UK Power Networks
Business plan (2015 to 2023)
Process Overview
March 2014

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1 Executive summary

1.1 Document purpose

This document provides an overview of the planning and development process we went through to create our well justified business plan for RIIO ED1, including our extensive programme of stakeholder engagement. It is not an exhaustive narrative but seeks to provide an overview of the whole process, and therefore refers out to relevant areas of the business plan for a more detailed explanation of the different components and activities as necessary.

1.2 Document summary

The submission of our RIIO ED1 business plan to Ofgem is the culmination of over three years work to build the plan and prepare the business for the RIIO ED1 period.

Its development was an iterative process with active stakeholder engagement throughout, to ensure our plans were aligned with their views and responded to their needs. We released a draft business plan for consultation in November 2012, and following incorporation of feedback, we released a business plan update in April 2013. This was all significantly in advance of our submission to Ofgem on 1 July 2013, allowing full consideration of a wide range of views. Over this period, as well as engaging with stakeholders, we played an active role in the development of the price control framework through Ofgem's framework development working groups, helping to shape the outcomes and process.

We started the process of creating our business plan by developing our core planning scenario (the assumptions of future growth and demand that our plans would be based on) and the output measures that we would be judged against. We planned the activities needed to deliver against the output measures, including the investment needed on our networks to maintain them, increase capacity where necessary, and respond to distributed generation and the transition to a low carbon economy. We ensured innovative approaches were used throughout, and maximised the use of smart technologies. We tested the practicality of delivering our plans for our staff, contractors and suppliers to ensure we had a plan that was achievable. We calculated our indirect costs, seeking efficiency in the top quartile of the DNOs, and ensured our plans were financeable. Throughout the process, we ensured the plans were well explained and justified in the supporting narrative and set out in our RIGs business plan data tables. All elements of the plan went through a robust internal and extensive external assurance process, ensuring we could have confidence in the quality of our proposals before submission.

After the submission of the business plan to Ofgem on 1 July 2013, they commenced their assessment and provided feedback and comments over summer and autumn 2013.

In October 2013 they published their initial business plan assessments and fast track draft determination for the DNOs. We have engaged with Ofgem to understand the areas in our initial plan and processes, which needed further refinement. This feedback has been incorporated into the updated plan submitted in March 2014, but the overall process has mirrored that undertaken for the July 2013 submission.

1.3 Approach to developing the business plan

Whole business involvement

The business plan sets out the planned activity across our business for the ED1 period. To ensure that those responsible for delivering the plan were involved in developing it, it was created by all the relevant areas across the business. This also ensured technical expertise and local knowledge was utilised.

There has been engagement across the entire company to ensure the implications of RIIO are understood and we are ready to deliver the plan. Where areas for improvement were identified in the business (for example in planning and forecasting for asset management, cost efficiency, data quality, stakeholder engagement, customer satisfaction and business transformation), projects were put in place to deliver those changes.

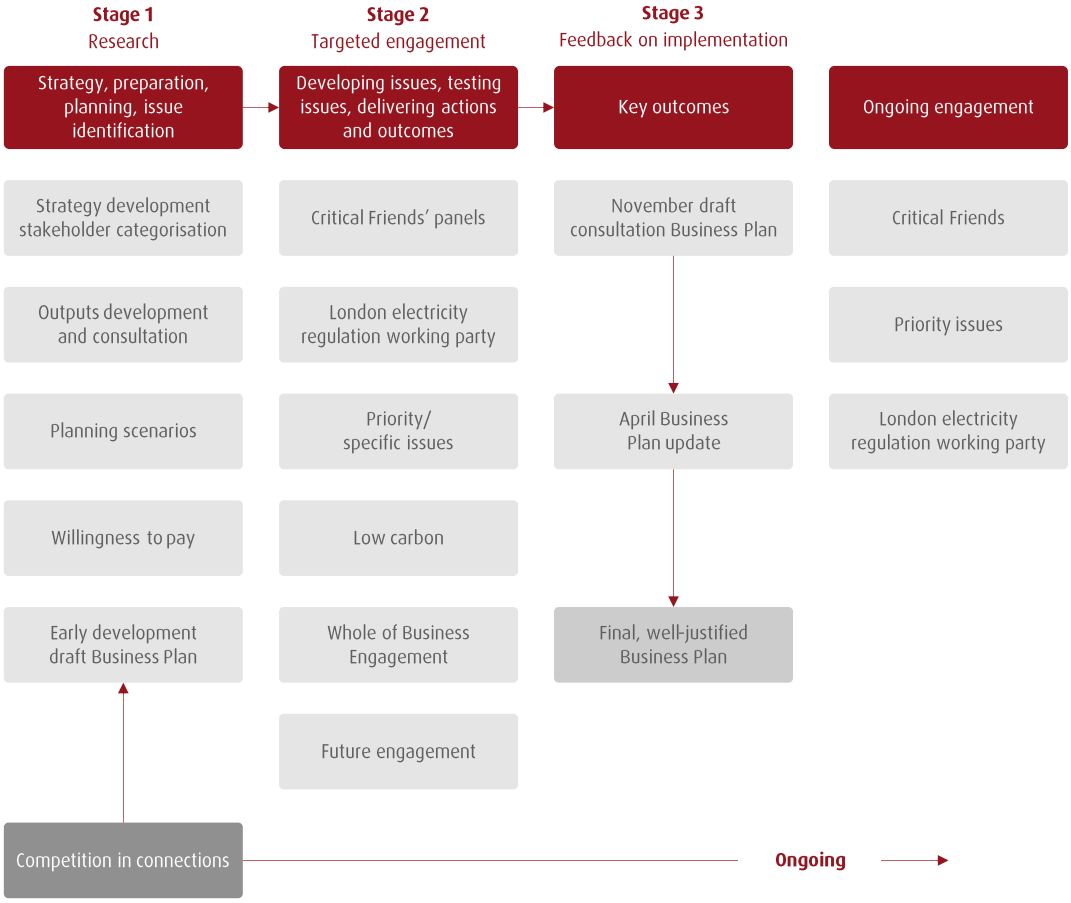
The business plan has the full buy-in of the UK Power Networks' CEO and directors, as well as the UK Power Networks' Board.

Stakeholder engagement

This RIIO ED1 business plan is the product of the most extensive stakeholder engagement process ever undertaken by the organisation.

The programme of engagement commenced in 2011 and involved three core phases; research and strategy, development and testing and then feedback and implementation. The process that we have followed in categorising stakeholders, collecting their views and taking all necessary action is presented in Figure 1. It details our early actions and events associated with strategy, planning and issue development. The second phase involves issues associated with developing, testing and delivering our actions. Finally we incorporate all this stakeholder engagement into our well justified business plan.

Figure 1: Stakeholder engagement phases



As part of our programme we engaged on the core components of our business plan during its development, and on the business plan itself. This included consultation on the development of our planning scenarios and output measures, and research to test customers' willingness to pay for service improvements. It included engagement on specific topics such as our performance during storms, vulnerable customers, metal theft, street works, distributed generation, low carbon innovation and competition in connections. It also included engagement on our major investment projects, such as the London Infrastructure plan and for distributed generation in EPN. We also consulted on our business plan document via our critical friends' stakeholder engagement panels and online feedback. We did this by releasing a draft business plan for consultation in November 2012, and a business plan update in April 2013, before our submission to Ofgem for 1 July 2013. Through this process we engaged with all our diverse stakeholder groups (including customers, government bodies, suppliers and industry) in an iterative manner to ensure the business plan was aligned with their needs and responded to their views. We have placed high priority on ensuring action has been taken on all issues raised by stakeholders and to demonstrate how the feedback from stakeholder has materially affected our business plan.

As a result of the feedback on the November 2012 draft business plan for consultation, we made a number of changes to our business plan:

Figure 2: Changes to Business Plan

Refined	• Certain inputs to our planning scenarios, reducing the expected uptake of electric vehicles and volume of onshore wind connected to our network • The scope of investment required to respond to the decarbonisation of the UK economy is up from 0.4 per cent to 0.5 per cent of total regulated revenue • The scope of the Distributed Generation (DG) Infrastructure required for timely and efficient connection of medium to large-scale generation with four projects developed to install a further 187MVA of capacity at a cost to consumers of £15.35 million
Included	• Additional secondary deliverables to underpin the primary outputs • Additional investment at shareholders cost to improve the end-to-end customer connections process • £26.7 million greater investment (excluding pensions) in automated technology to improve the quality of electricity supply • £36 million additional investment for changes to inspection and fault processes to improve the quality of electricity supplied in Central London
Further developed	• Our Innovation Strategy using peer panel reviews • Our initiatives supporting community engagement and the services we will provide to vulnerable and fuel poor customers

Critically, this is an ongoing process. The stakeholder engagement activity does not cease with the finalisation of the business plan. The stakeholder engagement activities undertaken in the development of this business plan represent best practice business management and are invaluable to the ongoing management of the UK Power Networks business.

Support, assurance and challenge

Comprehensive assurance was undertaken on all elements of the business plan, ensuring the appropriate level of internal and external scrutiny. There were six key elements of development and assurance that ensured quality:

Network investment plans were developed in line with Asset Management quality standards, policies and procedures

There were agreed quality standards from the beginning of the process and these were adhered to in the development of all plans.

External consultants provided delivery support and assurance throughout the process

PA Consulting has worked alongside us since the beginning of the programme to support the development of key components of the business plan, focusing on areas where the most change was needed for the RIIO period. They have acted as a 'critical friend', reviewing and assuring various elements of the programme and the business plan narrative.

Specialist technical and consulting support was sought in development of specific areas of the plan

A range of specialists have been engaged to support the development of specific tools, models or components, these include Element Energy, EA technology, Enzen, Oxera, Imperial College London, SKM, PA Consulting and Chiltern Power.

All content was reviewed internally by the relevant business area as well as the Regulation team

Business areas were responsible for review and quality assurance of their own work, there was also a second line check and alignment by the Regulation team.

External stakeholders reviewed critical elements of the plan and the Business Plan overall

Key components of the Business Plan have been tested and debated with specific stakeholders, including the planning scenarios, the output measures, and the Innovation Strategy. There has also been a series of 'critical friends' panels held on the business plan as a whole, which has enabled its iteration and development.

Comprehensive external assurance was undertaken

Specific independent assurance was provided by a range of specialists in relation to all principal components of the business plan. This focused on the completeness, accuracy and appropriateness of the data and analysis, and accompanying narrative. It also included identifying potential weaknesses and setting out the corrective actions required to be taken before re-submission of the business plan.

This comprehensive internal and external assurance process ensured our business plan is appropriate, robust, well justified and well evidenced.

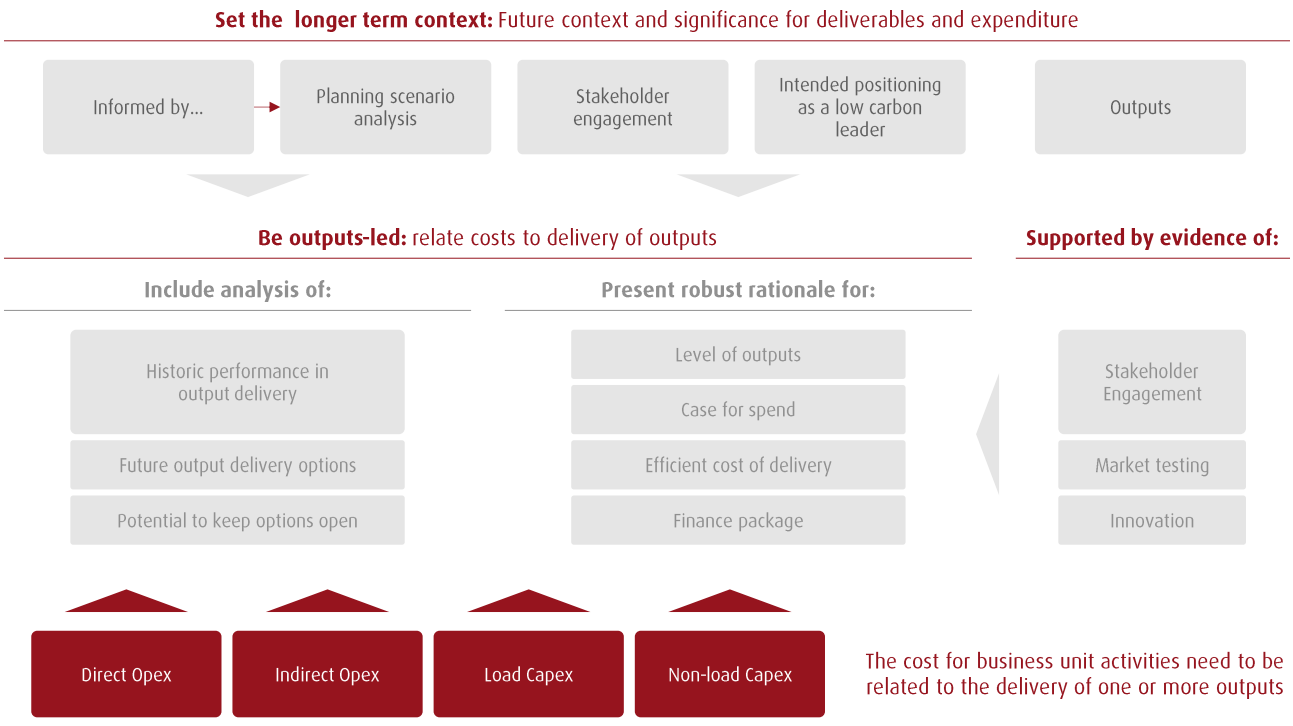
2 Preparing for the **RIIO ED1 period**

Following Ofgem's RIIO final decision document in October 2010, we began to prepare for the changes brought by the RIIO requirements, and expected during the RIIO ED1 price control period. We also started the planning process to create a well justified business plan for 2015 to 2023.

At the start of the process we had a change of ownership, involving the separation of the distribution business from EDF energy. This change has enabled us to focus completely on electricity distribution. Since separation, we have become a stakeholder-facing organisation and have reviewed our investment strategy to ensure we are focused on outputs and innovation.

Knowing that we would need to deal with changes in regulatory requirements from DPCR5 to RIIO ED1, and respond to the different incentives, tests and measures, in April 2011 we engaged PA Consulting to support the programme, utilising their technical and regulatory expertise. Their initial role was to undertake a review of the business preparedness for the RIIO requirements. This started with analysis of the key components of a well justified business plan (Figure 3), and the fast track standards needed for each, and then looked at focus areas going forward.

Figure 3: Key components of the well justified business plan



We initially needed to determine **what** we would be planning for in the 2015 to 2023 period. We did this by considering different planning scenarios and developing our 'best view' for each DNO (Section 3.1). We also planned our response to changes in the external environment such as the low carbon transition (Section 3.2). We then developed the outputs we would deliver over the period with stakeholders (Section 4.1) and tested customers' willingness to pay for certain improvements or initiatives (Section 4.2).

We then needed to work out **how** we would deliver, planning the activities needed to manage the network and calculating the financial implications (Section 5).

Where business improvements were needed, these internal change requirements were also reviewed and strategic projects set up to ensure the improvements were delivered (Section 6).

3 What does the future hold (context for the planning period)?

We needed a clear understanding of what the environment would be like during the RIIO ED1 period (2015 to 2023) to plan how the business could best react. This involved developing different **planning scenarios** for the period and responding to the **low carbon transition**.

3.1 Planning assumptions/scenarios

In order to determine the most likely future scenario to plan for, we had to make a number of assumptions about the growth in demand for energy, the use of emerging low carbon technologies (LCT) and the volume of distributed/micro generation, and understand how these would impact the future capacity requirements of the networks. We worked in partnership with Element Energy, a specialist energy consultancy, to develop an innovative scenario modelling tool that analysed the effect of varying the low carbon uncertainties.

We built on the national planning scenarios developed by DECC (Department of Energy and Climate Change) and created regionally-specific scenario options to ensure the diverse nature of our networks was accounted for. In the summer of 2011, we sought the views of stakeholders from each relevant network area on the most likely planning scenario for the 2015 to 2023 period. We did this by holding four dedicated stakeholder events (three regional workshops and an online forum), where the scenarios and underpinning assumptions were debated.

The assumptions for each scenario were based on factors around:

- Rate of economic growth including population growth,
- Deployment of LCT including heat pumps and electric vehicles, and
- Changes in electricity market mechanisms such as the increase in demand-side response, roll out of smart meters and the introduction of time of use tariffs.

These scenarios were considered in terms of low, medium and high impact/uptake of these factors:

Figure 4: Planning scenarios 2015 to 2023

Scenario	Rate of economic growth	Impact of low carbon technologies	Impact of electricity market reform
Business as usual	High	Low	Low
Economic concern	Low	Low	High
Engaged green society	High	High	High
Green stimulus	Low	High	High
Green technology revolution	High	High	Low

A brief description of each scenario is detailed in Figure 5:

Figure 5: Summary of scenarios

Business As Usual	• The British economy gradually returns to higher growth (3 per cent to 3.5 per cent increase gross value added (GVA) p.a.) • South East England remains strongest region in the nation • Climate change remains an issue and the government wants to achieve its targets • The uptake of smart grid technology remains slow
Economic concern	• The economy remains at zero growth, the economy is decreasing relative to our major trading partners • Incentives for development of new nuclear plants private investment in generation has tended to focus on smaller scale onshore renewables • Large-scale offshore installations have been slow to develop. Electric vehicle uptake has not grown • Demand side response/management has grown as a method of reducing costs
Engaged green	• British economy returns to strong growth with London and the South East leading the way • Disposable incomes and tax revenues rise, additional subsidies for low carbon technologies become available • Microgeneration grows (solar panels, wind turbines and heat pumps). Electric vehicles become more common
Green stimulus	• The economy remains subdued and the government uses green stimulus to encourage growth • Targeted incentives for people to adopt energy efficiency measures and sources of renewable generation • Small entrepreneurial companies entering the energy market. A range of new green technologies are accessible to all, and the traditional 1:1 relationship between the customer and energy supplier has been broken, with the growth of Energy Services Companies • Onshore and offshore wind, together with other renewable generation such as combined heat and power schemes, have become a regular feature of the landscape
Green technology revolution	• Economic growth has been driven by private and public investment in new low carbon industries • Adopting energy efficiency measures such as improved insulation or installing renewable generation such as heat pumps has become a popular measure • Government incentives such as the Feed in Tariff have proved effective in encouraging the spread of renewables. Subsidies provided to electric vehicles, and the expanding networks of charging points, have made them a commonplace sight • Nuclear and Carbon Capture Schemes remain undeveloped

Our view of the future was developed with local experts and stakeholders.

How did we engage and with whom?

Consultations on planning scenarios were an early phase of our business planning cycle, and provided a number of key stakeholders across our three DNO areas the opportunity to review our scenario work. The feedback we collected helped us refine our future energy scenarios.

We held three workshops, one for each DNO licence area, where the business planning process was explained, the scenarios that had been developed presented, and attendees were given the opportunity to review, discuss and challenge the scenarios.

In addition, we provided information on the scenarios on the engagement website:

http://yourviews.ukpowernetworks.co.uk/

along with an online form allowing people to provide feedback on the planning scenarios.

Discussion of scenarios

In the workshops and in the online feedback forms submitted, a number of issues were raised generally about the scenarios or came up repeatedly when discussing specific scenarios. A frequently expressed view was that business and domestic users might respond differently within each scenario, and that there would be some value in exploring likely experiences for the two sectors within each scenario.

A number of issues were raised constantly about certain low carbon technologies: wind power, both offshore and onshore, was frequently questioned in the scenarios where significant increases in this technology were suggested – the general view was that the public oppose many (onshore) wind developments and this is likely to continue. It was also felt that other technologies that may well have a significant impact in the future did not receive sufficient attention in the scenarios, including Combined Heat and Power (CHP) and energy from waste.

The following section takes each scenario in turn and provides a summary of views expressed on their viability.

Scenario 1 – Business As Usual

The Business As Usual scenario was presented simply as a reference point against which the other scenarios could be compared, meaning that stakeholders were not asked to comment on or critique this scenario.

Scenario 2 – Economic concern

This scenario is regarded by many as viable – indeed some comments suggested that it was more the current state than a scenario. However, others regarded the scenario as overly pessimistic, stating that they feel that the UK was well positioned to come out of the economic slump in the short to medium term. The UK Power Networks region is felt to be better equipped to emerge strongly from recession than many others.

The viability of this scenario was challenged for several reasons, including:

- It was not viable in London, where measures would be put into place to protect the financial sector and this in turn will keep the economy buoyant,
- Wind power will continue to have low uptake due to public opposition, and
- Increases in fuel prices will drive efficiencies, and demand side management will have higher uptake than is anticipated by this scenario.

Scenario 3 – Engaged green

While some saw this scenario as viable in the longer term, the phrase most readily used for it was 'overly optimistic'.

Stakeholders challenged the likely rates of economic recovery that would be required for this scenario to occur/be delivered – as well as the likely speed of uptake of new green technologies. It was commented that it seemed unlikely we would see a scenario that would see both strong economic growth and a transition to a low carbon economy. Some went so far as to suggest that the move towards a low carbon economy may need to be put on hold in order to retain UK economic competitiveness. There were quite a number of challenges to this scenario, including a sense that many of the expectations are too ambitious to be realised. These included the uptake of electric vehicles and the shift that would be needed towards public acceptance of wind power.

There were other challenges to this scenario, including:

- The Renewable Heat Incentive being far more short term in impact than is suggested,
- That the market may be more influential than is suggested, with technology such as smart metering influencing this, and
- Questioning why carbon capture and storage is not regarded as having a significant impact.

There was a strong sense that for this scenario, incentives for take-up would need to be highly significant – i.e. people would be motivated by cost savings only when they were really noticeable in relation to household income.

Scenario 4 – Green stimulus

Across all the workshops and the online feedback this scenario was regarded as viable, highly likely and realistic, although a few voices suggest that it is overly pessimistic. People commented that its viability is in part because it is very close to the current situation. There is a sense that in some ways this scenario is a stop-gap that could flip to something akin to the Economic Concern scenario or the Engaged Green scenario.

Even though this scenario was considered highly viable, a number of challenges were made including a sense that:

- It is a lot to expect consumers to spend on new technologies with an eye on making savings in the future when cash is limited, and
- Feed-in tariffs may well change, with incentives lowered.

As with the other scenarios, some things were felt to be missing that could have a significant impact. These include likely increases in embedded generation; the potential role of Combined Heat and Power, micro-hydro; other vehicle technologies such as hydrogen; and the role of energy storage.

Scenario 5 – Green technology revolution

Views were split on this scenario, with some seeing it as not at all likely or viable, while others regarded this as the most likely scenario. A number of people felt its viability was hampered because the likelihood of the economic growth to achieve it would not materialise, while others felt that it was economically viable but that the challenge in achieving behaviour change as well as technology uptake was not likely to be met.

One person suggested that early technology adopters would not see any benefits without behaviour change, and thus this scenario would be unlikely to be achieved.

