

Electricity
Transmission

Resilient Future

Neil Carter CEng MIET
Electricity Transmission
Future Strategy Manager

LCNI Conference 16th October 2018

nationalgrid





Reliability is not resilience

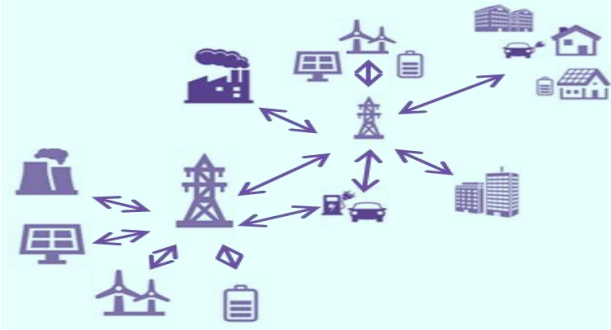


A reliable system is not necessarily a resilient system. FERC defines resilience to be: -

“The ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such events”.

FERC (2018) [Grid Reliability and Resilience Pricing](#) (Document No. RM18-1-000)

Why are resilience needs changing?



Changing Complexity and Interdependency in Networks

Today's networks depend heavily on each other - electricity & communications are a common dependency for most. This places them at the heart of the resilience debate.



Changing Technology and Networks

Today's society and businesses rely on availability of electricity for communication/broadband, lighting heating/cooling, cooking and power for integrated technology.



Increased Importance of Metropolitan centres

Today's society and business are gravitating towards large metropolitan centres. These centres often contain the new high-tech, service, financial and retail industries that drive the economy.



Threats are also changing



Today's electricity system is under greater threat than ever, whether from

- *climate change or*
- *malicious cyber attacks or*
- *physical threats;*

all at a time of growing political instability across the world.





We mitigate and respond today



Flooding



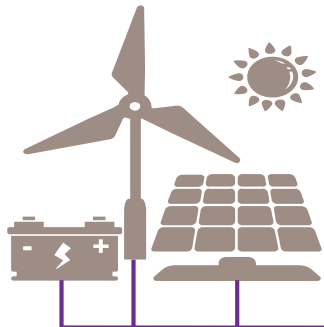
Physical



Cyber



Will society and business expect a more resilient future?





Future resilience events of note



- **National Grid Electricity Transmission Resilience Workshop**
Tuesday 23 October 2018
CCT Venues, Canary Wharf, London
 - *Should you wish to attend please contact gary.stokes@nationalgrid.com*
- **Energy Research Partnership (ERP)**
Wider industry report into the
Resilience of the UK Electricity System
 - *For further information contact Peter.Jones@es.catapult.org.uk*

national**grid**