



# Northern Powergrid

## Climate Change: the impact on regions and organisations

**Siobhan Barton**  
Head of Stakeholder Relations

Monday 13<sup>th</sup> May

# Our Stakeholder-led Roundtables

- Today is an opportunity to hear from you, our stakeholders, as we discuss ‘complex issues’ we are thinking through
- We are hosting a series of 6 roundtables with a wide range of stakeholders from across our regions.
- We welcome your challenge, insight and guidance as today we discuss:
  - What is the nature of the issues and risks organisations face as part of their climate change adaptation strategy? How are you planning to respond to those issues and risks?
  - How can Northern Powergrid work in partnership to ensure our adaptation plan supports other’s needs?
  - What are the interdependencies between Northern Powergrid’s climate change adaptation plan and other organisations plans to ensure they meet current and future needs?
- There are no right or wrong answers and we will actively encourage your contributions throughout the day.
- Your feedback and challenge helps shape the priorities of our annual business plan and our future planning.

# Meet the Team

**Geoff Earl**, Director of Safety, Health and Environment

**Claire Thomas**, Asset Management Engineer

**Gordon Walker**, Environment Manager

**Helen Priestley**, Stakeholder Engagement Manager

**Andrew McCleod**, Senior Emergency Planning Engineer

# Agenda

Lead

Timings

Keynote speaker: UK climate change data

Tom Butcher, Met Office

10.20 – 10.35

## Roundtable Discussion 1:

What is the nature of the issues and risks organisations face as part of their climate change adaptation strategy?  
How are you planning to respond to those issues and risks?

All

10.35 – 11.15

## Break

11.15 – 11.30

## Roundtable Discussion 2:

How can Northern Powergrid work in partnership to ensure our adaptation plan supports other's needs?

All

11.30 – 12.10

## Roundtable Discussion 3:

What are the interdependencies between Northern Powergrid's climate change adaptation plan and other organisations plans to ensure they meet current and future needs?

All

12.10 – 12.50

Summary and next steps

Geoff Earl

12.50 – 13.00

# House keeping



No planned fire alarms



ON SILENT MODE PLEASE

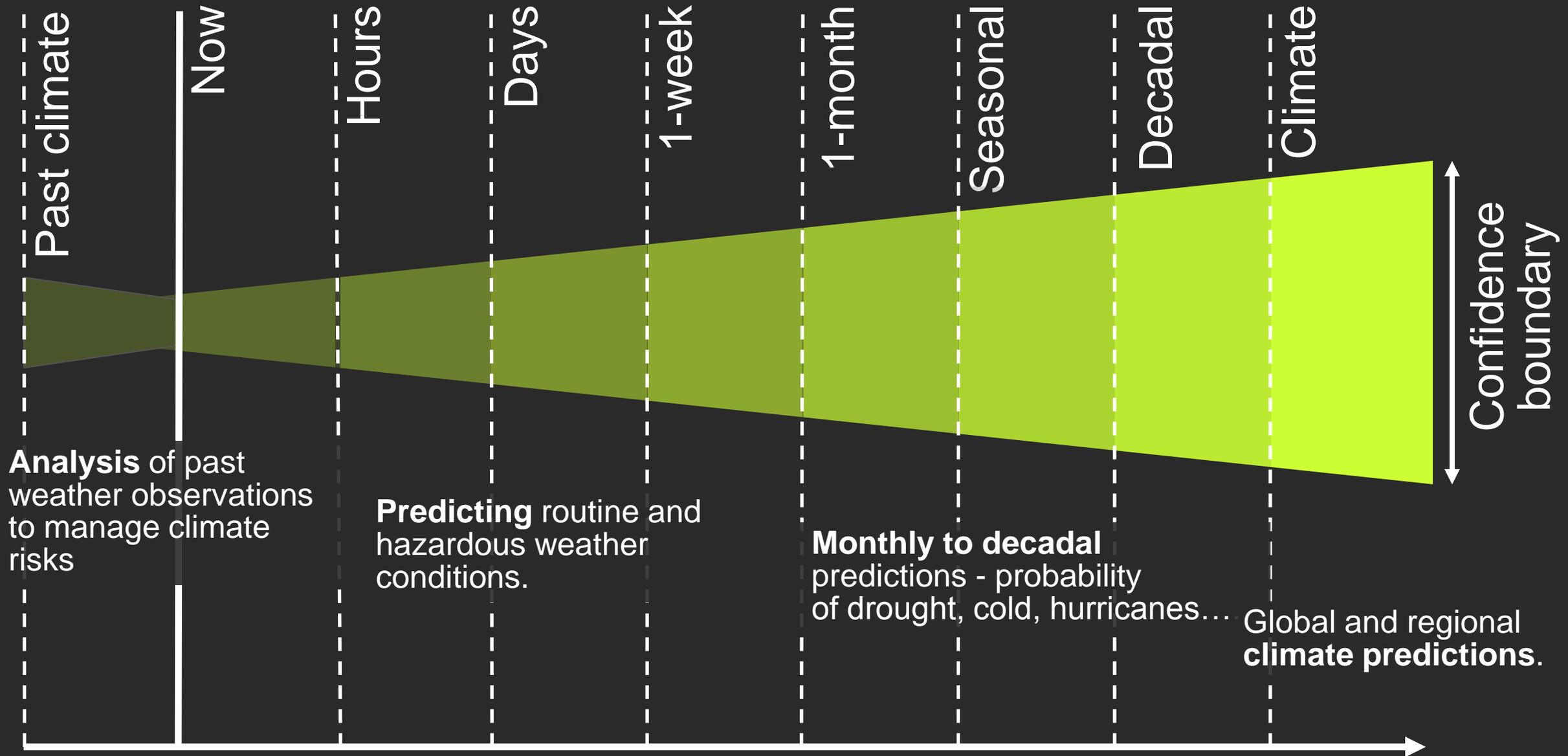
Mobiles to silent please

- We will have a break at 11.15am
- Please stay for lunch after the roundtable which will be served at 1pm

# Latest climate science for adaptation

Tom Butcher, Head of Industry Consultancy  
Northern Powergrid Round Table  
13 May 2019

