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# RIIO-ED1: Losses Discretionary Reward Decision for tranche one, 2016

## Final decision

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**Overview:**

In May 2016, we consulted on submissions made by the Distribution Network Operators (DNOs) for the first tranche of the Losses Discretionary Reward (LDR). The LDR was introduced to encourage and incentivise DNOs to undertake additional actions to better understand and manage electrical losses.

Up to £8 million was available to the DNOs under this reward in 2016/17. We have decided to award £3.8 million in total across the six DNOs. This document sets out our assessment process and reasons for our decision.

# Context

Electricity losses are an inevitable consequence of transferring energy across electricity networks. They have a significant financial and environmental impact on consumers. Managing them effectively can protect consumers from unnecessary electricity distribution costs.

Distribution Network Operators (DNOs) do not pay for electricity lost on their network and therefore have no inherent incentive to manage losses efficiently. As part of the RIIO-ED1 price control, we implemented a losses management mechanism to ensure that DNOs focus appropriately on activities to manage losses. A core component of this is the licence condition which requires DNOs to manage losses to as low as reasonably practicable on their distribution network. In doing so, DNOs are required to act in accordance with their published Distribution Losses Strategy[1], another component of the mechanism, which they must maintain and keep under review. The final component is the Losses Discretionary Reward (LDR).

The first tranche of the LDR rewards DNOs that significantly shift expectations of what they are capable of doing to manage losses. It is not intended to reward DNOs for activities associated with their Distribution Losses Strategy. The second and third tranches are in 2018/19 and 2020/21 respectively.

[1] These are available on each DNO's website.

# Contents

# Executive Summary

The Losses Discretionary Reward (LDR) is worth up to £32 million across all Distribution Network Operators (DNOs) spread over three tranches during the eight years of the RIIO-ED1 price control. Tranche one is predominantly forward-looking. It focuses on the processes the DNOs have, or will, put in place to both better understand losses and to significantly shift expectations of what they are capable of doing to manage losses.

We received six submissions for tranche one of the LDR, one from each DNO group. We assessed the submissions against the four criteria in the LDR Guidance Document[2] covering: understanding of losses; stakeholder engagement; processes to manage losses; and innovative approaches to losses management.

In general, we consider that the submissions show that the DNOs are predominately taking the kind of actions which the LDR is intended to foster. The submissions suggest increasing leadership and drive from DNOs in both understanding their losses and acting to manage them. Of the £8 million reward available under tranche one of the LDR, we have decided to award a total of £3.8 million. We consider the DNOs to have met the minimum requirements across all criteria.

We have not, however, awarded any of the DNOs the maximum individual reward of £1.3 million, as we do not consider any of them to have excelled across all criteria. There are some common areas across all criteria where most DNOs lacked strong evidence such as: working collaboratively with other DNOs; linking their proposals to the development of a RIIO-ED2 losses incentive mechanism; being clear in their plan to use smart meter data to manage losses; considering non-technical losses; and quantifying the potential materiality of their proposals on their network losses.

After considering the submissions, we have decided to reward the DNOs as per the allocations here. The DNOs are ranked in order of reward.

**Table 1 Reward allocated for tranche one of the LDR**

| DNO | Reward | Percentage of maximum reward |
|---|---|---|
| UK Power Networks | £945,000 | 71% |
| Scottish and Southern Energy | £910,000 | 68% |
| Scottish Power Energy Networks | £770,000 | 58% |
| Electricity North West | £695,000 | 52% |
| Northern Powergrid | £350,000 | 26% |
| Western Power Distribution | £160,000 | 12% |
| **TOTAL** | **£3,830,000** | **48%** |

This document explains how we assessed the LDR submissions, the reasons for our decision on the level of reward and the next steps in the LDR process.

[2] Losses Discretionary Reward Guidance

# 1. Overview

**Chapter Summary**

This chapter sets out how we assessed the LDR submissions.

## Background

1.1. The Losses Discretionary Reward (LDR) aims to incentivise Distribution Network Operators (DNOs) to undertake additional actions (over and above meeting their losses licence obligation[3]) to better understand and manage electricity losses. The reward is worth up to £32 million across all DNOs and is spread unevenly over three tranches over the eight years of the RIIO-ED1 price control. The reward is discretionary and therefore we[4] may decide that it is not appropriate to award any, or all, of the available funds. The LDR Guidance Document[5] explains the main areas of assessment for each tranche and details the process for tranche one.

1.2. The assessment focus in tranche one is on the processes and methods DNOs are exploring and implementing to understand and ultimately better manage the losses on their networks. The LDR does not reward DNOs for simply listing the processes they are following through their Distribution Losses Strategies. DNOs need to show evidence of how these processes and methods may be enabling (or have already enabled) them to significantly shift the expectations of what they are capable of doing to manage losses.

