



Climate Resilience Strategy

June 2021

westernpower.co.uk



WESTERN POWER 
DISTRIBUTION

Serving the Midlands, South West and Wales

Contents

Summary 4

WPD CRS strategy consists of five key points 5

1. Improve our understanding of the likely environmental effects of climate change, including the development of a cross-industry climate resilience working group 6

2. Continue to assess implemented mitigation solutions, risks and impacts to our network associated with climate change 7

3. Further Develop adaptation pathways to represent short, medium and long term climate change projections and challenges across WPD’s four licence areas 8

4. Study and implement cost-effective climate resilience initiatives in conjunction with other business activities and investment plans 9

5. Review climate resilience initiatives and strategy to ensure progress and value for customers..... 10

WPD has had a Climate Resilience Strategy (CRS) since the introduction of the Climate Change Act 2008, which outlines requirements placed upon UKPLC to mitigate the impact of climate change on businesses.

WPD commenced reporting against our CRS in June 2011, reporting included sharing outputs, business and methodological assumptions relating to Climate Change.

In addition OFGEM in their RIIO-ED Sector Specific Methodology Annex 1, page 116 also require 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.”

All of WPD business strategies are driven by a number of factors including the following key issues:-



The absolute need to keep our customers, the public and our employees and contractors safe



Ensuring that our customers receive the best level of service



Transition to Low Carbon Economy on our Journey to Net Zero



The regulatory framework



Asset life cycles

How WPD CRS is implemented

WPD's overarching approach will consider how each of the key areas identified in our business strategies may be impacted by Climate Change.

The WPD CRS seeks to address and or mitigate the impact of climate change in these key business areas whilst ensuring WPD continues to support national (Electricity Industry) and government & internationally lead climate resilience targets.

Summary

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

The reliability of the distribution network of today and the future will impact significantly more areas of our customer's lives, with customers expecting climate change to have minimal impact upon their electricity supply continuity, alongside, placing responsibility upon network companies to ensure their networks adapt to and remain fit for purpose, even if the environment in which they operate changes.

The WPD CSR considers how changes to the environment over time may impact upon our overall business aims.

The WPD CRS will support our strategic aims by linking with our objectives to ensure the environment and its impact are considered in our aims of providing a safe, efficiently run and reliable network.

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.

WPD use Met Office UKCP18 climate predictions (The Representative Concentration Pathways (RCP) used for modelling is RCP8.5 – which estimates the highest predicated 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 CRS strategy consists of five key points

These five points 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 adaptation pathways to represent short, medium and long term climate change projections and challenges across WPD's four license areas.



4. Study and implement cost-effective 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.

This will involve continuing 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), the latest version of which is UKCP18. Other useful sources identified include the Paris Agreement, the National Infrastructure Commission, 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 or adaptation strategies. Nonetheless, WPD will continue to assess a range of valid publications to account for the greatest possible range of projections.

Figure 1: Some 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.

WPD covers a large geographical area with diverse topographical features and climate change has and will continue to impact its constituent parts 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



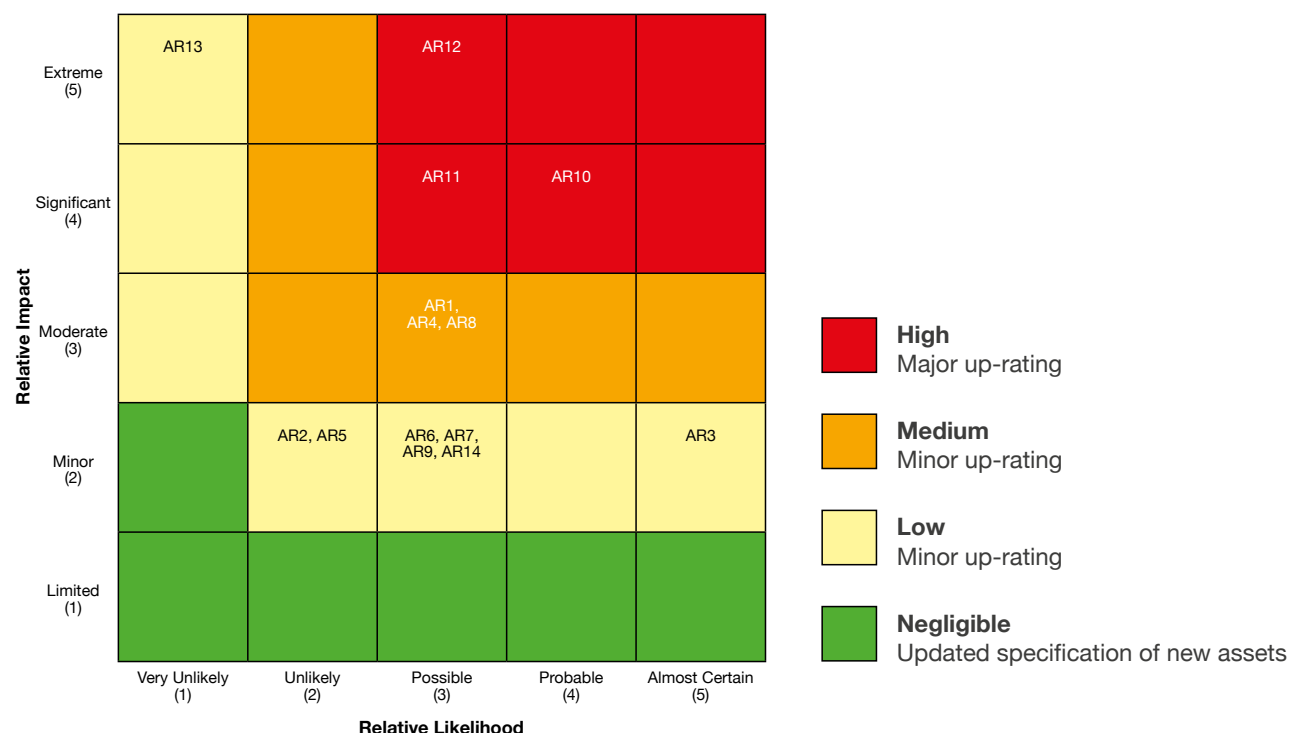
Major substation sites at risk from fluvial or sea breach flooding

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 possible 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 2nd Round Climate Change Adaptation Report. The 3rd 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, 3rd 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 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 materialising 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 like this 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 that can have potential strategies 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 have 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; and**
- **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.

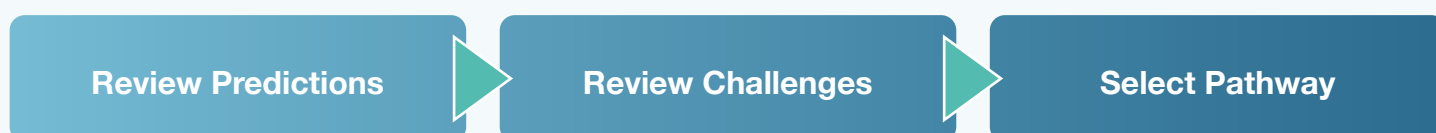
The pathways are monitored and have decision structures to identify when a change in strategy or approach is required.

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

WPD monitor 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. Study and implement cost-effective 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, climate 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 climate 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 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. Review climate resilience initiatives and strategy to ensure progress and value for customers.

A review of climate resilience initiatives will be carried out at least annually with a review being conducted when signals or additional information is received from relevant sources of each initiative to consider if the desired benefits are being realised in an effective way. This will aim to measure the effectiveness of the initiative against success criteria defined before the start of an initiative.

WPD will produce and publish a yearly update on progress and actions taken on our adaptation pathways with respect to our climate change resilience strategy.

During the review of trials, it will be considered whether the rollout 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.





Western Power Distribution (East Midlands) plc, No2366923
Western Power Distribution (West Midlands) plc, No3600574
Western Power Distribution (South West) plc, No2366894
Western Power Distribution (South Wales) plc, No2366985

Registered in England and Wales
Registered Office: Avonbank, Feeder Road, Bristol BS2 0TB

www.westernpower.co.uk