# Weather and climate insight across all timescales

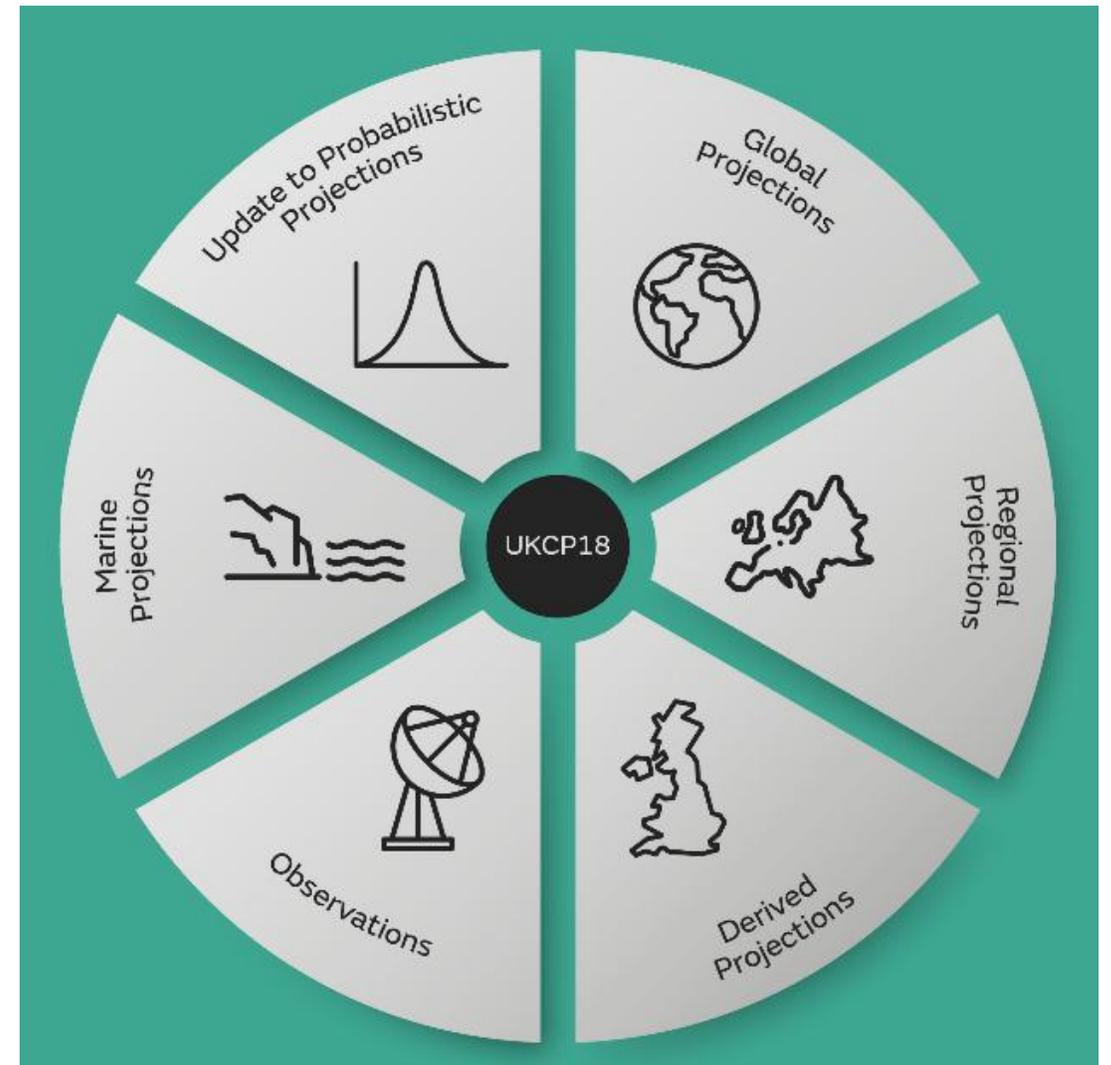


# UK Climate Projections (UKCP18) - Headline results:

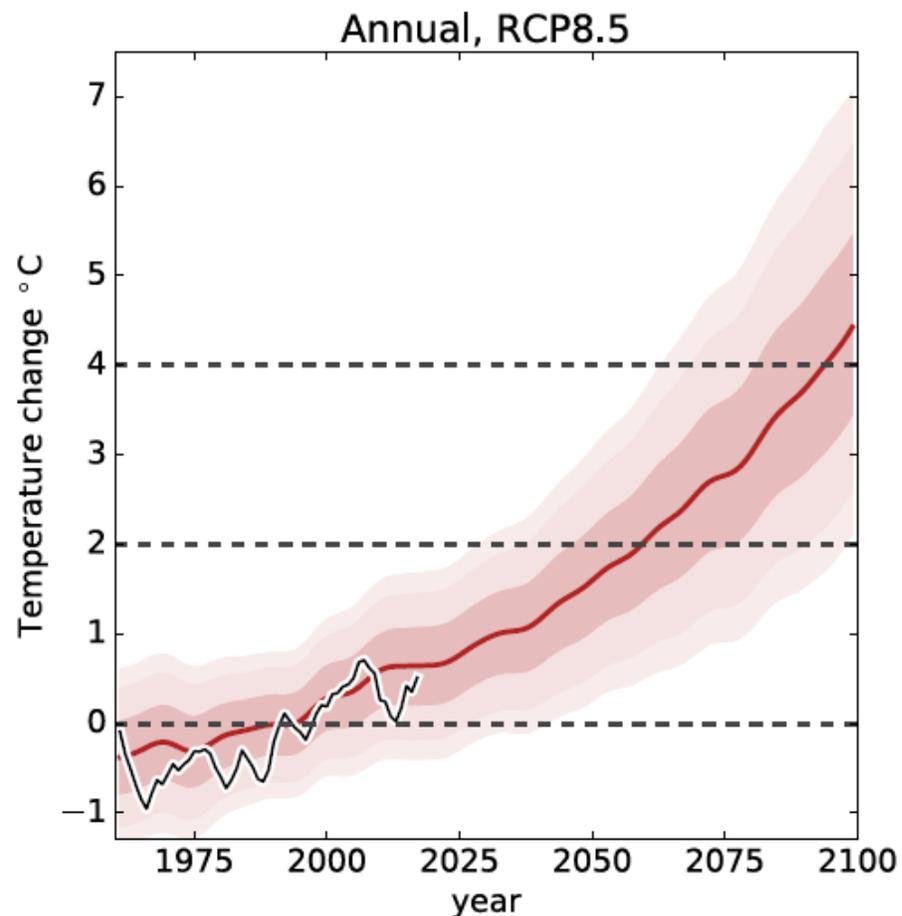
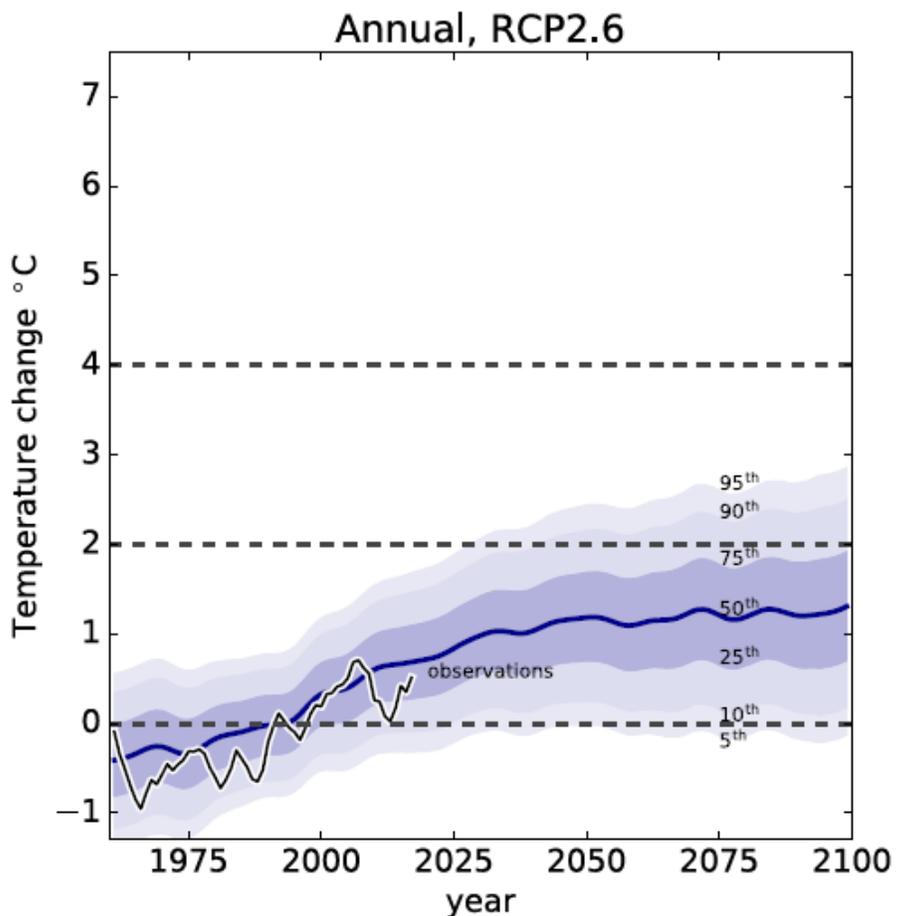
“a greater chance of warmer, wetter winters and hotter, drier summers”

“sea-level rise continues under all scenarios”

[ukclimateprojections.metoffice.gov.uk](http://ukclimateprojections.metoffice.gov.uk)



# Future UK temperatures



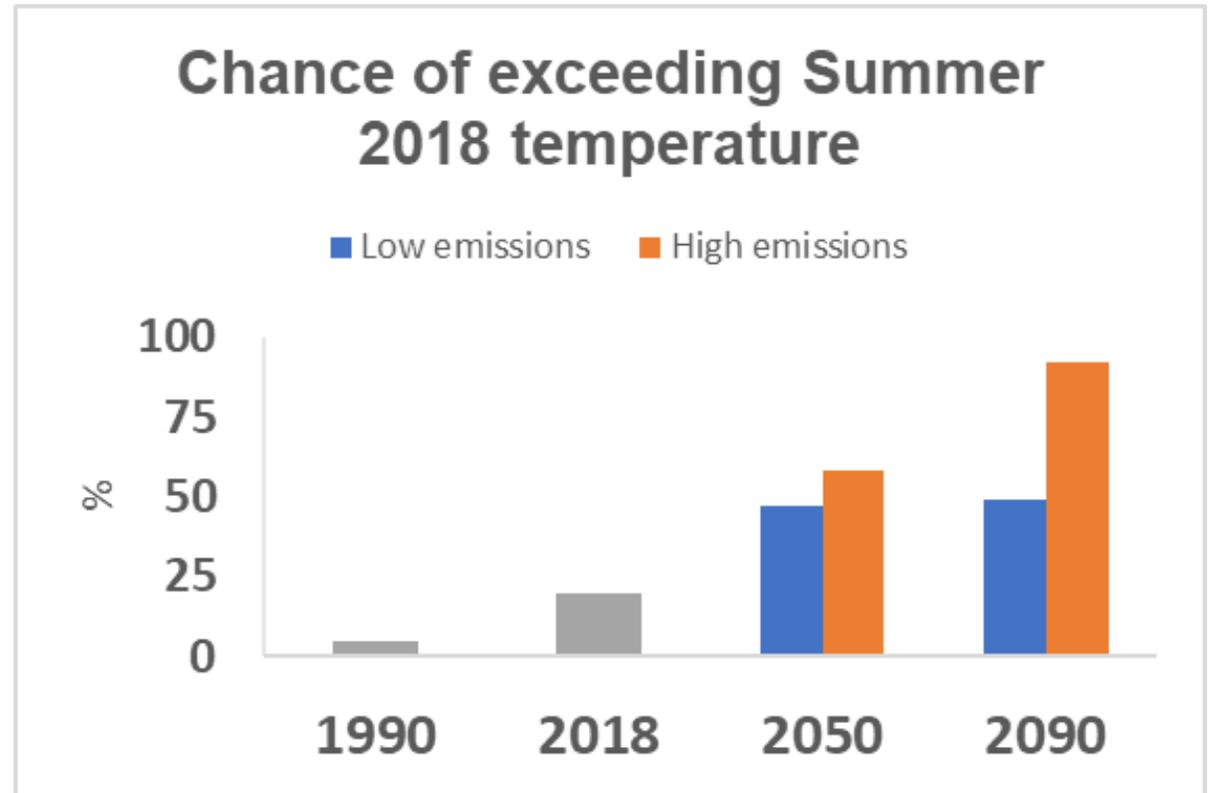
In RCP2.6 fastest rate of change in near future