1.3. On 31 January 2016, we received six submissions for the LDR, one from each DNO group.

## Our assessment process

1.4. In tranche one, we reviewed the DNOs' submissions against the following criteria:

1. Understanding of losses
2. Effective engagement and sharing of best practice with stakeholders on losses
3. Processes to manage losses
4. Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual (BAU) activities.

[3] Standard Licence Condition 49 of the Electricity Distribution Licence, which requires DNOs to manage losses to as low as reasonably practicable on their distribution network. In doing so, DNOs are required to act in accordance with their published Distribution Losses Strategy.
[4] The "Authority", "Ofgem", "we" and "our" are used interchangeably in this document. The Office of Gas and Electricity Markets (Ofgem) supports the Gas and Electricity Markets Authority (GEMA) in its day to day work.
[5] Losses Discretionary Reward Guidance

1.5. The four criteria[6] had equal weighting and each submission had to provide enough evidence under each criterion to be considered for the reward.

1.6. Following our initial assessment against the criteria, we asked each of the DNOs supplementary questions over a four-week question and answer (Q&A) period to clarify aspects of their submissions. We then published the submissions alongside the Q&A responses and invited views from various stakeholders in a 28-day consultation[7]. We received three responses to the consultation and a summary of them is in Appendix 1.

1.7. Chapter 2 sets out our decision and the reasons for it. This is a high level view of the submissions including examples of what we consider to be the strengths and weaknesses of the submissions generally. Appendices 2 to 7 give more detail on our views on each DNO's performance under each assessment criterion. Chapter 3 provides an overview of the next steps in the LDR process.

[6] Please see Losses Discretionary Reward Guidance for the detailed sub-criteria.
[7] https://www.ofgem.gov.uk/publications-and-updates/consultation-losses-discretionary-reward-submissions-tranche-1

# 2. Our Decision

**Chapter Summary**

This chapter sets out the reasons for our decision on the level of reward.

## Overall observations

2.1. We consider that the submissions show that the DNOs are predominately taking the kind of actions which the LDR is intended to encourage and are generally making decisions based on data analysis. The submissions suggest increasing leadership and drive from DNOs to understand and take actions to manage losses.

2.2. Table 2 highlights areas across the criteria that, in general, we think the DNOs performed well in. Some of the submissions were stronger than others in each area and some examples from the submissions are presented in the table.

**Table 2 Areas of all submissions we considered strong**

| Area | Expectations and Analysis |
|---|---|
| Modelling | All of the submissions had evidence of some form of enhanced losses modelling, such as using improved network data from smart meters to map hotspots. In addition, most DNOs set out how they intend to develop their Cost Benefit Analysis (CBA) of losses initiatives to assess which of these should be progressed and incorporated into BAU. |
| Enhanced stakeholder engagement | All of the submissions showed some efforts to increase and improve stakeholder engagement. There were a number of noteworthy ideas proposed by the DNOs such as Scottish and Southern Energy's (SSE) Losses Competition; dedicated losses websites by Electricity North West (ENWL), Northern Powergrid (NPg) and UK Power Networks (UKPN); and the involvement of all DNOs in new collaborative Energy Networks Association (ENA) losses-specific working groups. |
| Leveraging research | To some extent, all submissions discussed leveraging industry research in losses management such as the Sohn Associates[8] report. |

[8] Imperial College London & Sohn Associates Management of electricity distribution network losses

2.3. Although each submission passed the minimum criteria to be eligible for the reward, we don't think any of them excelled across all criteria. Table 3 highlights the areas across the criteria that, in general, we consider weak in the majority of submissions. Some of the submissions didn't cover these areas at all, while other DNOs touched on them but lacked specific detail, particularly in justifying how processes presented were shifting expectations of what DNOs are capable of doing to manage losses.

**Table 3 Areas of all submissions we considered weak**

| Area | Expectations and Analysis |
|---|---|
| Lack of collaboration | Although all DNOs noted some form of enhanced losses modelling, which we encourage, it was unclear whether any of them were working together to avoid duplication. Some degree of common modelling is likely to become more important, not only to ensure common approaches do not diverge over time but also as we look towards the role of modelling in a losses incentive for RIIO-ED2. All submissions did note an intention for collaboration between DNOs but we considered that there was a lack of clear evidence of collaboration to date. |
| RIIO-ED2 losses incentive mechanism | Only two DNOs (ENWL and NPg) briefly mentioned how processes presented in their submission can contribute to the development of a RIIO-ED2 losses incentive mechanism. Although the LDR Guidance Document didn't explicitly ask for it, we expected DNOs to be looking ahead to the next price control and demonstrating how the processes and methods they presented in tranche one could contribute towards a RIIO-ED2 losses incentive mechanism. |
| Smart meter data | We expected the submissions to give more detail of how the DNOs plan to use smart meter data to manage losses. From the submissions, it appears that most DNOs have a 'wait and see' approach. We don't consider that all submissions outlined detailed processes that they will employ to use smart meter data. The submissions don't give a clear picture of what the DNOs expect to gain from smart meter data in terms of specific actions to manage losses. Furthermore, timelines for their development of processes were unclear. We expect that by the time the smart meter rollout is complete, the DNOs will be close to having robust processes in place to manage and understand this data. |

