Electricity Transmission

Managing Electricity Transmission Network Reliability Webinar

26 March 2019

Question and Answers

1. Are these the only parameters used to represent reliability?

We believe that the 3 measures presented give a broad representation of reliability, but we do also recognise that there are a whole host of parameters which could be used to represent reliability. Measures associated with the aspects of the performance triangle such as number of defects, amount of planned work complete, can in some circumstances provide more detail and clarity around the broad reliability measures proposed and we will use these to illuminate performance as appropriate.

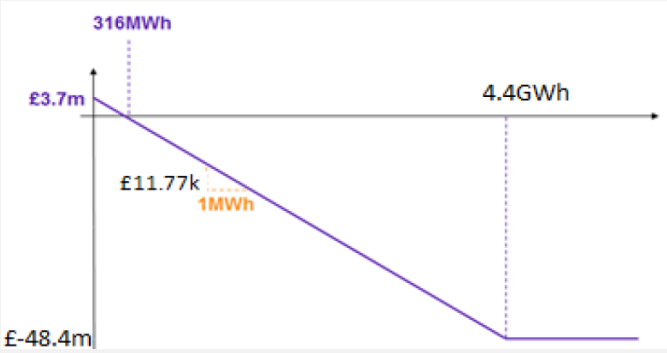
2. Dear Presenters, I will be really interested in getting some more details on the reliability metrics that you use (beyond the ones presented here). Is there any online report or a link that I can read/get more information? Thank you in advance for your response

There are more details of the metrics in our reliability pre-read material. The 99.999984% reliability statistic is published in the ESO Transmission System Performance report.

We do not routinely publish other metrics in the public domain. The RIIO Electricity Transmission Annual Report 2017-18 gives a broad view on the performance of the GB Transmission companies.

3. What are some specific examples of processes/actions in place to reduce ENS? NGET are already funded for maintenance and replacement in their allowed revenue, so is there potential double funding with the ENS incentive?

There is no potential for double funding as there is a zero point in the ENS incentive. If our long term reliability strategy coupled with effective short term management actions (such as optimising outage coordination) lead to improved performance for customers then we are rewarded for that, however we are penalised if performance is below expected levels. This is also an asymmetric incentive: the maximum possible annual benefit to National Grid Electricity Transmission is £3.7m while the maximum possible loss is c. £48m.



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4. For the measurements, you take from various condition monitoring equipment, do you ensure traceability and provide an uncertainty in order that you can provide an uncertainty budget around any predictions made using the data?

Traceability of condition monitoring measurements is achieved via the systems and processes that we have in place. All monitoring data is recorded in a small number of central system in a structured manner allowing for detailed analysis.

Uncertainty errors in measurements and readings are understood and considered as part of our strategy for condition monitoring.

5. The investment in condition monitoring such as PD monitoring can reduce the number of equipment failure and maintenance. How feasible-in terms of investment- is the use of these technologies against increased reliability?

Investment in condition monitoring helps us better understand the underlying asset condition and respond quickly to changes to expected deterioration. This doesn't necessarily result in a direct reduction in equipment failure and maintenance as any condition monitoring needs to be considered against the failure mode we are trying to mitigate against. Investing in both this technology and understanding the impact contributes to reliability.

6. Do you think energy storage can be used to increase reliability? If so, should National Grid be allowed own and operate energy storage plants?

Battery storage has been classed as generation by OFGEM, as such they are delivered into the market. For the SO/TO to gain access we would need to contract services on a commercial basis as we do with other ancillary services.

7. Are you starting to use any innovation from RIIOT1 to improve reliability?

Yes – detail on our innovation programmes can be found here.

8. How the health metrics (indices) inform your reliability calculations?

Health metrics are used in our current NOMs methodology to determine Replacement Priorities of our lead assets. These metrics will be replaced by a probability of failure in the NARMs methodology but the same underlying information about the assets to determine health metrics is used. The forecast of the health indices in RIIO-T1, with the associated asset criticality, to give Network Risk is one of the broad representation measures of reliability.

***9.* Does high integration of renewable power generation change asset management practices?**

Renewable generation is considered as part of our wider asset management approach but is not currently driving any changes to our approach.

10. Has there been a steady improvement of managing/asset investment to reduce reliability on NGET's network throughout the years? (eg reliability performance now vs. 1990s)

A key indicator of impact of overall network reliability on customers is Energy Not Supplied (ENS) and this has shown a relative reducing trend over the last 18 years, both in terms of the volume of energy not supplied and the number of faults and incidents that could have led to a loss of supply.