In RCP8.5 fastest rate of change at end of century

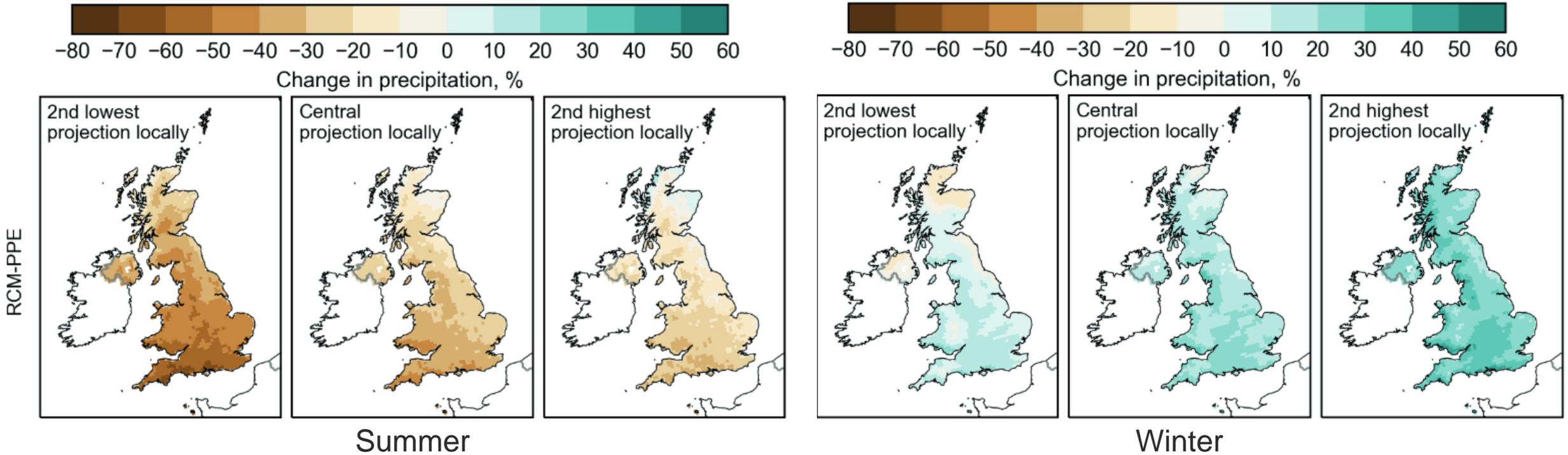
Similarity between scenarios over next couple of decades

# Summer 2018 heatwave

- Chance of such hot summers low in the baseline period (<10%)
- By mid-century the chance of hot summers will be of the order of 50%
- Beyond 2050 the chance of a warmer summer more strongly depends on emission scenario



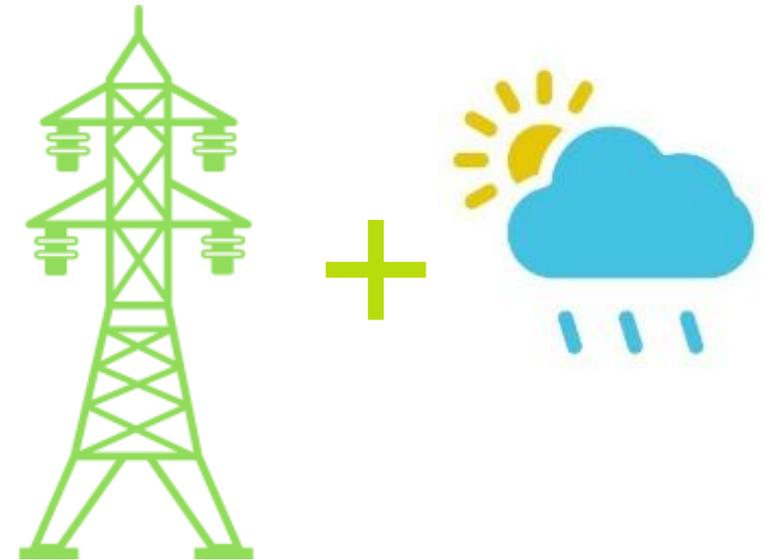
# Pattern of precipitation change



The spatial pattern of change to 2061-2080 shows detailed structure over the UK (RCP8.5).

# Energy Sector Challenges

- Growth of low carbon energies
- Resilient infrastructure
- Future energy mix
- Energy Security
- Electrification of transport
- Intelligent sensing and connected technologies
- Decarbonising heating
- Growing energy demand
- Rise in resolution, volume and accessibility of weather and climate data
- Optimisation of productivity



# Summary

- UKCP18 provides an authoritative toolkit to underpin climate adaptation decision making
- There is interconnectivity between impact of future climate and other industry challenges
- Managing today's weather and climate impacts can be an effective adaptation strategy
- It's not just about risks and costs – it can also be about opportunities and savings





# Northern Powergrid

Climate change: the impact on regions and organisations

**Geoff Earl**

Director of Health, Safety and the Environment

# Northern Powergrid – our business

Northern Powergrid is responsible for the electricity network that keeps the lights on for 8 million customers across the Northeast, Yorkshire and northern Lincolnshire.

Our dedicated team of more than 2,700 employees operate 24 hours a day, 365 days a year – no matter what the circumstances – to maintain a safe, reliable and efficient electricity supply.

Our customers pay their energy supplier for the electricity they use. A small proportion of the money they pay as part of their electricity bill comes to us to cover the cost of keeping the network running safely, reliably and efficiently.



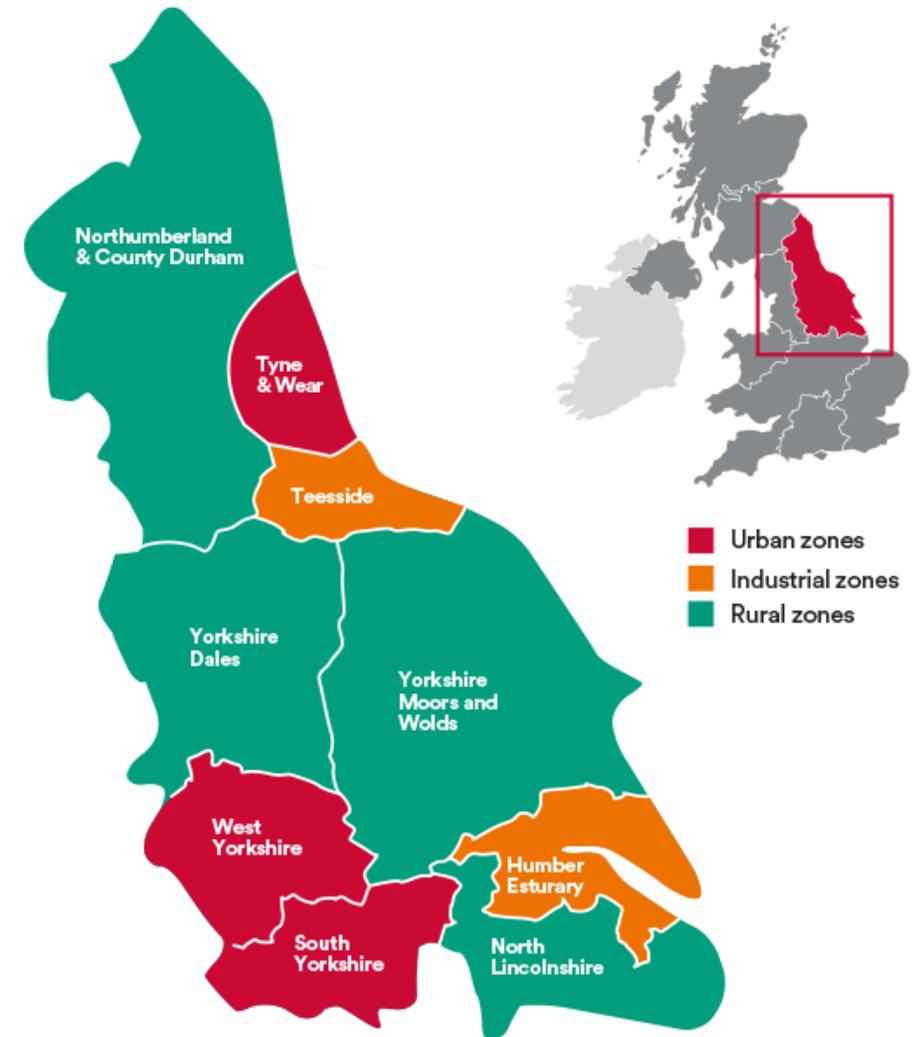
**8 million**  
customers.