| | |
|---|---|
| Non-technical losses | We think that tranche one sets an expectation that DNOs should be considering processes to manage both technical and non-technical losses. Only three of the DNOs covered non-technical losses within their submissions: ENWL, SSE and Scottish Power Energy Networks (SPEN). |
| Materiality | Some DNOs (SSE, SPEN and UK Power Networks (UKPN)) cited figures of total network losses in the range of 5-9% but no submissions attempted to quantify the potential materiality of their proposals on their network losses. We expect DNOs to be considering what the lowest feasible level of losses is for the network, while also taking a whole system view and considering the wider network impacts. |

## Company-specific observations

2.4. In addition to the overall points highlighted in the table above, we consider that the DNOs' submissions varied in quality.

2.5. We thought UKPN's and SSE's submissions were strongest. The submission from UKPN stood out due to its technical detail, new innovative commitments such as the losses website, strong losses assessment modelling and by being the only submission to have gone some way towards thinking of losses from a Distribution System Operator (DSO) perspective. This involves considering losses when taking a system-wide view and actively making decisions about system design, planning, control and operation. SSE's submission was strong in its modelling, its establishment of dedicated Losses Teams, its quantification of the current losses on its network and its proposals under collaboration and stakeholder engagement, with the innovative idea of a Losses Competition. However, neither of these submissions achieved the maximum reward due to their performance in the areas set out in Table 3. Specifically, these submissions contained limited evidence of collaboration and a lack of focus on a RIIO-ED2 losses incentive.

2.6. We consider that the submissions from ENWL and SPEN presented some good processes but lacked the detail required to achieve a higher reward. SPEN set out a number of relevant initiatives covering modelling, the use of smart meter data, collaboration and innovation, but could have provided more coherent evidence for each criterion due, in part, to the layout of its submission. ENWL's submission outlined some positive behaviours and theory, had a strong focus on non-technical losses and was the only submission to include consideration of a RIIO-ED2 losses incentive mechanism. However, its submission lacked evidence of specific processes and links between its work and the impact on losses. For example, we consider there

was a lack of clear information on how it will work towards developing the RIIO-ED2 mechanism, building on the WS6 report[9].

2.7. We consider that the submissions from NPg and WPD met the basic criteria but didn't provide strong enough evidence of shifting expectations. WPD's submission lacked detail and although it has completed useful work as detailed in the Sohn Associates report and its work with Manx Utilities, it didn't outline process steps or a timeline to take this forward. As an example, its table on the 26 recommendations from its work with Sohn Associates shows the current status it has assigned to each issue but provides no narrative around the process for how and when these may be considered in the future. NPg's submission was clear but with little detail on what it intends to do and what results it expects. For example, it presented good innovative approaches for losses management in Criterion 4, but did not give detail on how it will explore the approaches, how it would implement the initiative into BAU and what it expects the impact to be on network losses. However, NPg's submission did note that its enhanced losses forecasting model could be used for RIIO-ED2 and it was the only submission to note the cultural shift required to incorporate losses management activities into BAU.

2.8. Appendices 2 to 7 provide more detail on some of the strengths and weaknesses of each DNO's submission, setting out our views on their performance under each assessment criterion.

## Reward allocation

2.9. After reviewing the submissions, we have decided to reward DNOs a total of £3.8 million for tranche one, which equates to 48% of the total £8 million available. Table 1 sets out the value of the LDR by DNO group.

2.10. We have allocated a reward for every submission due to each DNO having met the minimum criteria. We do not, however, consider that any of the DNOs substantially excelled across all of the criteria. The differing level of reward for each DNO group highlights our view that the submissions vary in quality and in strengths and weaknesses.

**Table 1 Reward allocated for tranche one of the LDR**

| DNO | Reward | Percentage of maximum reward |
|---|---|---|
| UKPN | £945,000 | 71% |
| SSE | £910,000 | 68% |
| SPEN | £770,000 | 58% |
| ENWL | £695,000 | 52% |
| NPg | £350,000 | 26% |
| WPD | £160,000 | 12% |
| **TOTAL** | **£3,830,000** | **48%** |

[9] The customer-focused smart grid: Next steps for regulatory policy and commercial issues in GB, Report of Workstream Six of the Smart Grid Forum, 2015

# 3. Next Steps

This chapter sets out the next steps in the LDR process.