A number of people recognised that this scenario would require a large amount of new infrastructure which may be difficult to achieve; and in common with other scenarios, people questioned the likely acceptability of more wind power generation as well as the uptake of electric vehicles.

How did we use the information?

The consultation exercise focused on two main elements which we believe will influence the requirement for future network capacity, namely economic growth and the take up of green behaviours and technologies. Through discussion of each of the scenarios in turn, we gathered a range of stakeholders' views on the different assumptions that made up each scenario, and the likelihood of those assumptions being realised.

The overwhelming view from our stakeholders was that the current poor economic conditions were exceptional and that economic growth would return in time. However, there was little consensus on when this would occur.

In addition, there was a general expectation from our London stakeholders that London had been relatively insulated from the worst effects of the recession and that, ultimately, growth in London would return to its previous high levels. Thus, we assumed that the rate of regional GVA growth would be best represented by the long-term (14 year) average.

Over and above this, we reflected the resilience of the economy in London, by refining the analysis to improve its regional granularity. This had the effect of raising the long run average for London.

There was significant discussion amongst our stakeholders on the achievability of the Government's targets for house building. On a number of occasions it was pointed out that, without a change to the planning regimes, these targets were unlikely to be achieved. It was also pointed out that in the short term the lack of both capacity in the construction industry and availability of mortgage credit would affect growth.

Our own analysis of historic levels of household formation indicated that the forecast levels have rarely been achieved in the past. On this basis we assumed that from the start of RIIO ED1 (2015) household growth is unlikely to deviate from the long-term average level of formation.

Furthermore, in line with stakeholders' feedback regarding the unusual economic conditions in recent years, we have decided that this long-term average should be measured over a period sufficient to cover multiple economic cycles. As such we extended the time period to 17 years.

Energy efficiency assumptions

The area of energy efficiency was a topic of considerable debate.

The majority of stakeholders agreed that there was significant scope for improvements in energy efficiency. However there was also considerable doubt, given the lack of historical take up, and whether this potential would be achieved. Key barriers cited were customer inertia and the long-term affordability of financial incentives to support its implementation.

Therefore, we decided to adopt the DEFRA Reference Scenario as the base for the energy efficiency assumptions underpinning the plan.

Technology deployment assumptions

There was a widely held view that projections of the levels of penetration of the Government's favoured low carbon technologies, such as heat pumps, electric vehicles, and small scale renewable generation, were highly optimistic. The rationale for this was that significant ongoing levels of financial support, from either Government or from customers, would be required to deliver the high levels of take up suggested.

Therefore, we set the penetration levels of these technologies in line with the current incentive package for each technology. Implicit in our assumption is that these incentives are maintained for a sufficient period of time for the technology to become commonplace.

A significant area of debate concerned the likely penetration of onshore wind within our East of England and South East network areas. A number of local authority stakeholders emphasised the strength of local opposition to its deployment that is encountered routinely. However, it was also recognised that this technology could play a significant part in meeting the UK Climate Change objectives and would attract strong Government backing. Additionally, there is a growing opinion that it may prove to be more cost effective than offshore wind.

On this basis we have opted our medium case assumption for onshore wind generation.

With respect to offshore wind we have assumed that this will generally connect to either the National Grid or an offshore transmission network post 2015.

Market mechanisms

There was considerable debate about whether individual households and companies were likely to be receptive to price signals, such as time-of-use tariffs. There was great scepticism that people would modify their behaviour by, for example, charging their electric vehicles or operating certain appliances at specific times of the day or night. The conclusion was that significant incentives would be required to drive such changes and that there is little evidence that these are likely to be available.

On this basis and in the absence of any information as to possible incentive arrangements, we assumed that few customers will modify their usage and hence market mechanisms are likely to have a minimal impact on demand. This assumption could be reviewed subject to any future announcements.

Other comments

One of the challenges presented to stakeholders concerned the completeness of the scenarios.

There was some debate about the different green technologies that might be deployed. As indicated previously, the scenarios focus on those that have been identified by Government in their forecasts. A number of stakeholders, particularly local authority respondents, proposed the inclusion of district level combined heat and power schemes. There were also a number of mentions of household, mini-CHP installations.

After some consideration, we decided not to include these technologies in our planning assumptions. This was driven by a lack of robust data sources which we could draw upon to inform our modelling. However we intend to keep this under review and can anticipate incorporating these technologies into our models as and when there is greater clarity over the likely levels of penetration and the funding/incentive mechanisms that might support them.

Outcomes

In considering the feedback, it was immediately evident that no one scenario fully reflected the views of stakeholders. As a result, we considered each assumption underpinning the scenarios in turn and used that to develop a new 'hybrid' scenario, tailored for each DNO area, which, in our opinion, best reflected the outcomes of the workshops and the most likely future. The assumptions of this 'best view' can be seen in Figure 6 and enabled us to account for regional circumstances informed by stakeholders with local expertise.

Figure 6: Planning assumptions derived following engagement

		LPN	SPN	EPN
Population/household growth (average annual increase in household formation)	Based on regional data published by the Department of Communities and Local Government (historic and forecast household statistics), amended with local knowledge.	0.95%	0.78%	0.93%
Economic growth (annual increase)	Regional gross value (RGV) added metric (baseline assumption from stakeholders is that the economy recovers to long run average growth levels from the beginning of ED1)	6.1%	4.5%	5.4%
Low Carbon technology update	Regional forecasts of the uptake of LCT developed by independent experts Element Energy and amended by stakeholders			
	Heat pumps – Domestic	44k	100k	262k
	Heat pumps – Non domestic (MW)	70MW	94MW	176MW
	Electric vehicles	50k	134k	156k
	FIT eligible generation	72k	121k	207k
	Onshore wind (MW)	10MW	152MW	655MW
	Offshore wind (MW)	Not applicable	Beyond 2015 assumed to connect to offshore grid	Beyond 2015 assumed to connect to offshore grid

The impact of these assumptions on predicted load growth can be seen in the following tables:

Figure 7: EPN predicted load growth

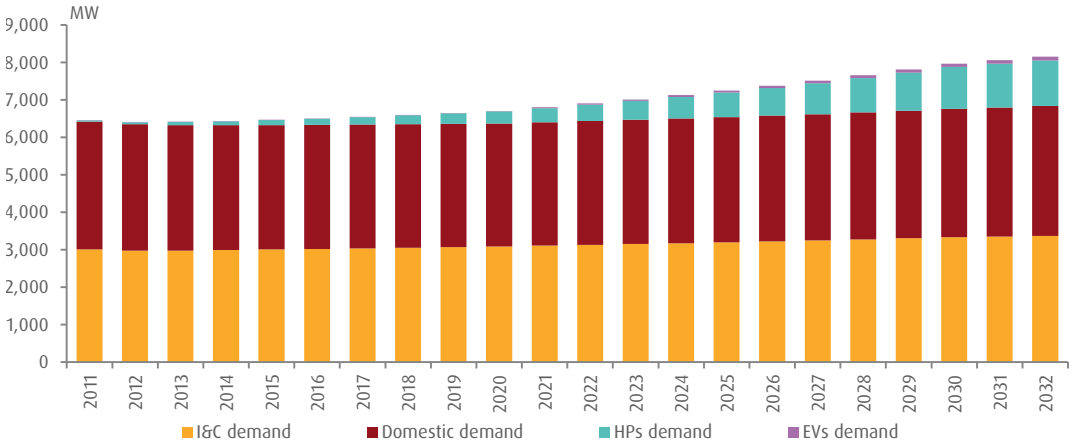


Figure 8: LPN predicted load growth

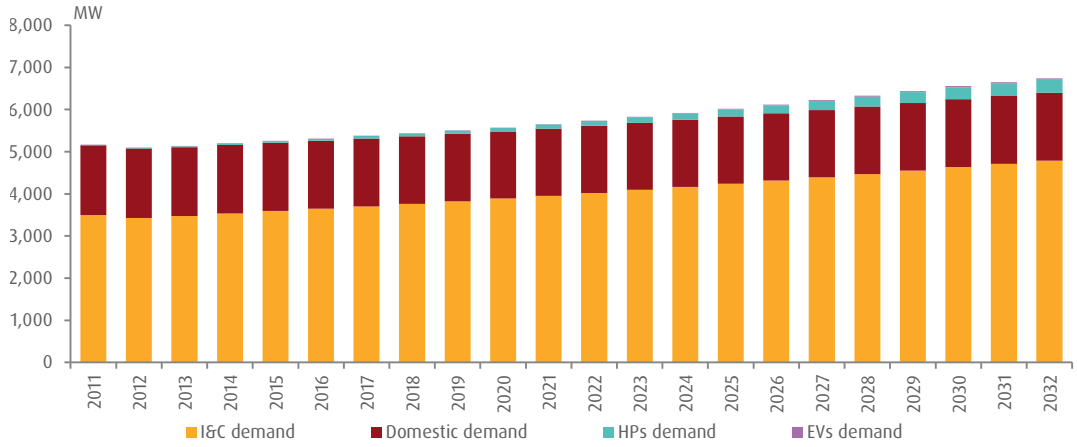
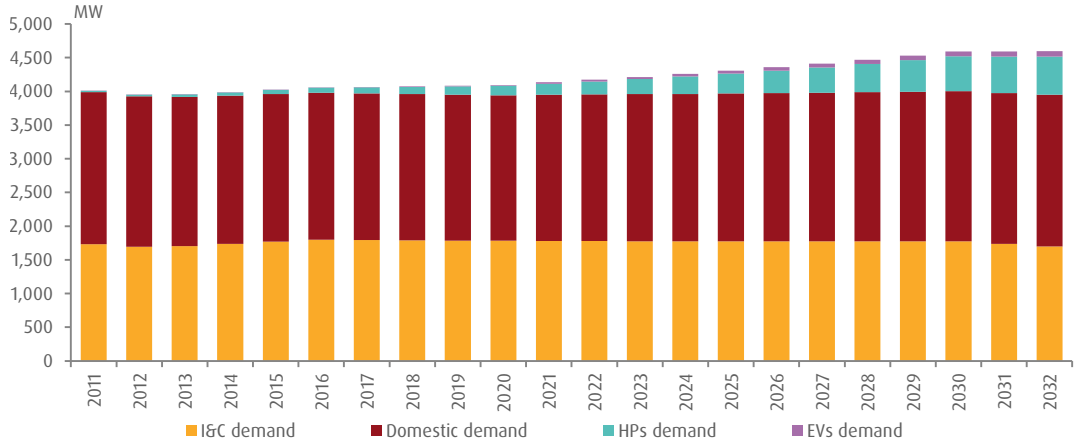


Figure 9: SPN predicted load growth



3.2 Responding to the low carbon transition

Throughout 2011 and 2012, we worked with PA Consulting to review the external drivers of the transition to a low carbon economy expected during RIIO ED1 (based around a higher volume of new energy sources and a higher volume of demand) and analyse their impact. We wanted to determine what the best response would be to these drivers. We also wanted to understand when a driver should elicit a response, to do this we identified a series of leading indicators. We put plans in place to develop the necessary capabilities to facilitate the transition, and looked to integrate smart technologies and commercial innovation (for further information see our Innovation Strategy).

We are ready to be a leader of the transition to a low carbon economy

4 What do stakeholders want us to deliver in the period?

Determining what we planned to deliver in the period was fundamental to the business plan. We worked with a wide group of stakeholders to determine the priority outputs that we would commit to delivering, as well as whether there were any additional areas of services that customers would be willing to pay extra for.

4.1 Outputs

As part of the strategy, planning and development phase of the stakeholder engagement activities, we commenced engagement on our key output measures. An output is the delivery of a product or level of service. In response to the discussions with stakeholders and Ofgem, we have made commitments to the delivery of a set of outputs as part of the business plan.

We undertook four separate strands of engagement to develop these: a workshop, online consultation, domestic focus groups and interviews. We also received further responses outside of the engagement structure. The aim of all three strands were to give stakeholders the opportunity to discuss the outputs in each of the six categories defined by Ofgem:

- Safety
- Conditions for connections
- Customer service
- Environmental performance
- Network reliability and availability
- Social obligations

We sought to understand how to measure performance in a way that is meaningful to stakeholders and to use this feedback to further develop outputs. The findings from this process helped us form specific commitments for the delivery of the outputs.

How did we engage and with whom?

The invitation list for the workshop was based on stakeholder analysis of targeted organisations and individuals with an interest in UK Power Networks. The meeting was well attended, with 62 stakeholders from our three networks. It aimed to help participants understand the context of outputs and give stakeholders the opportunity to discuss the outputs in each of the six categories as well as the chance to review and suggest alternative measures.

A further 21 stakeholders took the opportunity to respond online to the consultation. They were asked to provide their opinions on existing outputs and possible new outputs proposed, as well as propose any of their own suggestions, for the six output categories.

The final part of the engagement occurred through ten interviews that were held with stakeholders who were unable to attend the workshop. Stakeholders across a range of sectors were contacted by phone and invited to take part with the aim to discuss one or two categories of output of the interviewee's choice in depth. Although the aim of the interview was to focus on one or two output categories, the interviewer endeavoured to capture all that the interviewee was willing to discuss.

In addition, a series of domestic consumer focus groups were held to better understand their priorities for a DNO, together with their expectations of a modern service organisation.

What was the feedback?

Stakeholders supported the output categories and made a number of specific comments.

Figure 10: Feedback from outputs workshop

Safety	• The safety output measures were generally supported by stakeholders • Some new measures were suggested such as near miss incidents • Education was rated highly as was engagement of the public and training of employees • Other suggested measure included measuring incidents during street works and the number of traffic incidents
Customer service	• Feedback on this output measure was consistent across all stakeholder groups • Phasing out of telephone survey to be replaced by online surveys was supported • Improved communication during streetworks was suggested • Better response to customers with unusual connections requirements • Focus on measuring quality of service rather than new service or service levels
Conditions for connections	• Improved transparency of costs and better communication • Customers were prepared to pay more for better service and more accurate estimate of costs • Enhanced competition among providers and a new measurement for market share • Timelines and quality of work were regarded equally with value for money
Environmental performance – the impact of our operations	• The measurement of infrastructure removed from areas of outstanding natural beauty was rated highly • Undergrounding infrastructure was mixed between those want to preserve beauty and protection of flora, fauna and archaeology • Need to target a wider range of causes of greenhouse gas emissions
Environmental performance – facilitation of low carbon economy	• Continue to measure impact on CO_2 reduction from investment choices • General support leading role in electric vehicle charging • Some questioned whether EVs would ever be viable and therefore infrastructure would be wasted
Network availability and reliability	• General support for investment ahead of need. Views that beneficiaries of investment should pay/pay more • Social and business impact of interruptions was rated more highly than length of duration • Current interruption measure of 18 hours was too long. Better communication was required during interruptions • Support for measures of interruptions based on the number of customers affected and greater investment to prevent high impact, low probability events, especially in relation to central London • Main fuse failures, restorations impacted by severe weather and the 18 hour restoration output were highlighted as particularly important to emergency planning
Network availability and low carbon economy	• There was support for investment to encourage localised generation and CHP • Support for improved demand side management services
Social impact	• There was a suggestion that reinforcing infrastructure in remote areas could be considered a 'support service' for those who are only served by electricity • There was support for minimising the impact of street works through working with others, including other utilities, local authorities and closer working relationships with developers

Outcomes

This consultation process resulted in a range of views being captured. This included:

- Comments on the suitability or effectiveness of existing output measures,
- Comments on the relative merits of existing and/or alternative output measures,
- Proposals for alternative outputs that would either have some meaning or value to stakeholders, and
- Opportunities for improvement highlighted as part of the discussion of the outputs.

These outcomes have informed both our internal planning processes and the contributions that we have made to the development of the price control framework through the working groups and responses to Ofgem consultations. For example, stakeholders expressed concerns about the 'narrow' nature of the Broad Measure of Customer Satisfaction, suggesting that it should attempt to capture the views of a more diverse range of customers and a range of channels. We incorporated some of that thinking into our position within the Customer Service ED1 framework development working group (see Section 4.3).

Beyond this, this consultation has provided a significant influence in informing our position on the appropriate Outputs we should include in our business plan. It is worth observing that the Directors who have signed off on these Outputs and who have executive responsibility for their delivery, were in fact the facilitators of those stakeholder discussions and have participated in the process from beginning to end.

We have developed a comprehensive suite of 77 output measures

Final output measures

The proposed output measures can be seen in Figure 11, for more information see **Annex 2: Forecast Outputs. Narrative**, Section 4.

Figure 11: UK Power Networks' proposed output measures

Customer satisfaction

1. Improve performance of all UK Power Networks' DNOs in all components of the customer satisfaction survey achieving an average overall performance of 8.3 for EPN and SPN and 8.1 for LPN over RIIO-ED1
2. On average, answer calls from customers in less than 5 seconds
3. Resolve 70% of all customer complaints within 1 day and 95% within 31 days
4. Contact 100% customers within 24 hours to ensure any work they have requested has been completed to their satisfaction
5. Get the lights back on for 90% of HV power cuts within 2 hours
6. Provide multiple ways for customers to stay regularly updated on the estimated time for supply restoration and of any changes to the estimated time. As a minimum this will include phone, SMS text, twitter and online
7. Proactively contact 100 per cent of registered vulnerable customers to offer support if they are without power
8. Continue with our three critical friends' panels per DNO per annum
9. Publish and review a UK Power Newtorks' business plan update every year
10. Publish an annual strategic development statement for Central London
11. Review our economic assumptions with our critical friends' panels each year
12. Appoint an independent chairperson to our critical friends' panels
13. Hold a Distributed Generation forum annually
14. Continue to use our stakeholder feedback to

Reliabilty and availability

improve our customer facing business processes

15. Maintain LPN's position as having the lowest level of customer interruptions and customer minutes lost in the UK targeting 23 CIs (7% improvement) and 30 CMLs (8% improvement) due to unplanned interruptions
16. Reduce EPN and SPN customer interruptions by more than 12 per cent targeting 51 CI in EPN and 49 CI in SPN due to unplanned interruptions
17. Reduce EPN and SPN customer minutes lost by more than 19 per cent targeting 35 CML in EPN and 35 CML in SPN due to unplanned interruptions
18. Maintain the health of the network during RIIO-ED1 as measured by the health index, at least at the end of DPCR5 levels
19. Continue to improve the load index of the networks by reducing the number of highly rated sites to 18 in EPN, 14 in SPN and 12 in LPN
20. Protect 78 substations sites from the risk of flooding
21. Reduce the number of 12 hour failures by more than 30 per cent
22. Reduce worst served customers to less than 10,000 in both EPN and SPN

Environment

23. Reduce our business carbon footprint by 2% per annum
24. Continue to recycle 70 per cent of office and depot waste and 98 per cent of street works spoil
25. Maintain sulphur hexafluoride (SF6) leakage at less than 0.2% as a proportion of SF6 in service
26. Reduce cable fluid leakage of 207,000 litres by 2 per cent per annum
27. Undergrounding the equivalent of 80km of HV overhead line in SPN and 96km of HV overhead line in EPN in Areas of Outstanding Natural Beauty and National Parks
28. Innovation expenditure of 0.5% of allowed revenues and win largest market share of the NIC competition
29. Investigate all noise issues and address all non-compliant sites

Connections

30. Achieve average time to quote from the time of enquiry of 8.2 days for low voltage single services and 11.7 days for low voltage multiple services
31. Achieve average time to connect of 42 days for low voltage single services and 53 days for low voltage multiple services
32. Achieve in excess of 99% of our Guaranteed Standards of Performance (GSoP) targets
33. From Q3 2014 we will commence the introduction of new online services for customers requiring new or altered metered services and all customers requiring unmetered connections. These services will include;
    a. On-line submission of service requests
    b. On-line quotations and estimates
    c. Service request and job delivery tracking
    d. On-line payment
    e. Appointment booking
34. Integrate Flexible Plug and Play service (as per our Low Carbon Network Fund Project) into business as usual by Q2 2015

Meet our improvement commitments to major connections customers

35. Engage regularly with other connections stakeholders on a frequency agreed with them
36. From 2014, agree and publish a service development plan with associated Key Performance Indicators
37. Publish quarterly updates to communicate progress against the service development plan
38. Review and revise plan annually in agreement with stakeholders
39. Publish annual progress update to Ofgem and stakeholders
40. Complete an annual independent audit of our achievements against the agreed service development plan
41. Work with Connections' stakeholders to develop our products and services through 'user groups' 3 times per annum with common interest customer groups (highway services, distributed generation, metered customers) to gain insight into their needs and requirements and shape innovation and development within UK Power Networks.
42. Offer account management to any business/ commercial customer who requests this service

Develop more 'pre-application' support for customers to enable them to make informed decisions on their schemes

43. Extend our "Ask the Expert" service to include phone, web chat and face to face options
44. Publish 'heat maps' to provide an overview of current network capacities by location
45. Provide access via a web portal to cable diagrams allowing customer access to up to date information
46. Extend the online price illustrator to include all market segments and provide indicative timescales in addition to cost illustrations.

47. Extend our current DG surgery sessions to other customer groups to allow customers to discuss their connection proposals informally prior to application.

Increase the choice and flexibility of connections services available to customers

48. The introduction of wider office hours for our contact centre
    a. 08.00 to 20.00 weekdays
    b. 09.00 to 16.00 Saturdays
49. Offer 2 hour time banded appointments for site visits
50. Schedule work delivery across a wider working window to include evenings and weekends
51. Extend the convertible quotes concept so that quotations offered in a competitive market segment can be fully or partly accepted dependent on the customers preference
52. Continue to support and promote competition in the connections market place through innovative change
53. Self-determination of the Point of Connection for an increasing range of connections
54. HV jointing to existing networks to include all associated planning and operational activities.