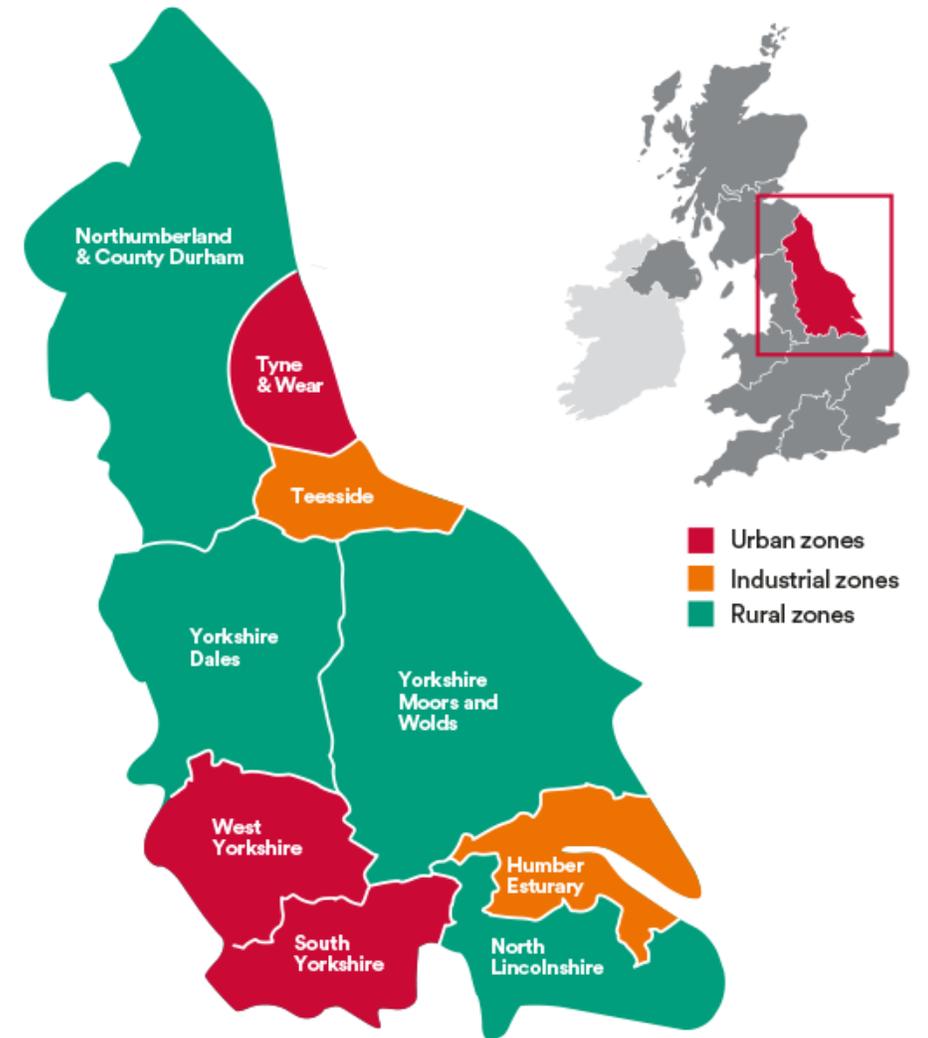
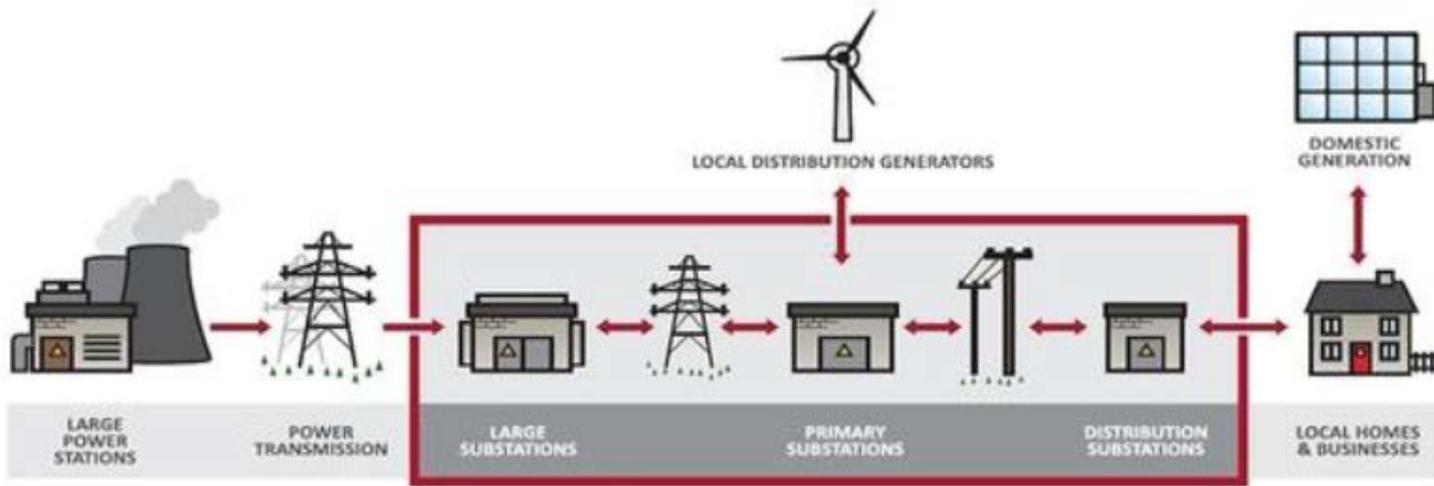
**Over 2,700**  
employees.



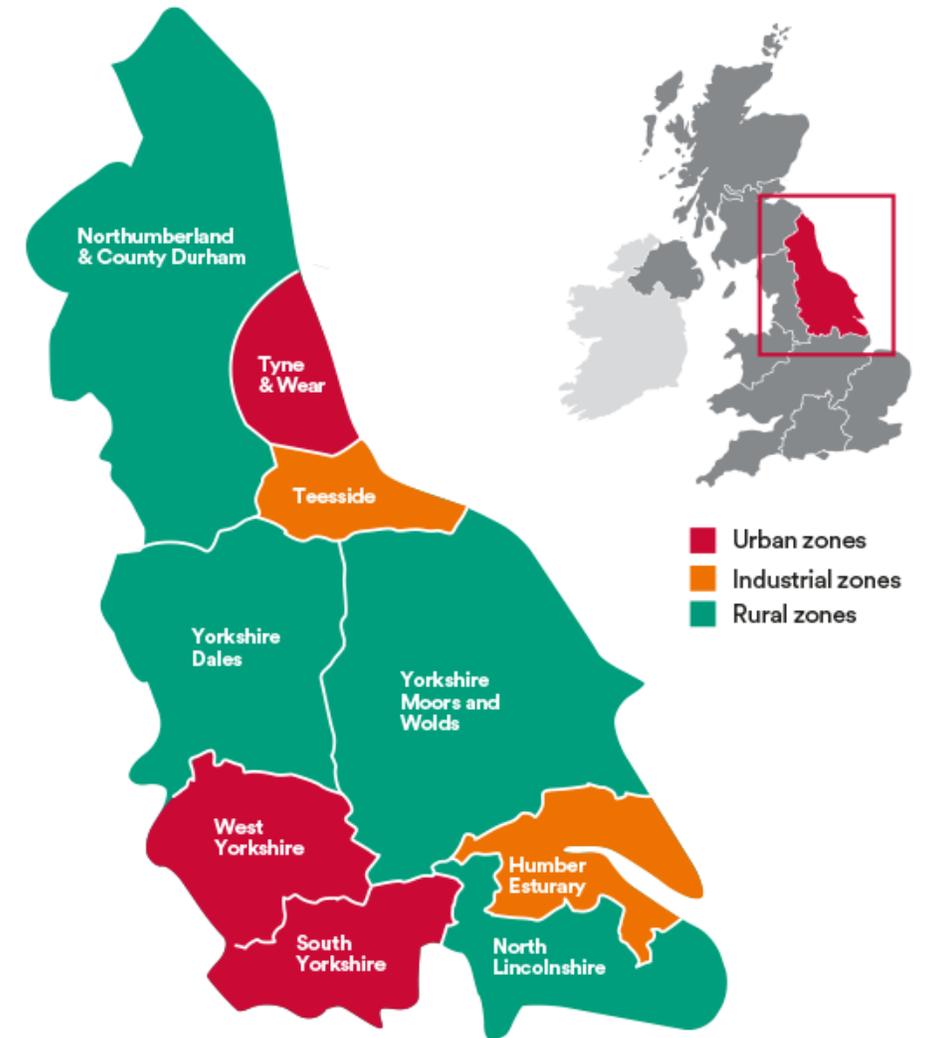
**3.9 million**  
homes and businesses  
powered.