## Future tranches

3.1. We look forward to seeing how some of the activities proposed by the DNOs in tranche one are incorporated into future iterations of the DNOs' Distribution Losses Strategies. We also look forward to seeing more collaboration between DNOs as they work towards tranches two and three.

3.2. Tranche two of the LDR is in 2018-2019. We intend to engage with DNOs and other interested parties in developing criteria for this next tranche and will publish a formal consultation on our guidance in spring 2017. We intend to implement the tranche two guidance late in 2017.

3.3. In line with the LDR Guidance Document, our indicative view is that tranche two will focus on specific actions undertaken by DNOs to manage losses and concurrent improvements in understanding. While tranche one took a forward look and focused on processes, tranche two will require some element of demonstrating tangible evidence of what the DNO has delivered with regards to managing losses. We expect that similar themes to those areas set out in Tables 2 and 3 of this document will be part of our expectations for tranche two.

3.4. We expect that submissions for tranche two will provide thorough yet concise evidence for each criterion in order to achieve a reward. Unlike tranche one, we don't expect to reward submissions which have just passed the criteria by providing minimum evidence.

## Determination of tranche one reward per licensee

3.5. The value of the reward by DNO group has been distributed equally across each of the DNO's licensees and included in Table 4.

3.6. The values in Table 4 are the $LDRO_{t-1}$ values determined by the Authority as part of its requirements under the LDR licence condition[10]. The money rewarded to the DNO licensees in LDR tranche one will be added to their Allowed Distribution Network Revenue ($AR_t$) for 2017/18.

[10] Charge Restriction Condition 2G of the Electricity Distribution Licence

**Table 4 Reward per licensee allocated for tranche one of the LDR**

| DNO | Reward |
|---|---|
| London Power Networks plc (LPN) | £315,000 |
| South Eastern Power Networks plc (SPN) | £315,000 |
| Eastern Power Networks plc (EPN) | £315,000 |
| Scottish Hydro Electric Power Distribution plc (SSEH) | £455,000 |
| Southern Electric Power Distribution plc (SSES) | £455,000 |
| SP Distribution plc (SPD) | £385,000 |
| SP Manweb plc (SPMW) | £385,000 |
| Electricity North West Ltd (ENWL) | £695,000 |
| Northern Powergrid (Northeast) Ltd (NPgN) | £175,000 |
| Northern Powergrid (Yorkshire) plc (NPgY) | £175,000 |
| West Power Distribution (West Midlands) plc (WMID) | £40,000 |
| West Power Distribution (East Midlands) plc (EMID) | £40,000 |
| West Power Distribution (South Wales) plc (SWALES) | £40,000 |
| West Power Distribution (South West) plc (SWEST) | £40,000 |
| **TOTAL** | **£3,830,000** |

# Appendices

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# Appendix 1 - Consultation Responses

1.1. We received three responses to our consultation on the six LDR submissions. One response was confidential. The two non-confidential responses are published on our website.[11]

1.2. Two of the respondents welcomed the LDR. One respondent noted that they believe it will encourage the commitment of resources to drive a step change in losses reduction across the electricity networks. The other respondent welcomed how tranche one focuses on improved understanding of losses and the processes for managing them, which has provided an opportunity for wider impacts to be considered.

1.3. Another respondent noted that DNOs are making good progress against the tranche one objectives. They supported reducing losses on distribution systems provided that doing so does not increase overall costs for consumers elsewhere, and emphasised the need for collaboration.

**Shifting expectations**

1.4. One respondent noted that work is under way across the DNO community to develop processes that deliver a change in the measurement and management of losses. This is a significant step forward from the previous price control period. They pointed out that several of the DNOs described a move towards modelling of actual networks leading to improved identification of real losses.

**Collaboration**

1.5. All three respondents commented on collaboration. One noted that each submission recognises that there is considerable commonality across distribution networks and that collaboration is needed to develop an understanding of network losses. They noted that the DNOs need to work together and with other stakeholders to avoid implementing interventions and solutions that could lead to a sub-optimal outcome. Another respondent supported establishing the joint Technical Losses Task Group by the ENA. They noted that the group's aims are aligned with the strategies published by individual companies. The third respondent considered that all DNOs should receive a proportion of the LDR tranche one reward to ensure collaborative working is not undermined.

[11] https://www.ofgem.gov.uk/publications-and-updates/consultation-losses-discretionary-reward-submissions-tranche-1

**Smart meter data**

1.6. One respondent commented on the uncertainty surrounding the installation programme for smart meters. They noted that a number of the submissions recognise this uncertainty but demonstrate a commitment to work collaboratively to develop thinking and processes to use smart meters to the benefit of losses reduction.