Safety

55. No formal notices or prosecutions by the HSE under applicable legislation
56. Deliver the high safety criticality element of the asset health /risk index (deliver all asset improvements with a high safety criticality score (4) in the asset risk index
57. Reduce the Total Recordable Injuries (Accident rate per 100,000 hours worked) by 10% per annum to less than 0.5
58. Reduce the Lost Time Recordable Injuries (Accident rate per 100,000 hours worked) by 10% per annum to less than 0.05
59. Achieve at least one year with no RIDDOR reportable lost time incidents for employees and contractors by the end of the period
60. At least one year with no RIDDOR Reportable public harm resulting from our activities
61. Engage with 2 million children and members of the public , either through face to face or via on line interaction, on public safety issues over the regulated period

Social

Continue to improve the service provided to vulnerable customers:

62. Double the number of customers on our Priority Services Register (PSR)
63. Proactively contact all registered vulnerable customers to offer support if they are without power
64. Extend our local authority joint response pilot across our geographical footprint and standardise triggers
65. Provide every vulnerable customer an alternative high priority dedicated number
66. Distribute Welcome Packs to all new PSR customers

Maintain community engagement during RIIO-ED1

67. Host two subject-specific priority issue focus groups on vulnerable customers and fuel poverty every year
68. Maintain our community fund investing £300,000 per annum

Work proactively with third parties to reduce the level of fuel poor in our three networks

69. Work with National Energy Action (NEA) to map and profile fuel poor customers within our footprint
70. Publish information to targeted customers on how energy efficiency and demand- side activity can be used to manage energy consumption
71. Deliver a series of targeted consumer surgeries for vulnerable residents designed to raise awareness of energy efficiency and how to manage energy bills
72. Publish a strategy to explain how smart meters can be used to reduce fuel poverty
73. Create a group of UK Power Networks' local community energy champions
74. Develop a project with NEA to educate young carers about energy efficiency
75. Organise and deliver school activity days to encourage safe, efficient use of energy

Be an employer of choice

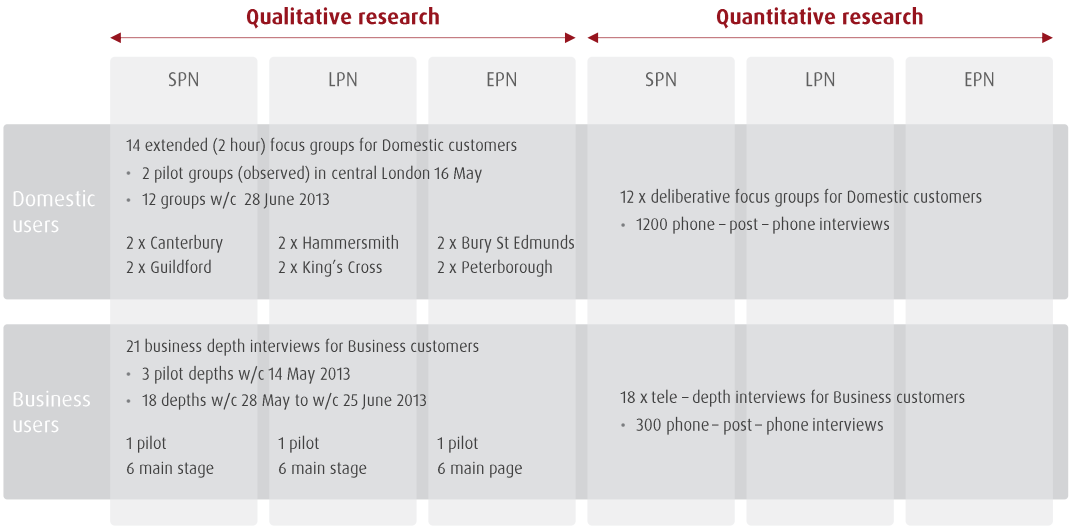
76. We will measure ourselves against other companies and seek inter and intra sector recognition/accreditation by participating in external benchmarking such as achieving membership of the Sunday Times' Top 100 Best Companies.
77. We will recruit and train over 1000 staff as well as up-skill and develop existing employees to ensure that we maintain a suitably skilled and motivated workforce.

4.2 Willingness to pay

In conjunction with our consultation on outputs and planning scenarios, we undertook research to ensure that the business plan takes into account customer priorities and in particular, the trade-off between additional investment and prices.

This comprised of a series of sessions specifically focused on willingness of customers to pay, initially qualitative and then later quantitative sessions. Our engagement approach was designed this way as we wanted to create a two way dialogue with our customers and encourage their input into our business plan and potential future direction, rather than simply offer them predefined selection choices for approval or rejection.

Figure 12: Willingness to pay research



Qualitative research

The qualitative research was conducted in order to inform design of the quantitative and stated preference research elements. It focused on customer feedback and insights.

Perception of performance

Overall, there is an assumption that, given a low awareness of our company and the infrequency of power cuts, UK Power Networks must be doing a good job. There is an understanding that power cuts may be caused by other utilities, extreme weather conditions etc. In general, there was no great interest in a marketing campaign to raise awareness of the company as this was considered to be a waste of money.

Key themes

It is important to note that customers demonstrated a willingness to pay for the provision of certain services. The highest priority topic that we have observed from these engagement sessions has been reliability of supply. Domestic users are also concerned with efficiency and a view to the future i.e. they place importance on environmental considerations and keeping up to date with technology advances. Business users agreed that the future view is important as well, but place higher value on developing new technologies and greater efficiencies and are more interested in greener alternatives.

Although many customers have little experience in new connections, and consequently a limited understanding of process, they disliked the idea of two-tier offering i.e. a potential premium service to include accelerated time scales for work. Another key outcome was that safety should be an expected function of a DNO but education was a very low priority (and seen as not UK Power Networks' responsibility to fulfil). Social impacts such as highways were seen as a problem to be funded by all utilities whereas for discretionary services the feeling was that the user should cover the cost.

- **Domestic** – we found some general willingness to pay amongst domestic users but little or none in Canterbury, Peterborough and London. The strongest willingness to pay was for environmental issues, for example leaking pipes/switchgear and low carbon technologies. The price range included between £2, £6, £10, £12, £20 (p.a.).
- **Business** – among business users there was very little willingness to pay among public sector and smaller companies although there was some for continuity of supply and for improvements to the current service.

Quantitative research

The quantitative research posed more specific questions and asked participants to assign a value to the priority they placed on the topics the qualitative research had highlighted as areas of interest.

Domestic – the research identified willingness to pay for the majority of improvements; there was also some readiness to accept deterioration in service levels.

Willingness to pay ranged from a 0.58 per cent increase in customer's distribution bill by 2023 for the lowest valued service level to a 2.90 per cent increase for the service level valued most highly.

Overall, the willingness to pay by 2023, as a proportion of the average distribution bill, was:

- LPN: 16.7 per cent
- EPN: 20.3 per cent
- SPN: 20.4 per cent

The priorities of domestic customers were focused on:

- Investment in technologies to allow cheaper and quicker connection of low carbon generators of electricity (this was the highest priority for LPN and SPN customers)
- Investment in infrastructure to detect loss of supply from individual/small premises (the highest priority for EPN customers)
- Investment to enable uptake of micro-generation
- Investment in infrastructure to support low carbon electric heating technologies
- New connections work to be undertaken in normal business hours, evenings and weekends

Business – the research identified willingness to pay amongst businesses for the majority of improvements and, again, there was also some willingness to accept deterioration in service levels.

Willingness to pay ranged from a 0.65 per cent increase in their distribution bill by 2023 for the lowest valued service level to a 3.01 per cent increase for the service level valued most highly.

Overall willingness to pay by 2023, as a proportion of the average distribution bill, was:

- LPN: 18.0 per cent
- EPN: 21.8 per cent
- SPN: 21.0 per cent

Business customers described their priorities as:

- Investment in technologies to allow cheaper and quicker connection of low carbon generators of electricity
- Investment in infrastructure to detect loss of supply from individual/small premises
- Investment to enable uptake of micro-generation
- Provision of quotations for simple, low voltage new connections work: timescale/date agreed with customer
- New connections work to be undertaken in normal business hours, evenings and weekends

Implications for business plan revision and further action

As was described previously, the qualitative (scoping) phase of the project was undertaken to ensure that customers influenced the choice of areas where we would then go on to test Willingness to Pay.

The primary areas of interest to consumers that emerged from the scoping phase of the study map neatly on to four of the output categories, as follows:

- Network reliability,
- Connections,
- Customer Service, and
- Environment (low carbon economy).

The outcomes of the willingness to pay research in each of these areas are described below, together with our response.

Network reliability

Issues of network reliability and specifically the frequency and duration of power outages were a significant topic in the scoping study, perhaps because it is the one service that people instinctively find easy to relate to.

There was the widely held feeling that this was an area where performance had noticeably improved over the last two or three decades, to the point where most consumers and businesses has a high level of satisfaction with our performance. There was certainly no appetite for major investments to make a step-change in performance.

There were only two examples of difference on this: firstly, amongst one rural group who had suffered persistent problems on their local network and amongst central London businesses, for which the prospect of any power outages was a concern.

The outcomes from the quantitative study which generated a positive willingness to pay were as follows (Note: all figures quoted are cumulative over the RIIO ED1 period):

Figure 13: Domestic consumers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Rural customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers within 60 minutes	N/A	12.6	21.3	33.9
Frequency of power cuts over 3 minutes – average number: 1 every 24 months	7.0	7.3	14.4	21.7

Figure 14: Business customers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Rural customers: For power cuts longer than 3 minutes, time to restore 80% of affected customers within 60 minutes	N/A	5.4	6.3	11.7
Frequency of power cuts over 3 minutes – average number: 1 every 24 months	-	5.1	5.3	10.4
Frequency of power cuts over 3 minutes – average number: 1 every 48 months	5.7	-	-	5.7

Figure 15: Business customers in London's Central Business District

Proposition	SMEs (£m)	Large businesses (£m)	Total (£m)
Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 5 minutes	0.1	5.5	5.6
Urban customers: for power cuts longer than 3 minutes, time to restore 80% of affected customers: within 10 minutes	0.1	3.0	3.1
Frequency of power cuts over 3 minutes – average number: 1 every 48 months	0.1	-	2.4

In summary, there is a slight bias towards shortening of restoration times, rather than reducing the frequency of power outages, although there is clearly willingness to pay for both.

UK Power Networks' response

In developing our business plan, we have noted customer opinions on both the frequency and length of power outages, and the fact that many express the view that fault management and restoration should be the primary objective of the DNO.

In light of this, we have decided to include £20.5 million of investment to support targeted Quality of Supply improvements.

This investment figure is split over the three networks as follows:

- EPN: £13.4 million,
- LPN: £3.2 million, and
- SPN: £3.9 million.

We are also including significant investment as part of the London Infrastructure plan (see Section 7.4).

Connections

The provision of new connections was an area that was of particular interest to business customers, but also one where strong opinions exist amongst those domestic consumers who have experienced obtaining a new connection.

However, even for those customers with no exposure to the connections process, there was a general expectation over the quality of service that should be anticipated, and this was clearly influenced by their experience of dealing with other service providers, e.g. telecoms companies, cable/satellite, etc.

It was also notable that consumers made a subtle distinction between generic customer service activities and provision of a service such as a new connection. For example, they did recognise that offering connections services at the weekend would bring additional cost to the organisation in salary costs etc. As such, they were more tolerant of the idea that they might have to pay more for an extension in service of this sort.

The outcomes of the quantitative study are provided in Figure 16 (Note: all figures quoted are cumulative over the RIIO ED1 period):

Figure 16: Domestic consumers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Timing of any new connections work: Work is undertaken within a banded time i.e. morning, afternoon or evening in normal business hours, evenings or at weekends	-	12.6	21.3	33.9
Timescale for provision of quotations for simple, low voltage new connections work: By date agreed with customer	7.0	7.3	14.4	21.7
Time to complete simple, low voltage new connections work: 75 days quicker than now, i.e. within 15 days				
Timing of any new connections work: Work is undertaken within a banded time i.e. morning, afternoon or evening in normal business hours, evenings or at weekends	10.0	11.9	18.7	40.6
Timescale for provision of quotations for simple, low voltage new connections work: By date agreed with customer	5.0	13.1	17.9	36.0
Time to complete simple, low voltage new connections work: 75 days quicker than now, i.e. within 15 days	6.3	14.0	14.7	35.0
Timing of any new connections work: Work undertaken in normal business hours (08.00-17.00), in the evenings and at weekends	6.9	-	22.3	29.2
Type of new connections service offered: All elements of the work completed by UK Power Networks	5.6	5.8	14.6	26.0
Time to complete simple, low voltage new connections work:30 days quicker than now, i.e. within 60 days	-	11.0	-	11.0
Timescale for provision of quotations for simple, low voltage new connections work: Within 7 working days	-	8.6	-	8.6

Figure 17: Business customers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Time to complete simple, low voltage new connections work: 75 days quicker than now, i.e. within 15 days	6.1	5.7	6.4	18.2
Timing of any new connections work: Work is undertaken within a banded time i.e. morning, afternoon or evening in normal business hours, evenings or at weekends	6.2	3.0	6.2	15.4
Timescale for provision of quotations for simple, low voltage new connections work: By date agreed with customer	8.2	3.4	3.7	15.3
Timescale for provision of quotations for simple, low voltage new connections work: Within 7 working days	7.9	5.3	-	13.2
Timing of any new connections work: Work undertaken in normal business hours (08.00-17.00), in the evenings and at weekends	-	9.2	-	9.2
Type of new connections service offered: All elements of the work completed by UK Power Networks		3.6	5.3	8.9
Contact for any new connection work: Phone or email contact via a named co-ordinator	-	7.6	-	7.6

Figure 18: Business customers in London's Central Business District

Proposition	SMEs (£m)	Large businesses (£m)	Total (£m)
Timescale for provision of quotations for high voltage new connections work: by date agreed with customer	0.1	3.3	3.4
Timescale for provision of quotations for high voltage new connections work: within 20 working days	0.1	2.4	2.5
Timing of any new connections work: work is undertaken within a banded time i.e. morning, afternoon or evening in normal business hours, evenings or at weekends	0.1	1.9	2.0
Type of new connections service offered: all elements of the work completed by UK Power Networks	-	1.6	1.6
Timescale for provision of quotations for high voltage new connections work: within 25 working days	-	1.4	1.4

In summary, there is a general desire to see the process of both quotations and delivery speeded up, but also greater flexibility shown to customers in the timing of connections.

UK Power Networks' response

We understand that there is a long-running concern over the quality of service provided to connections customers, and this applies across the industry. The introduction of 'Competition in connections' also requires the DNOs, the traditional providers of connections, to up their game and allow third party companies access to their networks to provide connections to new customers.

In light of this, we have included a wide range of improvements to the end-to-end connections process as part of our transformation programme (**Annex 12: Business Transformation**). We recognise that there is a desire amongst customers to see that improvement at the earliest opportunity. As such, the connections activity has been prioritised in the programme. We will fund this transformation from our own resources (shareholder funded) and will not call upon customers to subsidise this, even though there is strong evidence of Willingness to Pay. This work is already underway and will be delivered prior to the start of the RIIO ED1 period.

Facilitating the low-carbon economy

One of the primary issues faced by DNOs, and the wider energy industry, is equipping itself for a world where low-carbon technology is much more central to our lives. This has the potential to result in some substantial investment requirements, and hence we believed that it was important to test the willingness of customers to support this transition.

The outcomes from the quantitative study which generated a positive willingness to pay were as follows (Note: all figures quoted are cumulative over the RIIO ED1 period):

Figure 19: Domestic consumers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Investment in network technologies to allow cheaper and quicker connection of new low carbon generators of electricity	17.5	28.1	35.0	80.6
Investment in infrastructure required to enable UK Power Networks to detect loss of supply from individual or small groups of premises	15.6	27.9	35.7	79.2
Investment to enable uptake of micro-generation e.g. solar panels etc.	14.8	19.0	19.0	52.8
Investment in infrastructure required to support take up of low carbon electric heating technologies	13.3	16.6	19.5	49.4
Investment in infrastructure required to support take up of electric vehicles	5.3	15.4	12.2	32.9

Figure 20: Business customers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Investment in infrastructure required to enable UK Power Networks to detect loss of supply from individual or small groups of premises	12.4	12.2	16.2	40.8
Investment in network technologies to allow cheaper and quicker connection of new low carbon generators of electricity	8.5	9.5	16.8	34.8
Investment to enable uptake of micro-generation e.g. solar panels etc.	9.8	7.9	15.1	32.8
Investment in infrastructure required to support take up of low carbon electric heating technologies	6.7	8.7	8.3	23.7
Investment in infrastructure required to support take up of electric vehicles	5.7	3.8	9.8	19.3

Figure 21: Business customers in London Central Business District:

Proposition	SMEs (£m)	Large businesses (£m)	Total (£m)
Investment in infrastructure required to enable UK Power Networks to detect loss of supply from individual or small groups of premises	0.1	4.3	5.4
Investment in infrastructure to support uptake of distributed/micro-generation technologies	0.1	1.5	1.6
Investment in infrastructure required to support take up of electric vehicles	0.1	1.2	1.3

In difficult economic times, one might have expected 'discretionary' investment such as this to be less favourably viewed. When combined with the general scepticism that exists in certain quarters, the extent of Willingness to Pay for these forms of investment was perhaps the greatest surprise in the whole study.

It was notable that customers were particularly keen on us making use of the potential within smart meters. To most people, it is a surprise when they find out that we do not necessarily know when a power outage occurs, particularly at the lower voltages. Hence, customers overwhelmingly saw the availability of 'last gasp' functionality (a real-time outage notification transmitted by smart meters when they lose supply) as being a significant opportunity for DNOs to improve their response to faults, and something that we should embrace.

Likewise, there was a favourable response to the propositions around investment to support the connection of renewable and distributed generation. Again there appears to be a widely-held belief amongst all types of customers that this will be a major part of the energy mix in the UK and that DNOs should be investing to facilitate this.

There was more scepticism about the take-up of electric vehicles with many customers citing the expense and also the increasing efficiency of hybrid alternatives etc. The willingness to pay, whilst not insignificant, does reflect this.

UK Power Networks' response

We have noted the enthusiasm of customers that we should be taking the maximum advantage of smart metering as a tool to improve our wider service, particularly in respect of faults.

In light of this, we have decided to include £57.1 million of investment to support process and system changes in response to the availability of smart meter data.

Our EPN network has seen high levels of distributed generation project connections, in particular in the north, where demand is relatively low. Consequently, we have identified a need to invest to address existing network constraints such as voltage and fault levels and thereby ensure the quality and reliability of supply and network safety standards.

We are therefore proposing to undertake four network reinforcement investments, forecast to cost around £15.4 million, which will increase network capacity by 187MVA. We have robustly tested this investment to ensure that it is prudent and efficient and will deliver outputs and outcomes that are in the long term interests of our customers through:

- WTP studies – there was clear support from customers for network investment to provide additional infrastructure to support the network against LCT growth. Customers indicated that they were willing to pay an additional £116 million across our three networks, and for EPN alone they were prepared to pay an additional £52 million, over the 2015 to 2023 planning period, and
- Cost-benefit/options analysis – we undertook an internal cost benefit assessment of the 16 different investment options considered. This involved comparing the costs of each project in a single year with the benefits which include amongst other things a reduction in carbon emissions over a period of 16 to 24 years,

- Stakeholder engagement at two UK Power Networks' DG forums, and
- Technical expert review – this was undertake by SKM and focused on the four proposed projects.

This project represent best value for money and would result in a positive return using the DECC non-traded carbon values.

Customer service

Customer service was a significant topic in the discussions we held with our customers.

It was evident that expectations are constantly increasing and that people's experience in dealing with customer service in other sectors, e.g. retail, influence their views as to what is acceptable from companies such as UK Power Networks.

The outcomes from the quantitative study which generated a positive willingness to pay were as follows (Note: all figures quoted are cumulative over the RIIO ED1 period):

Figure 22: Domestic consumers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Information during a power cut: available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors' etc.	4.5	7.0	9.4	20.9
Information during a power cut: Information available on contacting call centre plus provision of automatic update calls to customer from call centre and follow-up call when power cut over	-	10.0	-	10.0
Information during a power cut: Information available on contacting call centre plus provision of automatic text messages to registered customers with details of power cut and updates	-	6.2	-	6.2

Figure 23: Business customers

Proposition	LPN WTP (£m)	SPN WTP (£m)	EPN WTP (£m)	Total (£m)
Information during a power cut: available on contacting call centre plus provision of additional information services such as real-time information on internet, use of social media, customer service staff 'knocking on doors', etc.	-	3.6	5.8	9.4

Business customers in London's Central Business District

There was no significant Willingness to Pay shown by business customers in London's Central Business District.

Overall, there is evidence that customers believe that we should be extending our customer service channels to enable two-way communication through whatever medium suits the customer. They are willing to invest in support of that.

UK Power Networks' response

As was described for connections, we recognise that there is significant scope to improve the customer service experienced by our customers. In conducting this willingness to pay study, we were also able to gather a lot of qualitative data about customer experiences and expectations.

It is clear that it would be inappropriate for us to wait until the start of RIIO ED1 to embark on improving our customer service operations. As such Customer Service will also be prioritised within our Transformation programme, and in reality some of these initiatives are already underway. These improvements will be funded by the company as part of the overall programme, and we will not be calling on customers to contribute financially to this transformation.

4.3 Engagement with the Ofgem process

One of the stated objectives of the new RIIO regulatory framework is to bring forward policy development to the earlier stages of the price control process, thus enabling the DNOs to develop their business plans around a stable set of underlying industry requirements and regulatory incentive mechanisms. To facilitate this, Ofgem formed a series of working groups with the DNOs which commenced in March 2012. The working groups covered the areas of cost assessment, flexibility and capacity, reliability and safety, finance, losses, connections, customer and social issues, environmental, innovation and data assurance, and each was tasked with developing the policy framework in their area.

UK Power Networks staff have played an active and leading role in many of these working groups. In most cases, our representative on the working group was a senior manager with a direct responsibility for that area of the business, rather than a member of the regulatory or price control team. This was to ensure that the mechanisms being developed took account of the day-to-day practicalities that might arise when they are implemented.

Through our involvement in these working groups, we have been very successful in influencing the development of the RIIO ED1 policy agenda. The following provides three examples where our proposals have been adopted:

In response to feedback from our stakeholders about the lack of a customer-centric approach from DNOs in the delivery of connections, we proposed a set of new incentive arrangements (which were accepted by Ofgem) in the form of the Time to Connect incentive. The purpose of this is to drive continuous improvement in the most fundamental aspects of the connections customer experience, namely the time to obtain a firm quotation for a connection, and then the time to deliver that connection to the electricity network.

As part of our contribution to the Cost Assessment working group, we commissioned an economics consultancy to develop a Total Cost (Totex) model as a candidate for inclusion within Ofgem's assessment processes. Totex modelling is a new activity for regulation of our industry and UKPN were keen to ensure that any model was developed independently and on robust economic foundations. Our stated intention was always one of donating this work to the price control process, and the industry more widely, and we welcome the fact that Ofgem has adopted this model and sought to develop it further.

DPCR5 saw the introduction of Load and Health Indices to assist in monitoring the effectiveness of investment in network assets. UK Power Networks was a strong supporter of this initiative, and it has not required a great adjustment to our asset management processes to make use of these indices. As part of the Reliability and Safety working group we have led on work to take the use of these indices on to the next stage, and specifically, we have undertaken much of the development work resulting in the introduction of a Criticality and Risk index alongside the Health Index. This will result in a more sophisticated approach to asset replacement and should ensure that companies are targeting their investment to those assets where failure would have the greatest impact on customers.

5 How we determined the plans for our networks and associated costs

Incorporating our view of the future planning scenario and our understanding of our stakeholders' priorities for what we should deliver in the period, we commenced planning how we would manage our network over RIIO ED1.

5.1 Determining the network maintenance and capacity growth needed

The activity and investment needed on our network relates both to the need to maintain our current infrastructure as well as responding to increases in demand by utilising 'smart' technologies or increasing the capacity of our networks where necessary.

