

DELIVERING ENHANCED MANAGEMENT OF ELECTRICITY LOSSES



NORTHERN POWERGRID CONSULTATION ON FUTURE PROOFING LOSSES PLANS

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Respond to: losses@northernpowergrid.com

www.northernpowergrid.com



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Summary

Northern Powergrid is committed to managing losses in a cost effective manner. As part of our 2016 Losses Discretionary reward submission “Delivering enhanced understanding of electricity losses” we said we were going to utilise stakeholder engagement to inform our losses management actions. This consultation forms part of this overall commitment and will help us to verify our losses management actions going forward.

Due to the fast paced changes to the external environment in which we operate, we are keen to gain the insight of our stakeholders into our losses strategy and associated management plans.

This consultation is seeking our stakeholders’ views on how losses should be managed within Northern Powergrid. As a recipient of this consultation we recognise you to be an interested party who has a basic understanding of both technical and non-technical losses.

We would ask you to review this document and feed back to us your views by answering the questions we have posed. The closing date for responses is 29th December 2017. Interested stakeholders will then be invited to take part in an online expert forum, where they will have the opportunity to explore the issues identified further and help to shape any necessary improvements or outcomes.

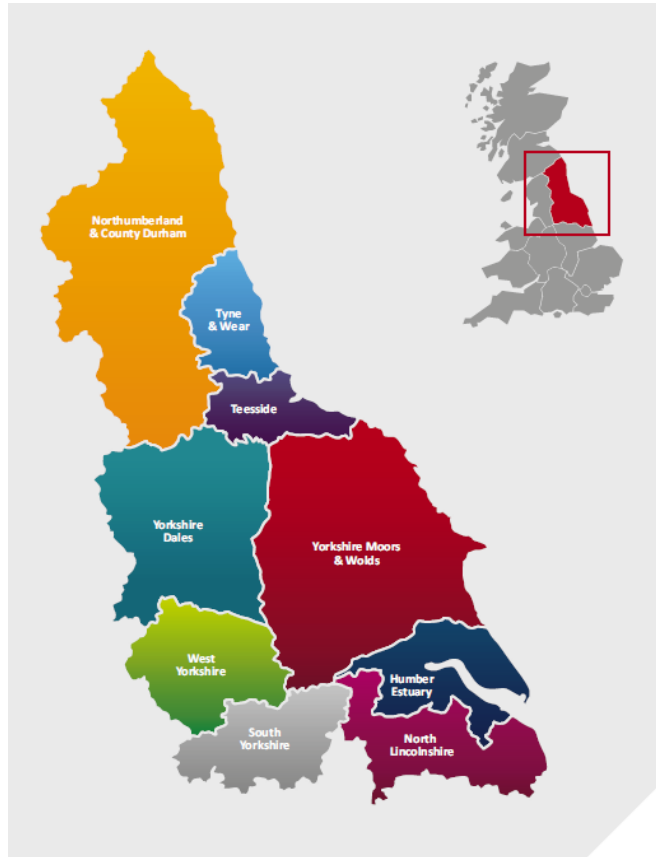
Following the close of the consultation and subsequent forum discussion we will review your comments and understand better the issues identified. We will report back on the views raised and propose any necessary improvements to our existing plans.

Who we are and what we do

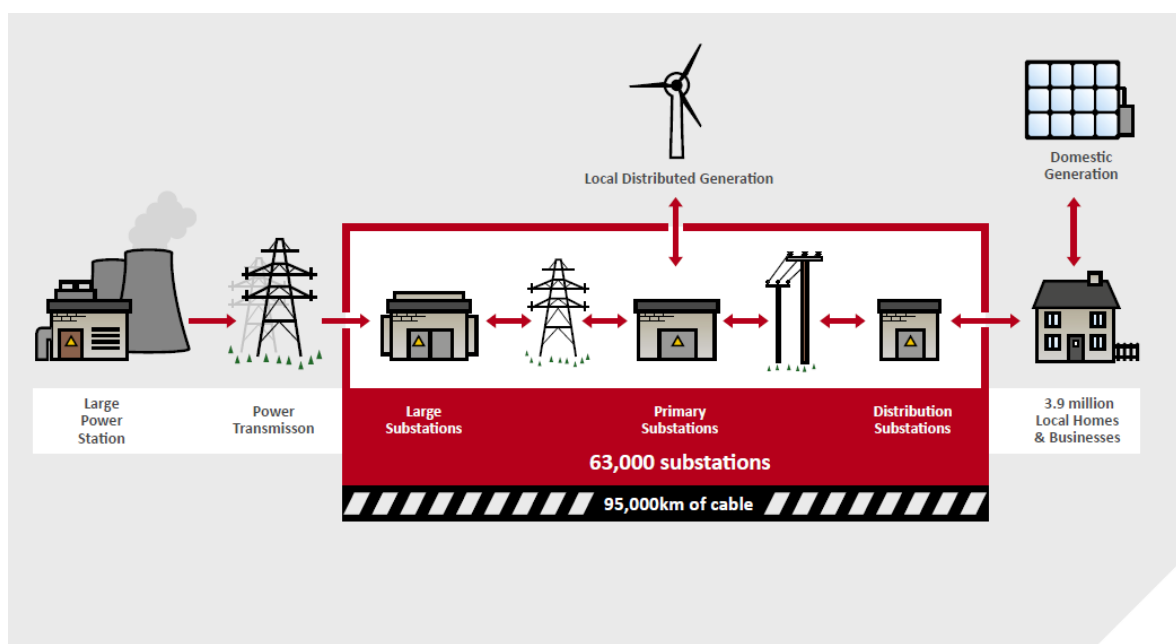
Northern Powergrid delivers electricity to 3.9 million homes and businesses in the Northeast, Yorkshire and north Lincolnshire, taking power from the national transmission network and distributing it through our regional network, comprising more than 63,000 substations and 94,000 kilometres of overhead lines and underground cables, to 8 million customers throughout the region.