**RIIO-ED2**

1.7. One respondent noted the limited evidence provided in the majority of the submissions relating to the development of a losses management incentive for the RIIO-ED2 price control. They considered that some DNOs do demonstrate a track record of thought leadership in this area and a commitment to continue work to deliver an appropriate mechanism.

**General points**

1.8. One respondent considered that the submissions were informative however they did not provide the level of detail to enable full assessment against LDR criteria.

# Appendix 2 – Electricity North West Limited

1.1. ENWL was rewarded £695,000 of the £1.3 million available. Its submission outlined sensible ideas and considerations, particularly with regard to its consideration of non-technical losses and a RIIO-ED2 losses incentive mechanism, but did not provide enough detail of process steps, timelines and expected impacts on losses.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of ENWL's submission.

**Criterion 1 – Understanding of losses**

1.3. ENWL highlighted the need to understand non-technical losses, which we expected from all submissions. The consideration of non-technical losses, in particular theft, was a recurring theme in ENWL's submission and we noted some good evidence of processes and timings for initiatives to manage non-technical losses.

1.4. ENWL provided detail on its Future Capacity Headroom (FCH) model, which allocates observed demand across the network companies. ENWL highlighted that the output of the FCH will bring forward benefits to consumers prior to the full rollout of smart meters. We consider this to be useful and forward-thinking. However, we note that the submission could have done more to explain the connection between the FCH model and the impact on the understanding of losses. ENWL stated that its approach is transferable to other DNOs, but doesn't provide strong evidence to show it is exploring processes to ensure network losses are considered holistically.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.5. ENWL intends to have a dedicated losses area on its website and for this to be a two-way communication medium between it and stakeholders. It said this will enable it to share its own best practice with relevant stakeholders and enable stakeholders to give their views. We welcome this as a way to encourage more stakeholder engagement.

1.6. ENWL stated that its approach to effective stakeholder engagement and sharing best practice recognises specific audiences. It gave a list of different stakeholders it intends to engage with and outlined considerations it will make when approaching stakeholder engagement. We think that ENWL's submission could have had more specific evidence of how its stakeholder engagement will inform its losses management actions and enable them to significantly shift the expectations of what DNOs are capable of doing to manage losses.

**Criterion 3 – Processes to manage losses**

1.7. ENWL included a useful and detailed appendix outlining a national and international review of losses. However, this review is not accompanied by clear processes for regular review or for ensuring it is embedded in its processes and methods for managing losses.

1.8. ENWL said it is working to ensure smart meter benefits are obtained as soon as possible. Although we considered ENWL could have provided more detail on its processes for utilising smart meter data, we noted its mention of using the benefits of smart meter data to work towards a potential RIIO-ED2 losses incentives mechanism. ENWL was one of the few DNOs to consider this area; however, more detail on the process that it will employ to drive forward this work and work with other DNOs to develop its ideas would have been beneficial.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.9. ENWL's innovative approaches to losses management focused on its real options cost benefit analysis (ROCBA) model (used to help inform investment plans) and tackling theft. ENWL stated its plans to test potential initiatives through 'the lens' of its ROCBA model. Yet it is unclear what innovative approaches are going to be gained from this analysis and how they can shift expectations of what DNOs are capable of doing to manage losses. Although we welcome ENWL's focus on non-technical losses, we don't think there is enough regarding technical innovative approaches in its submission.

# Appendix 3 – Northern Powergrid

1.1. NPg was rewarded £350,000 of the £1.3 million available. NPg's submission had a clear layout and raised some good points such as using its modelling for RIIO-ED2 and the social cost of losses. However, we consider that more detail could have been provided on expected processes including timelines and outcomes of its proposals. It was also unclear if any the proposals are being worked on now or if NPg is waiting for the outcome of LDR tranche one.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of NPg's submission.

**Criterion 1 – Understanding of losses**

1.3. NPg provided a list of proposed ideas that it intends to investigate to help it understand losses but it is unclear how the proposed ideas will contribute to this and whether these proposals are being considered now or in the future.

1.4. NPg proposed to explore whether there are any unforeseen consequences of loss reduction actions on other distribution networks or other stakeholders. This shows holistic thinking; however we consider this area to be lacking detail in how it intends to collaborate with other 'industry actors'.

1.5. NPg proposed an 'enhanced losses forecasting model' which will use various modelling tools. It notes that "this could form the basis for a losses measurement model to be used for RIIO-ED2". Although we welcome the consideration of RIIO-ED2, further explanation of exactly how this forecasting model might be used as a basis specifically for a RIIO-ED2 losses incentive mechanism would have been beneficial. By explaining this further, NPg could have argued how it is moving towards accurate measurement of losses and mechanistic assessment between DNOs, therefore showing how it is shifting expectations of what DNOs are capable of doing to manage losses.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.6. We welcome NPg's intention to engage its stakeholders, through written or verbal communication and also via an online community. While NPg's submission lacked specific detail on its proposed processes to encourage this dialogue, NPg did provide clarification in its Q&A. The Q&A suggested that the groups it intends to engage with are already in place and that the discussion of losses management will be supplementary to existing discussions. We remain unclear how these processes are shifting expectations of what DNOs are capable of doing to manage losses.