Maintenance of the network (non-load related)

To determine what asset replacement, refurbishment and maintenance (non-load related expenditure) would be needed on our networks over ED1, we worked in partnership with industry experts to enhance our investment modelling capability to support our decision making and long-term planning. We developed a suite of models for different types of assets (for details see **Annex 22: Asset Plan Production Process**) to identify the existing and predicted 'health'/condition of our assets and plan the work needed to maintain them. We also led work as part of the Ofgem framework development working groups (see Section 4.3) to include 'criticality' modelling functionality, which had not been part of DPCR5.

We have developed bespoke forecasting models to improve long term planning for our networks

Capacity of the network (load)

To determine the capacity needed from the networks for ED1 and beyond, we embarked on a major development of our network forecasting capabilities (see strategic projects, Section 6). We developed a new Load Related Expenditure (LRE) model with Imperial College London (ICL) which provided enhanced long-term network growth forecasting. This used the predicted growth in peak power we had determined from our planning scenario modelling (section 3.1) and applied it to our networks. The model can be adapted to present outputs based on different planning scenarios, apply sensitivities and to consider the application of smart network technology. As well as the ICL LRE model, we were also actively engaged in the development of the Transform model, as part of the Smart Grid Forum's Work Stream 3, which focused on the options around smart solutions to address network capacity. We used these two models, along with existing 'bottom-up'/local knowledge planning techniques, such as Planning Load Estimates, to take a long-term view of the best way to develop our network and create the load-related investment programme.

Inclusion of innovative/'smart' technology

As part of investment planning we ensured we would maximise the use of smart solutions to improve the way we manage our network and respond to the low carbon transition. This includes innovative ways of coping with growth in demand, better information and monitoring of our network, automated inspection techniques, and new maintenance techniques.

We have included a range of smart solutions throughout our network planning

Further information on the process of determining and maximising smart technology in our plans can be seen in **Annex 9: Smart Grid Strategy**. This also describes how we will prepare our networks for the changing customer requirement due to the low carbon economy.

We developed the **smart network** implementation plan to ensure these innovative 'smart' network solutions would be embedded in the planning and delivery functions across the business. It sets out a clear process for assessing the use of new innovative technologies as they emerge.

We also set up the **smart meter readiness** project to ensure we will be ready to make the most efficient use of the data available from the national smart meter roll-out and support the roll out itself.

Refining the overall Network Asset Management Plan

The outputs of the load and non-load related modelling underwent technical expert review to ensure all considerations were taken into account. They were then aggregated and optimised to form our overall investment plan, the Network Asset Management Plan (NAMP), which defines our planned spend on our network for the RIIO ED1 period. We tested the complete NAMP to ensure that it was thoroughly justified, and went through a rigorous assurance process (see Section 9). We also ensured it was practically deliverable (by our staff, contractors and suppliers), and capable of being flexed to respond to alternative future scenarios.

For further information on the modelling and planning process for load and non-load investment see **Annex 22: Asset Plan Production Process**.

5.2 Indirect costs

Following on from the direct cost plan (NAMP), 'closely associated' indirect costs (activities that are related to our core work on the network, such as design, project management, engineering management and clerical support) and business support costs (such as HR, IT and finance functions) were forecast. Previously this had been done solely with a bottom up approach on a historical basis. To support this we developed an indirect cost model to enable us to forecast more accurately based on our future plans. The model is based on a direct correlation between the movements of direct and indirect costs; to derive these relationships we used historic trends and insight from our management teams. The model was not used for IT, transport or property costs, which were formed from bottom-up analysis of the requirements based upon key factors such as actual vehicle replacement profiles and known IT system refresh programmes.

We have had to take account of regional cost factors. In LPN, through bottom up detailed cost analysis and established (RIIO-GD1) top down regional cost adjustment methodologies, we have identified and justified £33 million per annum of additional cost items. The main drivers of these additional costs are:

- Transport and travelling – congestion charges, parking and site access. Importantly recent changes to legislation relating to street works has increased these costs significantly,
- Excavations – accessing underground cable networks in high density urban areas and environmental restrictions on street works,
- Operations – scheduling work, accessing sites, and gaining consent from multiple interested parties such as property owners and local authorities,
- Resources – higher labour rates and allowances,
- Security – higher network asset security requirements and access to assets,
- Properties – purchasing and accessing higher cost land and buildings,
- Contractors – higher contracted labour rates (due to shortage of skilled labour),
- Tunnels – building tunnels for underground cables, and
- Labour – higher salary costs as a response to the cost of living in this region.

We have adjusted the unit costs underpinning LPN's expenditure forecasts to reflect these regional cost differences.

We have also undertaken a similar bottom up exercise in SPN, resulting in £11 million additional costs, and made the appropriate adjustments.

We have taken account of Real Price Effects (RPE) as well as ongoing planned efficiencies. Key elements of our cost base for the next planning period will increase at a greater rate than the retail price index (RPI), which measures general prices in the economy, due to the specialist labour and materials required to operate our networks. We engaged NERA Economic Consulting to independently estimate the real price effects relative to RPI for the next planning period for labour, materials, plant and equipment.

NERA has also reviewed the potential ongoing annual productivity improvements during RIIO ED1. We have included an ongoing productivity estimate of 1.0 per cent per annum for both operational expenditure (including total indirect costs) and network investment. In recognition of the slightly higher potential for ongoing efficiency in London due to the inclusion of regional cost factors we have increased the ongoing annual productivity improvement for LPN to 1.25 per cent.

5.3 Financing

To test that the plans we developed would be financeable, we developed a bespoke corporate finance model. This was reviewed and audited by independent firm of chartered accountants to ensure consistency with the RIIO framework.

The model used our direct (network related) and indirect costs and calculated financing requirements and cashflow. It enabled us to derive the most appropriate mix of measures to ensure our plans for each of the networks:

- Provides acceptable credit and equity metrics
- Provides appropriate return to investors
- Meets investor expectations over the long term, given uncertainty over long-term usage of the electricity distribution network
- Complies with Ofgem's stated policies

We used this to determine the real cost of equity required to maintain the funding needed to deliver our plans (for further information see **Annex 17: Financeability**).

6 What does the business need to do to get ready?

6.1 Strategic business change projects

Beyond the core planning and delivery process we also knew business change was needed in some areas. As part of our early review, we had identified areas where improvement in business performance was needed, or where changes were needed to respond to change in the environment or regulatory requirements. We therefore set up a range of projects to deliver these changes in preparation for RIIO.

The key areas for these strategic projects were:

Asset investment planning – we needed to develop top-down as well as bottom-up capital programme forecasting and planning methods over a longer timeframe to respond to the eight year (rather than five year) planning period, and utilise new modelling techniques to support decision making, ensuring the asset plans would be well justified. This led to the ICL load related expenditure model and EA Technology ARP model (see Section 5.1 above).

We wanted to improve the accuracy of our data on actual costs per unit of work incurred to ensure we had solid information for planning and decision making. We reviewed and improved the existing information on our systems, and set up processes to improve future recording.

We also reviewed the efficiency of our direct costs – seeking improved efficiency while delivering against our safety and customer satisfaction performance targets. Working with Accenture, we undertook a thorough review of the most efficient costs for work on the network possible in current conditions. We had already been through a significant process to improve our indirect costs through the Indirect Cost Efficiency programme, reducing our head count by 600 (25 per cent) in 2011.

Quality of supply – we sought to improve our 'quality of supply' by reducing the number of interruptions to customers' power supply, reducing the time power supplies are down for when there are interruptions, and improving the supply restoration process (for further information see **Annex 6: Quality of Supply**).

Customer satisfaction – following the 'Broad Measure of Customer Satisfaction' survey results, and other reviews and feedback, we sought to implement more active customer management activities and undertook a range of improvement projects (see **Annex 4: Customer Satisfaction Strategy**).

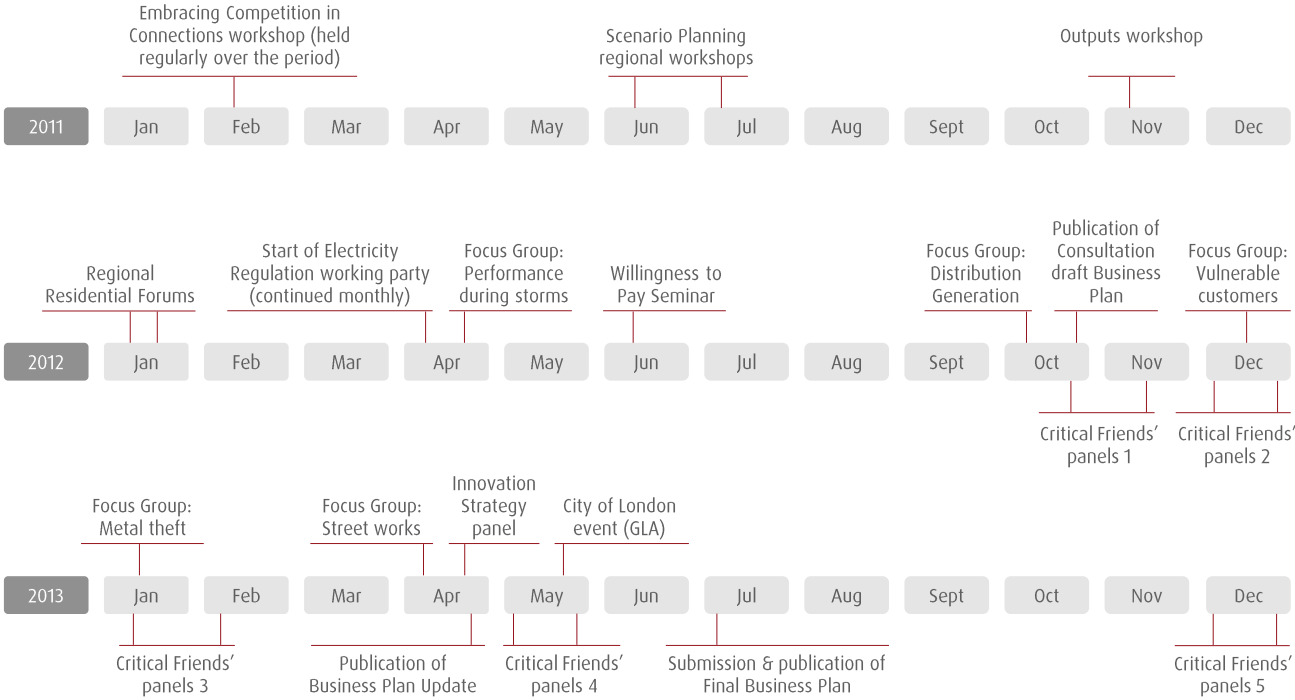
Business transformation – this builds on the initial customer service work to look at process improvement across the business and involves £50 million of investment (see **Annex 12: Business Transformation**). This will complete in 2015.

Stakeholder engagement – we developed a plan that would ensure a strong emphasis on stakeholder engagement, put in place best practice arrangements and ensure stakeholder input was at the heart of our business planning process (see **Annex 19: Stakeholder Engagement**).

7 How did we ensure **stakeholder views were incorporated?**

Our extensive programme of stakeholder engagement on the business plan has been going on for over two years and ensured stakeholders were involved from the very start of the process. It included consultation on iterations of the plan (through the Critical Friends' Panels and online consultation) and it more broadly included all elements of our operations, responding to areas of stakeholder interest. Some of the key elements are highlighted in the timeline below.

Figure 24: Overview timeline of key stakeholder engagement events



7.1 Critical Friends' Engagement Panels

Our approach to the development of output measures, planning scenarios consultation and willingness to pay was all part of the strategy, preparation and planning phase of our stakeholder engagement activities. We used the outcomes from these engagement processes to inform the next phase of our stakeholder engagement activities, the developing, testing and delivering phase.

A key component of the developing and testing phase of our stakeholder engagement has been testing key issues for the business plan through our Critical Friends' Panels. We have designed our Critical Friends' Panels to ensure that stakeholders have an interactive way of expressing their views on our plans.

We held four sessions in each of our DNO areas over the course of eight months (October 2012 to May 2013). The first three panel sessions in each area sought feedback on key initiatives to be considered for the business plan under each initiative. The fourth panel sessions provided a response to stakeholders on the issues raised, reviewed the progress we have made in implementing stakeholder feedback from the previous panels and demonstrated how this feedback has been incorporated in the business plan.

Figure 25: Critical Friends' Panels engagement timeline

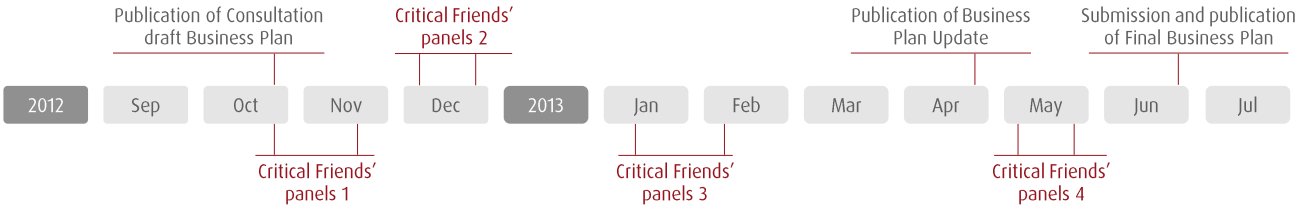


Figure 26 provides a high-level overview of the intended purpose, topics and expected outcome from the engagement series.

Figure 26: Critical Friends' Panel – purpose overview

Purpose of Engagement

To test and shape our Business Plan 2015-23	To capture and act on your priority Issues	To Include your views in our improvement plans to 2015

Engagement topics and timetable

Panel 1	Panel 2	Panel 3	Panel 4
Low Carbon Economy: Our Path to Innovation	Low Carbon Challenges & Our Innovative Solutions	Customer Services	Business Plan engagement feedback and update
Overview of the RIIO Framework	Network Investment	Connections	
Quality of Supply	Social Obligations, Safety and the Environment		
LPN: 4 Oct, SPN: 18 Oct, EPN 1 Nov	LPN: 15 Nov, SPN: 29 Nov, 13 Dec	LPN: 10 Jan, SPN: 24 Jan, EPN: 7 Feb	LPN: 2 May, SPN: 9 May, EPN: 16 May

Expected Outcomes

Robust Business Plan with a clear sense of direction	Priority issue sessions and planning future panels	Changes to existing business processes and actions update

Through previous consultation with stakeholders, we established the topics that represent the main areas of interest to our stakeholders and reflect the areas within the business where they would welcome the opportunity to provide input. These topics also reflected the output categories that Ofgem created for the next price control period. We also knew that some subjects were of special importance (e.g. smart meters, Distributed Generation, Distributed System Operator) and we made sure our consultation reflected those interests.

We organised the panel sessions into the following categories:

- Customer satisfaction
- Low carbon targets and transition
- Low carbon technologies
- Network reliability and availability
- Social obligations
- Safety
- Environment
- Connections

It is clear that the important part of this process has been to critique ideas and concepts with stakeholders. One such example is the evolution of UK Power Networks from a DNO to a Distribution System Operator (DSO). Another is creating a customer portal and a 'self-serve' area on our website – ideas that we have tested with stakeholders to understand if they wanted us to embark on such initiatives.

The panels have offered an ideal setting for presenting complex concepts as we have taken attendees on a journey of engagement; introducing our plans for the future against the context of where we are today. In addition, by gathering the same group of people around the table for several consecutive discussions, we have been able to:

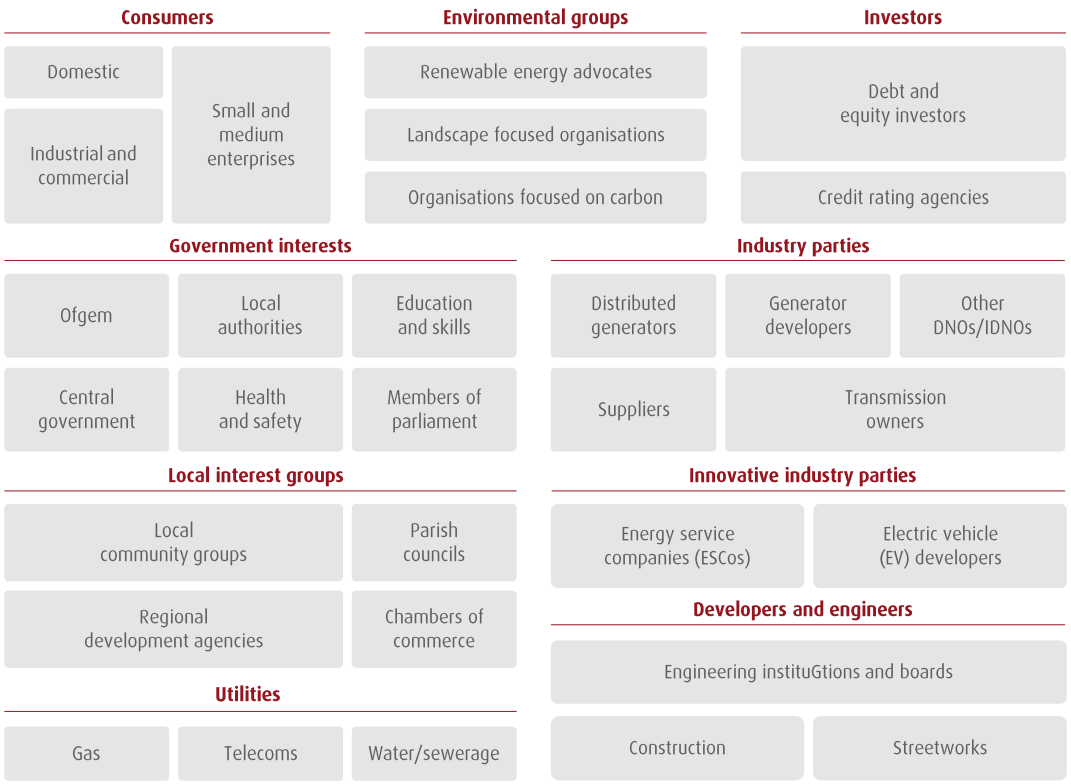
- Provide a strategic overview of key concepts
- Explore issues in each primary output category in detail
- Highlight linkages between output areas, demonstrating how improvements in, say, connections will make a tangible difference to the Broad Measure of Customer Satisfaction
- Build strong relations with individual stakeholders, developing relations beyond the Critical Friends' Panel programme

Understandably, not all issues that we have discussed with our stakeholders have been included in our final business plan. Equally, while specific issues raised by stakeholders would be considered by the business, not all would be practical, feasible or commercially viable for inclusion. Through our comprehensive reporting and feedback process, we provided a rationale back to our stakeholders on why some suggestions were not incorporated in our final business plan.

Who did we engage?

Throughout the Critical Friends' stakeholder engagement panels, we consulted with people from a wide range of organisations and representative bodies, including (but not limited to) major energy users, small business and domestic customers, developers, local authorities and parish councils, charities, environmental groups and organisations which help vulnerable people:

Figure 27: Overview of stakeholder engagement groups



The result of selecting the panel in such a way means we can be confident the output and feedback generated from these sessions will allow us to test our business plan and ensure that it can be considered well-justified.

We sought to create a 'core' of panellists who would attend all four panel sessions and would be introduced to and consulted on our initiatives and plans in all output areas.

At the same time, we were aware that some people would have more narrow interests in selected subjects. We were keen to engage with them and invited them to the panel session that covered the subject of their interest or concern and was close to their geographic location.

We used two methods to invite attendees to the panels:

- We consulted our significant database containing information on stakeholders to send invitations to organisations and individuals that we knew would add value to the discussions and allow us to test a number of concepts and ideas across the broad range of topics included in our Business Plan
- We also engaged managers across UK Power Networks with local knowledge to ensure that we were targeting the right people for each event and that all key contacts had been invited

Delegates from the following organisations joined us for the panels:

Figure 28: 'Critical Friends' Panel Attendees

Anglian Water	Eastbourne Borough Council	GTC	More London Estate	SEEC
Bernard Matthews	EDF Energy	Haven Power	Morrison Utility Services	Sir Robert McAlpine
Birse Civils South Region	Edward Pearce and Partners	Horsham District Council	Mott McDonald	Skanska
Brentwood Council	Electrical Contractors Association	HVMS Ltd	National Energy Action	
British Gas	Energy for London	Ipswich Borough Council	National Federation of Builders	Sohn Associates
British Red Cross	Energy Networks Association	J Murphy & Sons Ltd	New West End	South East Councils
Cambridgeshire County Council	Energy UK	Kent County Council	Norfolk County Council	Southdowns Solar
Citizens Advice Bureau	English Heritage	Land Securities	Norfolk District Council	Southern Water
City of London Corporation	Eon	London Borough of Havering	Northern Gas Networks	St Albans District Council
Construction ISG	Essex County Council	London Borough of Redbridge	Norwich Council	Suffolk County Council
Consumer Focus	Essex Fire and Rescue		Noveus	London Underground Ltd (LUL)
Davis Langdon	Fairview New Homes	London Sustainability Exchange	Premier Energy	Transport for London (TFL)
East Cambridge District Council	Forest Heath Council	Major Energy Users Council	R E G Energy Services	Utility Partnership Limited
East of England Ambulance Services NHS Trust	Fuel Poverty Action Group	Mansell Construction Services Ltd	RSK Group Ltd	West Sussex NHS Trust
East of England Energy Group	Grosvenor	Mervad Electrical Contractors		

A number of delegates attended all four of our panels and we had healthy attendance from stakeholders who wanted to know more about a particular subject. As a result, we received two types of feedback:

- General suggestions on what would be 'good to have' (e.g. suggestions on how we could improve customer experience in power outages)
- More concrete proposals on stakeholders' thoughts of what could or even must be done to give them the level of service they expect in the RIIO ED1 period

We present the feedback and responses later in this section.

How did we engage?

The sessions comprised of a series of short presentations on a focus topic during which time the participants were invited to ask questions as the presentations went along. Each was then followed by a dedicated open forum to probe issues further, focusing on some of the more technical or detailed questions.

The sessions provided an opportunity to use our informed stakeholders as a 'sounding board' for new ideas and we were able to collect feedback on how effective our initiatives are in addressing consumer issues and concerns. This gave stakeholders the opportunity to influence our objectives and future investment plans to ensure that they are in line with stakeholder expectations in delivering the right level of service.

After each event, a report was written to summarise the discussions and capture the feedback that the panel members had provided. It was then shared with the attendees along with any further information requested by the panel that was made immediately available. It also outlined the actions that the business had committed to consider further.

The stakeholder engagement team created an internal log of actions, which was monitored to ensure that all issues raised by stakeholders were examined and responded to either in reports that we produced post-engagement or through individual communication (emails, meetings, etc.).

Following the conclusion of the third round of panel sessions, we produced a consolidated report that collates all responses thematically, demonstrating which feedback we have been able to action immediately and which has been built into our business plans.

What were the views of our stakeholders?

We have undertaken a significant amount of work in clustering the feedback we have received during the panels. We have noticed that several issues have been raised repeatedly by stakeholders across the panel sessions.