We don't generate electricity, neither do we sell electricity.

Keeping our electricity network running safely, reliably and efficiently is our priority and we operate 24 hours a day, 365 days a year – no matter what the circumstances.



We are responsible for the connection of customers' premises to our electricity network. We also facilitate the export of locally-generated electricity. We operate as one company but are regulated by the energy regulator, Ofgem, as two licensed businesses; Northern Powergrid (Northeast) Ltd and Northern Powergrid (Yorkshire) plc.



Northern Powergrid's approach to energy system losses

No system can be 100% efficient and electricity networks are no different. The losses on an electricity network are made up of fixed losses, variable load losses and also theft from the network. Northern Powergrid naturally seek to minimise losses where it is economic to do so.

Making decisions which change network losses in isolation from other aspects of technical and economic performance is seldom achievable. The electricity system is complex and different parameters are interrelated within a given network and across network and operator boundaries. Losses on distribution networks are a major component of the overall losses within the UK's energy system but because of this whole system interrelationship Northern Powergrid recognises that management of losses should not just be limited to consideration of its distribution network but should involve a system wide perspective, taking into account actors in the rest of the electricity network.

This is important because the transition to a low carbon economy involving the electrification of transport and heat has the potential to increase system losses as network equipment is more highly utilised. Any such increase needs to be weighed against the carbon reduction benefit arising from this transition. The move towards a distribution system operator role may offer market based and smarter solution based opportunities to manage losses, and will be facilitated by better losses visibility and more potential for losses control, for example maximizing the ability of zero-carbon generators to dispatch. Such solutions themselves may involve local increases in losses but again deliver a net carbon reduction benefit. Conversely a smarter flexible energy system with large amounts of distributed generation offers the prospect to actively manage power flow to minimise the need to move power over long distances. Whole system thinking will be important so that overall benefits maximised and costs minimised across the energy system. Northern Powergrid believes losses management is not only about reducing losses, but also includes taking account of the financial and carbon cost of losses to our customers being factored into any new and smarter solutions, be they technical or market based. In this fast changing environment, Northern Powergrid has adopted an approach of fully integrating this whole system understanding of losses within all its Asset Management decision making and planning processes.

Against a backdrop of increased consumption and complexity, Northern Powergrid defines its losses philosophy as “a whole system approach that ensures network decisions are made using techno-economic analysis so that losses are appropriately valued to provide best aggregate benefit to customers in carbon reduction as well as economic terms.”

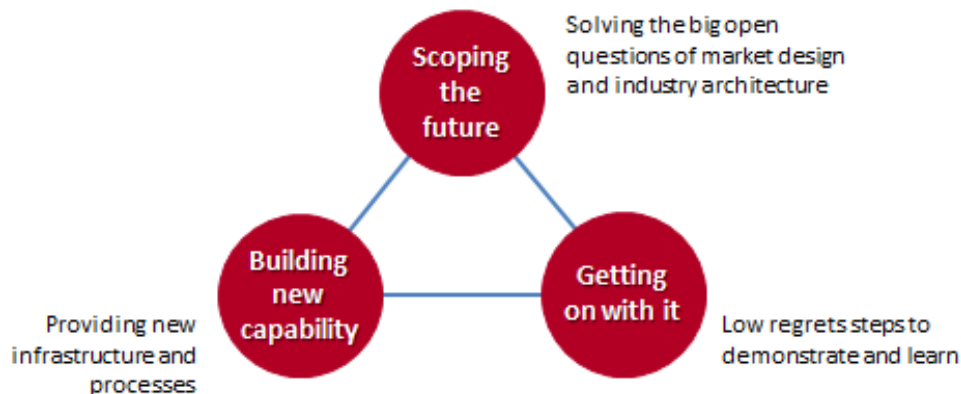
The future of losses at Northern Powergrid

Electrical losses occur when energy is transferred across electrical networks, the magnitude of which defines the total network efficiency. Losses are well understood process and the economic reduction of losses is embedded within Northern Powergrid historical and existing design codes and procurement policies.