1.7. NPg mentioned that collaboration with DNOs will be a strong feature of its work plan. However, it is unclear what the collaboration with the DNOs will entail and

whether NPg is already collaborating with DNOs on losses or if it is only a plan for the future.

**Criterion 3 – Processes to manage losses**

1.8. A strength of NPg's submission was in the dedicated resource of two experienced design engineers who will consider the use of smart meter data to help develop policy and processes. We consider that NPg is making efforts to prepare for how smart meter data will affect it and its processes for managing losses. However, we would have liked further detail on timescales and on the specific processes it is developing, or intend to develop, and how this may enable NPg to significantly shift the expectations of what DNOs are capable of doing to manage losses.

1.9. NPg have noted various forums within the United States it will use to share best practice on losses management but it is unclear if NPg has a process in place to share this best practice among other DNOs. NPg also notes that it will continually monitor learning from other DNO projects, but don't outline processes to do this or to share its own findings with others.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.10. NPg was the only DNO that highlighted that when considering losses management initiatives for inclusion in business as usual (BAU), the social cost of losses should be included in any appraisals. However, it doesn't explain how to quantify and account for the social cost. It is also the only DNO to have explicitly recognised that a cultural shift is required to fully embed innovative approaches into BAU. We consider this a very useful point to raise, but would have liked more detail on what processes NPg intend to implement to do this.

1.11. NPg proposed innovative approaches, such as exploring opportunities to use energy storage as a method for losses reduction and exploring options for recycling heat losses. We found these interesting but thought that more detailed specific actions and timelines could have been provided.

# Appendix 4 – Scottish Power Energy Networks

1.1. SPEN was rewarded £770,000 of the £1.3 million available. The submission from SPEN provided a strong set of initiatives and included consideration of non-technical losses. However, more detail could have been provided on how the initiatives met the specific LDR criteria. In addition, the layout of the submission was difficult to navigate which, in parts, undermined its ability to set out coherent and persuasive answers to the criteria. The Q&A process was useful in clarifying where in the submission to find evidence for each criterion.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of SPEN's submission.

**Criterion 1 – Understanding of losses**

1.3. SPEN set out a number of initiatives covering modelling to better understand losses. These initiatives use: smart meter data; focus on both technical and non-technical losses; aim to map losses 'hotspots'; and take a holistic view of the whole system from a DSO perspective to improve understanding of the impact of power factor on losses. Although a strong set of initiatives are presented in both demonstrating understanding and working holistically, SPEN could have provided more detail on the process for how each initiative was intended to improve understanding and how it intends to take a whole-system view.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.4. A strength of SPEN's submission is in its commitment to working with a range of stakeholders, including the police, with regards to non-technical losses. Another strength in its submission was in its commitment to chairing the Technical Losses Working Group within the ENA. Through the Q&A process, SPEN outlined that this group was to be used as a framework for all DNOs to share best practice. However, we would have liked to have seen evidence of collaboration with other DNOs throughout its submission, and not only within the scope of this working group.

1.5. SPEN state that it has entered discussions relating to an 'Inter-Network Engagement working group', but SPEN do not give detail on the aims of the group, how it sees the process working or how this will ultimately shift expectations on what DNOs are capable of doing to manage losses. It is not clear if SPEN initiated the group or if this was a product of collaboration between DNOs.

**Criterion 3 – Processes to manage losses**

1.6. A weak area of SPEN's submission was looking at best practice when considering processes and methods to manage losses. SPEN stated that a best practice review is embedded in each initiative but there is not enough information on the specific processes for the continuous review and evaluation of best practice. SPEN could have provided a stronger case for this criterion.

1.7. SPEN's submission showed that it is preparing to use smart meter data. A strength of its submission was that smart meter data formed the foundation for several of its new losses-related initiatives, for example a proposal to couple smart meters with Geographical Information Systems to identify areas of the LV network with thermal constraints.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.8. SPEN provided quite strong evidence in this criterion with a number of innovative approaches including one initiative on non-technical losses, involving working with the police, and another initiative on technical losses, looking at the alternative use of waste heat from electrical losses in its substations. However, the strength of the evidence could have been improved with more detailed process steps and a simpler layout to help demonstrate how it met the criteria.

1.9. SPEN did not provide strong evidence of processes for incorporating its approaches into BAU. For example, it commented on how some of the initiatives provide the context for enabling innovative approaches to become BAU but don't cover some of the process steps we would expect such as timings, CBA and Options Appraisal.