The five most prominent issues were:

Figure 29: Key concerns of Critical Friends' panels

Issue	Description
Transparency across the board	Greater transparency around our reporting, decisions and business processes, particularly in connections.
Path to a Distribution System Operator (DSO)	The transition to a low carbon economy will bring about changes to our role so we must give consideration to undertaking a systems operation role in the near future.
Choice in customer services and connections	Choice is seen as an important development in improving customers' services so we should encourage contestability in the market.
Vulnerable customers	Stakeholders were pleased to see the business implementing measures to assist vulnerable customers, however, they would like more to be done.
Customer portal	Support for allowing customers to log into a system and obtain up-to-date information on outages, our performance and on construction projects and street works.

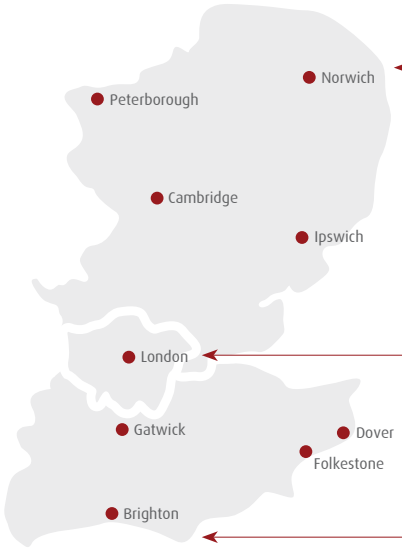
1. Transparency – across panels and topics, our stakeholders have consistently asked us to become more transparent in our reporting, processes and decisions. For instance, in connections, stakeholders have requested more detailed explanation of costs, project requirements and alternative solutions. They have told us that even seeing a breakdown of costs would significantly enhance customer experience.
2. Pathway to a Distribution System Operator (DSO) – at our events, we spent a considerable amount of time discussing the changing role of a distribution network company from a network operator to one where we undertake a systems operation role. Our stakeholders considered this to be an important development and wanted to ensure our Business Plan adequately explained the benefits and costs of the DSO model. As the low carbon agenda continues to develop, this system operation role will become more relevant. Over the next decade, a significant number of customers will become sellers of energy into the system as distributed generation grows. A DNO will need to play a balancing role, both providing electricity supply to, and receiving supply from customers. In such an environment, electricity storage will also become a relevant issue. Our current assumption is that the change to a DSO will be incremental and we will look to include the costs to support the transition to a Smart Grid within our ED1 business plan, where they can be justified.

3. **Choice in services and connections** – our stakeholders considered competition in connections has been an important development in improved customer services and wanted to see as much contestability in the market as possible.
4. **Vulnerable customers** – it was recognised we were implementing measures to assist vulnerable customers, however, more needed to be done. Following the stakeholder events, we have agreed to work more actively with community groups and local authorities to ensure our database of vulnerable customers is up to date and our response rates are enhanced.
5. **Customer Portal and 'Self-serve'** – at all our sessions, stakeholders considered the development of a customer portal to be an important initiative. A portal would allow our customers to log into a system to obtain up to date information on outages, our performance, construction projects and street works. We have undertaken to develop a customer portal and a 'self-serve' area by 2015 and we will continue to make improvements to it in response to customer feedback throughout the RIIO ED1 period.

Topics by Licence Area

A number of specific issues were raised separately by licence area participants in our panels. Examples of some of these issues are illustrated in Figure 30.

Figure 30: Specific issues raised by each DNO



EPN

- Improvement in communication in the connections process
- Give Customers greater information on, and access to network plans
- Improve visibility of costs and information around connections quotes

LPN

- Share more information on assumptions behind Low Carbon technology forecasts
- Show how the transition to a Distribution System Operator could occur
- Continue to train all workforces

SPN

- Provide more information around connections charges and lane rental
- Be more interactive with customers

Our response

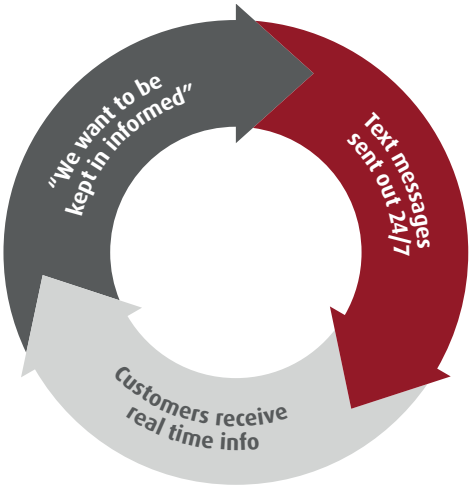
Following an initial analysis of the issues, we sought immediate feedback from the responsible business leads associated with each issue. It was then possible to categorise actions and recommendations from stakeholders into those which we considered priority actions that needed an immediate response, more innovative solutions that required greater consideration and inclusion in longer termed plans and those that we knew from prior experience and deliberation to be difficult to implement.

Acting on feedback: immediate response

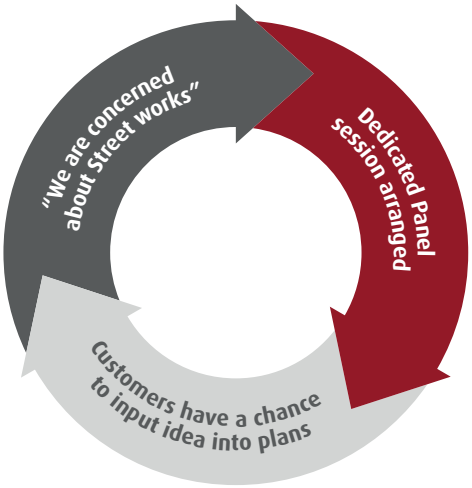
Below we present several examples of how we have listened to our stakeholders, and put measures in place to implement their suggestions or address their concerns as quickly as we could.

On issues where prompt responses were possible, we tried to close the 'loop' between feedback, action and outcome immediately after the panels. Many of such responses included providing additional information or holding one-to-one meetings.

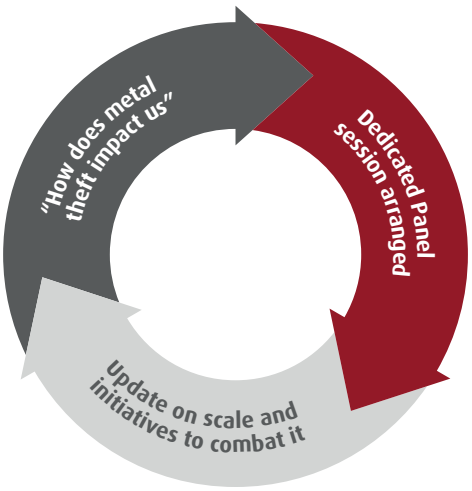
A number of issues required us to coordinate joint actions with stakeholders and internal business leads. This led to initiatives that altered our processes, which will lead to further feedback. In other words, the feedback that we have received and acted on has changed, and will continue to change, the way we do business.



Example 1. During the discussions around Customer Services in the third set of panel sessions, stakeholders were informed that text messages with information around outages are currently not sent between 10pm and 7am to avoid disturbing customers at night. There was a general consensus among the stakeholders that they would support a change to be kept informed 24 hours a day. On the back of this feedback, the Customer Services department will be changing the system imminently to allow text messages to be sent out in real time, 24 hours a day.



Example 2. In the open forum that followed a session on Social Obligations, a number of participants stated that UK Power Networks could do more to reduce disruptions through street works. One stakeholder, for instance, stated that they would like to see greater coordination of works between UK Power Networks and the local authorities' planners so that road works could be planned better, resulting in fewer disruptions and leading to higher customer satisfaction. On the back of this feedback, the decision was taken to hold a separate, focussed Stakeholder Panel on Street Works which would help address all concerns around this area. The Street works event was held in London on the 23 April 2013 and more detail can be found in Section 7.3.



Example 3. Stakeholders were interested to know the magnitude of the metal theft within our licence areas, what the associated costs were and how it was impacting their supply. On the back of this interest, it was decided to establish a separate seminar that would address these questions and offer the stakeholders the chance to have a more focussed discussion around the topic (see Section 7.3).

Acting on feedback: long-term plans

We considered some issues raised to be very good ideas, however, they would require more detailed consideration and may not be developed in time for inclusion in the business plan. Alternatively, they may comprise issues that would not necessarily be included in the business plan but were, in any event, very good suggestions and worthy of consideration. Other suggestions involved providing better information and communication to our customers.

We have collated these issues together with our response. Appendix A of **Annex 19: Stakeholder Engagement** contains the detailed tables, a summary of which follows.

Figure 31: Response to issues raised by Critical Friends' panels

You said	We did	We will do
Environment		
Benchmark Business Carbon Footprint against companies outside the electricity distribution sector	We have reduced our business carbon footprint by 24 per cent. We have commenced broadening the benchmarking approach to include other utilities.	We will report back at regular intervals with the results We are signing up to the global reporting initiative and we will target upper third performance of comparable industries. Our RIIO ED1 Carbon footprint target declines to 76,273 tonnes of CO2 equivalent (from the DPCR5 average of 77,812 tonnes). This is a 2 per cent decrease per year to 2023.
What is UK Power Networks doing to minimise losses?	We are working with Ofgem on its new annual reporting requirements which will include identifying the actions that we have taken to reduce losses.	We will submit our first report to Ofgem in mid-2014 and will report back to the Critical Friends' Panel.
How is UK Power Networks minimising the impact of its Street works?	We have introduced a number of key initiatives such to mitigate these essential works. These include ownership tracking, enhanced control, transparency and shared responsibility.	We aim to improve wherever possible the coordination of our works with Local Authorities' planners to allow better planning of road works and ensure a smoother process that minimises disruption.
Safety		
Safety is essential and non-negotiable	Our Public Safety Team is implementing a broad and pro-active public safety strategy. A recent targeted communication campaign included the development of new safety leaflets and short safety films to help raise awareness. There has been a significant reduction in lost time injuries and total recordable injuries.	We target zero public and employee harm. We will partner with third parties, such as National Energy Action, to work with local communities, councils, businesses and schools to improve safety awareness. We will continue to improve our safety performance by actively managing the network and delivering rapid resolution of issues, managing substation and providing additional security and education programmes.
Reliability and availability		
Can we publish maps of load pinch points?	We have assessed feedback and concluded that presently it is not possible to publish maps of load pinch points due to the high manual nature of the task.	We are currently developing a Geographic Information System (GIS) which will assist in identifying the geographic location of load and capacity requirements
Explain why UK Power Networks is seeking a higher expenditure allowance in RIIO ED1 when it has under-spent its DPCR5 allowance	We are on track to deliver all our outputs for the current planning period and have sought to achieve this as efficiently as possible.	Our final business plans will set out: • Why our proposed RIIO ED1 expenditure is prudent and efficient • Key drivers for any under expenditure in DPCR5.
How is metal theft impacting the reliability of the network and what steps are you taking to deter the thieves?	Metal theft in electricity substations has led to the death of 20 people across the UK and continues to affect our business. We already mark or brand many of our products, including cables and are continually exploring opportunities to improve the marking of our assets.	We will continue to engage with industry and other utilities to develop marking and products, including signs, that can be considered best practice and that have been proven to reduce theft.

You said	We did	We will do
Connections		
Provide more information on the process for new connections	We have launched a service called 'Ask the Expert' which provides information on the connection process and assistance with new connections applications.	Next steps will likely include a phone service and live chat.
UK Power Networks should improve resourcing in connections to reduce long-lead times	We have allocated additional resources to assess and develop improvements in this process. We have reallocated the responsibility for enquiries of generation connections under 50kW to a larger resource pool.	We will assess whether bringing selected services and teams in-house delivers a more efficient process (as we have in for the delivery of small service works in the South East).
Improve transparency around how we calculate connection charges	We have changed our business process to include a post-quote call to customers in which we offer to explain our charges.	We are committed to improving visibility of how connection charges are calculated. The process for major quotations and ways to improve customer information continues to be examined.
Customer service		
Improve the quality of information provided to customers	We have amended our practice and now hold daily meetings between the Dispatch Centre and Service Delivery managers. 98 per cent of the jobs raised now have an estimated time of restoration that our staff could provide to customers. This compares to 3 per cent of the jobs in 2011. We are modifying our IT systems to provide you with text updates in power outages 24/7.	We will focus on the quality of information we provide to our customers and the speed at which this information is shared. We will improve our capacity for making pro-active phone calls to customers off supply. We will make use of social media to keep customers informed.
Provide cheaper numbers to call from mobiles Advise on a single national DNO contact number	We have introduced these numbers for you to call instead of 0800 numbers: London 01243 50 0247 East of England 01243 50 8838 South East 01243 50 8866	We will examine the benefits of replacing our existing multiple contact numbers with a single number for all customer enquiries.
Can reliability and availability standards be made tougher?	We are paying higher standards than required by the EGS – paying £100 instead of £54 as required under EGS2 for 18-hour failures. While the EGS requires customers to apply for payment, we proactively contact all customers experiencing a fault for over 18 hours.	We are assessing reducing the EGS to 12 hours from 2014. We are also examining automating EGS payments. We will pay special attention to ensuring improvements for vulnerable customers.
Develop a customer database	We have introduced a temporary solution for faults and uploaded ~ 2 million customer contacts into this database.	We will develop a customer database as part of the overall business transformation programme.
Develop a Customer Portal	We have specified customer portal as an 'outcome' in the Business Transformation project.	We anticipate that we will test, if not launch, the Customer Portal by mid-2014.
UK Power Networks should offer an account manager service for larger customers	Our connections team currently operates an account approach in dealing with specific infrastructure projects and companies. We are assessing how this approach could be extended to large customers and those that have frequent interactions with us.	We will complete the assessment and report back to stakeholders with our findings and recommendations.

You said	We did	We will do
Sharing vulnerable customer data and supporting vulnerable customers more proactively	We sought legal advice on how we can share data. The Civil Contingencies Act 2004 allows us to share customer data with other category 1&2 responders. This has enabled us to improve cooperation with suppliers as we upload the data. We have also automated the process of uploading the data so that it is uploaded accurately and on time.	We have set up a pilot with six boroughs to pro-actively notify their Emergency Planning Teams about power cuts. We will develop triggers and response mechanisms, working closely with local authorities. We will continue to work with the British Red Cross to support vulnerable customers during power cuts.
Better publicise the Priority Service Register	We advertise the Priority Service Register via our website. We also actively engage with local authorities, medical centres, and providers of essential medical equipment which help us raise public awareness of PSR.	We will also work with the National Energy Association to develop an action plan, which will support our vulnerable customers in a targeted way.
Better inform and equip vulnerable customers	We have developed luminous stickers with our Priority Service contact number, which has been sent out to 2,000 customers on our PSR.	Encouraged by positive response, we will send a luminous sticker to each customer upon registration with the PSR. We will send out a Power Cut pack with practical items to all new members on our PSR
Encouraging Innovation		
Provide a rationale for a strategy to move from a DNO to a DSO	Our final business plan sets out how we intend to transition to a DSO role in the next planning period	Any transition is intended to be incremental, influenced by the rate of uptake of low carbon technology. We will continuously engage with our stakeholders on this issue.
Is UK Power Networks able to use Energy Storage on its network? How would this operate in practice?	We are working energy storage solutions (e.g. on Leighton Buzzard and Hemsby). Learning is continuously disseminated through specialised workshops.	Owning and running this 'proof of concept' facility will facilitate embedding similar technology across other constrained parts of the network.

Difficult to implement

In certain cases, it has not been possible or suitable to implement the recommendations from stakeholders. In our action reports and review sessions, we have explained the reasons for not adopting certain suggestions.

Fuel poverty

Alleviation of fuel poverty was raised by community groups. We are committed to working with suppliers, community groups, local authorities and Ofgem on policy options to alleviate fuel poverty through our work with vulnerable customers.

However, as our revenues are fixed by Ofgem this is an area where we can play a supporting, rather than leading, role. We will, however, continue to explore options with suppliers and our partners, such as the British Red Cross.

System losses

System losses are the biggest carbon contributors. Our stakeholders asked if there could be an incentives for DNOs to reduce them and requested that we forecast technical losses.

Upon further consultation within the business, we established that we are unable to specifically forecast technical losses, as at present it is impossible to disaggregate actual technical and non-technical losses (metering errors, theft, etc.) from the data available.

However, in developing our investment solutions we will consider whether it is cost effective to deploy low-loss equipment on a cost-benefit basis. If deployed such equipment would reduce technical losses.

The issues highlighted above are examples of topics raised by stakeholders that will be difficult to implement. In Appendix A of **Annex 19: Stakeholder Engagement** we have provided a full list of these issues together with the reason why these cannot be actioned.

How have we used actionable feedback?

The feedback collected in each Panel session was passed to the relevant owner within the business. It was the responsibility of this individual to consider the feedback generated from the panel and decide whether it should be included into the Business Plans along with a justification for this decision.

The fourth and final panel sessions allowed the business to show the stakeholders how their feedback had been taken on board and considered, informing them whether their feedback would be incorporated into the final Business Plan submitted in July and why this final decision was made.

We have outlined the steps that were to decide what will be done and by when. In certain cases, while it will not have been possible or suitable to implement the recommendations from stakeholders at this stage, the feedback will be considered for inclusion in later plans.

Figure 32: Feedback on the Critical Friends' panel

Feedback on management engagement

> Really good mix of management, giving ability to provide immediate and informative answers.

Critical friends' panel 4 – SPN

> Great to see Basil (CEO) at the event.

Critical friends' panel 4 – EPN

> UKPN are dedicated to improve in the future; will be interesting to see the outcome.

Critical friends' panel 3 – EPN

> Strong high level engagement providing clear messages to stakeholders and actively inviting feedback.

Critical friends' panel 4 – EPN

Comments on the way we implement feedback

> Felt that the issues and challenges we have discussed in past panels are being considered and delivered on.

Critical friends' panel 4 – SPN

> Would be good to see how continuous improvement, technology deployment, etc. talked about is considered in the planning cycle and how this is reflected in the overall benefit for the customers.

Critical friends' panel 2 – SPN

> Good update on business plan. Nice to see our inputs are being listened to.

Critical friends' panel 4 – EPN

> UKPN are seriously listening to the panels and taking actions.

Critical friends' panel 1 – EPN

7.2 Online feedback on our draft business plan for consultation

In addition to our specific stakeholder engagement events, we sought the views of stakeholders through other communication channels, including online and written engagement.

How did we collect responses?

We invited stakeholders who attended our engagement events to write to us with additional thoughts or to invite colleagues and friends to do so.

Our online consultation was open between December 2012 and February 2013, and responses could be provided via an online survey form or by email.

Who has responded?

Figure 33: Respondents to November 2012 draft Business Plan

Organisation online	Organisation by email
British Gas	Balfour Beatty
Ipswich Borough Council	EDF Energy
St Modwen Properties	English Heritage
Morrisons Utility Services	Skanska
City of London Corporation	Greater London Authority
Mansell	Norfolk Coast Partnership
Haven Power	Suffolk AONB
South Downs National Park	Suffolk County Council (Planning)
Chilterns AONB	Norfolk County Council (Planning)
Essex County Council	Westminster Property Association/City Property Association
South East England Councils	

Overall, the responses we received tended to focus on a handful of questions, which were obviously of particular interest and relevance to the stakeholder. Some stakeholders provided comprehensive responses.

Most of the responses received were focused on London or the overall UK Power Networks' draft business plan for consultation.

What have the responses shown us?

The three themes which received the greatest attention in the responses were:

- Investment in infrastructure (and who pays for it)
- Connections
- Network reliability

In addition, environmental issues received some focus with stakeholders from the Areas of Outstanding Natural Beauty (AONBs) being particularly appreciative of our role in the existing scheme for undergrounding of lines.

A number of responses were also received from the retail suppliers. The larger ones have typically positioned themselves as acting on behalf of end-customers, and hence tend to argue against what they perceive to be 'unjustified' spending and in favour of improved customer service. The smaller suppliers tend to argue that they can be somewhat overlooked and that DNOs should recognise that they are in fact our direct customers. The responses also highlighted a general plea from suppliers for tariff stability.

Investment in infrastructure

The comments are largely focused on Central London, although stakeholders do raise some concerns regarding Norfolk and Suffolk, and perceived constraints on capacity in those areas, which they believe to be driving high connections costs.

Our continued focus on engaging with those Central London stakeholders with an interest in economic development (see Section 7.4) has resulted in a number of detailed responses, all of which are strongly in favour of investment in the Central London network.

There are some robust views expressed over the need to invest to provide greater headroom (capacity), primarily as a means to ensure faster connections and a more reliable supply. These views are expressed both from the perspective of promoting economic development in the region, and the practicality of achieving a timely connection to a new property.

There is also diversity among the response views as to how this additional headroom should be paid for, with some stakeholders arguing that the wider economy will benefit, and hence all customers should share the cost, while others are very clear that the principle of the connecting customer paying should be maintained. One response suggests that UK Power Networks should contribute directly to investment in the asset base and another that UK Power Networks should pay the upfront capital cost but then be reimbursed by connecting customers, as they wish to take capacity.

Whilst the major driver for stakeholders is connection of new load, there is some acknowledgment that the growth in renewable generation will require investment in the network. However, there seems to be an assumption that it is in this area that UK Power Networks could do more to avoid/defer expenditure through, for example, the use of smart technologies and Demand Side Response.

Connections

Closely aligned with the comments on investment are a range of responses regarding connections.

Whilst these are largely directed at the experience and cost of obtaining a connection, many of these comments are rooted in a perception that the network is constrained, and hence greater investment in headroom would by definition improve the timeliness and reduce the expense of connections.

Over and above this, there is also considerable focus on the process itself with particular criticism from developers/construction companies over the quality of dialogue and information available. Developers in particular make reference to the difficulties in obtaining a schedule for the connections activities, which they can then incorporate within the wider programme plan for construction of a new building.

As mentioned earlier, both Norfolk and Suffolk County Councils have expressed concern over the cost of connections which they argue is proving a brake on economic development. Suffolk County Council makes specific reference to the London Infrastructure plan (see Section 7.4.1) and question why a similar model of investment ahead of need to provide capacity headroom could not be applied for hotspots in their area.

Network reliability

A number of discrete points were made in respect of network reliability and fault performance in particular.