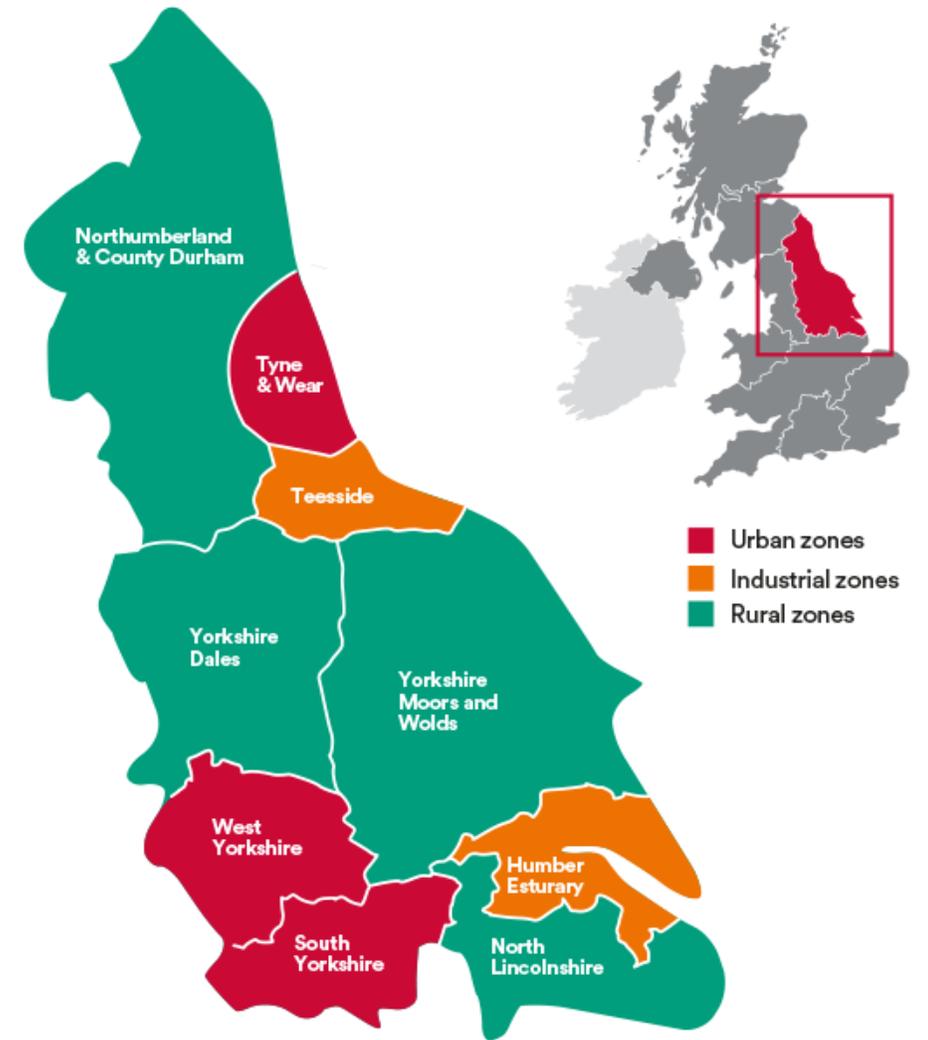
# Northern Powergrid – our network



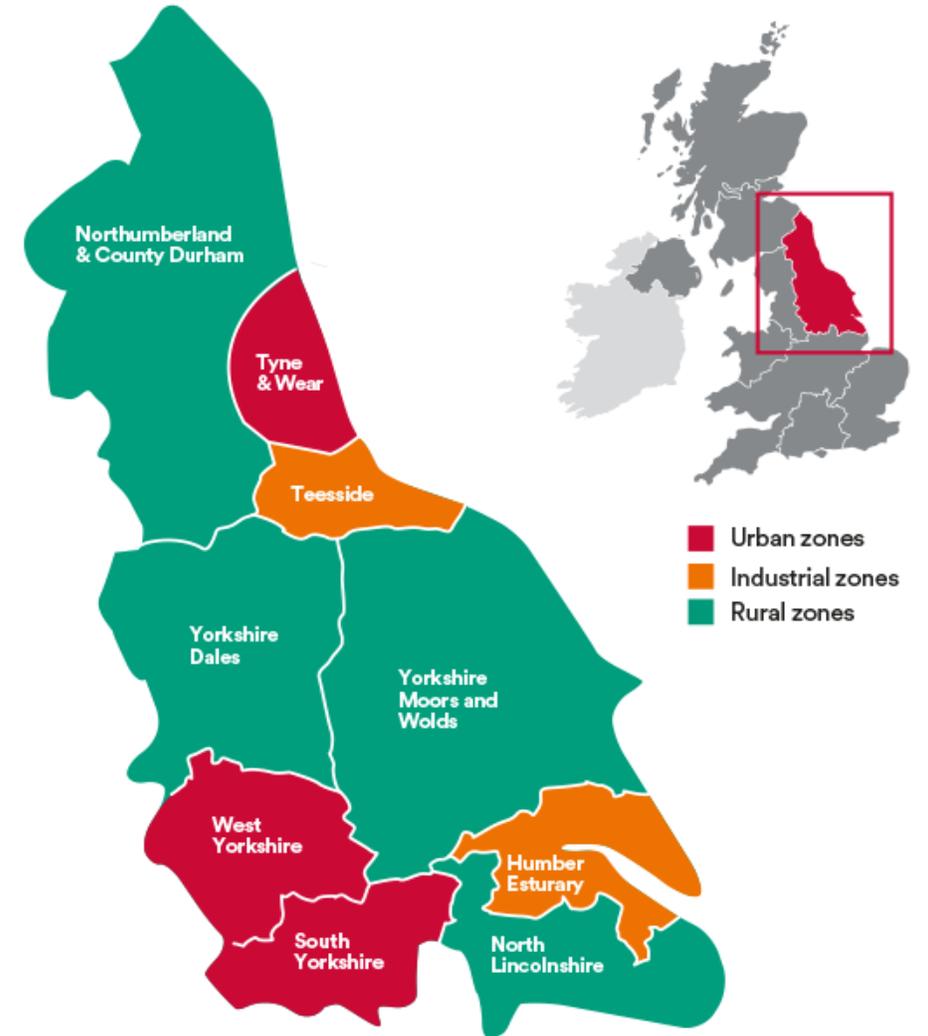
# Northern Powergrid – our network



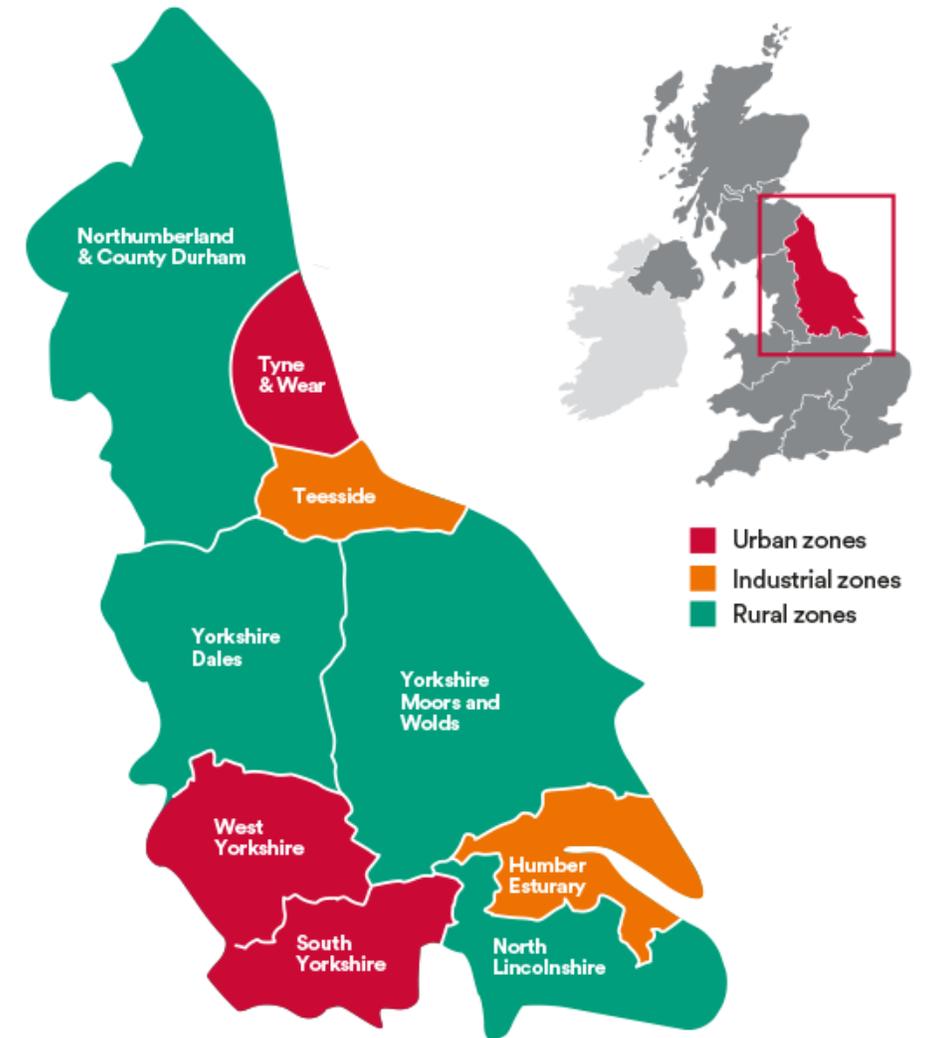
# Northern Powergrid – our network



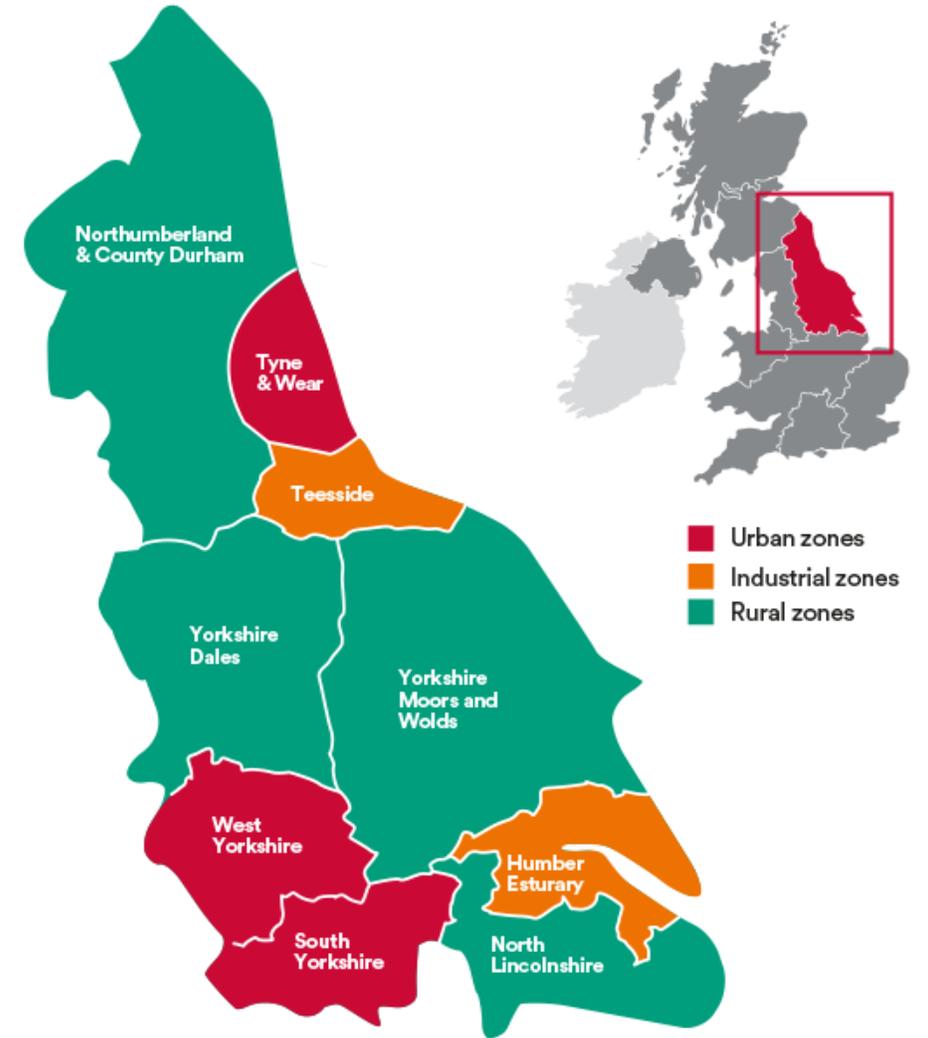
# Northern Powergrid – our network



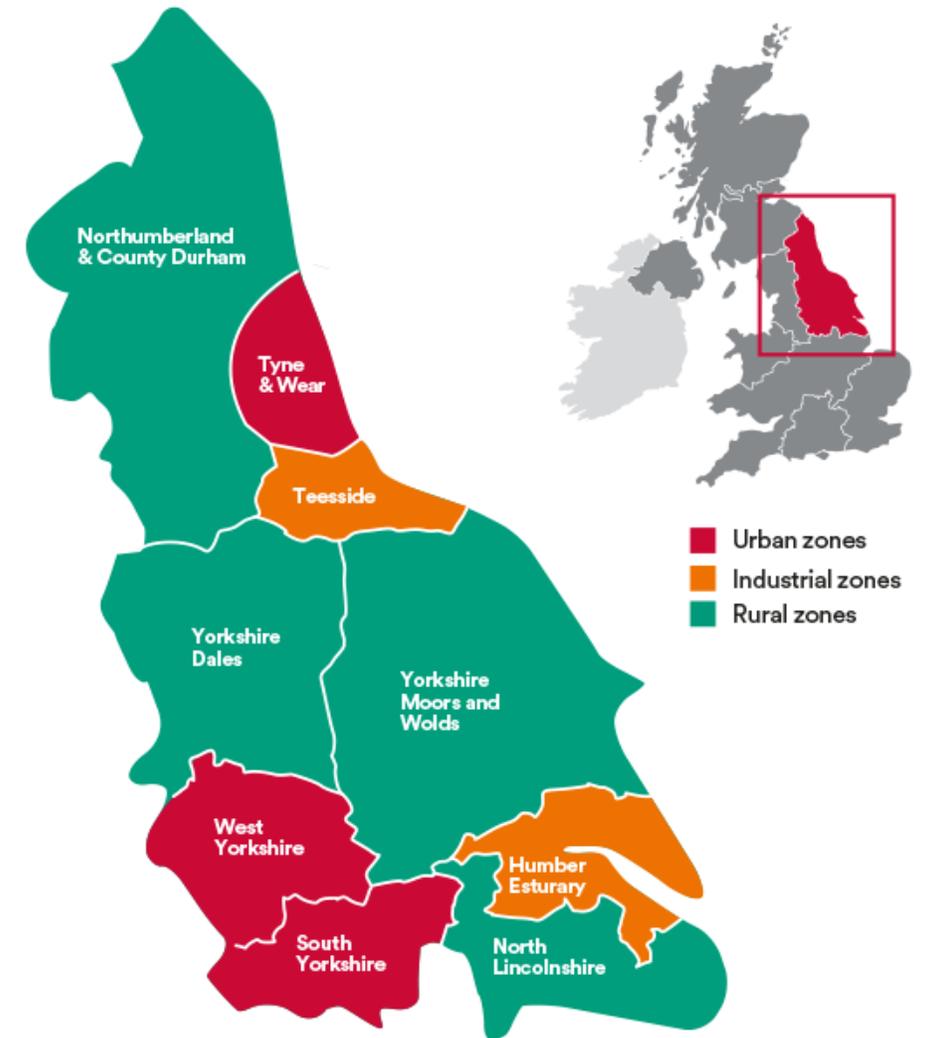
# Northern Powergrid – our network



# Northern Powergrid – our network

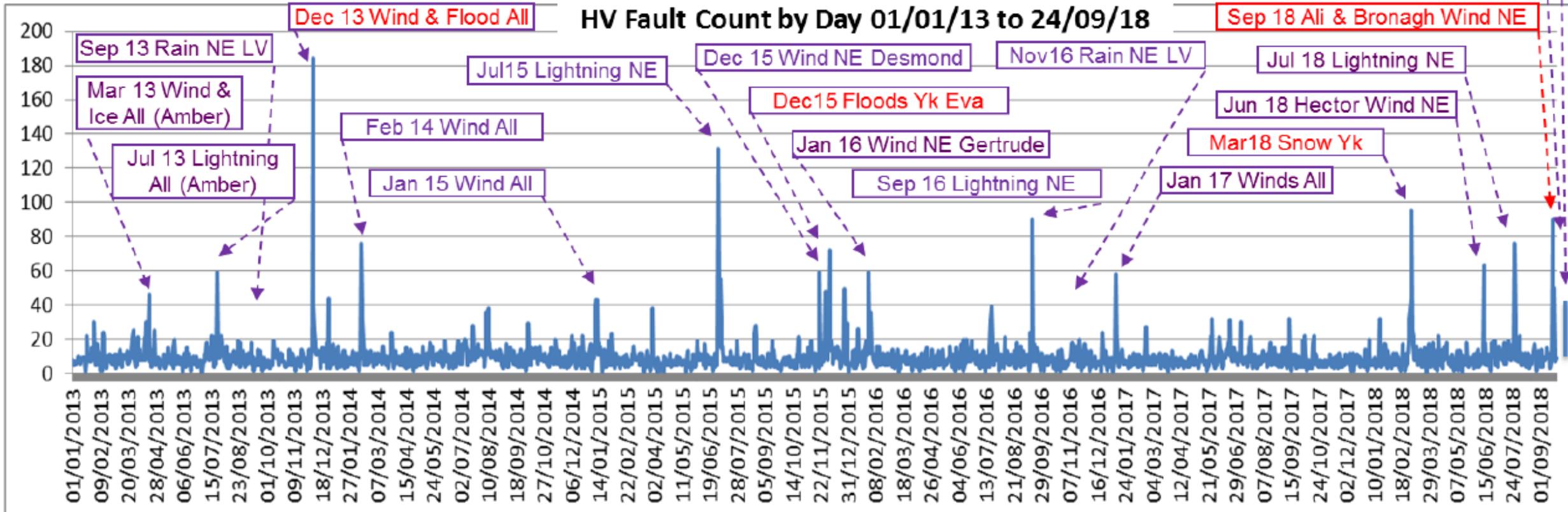


# Northern Powergrid – our network



# Adaptation?

## MIMP Events – Last 5 years



Purple events typically 1/2 days in duration

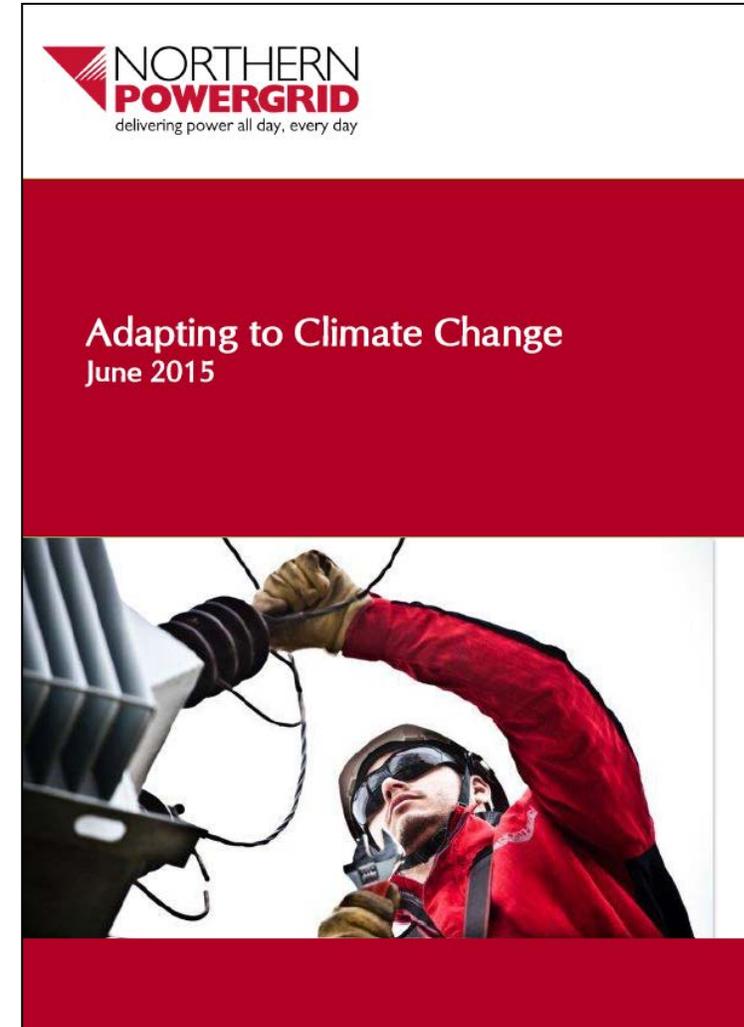
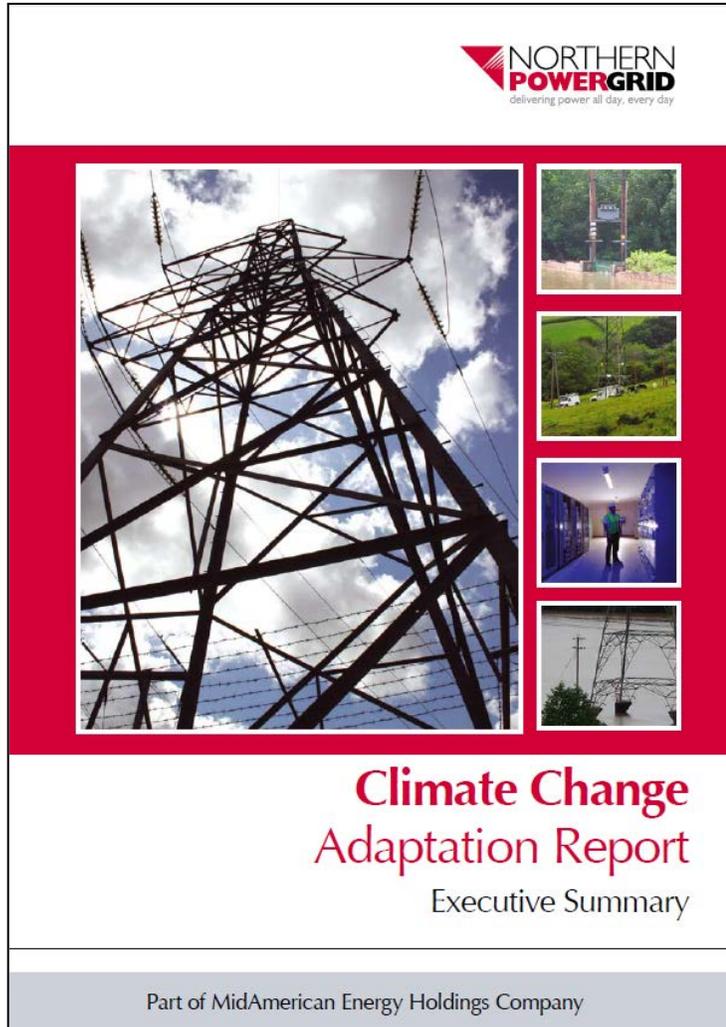
Red events typically 3/5 days in duration

# Today's Discussion

The changing climate is already impacting our region; weather patterns change, extreme weather events and increased pressure on biodiversity, will all have increasing effects on our communities and industries.

