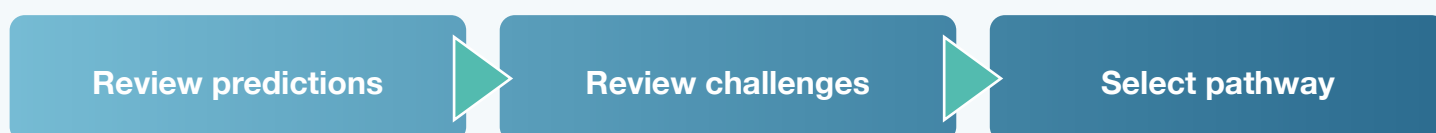
The pathways are monitored and have decision structures to identify when a change in strategy or approach is required.

For instance following the widespread flooding in 2007 a group was established at the ENA which produced document ETR138 - Resilience to Flooding of Grid and Primary Substations. The document was revised and revision 3 issued in 2018.

WPD monitors signals from the Met Office, Environment Agency, and other energy companies to manage the day to day risks of flooding but as importantly to instigate a review of the longer term strategy to ensure long term management and mitigation of the flooding risk.

WPD policy and operational documents are updated following a change in adaptation pathway to record the decision and any change to approach to ensure corporate memory for the decisions and future actions are easier to make and understand.

Figure 3: Climate change adaptation pathway





4. Develop and implement cost effective and impactful climate resilience initiatives in conjunction with other business activities and investment plans.

Using the climate change risks identified in part one and part two of the strategy and applying the adaptation pathways from part three, industry leading resilience initiatives will be developed in order to effectively mitigate climate change risks.

Consideration will be given to how these initiatives can be aligned with other business activities and investment plans in order to ensure cost effective solutions are implemented. This may involve changes in existing businesses processes where necessary, as well as targeted industry leading resilience initiatives.

To date, WPD has carried out a number of climate resilience initiatives evidenced through the 'adaptation to climate change' series of reports to DEFRA, the third of which was published in 2021.

This has included initiatives such as:

- Improving resilience to extreme weather through monitoring and improving storm response efforts and specifying lightning protection for pole mounted transformers.
- Completing flood risk assessments and implementing flood defences for 'at risk' major and strategic substations. This includes developing emergency flood response capability.
- Designing new overhead lines to a higher temperature rating through specifying taller poles to allow for more conductor sag whilst maintaining compliance with Electricity Safety, Quality and Continuity Regulations (ESQCR) clearance requirements.
- Studying the possible effects of climate change on earth conditions, such as earth resistance, to forecast effects to earthing systems.

WPD will build on this experience through this Climate Resilience Strategy to continue to implement effective initiatives to mitigate the impacts of climate change on our network.





5. Regularly review our ambitious climate resilience initiatives, to ensure good progress is being made, and value for customers is being delivered.

A complete review of our resilience initiatives will take place at least annually, with more regular interventions alongside new information or events. This robust approach to evaluation will help us measure the effectiveness of our work, and ensure we are delivering the most value for our customers.

WPD will produce and publish a yearly update on progress and actions taken on our adaptation pathways relating to our Climate Resilience Strategy.

During the review of trials, it will be considered whether the roll out of a similar initiative on a larger scale within the business or on a cross-industry level would be beneficial.

Where appropriate and useful, learnings will be shared through the Climate Change Resilience Working Group.

Moreover, the overall Climate Resilience Strategy will be reviewed annually to ensure the objectives of the strategy are being met and to reveal any opportunities for improvement.



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