- In London, a number of stakeholders made reference to the issue of transient faults and the difficulties that result from them. There is a broader concern that the regulatory framework does not take proper account of these, through placing some obligation on UK Power Networks to either report or to reduce sub-3 minute faults
- There are a number of comments in response to the question regarding 'maintaining current reliability'. We believe that stakeholders have possibly misinterpreted our proposals in this area, by assuming that we are content with the current level of performance. We therefore addressed this issue in our Critical Friends' Panels, unequivocally presenting our position and aspiration to improve on the current performance level. The feedback we received gives us confidence that we have been successful in communicating this message
- Stakeholders are clear that their expectation is one of continuing improvement, and in a number of cases argue that this can be achieved with little additional capital cost, for example, through better process. Again, this also seems to be an issue which a number of stakeholders associate with a lack of headroom. There is an assumption that a less constrained network would be less likely to fault and/or restoration would be quicker/easier

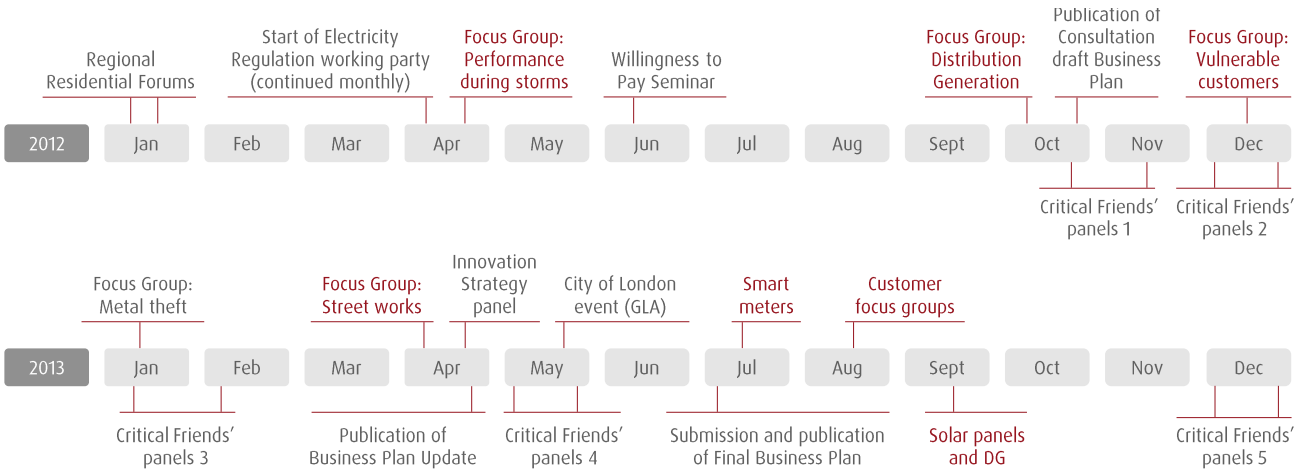
7.3 Engagement on specific priority issues

In addition to Critical Friends' Panels, we have held a number of sessions dedicated to various issues that we knew from our stakeholders were of concern or special interest to them.

- Through our research and interaction with stakeholders, we realised that the issues of greatest concern included metal theft, storms, street works and vulnerable customers. We have made sure all of these received their own dedicated sessions.
- The topics of interest also included distributed generation, an area of proposed further investment. Our first workshop on the subject was held in October 2012. The second was held in March 2013 and was oversubscribed. We intend to hold more such events in the near future.

The timeline below illustrates the sessions we have held so far. Section 10.2 on Future Engagement presents the timeline of our planned events and activities until the end of 2013.

Figure 34: Timeline highlighting specific issue focus groups



For each event, we have sought to be thorough in capturing all issues raised by stakeholders. We then assessed each issue, developed a response and, where appropriate, started the process of delivering improved outcomes.

In some cases, implementing stakeholder feedback meant developing responses and undertaking work in conjunction with partners. In the example of metal theft, such partners include the police and local authorities.

Metal theft

Metal theft is not only a resource and performance issue, it is a genuine safety concern: over the last five years, metal theft in electricity substations has led to the death of 20 people across the UK.

Willingness to pay research has highlighted widespread awareness of copper theft. This concern was further reinforced through our informal discussions with stakeholders and through the formal feedback that we had collected in Critical Friends' Panels. We arranged a dedicated session on the issue of metal theft where the problem could be discussed from numerous angles (e.g. legislation to tighten the scrap metal market, correct signage, technologies to prevent theft, etc.). This was held in February 2013 and was well attended.

Who was involved and how did the engagement take place?

The session comprised representatives from a number of interested organisations, including police, transport, local government and environmental bodies. During the session, speakers delivered two short presentations highlighting the issues and responses by the business.

This was followed by an interactive case study where stakeholders were given the chance to suggest alternative responses to a real life incident. The session ended with an open forum where participants could probe issues further and the group could share best practices.

The slides from the presentation, open forum questions on which we consulted on the day and a full report on the feedback that we have collected can be found on our website:

http://www.ukpowernetworks.co.uk/internet/en/have-your-say/our-events/

What are the key issues the Forum taught us?

Figure 35: Key topics from metal theft forum

Your question	Our response	Future action
Have you considered marking your assets?	We already mark or brand many of our products, including cables and are continually exploring opportunities to improve marking of our assets to deter or evidence theft.	We will continue to engage with industry and other utilities to develop marking best practice and products, including the use of signage, all of which have been proven to reduce theft.
Smart locks e.g. Zeni Locking system are a good preventative measure but these can still be physically cut and removed from site	We will provide details of the options currently under review to address the issue of stolen padlocks.	Zeni Locking systems is just one of the options under review and we will consult with stakeholders on a range of locking options.
The response time when using tracking systems is not quick enough as it is not in real time	We will consider the option of mapping the locations where offenders are prosecuted to establish whether there are patterns. This could identify whether thefts are being carried out by organised gangs who travel to targeted sites.	This will improve planning to reduce risks at potential asset targets.
If we had a list of scrap merchants who dealt in stolen materials we could be aware of who to avoid doing business with and cut off potential sales avenues	We will share details of scrap merchants who are known to trade in our materials with stakeholders as requested. This is now a legal requirement following the fast track implementation of the Scrap Metal Dealers Act 2013.	A national, public register of scrap metal dealers is to be set up and run by the Environment Agency. This will come into force around October 2013.
Can you distribute cable guides to scrap merchants so they know what to avoid?	We will initially focus on distributing cable guides to scrap merchants working in areas of significant levels of theft.	We will monitor the impact of this initiative and report back to our stakeholder group.
What are you doing in terms of liaising with the police?	We will share locations of substations with local police and include security plans in local constabularies' induction programmes.	We will continue to liaise with the police, including our stakeholder panel which has substantial representation from the Police.
Are there any other ways to make it harder for thieves to gain access to assets?	Metal theft is a global issue and we are pro-actively looking for ways to prevent the removal of our assets rather than ways by which we would be notified once thefts occur.	We will engage utility companies from other countries to share knowledge and best practice. We will share our findings from these conversations with our stakeholders.
Are you doing everything to ensure criminals are not receiving inside help?	We will consider introducing criminal record checks as part of our recruitment process.	We will report back to stakeholders on progress of this initiative.
Can't you recover indirect costs such as damages to appliances etc. in civil action against offenders?	We have considered this approach but have decided not to progress with it going forward. The offenders themselves usually have little by way of money/ assets and although there is an option to pass the debt onto a debt-collecting agency, we need to consider the impact this would have on our Brand.	No further action.
Can you distribute cable guides to scrap merchants so they know what to avoid?	We will initially focus on distributing cable guides to scrap merchants working in areas of significant levels of theft.	We will monitor progress of this initiative.
Can we increase public awareness of the location of substations?	We have encouraged many community vigilance initiatives, such as our substation watch initiative, which educates the public about staff identification. This has resulted in a number of calls from the general public to report suspicious behaviour.	We will continue to monitor the situation.

Storms performance

Even before the establishment of our Critical Friends' panels and consultations as part of the development of the ED1 business plan, we had been engaging with customers on issues that mattered to them. One example is our consultation on our performance during storms that we held in April 2012.

A number of themes that were highlighted in those meetings have been reiterated in more recent sessions. We have been able to test some of our early actions, based on subsequent experience of their effectiveness in a storm event, and further improve these initiatives – for example, the Priority Service Register stickers that have been sent to 2,000 vulnerable customers have undergone a change in design and format since they were first proposed.

Who was involved and how did the engagement take place?

Following the storms in the South and East of England in 2012, which damaged some overhead cables, we reached out to our residential stakeholders in the most affected areas and invited them to two regional forums to review our performance.

The customers invited had had their power supplies affected by the high winds and were able to give feedback about how their power supplies had been restored and their expectations of the company in the future. The discussion was aided by inviting interested bodies, such as the British Red Cross and the Disabled Advice Bureau, who were able to inform us of their experiences working with vulnerable customers during power cuts, and suggest ways in which we can help in the future.

At each forum, an event-specific presentation was given to the attendees that highlighted how the storms had affected our network and what work was being done to mitigate their impact on our customers. These presentations were then followed by an open forum discussion which allowed stakeholders to comment on the issues raised by the speaker and offer feedback onhow the response could be improved in the event of future storms. There was also the opportunity for the participants to raise any other additional issues that were of interest to them.

What are the key issues the Forum taught us?

Figure 36: Key topics from storm response forum

Your question	Our response	Future actions
It's difficult to find the number to call in a power cut	Glow-in-the-dark cards and stickers have been produced that feature our Freephone number and a trial has been launched to distribute these to customers on our Priority Service Register (PSR).	We plan to send out a Welcome Pack to customers on our PSR too. This a brand new service that we are offering and contains items and information they may find useful, including a corded telephone and a key-ring torch.
Telephone number should be promoted more widely to organisations and charities which support the vulnerable	We have since held a Focus Group that addressed the concerns around Vulnerable Customers on our network. This session raised awareness of how we can support our Vulnerable Customers with a number of charities and local authorities.	There is a project in place to identify and contact the major charities within our footprint that will aid us in raising our brand profile and identify opportunities for greater collaboration.
We would like to be informed when power supplies have been restored	We have set up a SMS alert that informs all registered customers when power supply has been restored to their area. We will also inform anyone who has contacted us about their outage through Twitter.	With the development of a new telephony platform, the longer-term plan is to implement a process whereby customers are notified when power is restored via an automated telephone service and/or by an adviser in addition to SMS.

Customers also told us that they did not expect power failures to last more than 1½-2 hours and that automated messages including progress on restoration should be updated every hour. We understand these concerns and now ensure that emergency teams update messaging information every hour. It was explained that power failures are rectified as soon as possible but sometimes complex repairs such as underground cable faults take time to locate, excavate and repair. The stakeholders were reassured that we always look to re-route supplies quickly, if possible.

Some stakeholders commented that they would like to be informed when power supplies had been restored and would rather talk with an agent than listen to a pre-recorded message when they contact the call centre. We agreed that ideally customers would always get to speak to an agent and a dedicated pro-active call-back team could ring customers following the restoration of supply but that this was not always possible given the large number of customers that can be affected by a fault.

Vulnerable customers

It became apparent during our Critical Friends' panel sessions that the ways we support Vulnerable Customers on our network is of utmost importance to our stakeholders. Yet we are also aware that we are a DNO and our responsibility is different to that of a supplier. We therefore decided to hold a dedicated session at which we could engage with the local authorities, suppliers and customers in a roundtable discussion.

Who was involved and how did the engagement take place?

Stakeholders representing a range of organisations including local governments, charities and the energy industry joined us for a focus panel that demonstrated to stakeholders the work we are currently doing to support our Vulnerable Customers. The session allowed an opportunity for the stakeholders to engage with us further around this topic via an open forum discussion.

What are the key issues the Forum taught us?

Figure 37: Key topics from vulnerable customer forum

You said	Our response	Future actions
How do you maintain a register of Vulnerable Customers?	Customers are billed by their supplier so we do not currently have an up-to-date database; however work is now underway to update this. We have also been producing self-addressed envelopes so our customers can inform us, free of charge, if they require any special consideration. These are with our printers and will be distributed shortly.	Our objective is to keep the register relevant and to develop systems that add and remove customers from the register on a more timely basis. Our plan is to develop a more robust tracking system by contacting each customer on our Vulnerable Customer register on an annual basis so that we can update our records. We will also continue to work with community organisations and through advertising to identify as many new vulnerable customers as possible.
How do you handle data around Vulnerable Customers? Can this be shared with other parties?	We reviewed the terms of the Civil Contingencies Act 2004 and have since set up a project to share customer data with local authorities. A project has been set up to contact all local authorities with a view to collecting data on known Vulnerable Customers on our PSR to ensure they receive the support they need during power cuts.	Following on from this initial research we have now set up a project to build relationships with our Local Authority partners with a view to sharing this data. We will continue to pursue our current approach and monitor the success of our partnership with Local Authorities.
Occasionally more than one organisation will attend a vulnerable Customer during an outage	Following feedback on the lack of coordinated response between Local Authorities and British Red Cross during outages, we now notify Local Authorities when there is a British Red Cross or Customer Champion activation.	We have developed a panel of Local Authorities with whom we will agree a communication strategy. This will decide on a wider set of triggers for notifying the Local Authorities of an outage on our network. For example, should there be a prolonged fault involving a larger number of customers.
What can UK Power Networks do in the poorer parts of the community?	We have signed up as business sponsors to NEA (Nation Energy Action) and are considering a range of initiatives that will support vulnerable and fuel poor customers.	We will work alongside the NEA to undertake local profiling and analysis of our customer base. This will give us greater visibility of vulnerable customers on our network and allow us to map organisations that can provide on the ground assistance and support.

Street works

This priority issue session was arranged following requests from stakeholders during the Critical Friends' panels to discuss the impact of street works and the potential of a greater coordination of works between UK Power Networks and the local authorities' planners, as well as understand the current procedures in place to minimise disruptions.

Who was involved and how did the engagement take place?

The panel comprised of representatives from a number of interested organisations, including transport bodies, local authorities and other utilities.

The session involved a presentation highlighting the work being done by the company to ensure that company to minimising their impact on others and how their performance around street works is critical to this, as well as highlighting measures that have been introduced to improve the performance. The second half of the session was dedicated to discussing Lane Rental charges as comments from customer surveys have emphasised how the greatest dissatisfaction for our customers and that, given the cost of the Lane Rental charge as a proportion of the overall connection costs, small service connections are particularly sensitive to these charges. Following this, there was an Open Forum where participants could probe issues further and the group could share best practices.

What are the key issues the Forum taught us?

Figure 38: Key topics from the streetworks forum

Your question	Our response	Future actions
Can the one month timescale currently quoted for Section 81s (damaged apparatus on the highway) be reduced?	We are required to respond within two hours when damages are logged as an emergency, whereas for all other repairs we attend within 30 days.	We recognise stakeholders' concerns and will explore ways to amend the reporting system and create a plan to reduce the one month limit over this year.
Rather than work to the statutory notice periods, UK Power Networks should share their plans to complete work as early as possible.	For all major network upgrades we try to provide information as far forward as possible via London Works or at local coordination meetings. For new customer connections we are very much driven by customer demand/ availability and approval to go ahead via payment. Reactive fault work which is the most common reason for excavating the highway is reactive and we have no knowledge of where or when such events will happen, but we do have a statutory obligation to restore supplies as quickly as possible as we are measured on Customer Minutes Lost (CMLs).	We will continue to share information with Local Authorities as promptly as possible and will actively participate in any mechanisms/ forums which facilitates improved working with local authorities and highways agencies.
When digging a trench, UK Power Networks should ask whether there are any other utilities that may have a need for the trench that could complete the reinstatement	The majority of our work relates to repairing a fault or a new customer connection where the excavation is small and localised. Only about 4 per cent of our work involves long trenches. For all major works we provides information on when and where our major work will be carried out as part of the road works coordination meeting held by local authorities. This has facilitated a number of incidences where trench sharing has taken place.	We will continue to seek the opportunity to cooperation with other utilities, however, the size of excavations required for electricity work is narrower and shallower than those required for say water or gas so it is more likely we would use a trench dug by these utilities rather than digging larger trenches and incurring more cost, disruption and liabilities. Alternatively where there is a road closure planned, we will look to see whether any of our work can be brought forward and undertaken whilst that closure is in force, thus avoiding a future closure.

Figure 39: Feedback on specific issue focus groups

Feedback from stakeholders – how did we on inclusiveness

> Very interesting, excellent range of stakeholders. Good stuff!
>
> Vulnerable and Fuel Poor Customer Focus Group

> Good mix of cross-industry partners.
>
> Metal Theft Focus Group

> The right mix of professionals at the event, which challenged the presenters to respond to most highly political matters.
>
> Street Works Focus Group

7.4 Engaging on major investment projects

We have consulted extensively on our key projects since our Consultation Draft Business Plan in November 2012 and have listened to feedback from a wider range of stakeholders, resulting to a considerable change of proposals in some areas:

- London Infrastructure plan: capacity – LPN is proposing to only include three of the six reinforcement projects previously proposed in its Consultation Draft Business Plan. The impact of this is to reduce expenditure from £170 million to around £100 million (excluding land purchase and other associated costs),
- London Infrastructure plan: resilience – there are now plans to improve network resilience through increased network automation and remote control at a cost of £39.4 million,
- There are plans in place to improve operational response in central London, and
- Distributed Generation (DG) Infrastructure – EPN is proposing a reduction in expenditure from £50 million to £15.4 million.

Further detail on these projects, the engagement and the results of the assessment undertaken is discussed below.

London Infrastructure plan – capacity and resilience

The London Infrastructure plan project is our central London investment strategy to ensure that the London network, particularly the central business district (CBD), has capacity and resilience appropriate for a world capital city. There are currently concerns relating to:

- Faults with long restoration times primarily due to the complexity of the LV interconnected network, and
- Available capacity required to cater for load growth.

In our November 2012 draft business plan for consultation, we proposed plans to improve network capacity and enhance network resilience for London by:

- Increasing capacity at six main substations (Vauxhall Nine Elms, White City, West End, City of London, West Ferry Road, Calshot Street) at an estimated cost of around £170 million, and
- Increasing network automation and remote control to improve network resilience at an estimated cost of around £40 million.

We consulted extensively with a wide range of key stakeholders and experts on these proposals, and have consequently revised them to balance the different views:

- Willingness to Pay studies (see Section 4.2) – there was strong support from the central London focus group for this investment given its importance for the economic growth and prosperity of the wider UK economy over the long term,
- Stakeholder engagement – we extensively engaged with stakeholders to align any investment solutions with requirements, including forming a specific working party through the mayor's forum (see below). The working party also supported the £170 million capacity investment in London given its strategic importance,
- Network options analysis – we engaged an independent engineering consultant, Sinclair Knight Merz (SKM), to provide an expert review of the possible investment options for addressing the issues. SKM identified and reviewed the costs versus the benefits of the available options which were categorised as short, medium and long terms solutions, and
- We engaged with Ofgem, whose position was that the current regulatory framework does not support investment ahead of need, and that the framework should not be updated.

As a result of this we have had to revise our capacity investment strategy for LPN by removing three projects from our updated business plan, reducing the additional investment in capital network infrastructure to £100 million.

In the case of the City of London project, we will able to extend an existing network primary substation, reducing the expected time to connect once a customer has made a formal connection request.

Capacity proposals

The proposed investments are summarised in Figure 40.

Figure 40: London infrastructure capacity development revised plan

Project name	Initial firm capacity to be installed (n-1)	Latest status in UKPN business plan	Costs to DUoS customers (£ million)	Cost to connection customer(s) (£ million)
Vauxhall Nine Elms	66 MVA	Included in RIIO ED1	33.0	TBC
White City	66 MVA	Included in RIIO ED1	27.5	2.5
West End	60 MVA	Included in RIIO ED1	32.0	0
City of London	33 MVA	Waiting for initial customer enquiry before agreeing funding allocation	Not applicable	Not applicable
West Ferry Road	66 MVA	Waiting for initial customer enquiry before agreeing funding allocation	Not applicable	Not applicable
Calshot Street	66 MVA	Included in DPCR-5/ RIIO ED1 Business Plan	8.0	0
Total	423 MVA		100.5	TBC
Earls Court	66 MVA	Waiting for initial customer enquiry before agreeing funding allocation	Not applicable	Not applicable

Resilience proposals

UKPN is also investing a further £40 million to increase network automation and remote control to improve the resilience of the networks. This will be achieved by the provision of remote control facilities on 1 in 3 remote terminal units and air circuit breakers and five (one funded in DPCR5) interconnected network groups converted to 'Unit' protection.

Improving operational performance in London

The expectations of stakeholders with regards to operational network performance are higher in central London than our other network distribution areas. This has been further reinforced through our experience gained during the London 2012 Olympic Games and recent operational incidents in London (i.e. Carnaby Street and Victoria), and the high level of media attention they have attracted. We are proposing to improve the level of services received by customers served by the central London network through:

- The establishment of a central London operational depot,
- 24-hour manned fault response,
- Removal of technical constraints, and
- Removal of service constraints.

We propose to achieve improved outcomes through our replacement, refurbishment and maintenance, and inspections programmes relating to amongst other things, link boxes, cable pits, radialisation and automation.

We have included a further £11.2 million per annum of expenditure in RIIO-ED1 to deliver improved operational performance in central London and we expect this to reduce our CI and CML performance by a further 0.5 CI and 0.78 CML (see the glossary in the Core Narrative for definition of measures).

Electricity regulation working party

Given the importance of London to the national economy, we established a formal process to work with key London stakeholders to identify major electricity infrastructure issues affecting central London.

Who is involved and what is their role?

The 'Electricity Regulation Working Party' was set up, comprised of representatives from City of London, City of Westminster, London First, City Property Association, Westminster Property Association and the Greater London Authority, to work alongside us and challenge our business plan submission for RIIO ED1. This working party has met monthly since April 2012 under the chair of Philip Everett from the Corporation of London.

The Working Party's aim is to ensure that sufficient and timely investment will be made to upgrade UK Power Networks' network, to assist developers in providing the optimum office environment, so that Central London remains well placed to attract new business and support the development of existing businesses. Whilst issues such as this may seem less pressing during a time of reduced economic activity, supporting jobs and growth and promoting economic recovery is a key priority for all members of the group, as is maintaining London's position as a world leading centre for business.

What have the working party reviewed?