The picture for losses going forward is mixed. However the future predicted changes in the nature of electrical demand, primarily through Low carbon technologies (LCTs), are likely to lead to increased network losses but an overall carbon reduction for the economy. Furthermore as the cost of wholesale energy and price of carbon are factored into loss reduction cost benefit analysis, there is a greater incentive to reduce losses than would otherwise be the case. As the uptake magnitude and profile is very uncertain our existing losses strategy is built on least regrets decisions that will be viable in most common load growth scenarios.

The transition to DSO may present more opportunities to both understand and control losses. Some of the projects such as our Customer Led Network Revolution project have already proven this. However, there is likely to be further developments in this area which we are keen on exploring.

Losses fits in with our vision of how we will transition to a DSO as we scope the future (primarily through our losses discretionary reward submissions); get on with it (through our losses strategy) and build new capability (through our smart grid implementation unit).



Why are we consulting with you?

We recognise you as an interested party with regards to losses in the Northern Powergrid network.

We have already published our updated losses strategy¹ which has included optimising losses on new items of equipment, new sizing guidance of equipment and optimising running arrangements for our network. With regards to our losses discretion reward submission “Delivering enhanced understanding of electricity losses”², we have begun a programme of activities to better quantify model and target losses and at the same time instil progressive losses thinking within and outside of our business.

We want to make sure we’ve not overlooked anything or have under-estimated future network opportunities. Therefore we want to make sure that we continue to engage with our stakeholders to understand how their views on these issues are changing with time, and as a result of the work already undertaken so that we can ensure we continue to meet our customers’ needs.

This consultation allows you the opportunity to have your say about how Northern Powergrid are managing losses and what you would like to see us do more of or do differently in the future.

Who is likely to have an interest?

This consultation will primarily be of interest to engineers, academics, our large customers and consultants. However, the issues covered are also likely to be of interest to community energy groups and also some of our general customer base.

What are we consulting on?

General comments on our strategy for losses

We would like to understand your views on our strategy for losses. In your view are Northern Powergrid targeting the right areas and are there any areas we have missed?

General comments on our losses discretionary reward submission

We would like to understand your views on our losses discretionary reward document “Delivering enhanced understanding of electricity losses”. In your view are Northern Powergrid targeting the right areas and are there any areas we have missed?

¹ Strategy for losses V2.0 <http://www.northernpowergrid.com/asset/0/document/3869.pdf>

² ‘Losses Discretionary reward submission <http://www.northernpowergrid.com/asset/0/document/2180.pdf>

Market based services to reduce losses

Have you any ideas for market based services which may be used to reduce losses that we should be facilitating? For example there could be a market in the future to use a distributed generator's ability to change its import or export of reactive power to reduce losses on the distribution network.

Your response

We would like to hear the views of interested parties about the issues discussed in this consultation. When formulating your response please consider your experience and what Northern Powergrid can do to address any issues you have identified. We would especially welcome responses to the specific questions that follow; a word doc. template is provided to make it easier for you to respond.

Responses should be sent, preferably by email, by 29 December 2017 to
losses@northernpowergrid.com

Next steps: Following the close of the open consultation on 29 December 2017, we will consider all responses and invite interested stakeholders to take part in an online expert forum in the New Year. The feedback we receive will be used to inform any future actions or improvements we deem necessary to address losses in the Northern Powergrid region.

If you have any questions on this document or the online forum please contact:

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Northern Powergrid

Consultation on future proofing our losses plans

Name:			
Organisation:			
Contact details:			
Can we contact you to discuss your response?	Yes ☐	No ☐	
Would you be interested in joining our online expert losses forum?	Yes ☐	No ☐	

Question 1: General comments on our [strategy for losses](#)

Are we concentrating on the right things? Have we missed anything?

Your response:

Question 2: General comments on our losses discretionary reward submission
Are we concentrating on the right things? Have we missed anything?
Your response:

Question 3. Market based services to reduce losses
Have you any ideas for market based services which may be used to reduce losses that we should be facilitating?
Your response: