Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

Network Licensees must publish the required Project Progress information on the Smarter Networks Portal by 31st July 2014 and each year thereafter. The Network Licensee(s) must publish Project Progress information for each NIA Project that has developed new learning in the preceding relevant year.

# NIA Project Annual Progress Report Document

### Date of Submission

Jun 2022

### Project Reference

WPD_NIA_064

## Project Progress

### Project Title

Assessment of Climate Change Event Likelihood Embedded in Risk Assessment Targeting Electricity Distribution (ACCELERATED)

### Project Reference

WPD_NIA_064

### Funding Licensee(s)

WPD - Western Power Distribution (South Wales) Plc

### Project Start Date

January 2022

### Project Duration

1 year and 2 months

### Nominated Project Contact(s)

Liza Troshka

### Scope

We recognise that current and future climate change can directly affects WPD business objective of providing a safe, reliable and efficient electricity supply to our customers. To be prepared for the projected change in chronic and acute weather conditions in short-, medium- and long-term we as a business need to be equipped with novel reliable climate change data so that our distribution network is equipped with innovative toolset for effective operation and management. Climate change data provision will allow for informed investments decisions and identification of at-risk hotspots so that design, reinforcement and maintenance activities are performed with climate change future proofing in mind. Customers across all four licence areas will be ultimate beneficiaries through reduced interruption to the service and reduced maintenance/recovery cost. Furthermore, by providing climate change data at a glance we will ensure streamlined information sharing with all relevant stakeholders.

### Objectives

- To provide a visual representation of WPD historic weather impacts and climate change projections within different timeframes and spatial resolutions;
- To establish an up-to-date understanding of the potential impacts of projected climate change on the WPD's assets performance and functionality;
- To establish an understanding of climate change impacts on embedded generation and consumption patterns;
- To develop a climate change impact assessment procedure and to trial it across the business.

## Success Criteria

- Climate impacts on asset groups established and documented;
- Impacts on embedded generation and future demand modelled and documented;
- Climate change impact assessment procedure developed and verified within the business.

## Performance Compared to the Original Project Aims, Objectives and Success Criteria

The project commenced mid-January 2022 and good progress has been made in work package 1 as planned. The records of WPD historic weather impacts have been acquired and preliminary analysis performed. Historically observed weather intensities data have also been gathered to perform the planned correlation of two datasets. Further detail on the planned work is outlined below:

- To provide a visual representation of WPD historic weather impacts and climate change projections within different timeframes and spatial resolutions - ongoing- NaFIRS and WPD asset data prepared for the analysis
- Weather variables, emissions scenario and asset
classes selected for the analysis
- Examples of heat maps produced
- Correlation of historic weather hazard intensity and
faults to be completed
- Relationship between hazard intensity and probability of the intensity to cause a fault will be established and produced via fragility curves for a selected list of assets
- Results to be presented in a GIS tool supported by the tool's specification document

- To establish an up-to-date understanding of the potential impacts of projected climate change on the WPD's assets performance and functionality - Not Started
- Appropriate UKCP18 products will be selected to consider projected impact of climate change on DNO network
- Suitable climate products will undergo simple quality controls and corrections where needed
- Once climate change projections corrected, they will be used along with fragility curves to determine how different asset types may be affected by future climate
- Visualisation will then be produced to show the intensities of the various weather hazards for each region/management unit and the faults that these hazards intensities are projected to cause

- To establish an understanding of climate change impacts on embedded generation and consumption patterns - Not Started
- An initial workshop with the WPD forecasting team will be set-up to understand existing processes in relation to Distribution Future Energy Scenarios (DFES)
- Half-hourly profiles for demand and generation that are published in DFES will be accessed and reviewed
- In the first instance datalogger measurements will be used to determine new representative demand and generation profiles for the assessment of the impact of
future climate events

- To develop a climate change impact assessment procedure and to trial it across the business - Not Started
- A climate change impact assessment procedure will provide a format record of how new tools should be incorporated as part of DNO's business systems.
- Internal workshop will be organised to check the proposed approach.

As the project has started relatively recently, the ability to meet the overall objective and overall success of the project will be determined at the later stages. However, as of end of March 2022 the project is on track to meet its defined objectives and success criteria.

## Required Modifications to the Planned Approach During the Course of the Project

Some additional time was required to prepare required data for the analysis in work package 1. Change request was submitted to extend deadlines for work package 1 as a result. This change did not affect the overall timescales and budget of the project. The change was managed through WPD Innovation Governance procedures.

## Lessons Learnt for Future Projects

Observations of the recording of weather related faults (specifically NaFIRS data) have been made and documented for future reference. Some issues with linking NaFIRS with WPD asset data have been identified and documented. Identified issues have been shared with wider business (in a report format) for consideration.

Key lessons learnt are expected to be captured at the later stages of the project delivery.

Note: The following sections are only required for those projects which have been completed since 1st April 2013, or since the previous Project Progress information was reported.

## The Outcomes of the Project

The project has recently begun, and so therefore key outputs of the projects will be available at the later stages.

## Data Access

Anonymised data will be available to share in accordance with WPD's data sharing policy
www.westernpower.co.uk/Innovation/Contact-us-and-more/Project-Data.aspx

## Foreground IPR

Foreground IPR:

- Climate change impact assessment methodology/procedure developed during WP4
- All reports produced during the course of the project
- Results of the past severe weather and climate change impact analyses on WPD network
- Methodology for integrating climate change considerations into energy distribution forecasting activities

Background IPR:

- Consequence forecasting methodology developed by Newcastle University
WPD network assets data
- Distribution Future Energy Scenarios methodology, model and outputs (growth of demand and embedded generation).