Figure 41: Areas of discussion by Electricity Regulation working party

Theme	Topic/issue	Outcome/action
UK Power Networks' revenue structure	Is revenue from Distribution Use of System (DUoS) and charges received from customers requiring a connection collected as part of UK Power Networks revenue structure?	No – developer funded investment (such as 33KV network) does not become absorbed into the Regulatory Asset Base.
Common Connection Charging Model (CCCM)	CCCM is based upon 'shallowish' sharing mechanism, whereby those requiring new connections for their sole use must pay for entire asset and contribute towards proportional network reinforcement.	We will work to ensure individual customers are not unfairly burdened with connection charges.
'Second comer' rule	There are very few instances where developers have been refunded as a result of another party connection. Hence no transparency for developers to review whether they are entitled to refunds.	UK Power Networks will share revisions to proposed Common connections Charging Model.
Benchmarking study	Possible benchmarking research to be undertaken into regulatory frameworks for DNO's in other global financial centres, to highlight areas of best practice that could be built into the business plan.	As part of our early work we undertook a benchmarking study across our global holding company. Further studies are being considering by the working party.
Time to connect	A 'Time to Connect' incentive to be considered as part of RIIO – including how this will work for the larger more complex connections.	Was proposed to Ofgem as part of the working group and accepted, a Time to Connect incentive is now included in the RIIO package.
Sharing of delivery risk	Sharing of delivery risk i.e. developers to receive damages for untimely delivery of supply, to be discussed.	There is now an incentive to deliver to time and quality (above).
Anticipatory investment	Ofgem's Flexibility and Capacity Working Group 1 August 2013 meeting will be the key date for debate surrounding building additional headroom capacity into UK Power Networks' network, and anticipatory investment.	Circulated details of meeting to all Electricity Regulation Working Party members and updated.
Development pipeline data	City of London (CoL) office trajectory (which can provide a planning window of 10 years) shows commercial office development is the biggest user of electricity.	This will therefore form the main driver for UK Power Networks load forecasts in future business plan.
UK Power Networks LPN substation upgrade	UK Power Networks have proposed several substations in LPN region to be upgraded as part of RIIO ED1 process. Plan outlines summer and winter peak load, available firm capacity and available headroom (for new connections).	Provided mapping showing CoL and Westminster Development pipelines in proximity to proposed reinforced LPN sites.
Building the case for special consideration for London	The DPCR5 settlement accorded UK Power Networks a small amount of extra revenue to account for regional variation in labour costs.	We have demonstrated in our business plan (see section 5.2) that: • The future load growth requirements of London are being more expensive to address (operating and labour costs) • The difficulties of operating in London's dense urban environments • The impact of land values
UK Power Networks Central London Strategy	A new Grid Supply Point (GSP) at Islington in 2016 will provide 575MW additional capacity. This will support the Central London Network by taking existing load off other substations. Some substations will be used to transfer load from those at full capacity, freeing up additional headroom across the Central Business District (CBD) to accommodate new connections.	We are proposing over 2GW (gigawatts) of additional load across Central London, even though firm orders for the period are just over 1GW, because the excess will account for future need.
LPN Anticipatory Investment	The £210 million which UK Power Networks have included in their draft business plan to invest ahead of need will fund six new substations in the LPN area. Investment will fund additional network resilience as well as new substation capacity.	Ofgem have confirmed that investment ahead of need is not supported by the current regulatory framework. They also confirmed that they do not believe there is a need to update the framework. As a result UK Power Networks has reduced the original investment of £210 millon to £140 million.

What are the key issues the working party has taught us?

The Working Party, drawing on external consultancy support, looked at our proposed plans for the reinforcement of the Central London network, in the context of the existing regulatory framework. This analysis gave rise to the following issues:

- It was unclear whether Ofgem will view Central London differently from other areas of the UK (given its contribution to the UK economy), by allowing UK Power Networks to undertake anticipatory investment in additional network capacity and resilience.
- No incentive for primary substations to be built nearer to areas of high demand, or for UK Power Networks to show this was a better long-term solution than several customer connections, and thus to allow fewer and shorter length of customer connection routes, avoiding potential continual excavation of the same streets, and causing severe disruption to pedestrian and traffic flows, and adding time and uncertainty to the provision of connections.
- No incentive/penalty for UK Power Networks to ensure that large connections are delivered within a reasonable timescale, and no way of assuring that development programmes will not be impacted.
- No granularity of UK Power Networks demand modelling (used to inform investment plans during RIIO ED1 period), and no mechanism for incorporating such that customers could understand the long term planning for Central London.
- No new incentives to allow greater transparency of costs to developers, nor any way of ensuring that UK Power Networks could show they had balanced reasonable disclosure of cost with commercial confidentiality.
- No provision for developers to be credited with at least part of the electrical load freed up from the demolition of existing buildings when constructing a new building on the same site, and how this impacts on the network.
- No mention of the potential for alternative tariff for Central London, whereby business users would pay a premium for greater capacity and resilience and a faster installation time, without affecting other DUOS customers.
- No incentive for UK Power Networks to promote greater demand management and more efficient use of their network, and reduction in energy use by providing a 'standard size connection' me of which will not be used).

What were the outcomes?

Getting the balance of efficient costs and increased connection times between general existing customers, new connection customers and DNOs is not an easy task, particularly when forecasts are fixed for eight years and are required two years before they come into effect. Effective stakeholder engagement on the business plan is therefore important to ensure that there is a more balanced accommodation of all of the connection drivers in the RIIO ED1 settlement. We examined the potential alternative arrangements for the RIIO ED1 settlement with a range of stakeholders and identified seven potential alternatives:

Option 1 – reduce the level of utilisation in central London to upper quartile or average DNO utilisation by including costs of three developments at Vauxhall Nine Elms, the West End and City in the business plan.

Option 2 – sharing the long term benefits of strategic investment between DUoS customers and connection customers.

Option 3 – invest ahead of need in specific locations funded through the RAV but offset the Regulatory Asset Value (RAV) growth when new connections are made (requires a change in primary legislation).

Option 4 – UK Power Networks to fund investment either through existing licensee or new Independent Distribution Network Operator (IDNO).

Option 5 – a lead developer/consortium applies for a connection.

Option 6 – shallow connection charges for large new development areas.

Option 7 – vintageing of connection applications in an agreed geographical location.

These options are described in more detail in **Annex 19: Stakeholder Engagement**.

How has the working party altered our draft business plan?

Stakeholders have provided strong feedback in that there needs to be a review of the existing connection arrangements. Stakeholders have also indicated that they see considerable difficulties in making option five a viable solution.

Ofgem have previously indicated that option three requires changes to the legislative framework, which will take several years to achieve. It also has the unintended consequence of allowing similar reinforcement across the UK without sufficient DNO justification. They have therefore concluded that there is no need to change the current legislative framework. Ofgem recognised in the RIIO decision document that where the benefits from long term strategic reinforcement can be proved to be lower costs than incremental investment, the strategic investment should go ahead. The benefits from this investment should be shared appropriately between general (DUoS) and connection customers, recognising the stranding asset risk that DUoS customers are exposed to (option 2).

We have indicated that we are not able to effectively manage the stranding cost risk associated with option four, particularly as we are unable to create a private network and keep any outperformance beyond the existing regulatory rate of return. However, we are supportive of option five, but recognise that it still requires stakeholders to co-ordinate their activities and therefore is not directly within own control. To mitigate this we are planning to pilot option seven in specific 'green' development zones in the remaining two years of DPCR5. This will become part of our RIIO ED1 Business Plan. Finally we decided to include a number of large network infrastructure projects in our business plan under option one.

In summary, in the final business plan we have:

- Reduced the amount of additional investment in central London from £170 million to £100 million to comply with existing regulatory investment criteria
- Introduced additional resources to improve our operational response to faults and increase preventative inspection and maintenance of our central London network. This has increased our annual expenditure by £4.4 million and is estimated to reduce CI by 0.2 and CMLs by 0.3 per annum
- Included £40 million of expenditure to improve the resilience of its London network

Ongoing stakeholder engagement in London

We have discussed with stakeholders whether they feel there is benefit to continuing the working party beyond 2012. Stakeholders have expressed an interest for it to continue but have questioned whether meeting monthly would be required and have therefore suggested to meet every six months. Its high level objectives going forward are:

- UKPN recognises that the current business plan does not meet all of stakeholders' expectations and has committed to work with stakeholders to continue to examine further investment options
- Review UK Power Networks customer service performance for connections in London
- Review UKPN's long term development statement for central London
- Agree and monitor key performance indicators for central London including CMLs and CIs
- Review progress against the final agreed RIIO ED1 business plan
- Continue to provide a forum for key London stakeholders to raise concerns about the electrical infrastructure in London

Distributed generation

We want to be recognised as the best DNO provider of connections to the Distributed Generation community in the UK. We were involved in industry wider engagement on distributed generation from 2011, and started our own engagement on this issue in 2012. We have developed a comprehensive plan with input from our stakeholders and have established a Distributed Generation Steering Group that will deliver our cross-company improvement plan, as well as continuing to working with other DNOs where appropriate. The connections department has made significant improvements to many aspects of its business recently but acknowledges that the journey is not yet complete and this is reflected in feedback that has been received from stakeholders who have highlighted areas that still require some focus.

What are the key issues the Forums have taught us?

On the back of our engagement, a comprehensive plan has been developed that takes into account stakeholder opinion and covers the issues that have been identified in the sessions.

Figure 42 provides the overarching overview of the feedback we have received. We also provide a detailed breakdown by action of what we have undertaken and are yet to undertake.

Figure 42: Our response to 2011 DG engagement feedback

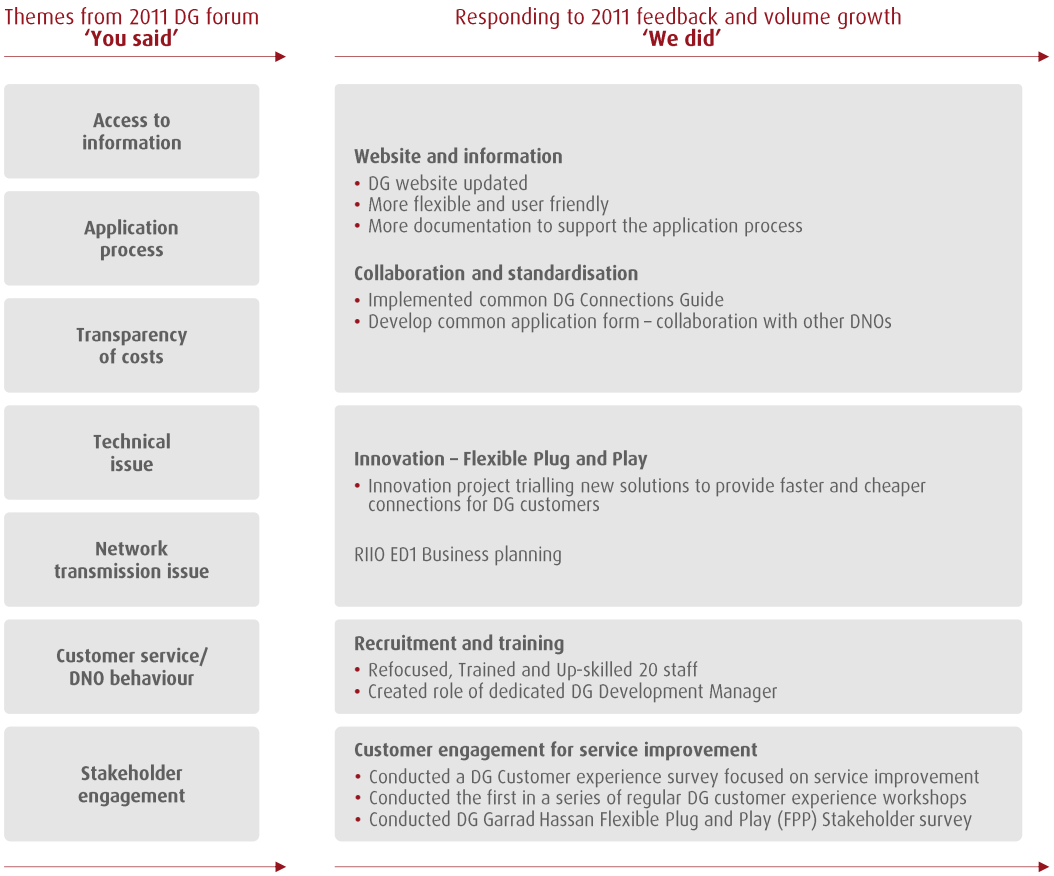


Figure 43: Our response to 2012 DG engagement feedback

We are confident that successful delivery of the initiatives will provide real benefits to our customers and a performance that will help deliver a position as a leading DNO.

You said	Our response	Future actions
We want improved customer service for distributed generation enquiries	We have committed additional specialist resources to the design and quotation service to shorten timescales. We are also committed to reduce the average quote time by 25 per cent from the 2012 level. We have nominated a clear point of contact for customers.	UK Power Networks will review our operating model to ensure best practice. UK Power Networks will host regular workshops for customers and industry stakeholders.
How will you measure customer satisfaction?	We have set up an independent month customer satisfaction survey, targeting a score in the upper third of DNOs by July 2013.	UK Power Networks will look into recruiting non-technical support to deal with the growing volume of DG queries and organise regular DG open forums.
DG awareness levels vary depending on who we speak to within the organisation	We have refocused, trained and up-skilled 20 members of our staff to handle DG enquiries and assess applications.	UK Power Networks will ensure key account managers know staff training requirements.
The website needs to be improved	We have updated the UK Power Networks DG website to be more flexible and user friendly. We have also provided more documentation to support the application process.	UK Power Networks will continue to review feedback and update our website accordingly.

DG infrastructure investment

This project is intended to address existing network constraints in the East of England where there has been a high number of renewable generation developments. Whilst we support the timely and efficient connection of these medium to large scale generation proponents to the network, significant network investment is required to ensure the maintenance of the quality and reliability of supply and network safety standards for existing customers.

We initially reviewed 16 investment projects ranging in capacity to be installed between 90MVA and 7MVA, which together would have provided an additional 334 MVA. Following consultation, we revised the size of the investment from our original proposal to four projects for RIIO ED1 which would install a further 187MVA of capacity at a total cost to consumers of £15.35 million. This decision was based on:

- Willingness to pay studies – there was clear support from customers for network investment to provide additional infrastructure to support the network against Low Carbon Technology related growth. Customers indicated that they were willing to pay an additional £116 million across our three networks, and for EPN alone they were prepared to pay an additional £52 million, over the 2015 to 2023 planning period
- Cost-benefit/options analysis – we undertook an internal cost benefit assessment of the different investment options. This assessment involved:
  - Determining the cost of each network investment project and assumed that the costs would be incurred in a single year
  - Determining the benefits associated with each project, being the reduction in carbon emissions from the connection of low carbon generation enabled by the network extension. We assessed the benefits using both the DECC energy market traded and non-traded carbon values (high-low scenarios in both cases) over a period of 16 and 24 years
  - Assuming phased use (over several years) of the additional network investment
- Further stakeholder engagement at two DG forums (see above)
- External expert technical review – SKM undertook a technical review by SKM of the four proposed projects to ensure best value for customers is achieved in RIIO ED1

These projects represent best value for money realising a positive return using the DECC non-traded carbon values.

Our London network already utilises many 'smart grid' techniques on a Business as usual basis, including meshed networks, high levels of automation and control, and contracted demand side reduction of use

7.5 Engaging on Low carbon innovation

As part of our preparation for the transition to a low carbon economy, we have a broad portfolio of projects investigating smart grid technologies and new, innovative commercial arrangements, as is detailed in the Innovation Strategy and Smart Grid Strategy. Such innovation cannot be undertaken effectively without significant buy-in from stakeholders, particularly our customers.

There are a wide range of stakeholders involved in innovation, not only our residential and business customers, but also local authorities charged with planning and implementing the Government's low carbon policies, our suppliers and delivery partners, renewable energy developers, electricity suppliers, our fellow DNOs, the National Grid, trade associations and customer interest groups. These groups are involved in different ways to help us develop and implement our innovation projects whether as trial participants, project partners or as members of our panels or sounding boards.

We have the largest portfolio of major innovation projects of any DNO group

Innovation strategy

We worked with our stakeholders to develop our innovation strategy. This has helped us clarify what is needed to meet future demands, how best to prioritise our options, test what is achievable and what likely responses will be. In April 2013 we held a specific panel on our draft strategy with a group of specialists, with the purpose of obtaining specific feedback on three topics:

- Are the guiding principles of the strategy fit to enable us to be leaders in innovation?
- Does the strategy encompass the right technologies?
- Have we considered the right innovation portfolio mix to support innovation successfully?

Feedback centred on a few key issues:

- Better explaining benefits to customers,
- The high risks of low carbon uptake and interoperability of future technologies,
- How we will pick our partners going forward, and
- The need to maintain a balanced portfolio.

Responses to these concerns were incorporated the Innovation Strategy and highlight the importance of having external feedback on our guiding documents.

Engagement through the Critical Friends' panels

As well as engagement on our Innovation strategy overall and our specific innovation projects, we have ensured innovation has been on the agenda at other forums. Topics at the critical friends' panels have included the government's low carbon economy targets and the impact of low carbon technologies. We have worked with representatives from all stakeholder groups to help shape our strategy on this.

As an example of the outcomes, a panel discussion with stakeholders led to a local authority representative and a property developer feeding into development of an innovation project concept which was under consideration for our 2013 LCNF (Tier 2) submissions, and may be pursued in a future funding round or through the Innovation Funding Incentive.

Engagement on our Innovation projects

Stakeholder engagement is not only an essential part of our innovation strategy and business planning, it forms part of the DNA of each of our innovation projects, from the inception of an idea, whether that is to solve a known issue or simply to improve the service we deliver to our customers, through to the sharing and dissemination of the learning and knowledge we have gained by the end of the project.

We are leading significant projects under the Low Carbon Network Fund (Tier 2), including Low Carbon London, Flexible Plug and Play and Smarter Network Storage; these projects all have bespoke stakeholder engagement plans.

An important element of this planning is ensuring we engage the right stakeholders at the right time in the project lifecycle. Some stakeholders may be key at the very early stages, defining the best ways to tackle an issue or challenge assumptions, their input is vital in helping us to refine our ideas. Others may be taking part in the trials we run or may be essential in the dissemination of the learning from the projects. All customers impacted directly or indirectly by our innovation projects are always identified as a critical stakeholder group and we ensure that they are at least aware of any risks and consequences that might affect them, regardless of their interest in outcome of any innovation project.

Figure 44 shows a number of examples of stakeholder engagement that we have carried out at different stages of the innovation projects lifecycle.

Figure 44: Examples of stakeholder engagement in the innovation lifecycle

Stage	Project	Engagement
Idea generation	ENA R&D working group; Energy Innovation Centre	Engagement with suppliers and R&D partners to develop improvement ideas for the benefit of customers.
Survey-based research	International Demand Side Management survey	Our innovation project 'International DSM survey' (funded via the Innovation Funding Incentive) investigated the opportunities that might exist for distribution networks in using active customer engagement to introduce Demand Side Response. The project contracted KEMA to carry out a survey of industrial and commercial customers. This survey allowed us to hear direct feedback about the appetite to be involved in Demand Side Response.
Documenting the current state of the art	DNO data sharing	Identification of best practice through data sharing with other DNOs. This technique has been used particularly by the Strategic Technology Programme, a long-standing programme of innovation which is subscribed to by all DNOs.
Involvement at the design stage	Flexible Plug and Play	Flexible Plug and Play is trialling a number of innovative technical and commercial solutions to enable faster and cheaper connections of distributed generation to the network. Stakeholder engagement is at the heart of this project to better understand the issues and barriers of connecting DG to parts of the networks where there is a high concentration of connections. The aim of this engagement is to better understand the needs, concerns and viewpoints of DG developers, other DNOs, renewable generation developers, trade associations, local government, and regulatory and policy-making bodies, and their current activities in this area. Some of the most important findings related to DG developers' views on 'curtailment', which involves the DNO signalling when there is no remaining network capacity and the generator turns down its output until the constraint is alleviated. The findings have been absorbed into the project and ongoing engagement also ensures that the customer/DG developer can influence and input into the innovative technical solutions and commercial framework being developed by the project. Our third flagship project awarded from the LCNF Tier 2, Smarter Network Storage, focuses on the benefits of electrical storage, and is currently engaged in a similar consultation with stakeholders around business models for storage.
Giving customers who may be affected a voice	Smarter Network Storage	Within the Smarter Network Storage project, we will install a 6 MW/10 MWh electrical storage device in the project area. Ahead of the mandatory council-led resident engagement activities, we consulted with local residents to fully understand any concerns.
Recruiting trial participants	Low Carbon London (Smart Meter and Electric Vehicle trials, solar panels)	Within our Low Carbon London project, we developed and implemented detailed consumer engagement plans for our Smart Meter and Electric Vehicle trials. The plans identified some overall principles for customer engagement, together with the proposed approach for the six separate customer groups, including vulnerable customers or those on the Priority Services Register. The project retains the flexibility to adapt these plans as we receive feedback from our customer and partners, or from other stakeholders. We are following a similar approach in our project funded by the LCNF Tier 1 to monitor a sample of customers' solar panels. The success of the Feed in Tariff resulted in rapid growth in the number of domestic 'micro generation' installations with the vast majority of them being Photovoltaic solar panels. The project has developed a detailed customer engagement plan to carry out this activity, paying special attention to any potential vulnerable customers.
Discussing industry change	Low Carbon London project – Demand Side Response and National Grid	Within the Low Carbon London project, we are working with the National Grid and other DNOs to examine the interactions between the DNOs' studies into Demand Side Response and National Grid's procurement of reserve services. This provides a forum in which we openly discuss areas where we have competing or overlapping requirements and which are best met by expanding the overall base of participants involved in reserve services and demand response; and areas in which we have requirements which are complementary and not in conflict.

7.6 Competition in connections

Following the introduction of 'competition in connections', (the requirement for DNOs to allow third party companies to access their networks to provide connections to new customers), we believe the best way to understand competitors' needs is to ask them directly and our whole approach to Competition in connections has centred on stakeholder engagement. Since November 2010, we have run 10 workshops with our competitors, going through cycles of surfacing issues, agreeing action plans and reporting on and testing acceptance of progress against those plans.

Figure 45: Timeline highlighting Competitions in connections workshops

Competition workshops are now established as regular events, with a commitment to provide these sessions on a permanent basis. In all, 49 different individuals have represented 29 ICPs (Independent Connection Providers) and IDNO companies at one or more of these events.

We use the information fed back from these sessions as the basis for our competition development programme, managed by our dedicated competition development manager. While there has been positive feedback, we recognise that the process has not been without its challenges and that there is still work to be done. We will continue to work closely with our stakeholders in shaping our improvement plans and devising tangible actions. Further, we will work with subsets of this group to develop specific improvement solutions, including a more efficient process for ICPs to secure land consents.

Key messages

Following on from our 'Embracing Competition' workshops a number of key themes have emerged. The main issues that have been raised are summarised below:

- Extension of contestability over the services a third party can provide (the most highly raised issue),
- Evidence of ICP incentive to compete (the second most highly raised issue),
- Knowledge share – we have put steps in place to ensure that they collaborate and share knowledge with competitors as much as possible, and
- Process improvements – many process improvement suggestions and usability comments e.g. websites, have also been incorporated into our approach going forward.

Priority actions

We have created a competition development plan – a list of prioritised actions along with key sponsors/ owners for associated tasks. This helps to ensure the actions that we take away from each of our engagement sessions are followed through whilst maintaining focus on the key topics and issues affecting competition within the networks.

A summary of the immediate actions that we have taken away and are currently working on have been summarised in Figure 46.