- How you are planning to respond to those issues and risks?
- How may we help?
- What are the similarities, conflicts and interdependencies between our climate change adaptation plan and yours?

# Climate Change Adaptation - Our views



# Responding to Climate Change – UK Government Priorities

In 2017, UK Government produced a report, “UK Climate Change Risk Assessment”, looking at the potential risks of climate change.

The results show that risks to energy generation and industry become “high risk” in the medium term, requiring immediate planning for action.

<p><b>Flooding and coastal change risks to communities, businesses and infrastructure (Ch3, Ch4, Ch5, Ch6)</b></p>	<p><b>MORE ACTION NEEDED</b></p>
<p><b>Risks to health, well-being and productivity from high temperatures (Ch5, Ch6)</b></p>	
<p><b>Risk of shortages in the public water supply, and for agriculture, energy generation and industry (Ch3, Ch4, Ch5, Ch6)</b></p>	
<p><b>Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity (Ch3)</b></p>	
<p><b>Risks to domestic and international food production and trade (Ch3, Ch6, Ch7)</b></p>	
<p><b>New and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals (Ch3, Ch5, Ch7)</b></p>	<p><b>RESEARCH PRIORITY</b></p>
<p><b>NOW</b> -----&gt; <b>RISK MAGNITUDE</b> -----&gt; <b>FUTURE</b>    <b>LOW</b>    <b>MEDIUM</b>    <b>HIGH</b></p>	

# Responding to Climate Change – UK Government Priorities

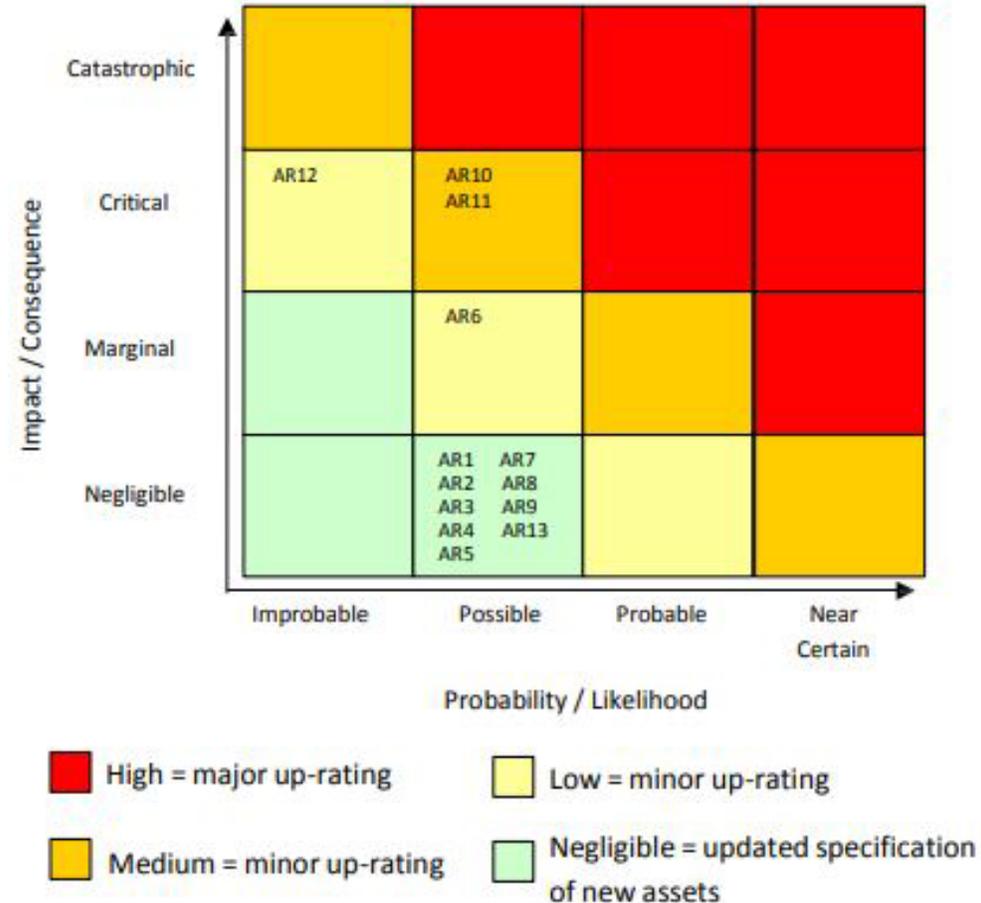
Sector	Risk Assessment	Resilience Measures	Progress Reporting
Electricity transmission and distribution	●	●	●
Rail	●	●	●
Strategic Road Network	●	●	●
Ports	●	●	●
Airports	●	●	●
Water	●	●	●
ICT	●	●	●