# Appendix 5 – Scottish and Southern Energy

1.1. SSE was rewarded £910,000 of the £1.3 million available. SSE highlighted collaborative work with various stakeholders to better understand the impact it may have on neighbouring networks and have set out new initiatives such as the Losses Competition to foster innovative ideas for losses management and to provide a platform for the sharing of best practice. However, SSE could have provided more innovative approaches to both technical and non-technical losses management, which were clearly separate from previously funded projects.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of SSE's submission.

**Criterion 1 – Understanding of losses**

1.3. A strength of SSE's submission was in its structured, joined-up engagement with other DNOs and Transmission Operators (TOs) to better understand the impact of localised losses management on the interconnected networks. It noted that cross-network meetings have already taken place and set out the outcome. SSE noted the shift from an emphasis on improved understanding to putting processes in place to improve DNO interconnection with respect to losses management. We consider SSE to be working holistically to understand losses, which is a key part of this criterion. We also welcomed its establishment of an Internal Losses Steering Group chaired by its Director of Engineering and Investment.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.4. A strong part of SSE's submission was its establishment of a new Losses Competition at the Energy Innovation Centre Awards. The aim of the competition is to generate new ideas that go beyond the traditional losses reduction methods. We consider this initiative to be outside BAU and therefore shifting expectations of what the DNOs are capable of doing to manage losses. The competition will encourage engagement of various stakeholders and let new ideas be created. As other DNOs can input into the requirements process, unnecessary duplication is avoided and best practice can be shared. SSE's submission did not commit to sharing best practice from the Losses Competition with other DNOs, but the Q&A made this a clear commitment.

1.5. SSE noted its engagement with neighbouring DNOs and TOs to explore where closer cooperation has the potential to reduce losses. We welcome this collaborative approach.

**Criterion 3 – Processes to manage losses**

1.6. SSE has noted that it is in a position to exploit the maximum benefits from smart meter data. To help, it will look to build on its New Thames Valley Vision (NTVV) Low Carbon Networks Fund (LCNF) project by getting its new Losses Team to utilise data from the 300 smart meters in place to help inform its modelling and develop a better understanding of losses before the full smart meter rollout. The Q&A process clarified that this work in regards to losses is separate from the work already funded under the LCNF. SSE have presented a reasonably persuasive case that it is looking at processes to ensure that it is in a good position at the rollout to effectively use smart meter data to help manage losses on its network.

1.7. SSE includes a section on managing non-technical losses under this criterion, which is a strength of this submission. SSE is not, however, clear on how its processes may be enabling it to significantly shift the expectations of what DNOs are doing to manage losses. We would expect all DNOs to be taking similar actions to deal with theft, such as having a dedicated phone number, and receiving intelligence from local authorities.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.8. After following best practice from the water industry, SSE has established a dedicated Losses Team to 'provide a focus for our actions to reduce losses'. While it is not the only DNO to have a dedicated resource, it has set out clear processes for how the Losses Team will work and its deliverables. It sets out that this team is the process it has in place to incorporate innovative approaches into BAU.

1.9. For this criterion, SSE's submission identified areas in which it has previously considered losses, including projects which have been funded through the Network Innovation Allowance and LCNF. SSE's submission was not clear why an additional reward for these projects should be given under the LDR.

# Appendix 6 – UK Power Networks

1.1. UKPN was rewarded £945,000 of the £1.3 million available. We consider UKPN's submission to be consistently strong across all criteria. It proposed a dedicated losses website to engage with stakeholders, outlined a strong modelling proposal working with Imperial College London and noted a Distribution System Operator (DSO) perspective when considering innovative approaches to losses management. This involves considering losses when taking a system wide view and actively making decisions about system design, planning, control and operation. UKPN assert that this view is opposed to the traditional, passive DNO perspective. However, UKPN could have provided more evidence of collaboration with other DNOs.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of UKPN's submission.

**Criterion 1 – Understanding of losses**

1.3. A strength of UKPN's submission was in its work with Imperial College London on the development of a losses assessment modelling tool. This should enable UKPN to pinpoint losses hotspots across its network and help it identify key areas where it should use a losses reduction strategy. UKPN highlighted this modelling tool as a way to better understand losses. It also set out what it expects to gain from the model and why it thinks it will help improve its management of losses.

1.4. UKPN recognised the need for an agreed standard approach to assessing network losses and noted that it will collaborate with industry peers to create an agreed measurement approach. However we think that more detail could have been provided, outlining the process for collaborating with other DNOs.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.5. UKPN recognised that losses can be complex for those who do not have a technical background. UKPN outlined an intention to develop a specific area on its website which will focus on network losses, aiming to simplify communications in order to engage with a larger target audience. It outlined what the website will consist of and set out intentions to consult with stakeholders on the content to ensure it meets their needs. We consider that using this platform, UKPN can effectively engage and share best practice regarding losses with relevant stakeholders and a wider audience.

1.6. UKPN commented on the need for a holistic view of losses. It noted its engagement processes with its neighbouring DNOs and with National Grid. We welcome this approach as it aligns with the aims of the LDR tranche one. UKPN is considering losses holistically and collaborating with other DNOs to optimise inter-network cooperation to manage losses.

**Criterion 3 – Processes to manage losses**

1.7. By working with the International Utilities Working Group (IUWG), UKPN have begun developing a high-level international benchmarking method. From this work UKPN intend to develop a more detailed benchmarking programme for losses management. We welcome this; however, more detail on the work to be carried out with the IUWG and how this can shift expectations of what DNOs are capable of doing to manage losses could have been provided.

1.8. UKPN stated that it expects the full implementation of new IT systems to enable it to effectively use smart meter data. UKPN states it has access to data from 5,000 smart meters, and will combine this with existing and new IT to help with its understanding of losses on the networks. Because of this we consider that UKPN will have the processes in place to manage losses when smart meters are rolled out. However it is unclear whether this is above and beyond BAU.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.9. UKPN considered its potential future DSO role in its submission and committed to embed losses into the DSO operating model because it sees losses as fundamental to all decisions regarding system planning and operation. We would have liked to see more detail on processes for losses management from a DSO role; however, UKPN is the only DNO to have made some steps towards looking at losses from a DSO perspective.

1.10. UKPN stated that losses will be taken into account in the investment cases for transitioning innovative projects into BAU. We welcome this, however, we don't consider UKPN's submission to fully cover the processes and methods it could be exploring for incorporating losses management approaches into BAU.

# Appendix 7 – Western Power Distribution

1.1. WPD was rewarded £160,000 of the £1.3 million available. WPD highlighted some good points within each criterion but we do not consider that enough detail or evidence was provided by WPD for it to receive a substantial reward. We acknowledge that this submission was written in part to engage a non-technical audience. We would, however, have expected more technical detail, even in appendices, to support the application.

1.2. For each of the four criterion, we have highlighted below some of the strengths and weaknesses of WPD's submission.

**Criterion 1 – Understanding of losses**

1.3. In its submission, WPD briefly noted the trials it is carrying out on low voltage network imbalance and its modelling work with Manx Utilities. We welcome WPD's proactive approach on this but we do not consider that enough detail was provided in its submission. More information could have been given on how this is developing its understanding of losses and how this informs its losses management actions.

1.4. WPD mentioned that it is working with major energy users. This suggests that it is considering the network holistically, although it is unclear who these major energy users are and how WPD is collaborating with them. WPD could have provided more detail in this criterion.

**Criterion 2 – Effective engagement and sharing of best practice with stakeholders on losses**

1.5. WPD mentioned two previous stakeholder engagement events to discuss its Distribution Losses Strategy. We don't consider this to be shifting expectations as we consider these events to be BAU for the Distribution Losses Strategy. However WPD noted its work with UKPN on the IFI project on Losses and its involvement with Sohn Associates. A Sohn report on losses management was published, and this has been used by other DNOs. This highlights some evidence of WPD's engagement and sharing of best practice with stakeholders.

1.6. WPD mentioned its interaction with National Grid, in particular to enable demand-side response (DSR). To do this, WPD is working with National Grid to change standard customer terms and conditions. However WPD didn't provide enough information on the processes or methods it will use in its engagement with National Grid and it didn't clarify why working with customers on DSR will help it to manage losses.

**Criterion 3 – Processes to manage losses**

1.7. WPD gave a list of 26 recommendations which it intends to progress. WPD state that it will review its progress each year as part of its Distribution Losses Strategy. It is unclear what process it has in place to prioritise, schedule and manage the recommendations and how these will enable it to manage losses. For its submission, WPD could have focused on the most pertinent of these recommendations and given more detail, setting out how it will leverage best practice, the processes and methods it will use and to what extent the initiative will help it manage losses. Further detail of these recommendations could have been provided as evidence in each criterion.

1.8. WPD mentioned reviewing national and international best practice but didn't explain what it means by this or give any examples. More information could have been provided in this criterion on the processes WPD have used or will use when looking at best practice and incorporating it into specific actions to manage losses.

**Criterion 4 - Innovative approaches to losses management and actions taken to incorporate these approaches into business as usual activities**

1.9. More detail on the work WPD have done with Manx Utilities could have been emphasised in this criterion. We consider that the work WPD has done with Manx Utilities could lead to potential innovative approaches. However, as there was no information or evidence of this we were unable to reward more in this criteria.

1.10. We do not consider WPD's approach to BAU to have enhanced its submission. It acknowledged the need for a change management process but the submission did not provide enough detail on the processes it intends to have in place.