“Alert and prepared but NOT complacent”

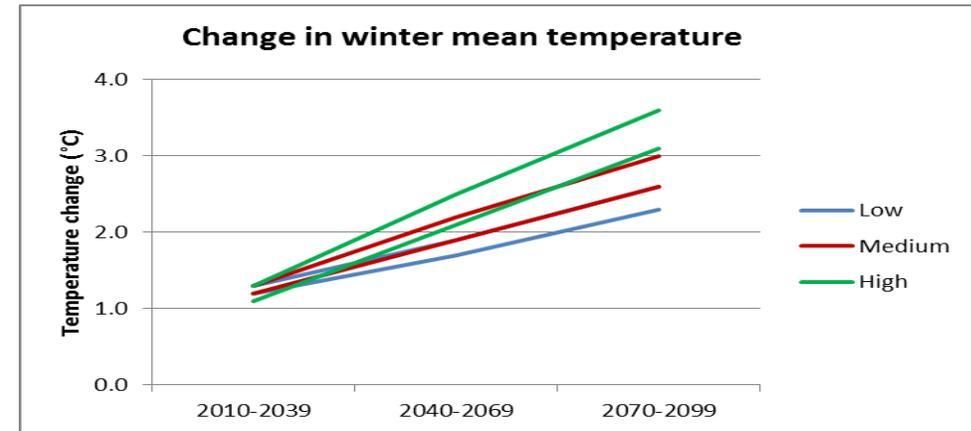
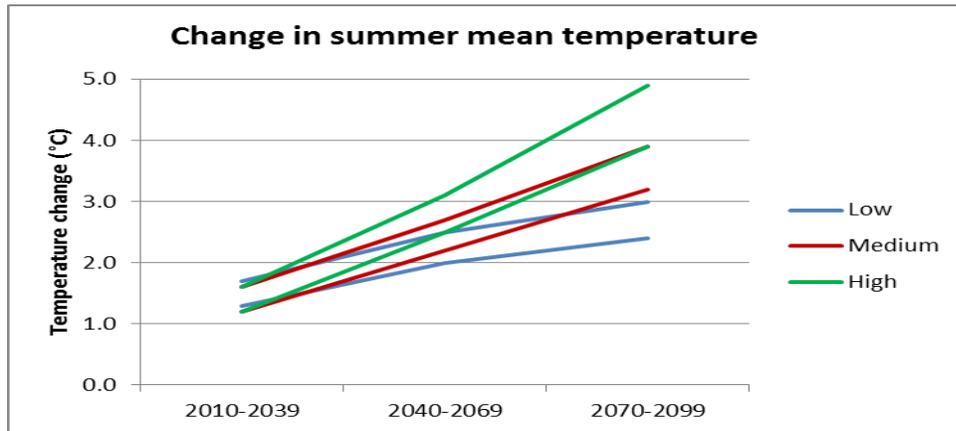
# What does this mean for our network?

Our reports outline the main areas of risk to our network, including:

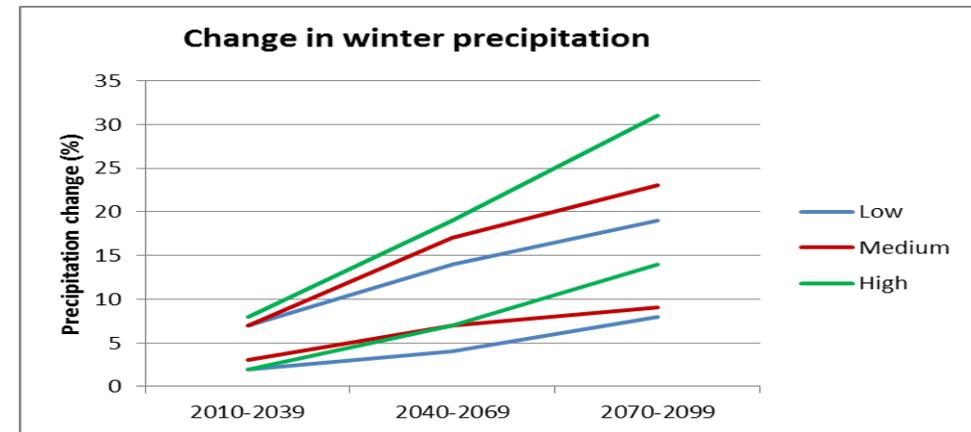
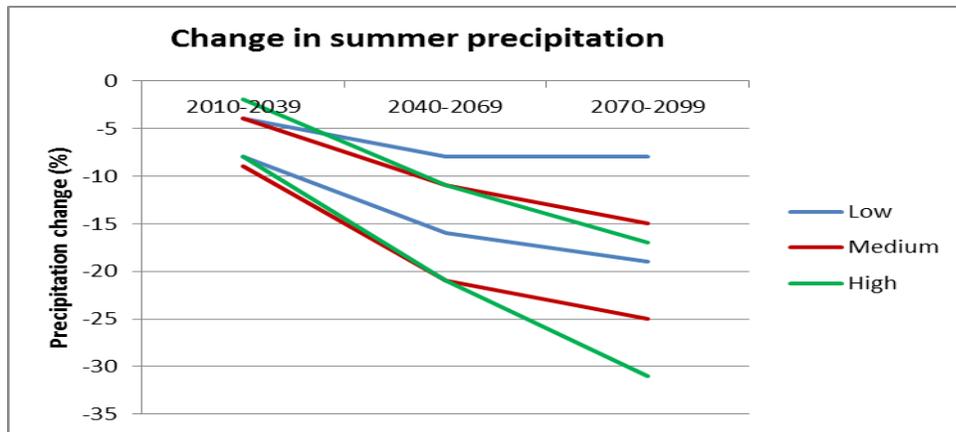
- AR1 Overhead line conductors affected by temperature rise, reducing rating and ground clearance
- AR2 Overhead line structures affected by summer drought, through ground movement
- AR3 Overhead lines affected by interference from vegetation due to prolonged growing season
- AR4 Underground cable systems affected by increase in ground temperature, reducing ratings
- AR5 Damage to underground and overhead cables due to ground movement caused by more frequent droughts and rising temperatures
- **AR6 Substation and network earthing systems, AR7 transformers and AR9 switchgear adversely affected by rising temperatures**
- AR8 Overloading of transformers in urban heat islands due to increased use of air conditioning
- **AR10/AR11 Substations affected by river flooding due to increased winter rainfall and summer storms**
- **AR12 Substations affected by sea flooding and/or tidal surges**
- AR13 Overhead Lines and transformers affected by increased lightning activity



# What does this mean for us?



Warmer, drier summers; Warmer wetter winters!



# In summary

This stakeholder roundtable is your event

We want to stimulate and act as a catalyst so that we can answer the questions:

- How are you planning to respond to those issues and risks?
- How we at Northern Powergrid can work in partnership to ensure our adaptation plan supports the needs of other stakeholders?
- What are the interdependencies between Northern Powergrid's climate change adaptation plan and other organisations plans to ensure they meet current and future needs?



# Roundtables

**What is the nature of the issues and risks organisations face as part of their climate change adaptation strategy?**

**How are you planning to respond to those issues and risks?**

# Break



# Roundtables

**How can Northern Powergrid work in partnership to ensure our adaptation plan supports other's needs?**

**What are the interdependencies between Northern Powergrid's climate change adaptation plan and other organisations plans to ensure they meet current and future needs?**

# Summary and next steps

# Forthcoming Events

## **How do we build a smart energy system centred around the needs of our customers?**

- Join our roundtable as we bring together energy retailers and providers of energy services to initiate the sharing of the vision for the future of energy markets, their mechanisms, and their priorities. Wednesday 15th May, 09.30 – 13.00 at the Barbican Centre, London

## **Annual Stakeholder Summit**

- Friday 29th November at Cloth Hall Court, Leeds

**Thank you**