Figure 46: Priority actions from competition in connections forum

'You said'	'We did'
"We need more people to engage with extension of contestability"	"We are actively seeking additional participants to the extension of contestability pilots as well as the point of connection self-ID pilots whilst we continue to engage with the Ofgem consultation process"
"We have not seen sufficient evidence of incentive to compete"	"We are meeting with the ICPs on a 1-2-1 basis to identify competitor-specific issues, preferences and priorities"
"We want the websites to be more user friendly"	"Our new, user-friendly G81 library site went live in October 2012. We are engaging with ICPs to collect feedback on ways we can improve the customer experience of the NERS website"
"We receive little direct feedback from customers"	"We are investing more time in engaging directly with our customers: • To ensure that customers understand their competitive choices and the processes around them • To obtain more specific feedback"
"We want to understand what other DNOs do better"	"We will collate best practice examples of industry approach to share knowledge and experience and create better competition"
"The convertible quote process needs to be improved"	"We have now piloted a more streamlined solution which allows a simple conversion to ICP quote. This means there is no need to re-create new 'DNO Works' quote for ICPs"
"We need better access to network records"	"We have agreed an approach with the Ordinance Survey. 36 users have registered for access to 1:500 plans since January"
"The ICP acceptance procedures are unhelpful"	"We now have monthly training dates scheduled. We are reviewing our processes and will communicate these shortly, which will include service level standards"
"We want to see processes simplified"	"We have removed unnecessary steps and bureaucracy, improved the visibility of delivery schedules, created a more consistent approach between different UKPN areas/designers and carried out a review of non contestable charges"
"We want to be kept informed"	"We are developing and publishing further new content on G81 and communicating the release of LV diagrams for EPN and SPN"
"You have introduced a large number of changes in the last two years. Will you test these improvements?"	"Many of our improvement actions have only happened recently, however we do intend to: • Ensure we test that the changes make a difference • Track, report on and ask competitors to validate improvements"
"Employees need to be made aware of competition in connections issues"	"We have delivered briefings to just under 3000 people across UKPN on content including: • What is competition – legal aspects and roles of ICP, IDNO, Lloyds Register • Impacts throughout the end to end process • Growth in volumes of competitive enquires • Extending the scope of competition • Behavioural implications for each part of UKPN - including behaviours to be avoided/encouraged"

7.7 Engagement with Suppliers

We ensured a substantial programme of consultation specifically with suppliers (including bilateral meetings with all the major suppliers and forums representing the smaller suppliers) to understand their expectations and needs and focus on how we can better work with them to ensure that customers receive value for money over the long term.

We held two rounds of engagement with suppliers. The first followed publication of our November 2012 draft business plan for consultation. In this consultation, we were the first DNO to provide a full forecast of expected changes to revenue during ED1. We met again with suppliers following the publication of our April Business plan update.

We also presented our draft business plan at the small suppliers forum, hosted by the Cornwall group, and sought feedback.

Supplier feedback in this progress has been very positive and we have been able to proactively respond to challenges they have raised, including specific proposals on revenue predictability. We have proposed to fix our Distribution Use of System (DUoS) prices for 12 months from 1 April 2015, based on the business plan submission on 1 July 2013. Suppliers were also very keen to see the overall expected revenue changes during RIIO ED1, and we provided an initial forecast in November 2012 an update in April 2013 before the final proposed track of revenues in the July 2013 business plan.

7.8 Stakeholder changes included in the business plan

Throughout this document we have highlighted many comments or questions raised by our stakeholders, during the various engagement processes, together with our response. Where those requests are feasible and reasonable we have committed to action them, either during the remainder of the DPCR5 period or as part of our plan for the RIIO ED1 period.

This section summarises the main themes that have emerged from the formal consultations, and highlights many additions that have been made to the business plan as a result.

Equally we have received a number of suggestions that we are not able to take forward for one reason or another. We acknowledge these contributions, and list the more significant of these. It should be noted that in a number of cases, these suggestions may well be returned to and perhaps taken forward, in the future.

What is important to stakeholders

Our engagement has identified a number of key issues that consistently come through as most important to our stakeholders:

Increased transparency

Stakeholders have requested greater transparency around reporting, decisions and business processes particularly in connections.

In response, we were the first of the UK DNOs to publish information on our annual revenue requirements and prices for the upcoming planning period. We will undertake further focused improvement to our external website including providing improved information on our connections process and network availability.

Improved customer service in particular in connections

Stakeholders would like to see improved customer service and support the development of a contestable customer connections market to foster greater choice in service provider and in improvements in service outcomes.

In response, we have already significantly improved our customer connection services by listening to and acting on feedback from customers. We are committed to introducing further improvements over the next planning period as part of our Business Transformation project, including the introduction of an end-to-end customer self-service connection portal. This will provide customers with greater transparency about the connection process including timeframes, alternative service providers, information requirements and costs.

Infrastructure development

Some of our stakeholders, in particular in London, have questioned whether our current business plan provides sufficient capacity to accommodate future customer connection requests in certain areas of the network and supported our original plans for £240 million investment to improve resilience and capacity in central London. There were also discussions about how the cost of network investment, required to accommodate future connections, should be recovered from customers.

In response, we have revised our business plans to retain some investment, whilst being careful not to propose investment in new capacity ahead of need, which would result in existing customers subsidising the cost of connecting new customers and is prohibited by our regulator.

In particular LPN's Business Plan includes a £100 million London Infrastructure plan (see Section 7.4) focused on adding additional capacity to meet general load growth and improving resilience. This investment is in line with the existing planning standards. The investment costs will be recovered from customers in accordance with the existing statutory connection charges methodology. EPN's business plan includes £15 million to support the increased level of DG seeking connection to its distribution system. This investment is supported by Willingness to Pay research and cost benefit assessments.

Possible transition to a smart grid

There is stakeholder support for planning to meet the challenges arising from the transition to a low carbon economy, which will drive changes in the role and responsibilities of distribution networks.

In response, we have made clear our commitment to the UK's transition to a low carbon economy and to a possible journey towards a 'smart grid' by 2030 without creating stranded assets. We have reflected investment to support our transition to a smart grid in our business plans, and have also reflected £141 million of cost savings from smart interventions.

Vulnerable customers

Stakeholders would like to see even more investment in initiatives to assist vulnerable customers.

In response, we have established a project specifically focused on identifying how we can better assist vulnerable customers.

Efficiency of cost delivery

Stakeholders have asked for more comparative information on the relative efficiency of our networks in delivering their outputs compared to other DNOs.

In response, we are working with Ofgem to further develop its annual report on the electricity distribution networks, which is the best and independent source of comparative DNO information. Our vision, to achieve top third performance in our sector in key areas, is also founded on comparative benchmarking and this Business Plan is full of information comparing our performance with the sector.

Feedback on our draft business plan and business plan update

We have received a number of responses from stakeholders to the consultation exercises run following publication of our November 2012 draft business plan (23 specific written responses) and April 2013 draft business plan update.

Whilst there is considerable overlap with the issues that emerged from discussion at the Critical Friends' Panels, the personal nature of each response usually brings a particular perspective on a topic. Specific actions taken to address stakeholder comments including:

- The introduction of a £4.5 million per annum increase in operational resources.
- Confirmation that fault rates are not forecast to increase in RIIO ED1.
- We received a number of references to Combined Heat and Power from our stakeholders. The potential take-up of CHP was incorporated within our modelling of low carbon technologies and has been included within our forecasts for connections of Distributed Generation. We have clarified this in the final business plan.

Further detail on the comments received can be found at appendix A2 of **Annex 19: Stakeholder Engagement**.

Other changes to our plan as a result of stakeholder engagement

As a result of stakeholder feedback we have also made a number of other changes to our Business Plan. We have:

- Introduced additional secondary deliverables to support primary outputs. We has also identified programs of work or activities to support these commitments,
- Refined certain inputs into the planning scenario including forecast household growth and the domestic uptake rate of heat pumps and electric vehicles. We have however, retained the core planning scenario underpinning our Consultation Draft Business Plans,
- Refined the scope of investment required to respond to the decarbonisation of the UK economy particularly through the connection of new low carbon technologies,
- Refined the scope of the Distributed Generation (DG) Infrastructure required to allow the timely and efficient connection of the increase in medium to large scale generation,
- Refined the scope of investment in the London Infrastructure plan to ensure that the network serving London has capacity and resilience comparable to other world cities,
- Introduced an enhanced central London operational response team,
- Further developed our innovation strategy through expert panel review,
- Included shareholder funded greater investment to improve the end-to-end customer connections process. Further improvements will be delivered as part of the business transformation project over the next planning period,
- Targeted improvements to the quality of electricity supply through greater investment in automation and remote control and changes to inspection and fault processes,
- Further reviewed and revised our procurement, work delivery, training and contractor strategy,
- Expanded the initiatives that we will undertake to support community engagement and the services that we will provide to vulnerable and fuel poor customers, and
- Amended the way that our distribution use of system (DUoS) prices will be set to reduce price volatility.

Changes not taken forward

While we have listened to and understood all the feedback we have received, inevitably there has been some which it has not been practical or feasible to incorporate into our Business Plan. The main suggestions which have not been reflected include:

- The introduction of a seventh output category and associated targets and incentives relating to the decarbonisation of the UK economy (due to Ofgem response),
- Whilst we have undertaken to monitor short duration interruptions (less than three minutes) during RIIO ED1, compensation has not been extended to those customers affected,
- We have decided not to move to a Distribution System Operator during RIIO ED1, but will continue to review our role as the decarbonisation of the economy speeds up,
- Investment in infrastructure ahead of need in London and for the connection of Distributed Generation in EPN,
- We have decided not to create a separate licensed network for the central London district. We now monitor customer interruptions and customer minutes lost performance separately and provide geographical specific network loading. However, it is not practical due to the interconnection of the London network to try to completely separate the central district from the rest of the London network,
- We have decided not to become a Meter Operator in response to the smart metering roll-out and will focus on responding effectively to network interventions required by the supply companies and their agents,
- It was suggested that we should measure and report on the additional congestion resulting from our streetworks. Whilst this is a worthwhile proposal, it is not clear to us how this can be achieved and hence it has not been included in our plan. We will, however keep this matter under review,
- A more aggressive programme of removing oil-filled cables to minimise the potential for environmental damage through oil leakage. We will continue to monitor our oil-filled cables carefully and where a suitable investment case exists, we will replace them. However, these works tend to be very expensive and there is the scope for many customers to be affected, and hence for reasons of cost efficiency and customer service any replacement is best undertaken only when required, and
- It was suggested that we should change our DUoS charging to reflect the distance of the customer from the substation. Whilst understanding the rationale behind this point, we believe that this would be perceived as a 'postcode lottery' by customers and that a 'postage stamp' pricing model is more appropriate to a fundamental service such as provision of electricity.

Note: whilst we have decided not to incorporate the above in our business plan, it is certain that some will merit reconsideration at a future date and hence these suggestions will be logged and reviewed periodically.

8 How did we ensure **internal business engagement?**

In determining our plans and getting ready for RIIO, we ensured the whole business was involved in the process. This engagement was two-fold – not only was the plan created and driven by the relevant business areas; there was also a clear engagement/education programme for the rest of the company on the RIIO process and its implications.

8.1 A business driven plan

The programme involved all levels of the organisation, from the CEO and directors, to the business workstream leads, and the specialist teams that made technical engineering or economic site specific decisions.

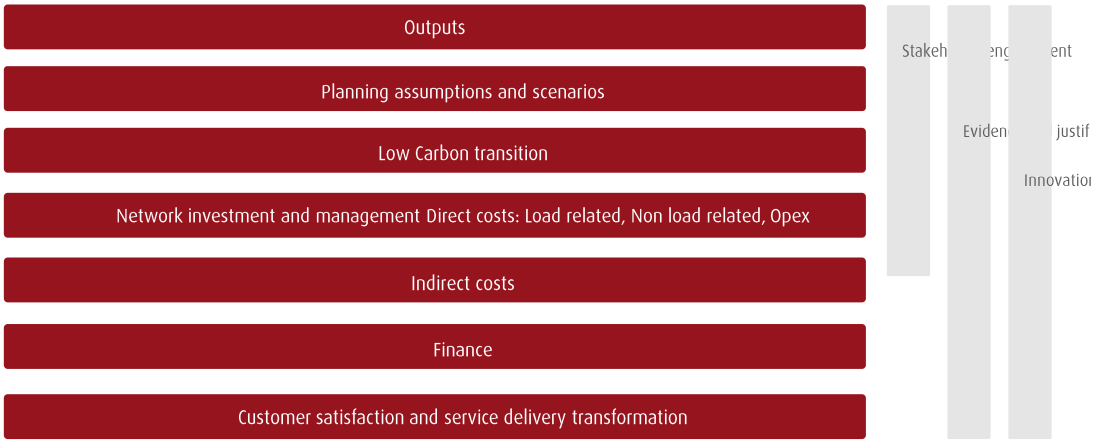
The programme was sponsored by the Chief Executive, who was actively engaged and chaired the weekly programme Steering Group. The directors of all the relevant business areas were also engaged in the weekly steering group, providing commitment and leading the programme in their relevant directorate.

The various components of the business plan were created and driven by the area of the business that had the expertise and would be responsible for delivering the activity (e.g. Asset Management, Capital Programme, Network Operations, connections). Business leads were also active participants in the programme of stakeholder engagement. This allowed managers to receive direct feedback on their part of the business and shape their contribution to the business plan. There was a defined workstream lead from the relevant area, and the workstreams were co-ordinated into the overall business plan by the programme team.

The programme governance structure also ensured engagement across the organisation:

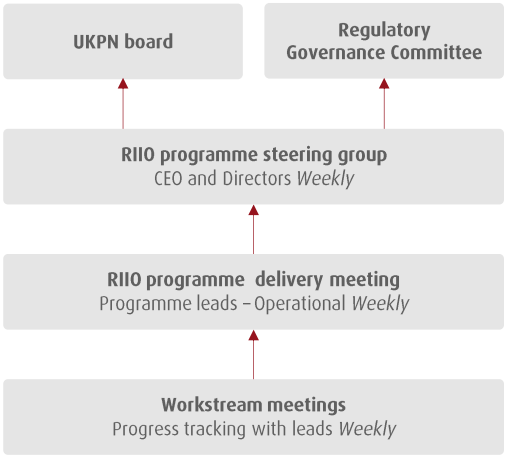
The programme was led from the top of the organisation and involved all relevant business areas

Figure 47: Overview of UK Power Networks' RIIO programme workstreams



Our governance arrangements ensured whole business engagement

Figure 48: RIIO programme governance groups



- Workstreams specific meetings were held with every workstream lead and the Programme Manager. These meetings ensured regular engagement and two way communication, as well as ensuring progress on the respective workstreams was tracked.
- The Programme Delivery meeting was an operational team meeting attended by key UK Power Networks and PA Consulting personnel. Key operational issues were discussed and progressed.
- The Programme Steering Group was chaired by the CEO and attended by all relevant directors across the business. It was the key decision making forum within the programme. It was held weekly; every fourth meeting was also attended by PA Consulting to provide their views on the status of the programme as part of their role supporting delivery.
- The UK Power Networks' board and Regulatory Governance and Planning Committee are part of the UK Power Networks' standard business governance which the Programme Steering Group fed into when necessary. This ensured the most senior representatives of the organisation were engaged.

8.2 A company engaged in the RIIO process

For those not directly involved in the business planning process, there has been a range of activities to ensure staff across UK Power Networks are familiar with, and prepared for, the regulatory considerations and the changing priorities for the RIIO ED1 period.

Direct briefings

There have been specific briefings arranged with management teams across the business to ensure they understand the principles through which we are regulated and how this might impact on their day-to-day operations. These were supported by internal publications, circulated to management to brief their staff and published on the company intranet.

There were three phases of engagement:

2010/11 – What does the DPCR5 final settlement mean for you?

These were localised briefings on the outcomes of DPCR5 and were supported by 'A guide to DPCR5' which provided an explanation of the key elements of the regulatory settlement and the business plan for the period 2010 to 2015.

2011/12 – An introduction to RIIO

These briefings provided an overview of the RIIO process, the key elements of the business plan and the timetable for the development of the plan, as well as specific discussions with each management team focusing on the RIIO outputs that they would be responsible for. They were supported by the publication of 'An introduction to RIIO', which described the principles of the RIIO framework and the developments from the existing framework in DPCR5.

2012/13 – RIIO ED1: a well justified business plan for 2015 to 2023

The third round of briefings provided more detail on the development of RIIO and highlighted Ofgem's approaches to benchmarking to bring a focus onto efficient performance and accurate capture of costs and achievement. The brochure described the RIIO ED1 proposals as they were likely to emerge from Ofgem's Strategy consultation in September 2012 and gave an update on the industry working groups that had been running throughout 2012. It also gave more details on the output measures for RIIO ED1, the elements of a well justified business plan, the likely cost assessment framework and reinforced the importance of good information. It also provided a brief update on the engagement with other stakeholders that the business was undertaking.

2013/14: Revised business plans

UK Power Networks revises its business plans following Ofgem's fast-track assessment and these were submitted in March 2014.

Engagement of staff representatives

Staff representatives were engaged through the Professional and Staff Group Negotiating Forums, ensuring there was an understanding of the key elements of the RIIO framework, how our business plan was developing and what the implications were for our business strategy.

Inclusion of the RIIO framework and principles in training

Through March and April 2013 we ran training courses to increase the commercial awareness of managers across the business and ensure they understand the requirements for running a cost-efficient, output driven regulated business. The course contains a significant segment on outputs and efficiency through unit costs to ensure that our front line leaders understand the importance of delivering the RIIO contract. This will be filtering throughout the organisation in due course, and further sessions are already planned.

9 How did we ensure a **robust assurance process?**

9.1 Overview

We have subjected our business plans to proportionate and robust internal and external assurance, challenge and verification to improve them and to ensure completeness, accuracy and appropriateness of information, data and assumptions. The significant aspects of the business plan for which external assurance or challenge were sought are:

- **PA Consulting** has provided advice, quality assurance and monitoring of the development of the Business Plan since 2011. As well as reviewing the cash-flow risk model and our indirect costs to identify opportunities for greater efficiency, based on benchmarking our business support costs against a range of other utility companies
- A panel of eminent utility executives and other experts organised by Indepen has provided an overall critique to challenge and shape the Business Plan
- **Navigant** and **PwC** reviewed and provided feedback on our November and April business plan consultation documents
- **Dialogue by Design** has checked that we have set our Business Plan priorities in line with stakeholder requirements
- **Element Energy** assisted us with economic modelling and reviewed our assumptions for economic growth in the UK economy, and other drivers for load growth including drivers for decarbonisation of the economy (e.g. electric vehicles)
- **Sinclair Knight Merz (SKM)** assessed the reasonableness of our direct capital investment, opex and outputs forecasts and assessed our health index methodology
- **An independent firm of chartered accountants** reviewed our financial model
- **Chiltern Power** assessed the feasibility, availability, suitability, and completeness of the smart network solutions being used within our Business Plan
- **Frontier Economics** assisted with the analytical and economic development of a totex benchmarking model
- **Two Tomorrows** reviewed the business plan stakeholder engagement commentary to ensure it accurately reflects the processes we followed and the changes to the outcomes as a result of the ongoing engagement programme
- **Oxera** and **First Economics** provided advice on the cost of capital and other financial matters (through the Energy Networks Association)
- **NERA Economics Consulting** Reviewed our internally estimated Real Price Effects (RPEs) and Total Factor Productivity (TFP) for the period 2015 to 2023 to ensure that they are economically justified and robust
- **Investment Property Databank** (IPD) provided cost benchmarking analysis to inform our property related expenditure forecasts and to measure the efficiency of the estate
- **ImprovIT** provided benchmarking cost analysis to inform our IT related expenditure forecasts and ensure that they are efficient
- **Turner and Townsend** assisted with the development of UKPNs deliverability assessment of the capital programme across the RIIO ED1 timeframe
- **KPMG** assured business plan data templates

Key messages

Set out below are the key messages we have received from our assurance providers:

- PA Consulting has reviewed the Business Plan executive summary document to confirm that:
  - The available data tables are supported by appropriate evidence
  - The statements made concerning performance relative to history are accurate
  - The key messages and forecast information set out in the UK Power Networks Overall Core Narrative document dated 20 June 2013 are consistent with the supporting evidence provided
- In addition, PA Consulting has throughout the preparation of the UK Power Networks business plan provided feedback and advice on the information contained therein
- PA Consulting has also confirmed that in connection with the cash-flow risk model, no technical errors were identified and the outputs of the model calculated correctly from the inputs and associated corporate assumptions, which are owned by UK Power Networks
- Chiltern Power noted that the results of their review show that many of the solutions considered by Chiltern Power are thought to be low risk and readily achievable. For those schemes that do not score as favourably in terms of a higher risk profile with unknown components, Chiltern Power's view is that they are not infeasible but rather that deployment will require greater focus and risk management
- Sinclair Knight Merz (SKM) has provided the following feedback on the output components of the RIIO ED1 business plan:

  Health indices

  - In 2012, SKM undertook an assessment of asset inspection procedures, and the models used to derive Health Index (HI) scores. At that time, UK Power Networks had just transitioned the majority of their health index scoring to the Asset Risk and Prioritisation (ARP) software from older and more basic methods. SKM examined both the methodologies adopted and the comprehensiveness of supporting documentation and recommended that UKPN needed to improve the depth of documentation, particularly at a high level; we also recommended that UK Power Networks continue to improve the quality of input data and establish procedures to ensure that the models remain accurate and consistent with each other
  - We have revisited the areas where we suggested improvements, as well as reviewing the criticality calculation procedure, which is a new addition to the Asset Risk and Planning (ARP) model and commented on the validity of the model outputs and the business plan narratives. With regard to these elements of UK Power Networks RIIO ED1 submission procedures, our review finds the following:
    - The documentation gaps identified in our previous review are largely covered by the new documentation and procedures produced by UK Power Networks. Any remaining gaps are very minor in nature and not a concern
    - Based on the documentation provided and demonstration of the criticality index (CI) scoring algorithms, the system appears to be robust and meaningful. A limited test check of the ARP models examined key metrics and data points within the HI and CI scoring algorithms in addition to the various input and output data sources, and found no inconsistent results
    - We were able to verify that the business planning process adopted by asset management engineers generally conformed to the procedures adopted by UK Power Networks management. The volumes and costs proposed in the business plan narrative documents were found to be consistent with forecast data

Load indices

- Our assurance review load indices (LI) was intended to address key aspects of UK Power Networks submission that included an analysis of load forecasting methodologies, the scenarios adopted for RIIO ED1 capacity predictions and whether these were correctly developed into the required Ofgem LI values for the ED1 submission. Based on that review, we found the following:
  - UK Power Networks long term strategy for managing network capacity, maintaining a level of system risk no higher than at present, is met by the proposed Load Related Expenditure (LRE) profile. This is demonstrated by the fact that the LRE profile is expected to deliver exactly the same number of LI4 and LI5 substation sites at the start and end of ED1 for EPN, and a reduction in the number of LI4 and LI5 sites at the end of the period (as compared to the start) for SPN and LPN
  - UK Power Networks LI calculations have been redefined to align with the new Ofgem requirements (provided in June 2013), and SKM's independent calculations have verified this
  - The unit costs adopted by UK Power Networks for ED1 utilise Ofgem DPCR5 targets which are considered appropriate for the cost forecasting process. Dialogue with UK Power Networks' Strategy and Regulation staff has confirmed that measures have been identified to improve cost efficiency over the ED1 period
  - Based on a sample review of load related and asset health/condition related expenditure projects a consistent approach (leveraging off common unit costs) has been taken by UK Power Networks in estimating project costs for the purpose of determining LRE
  - Appropriate judgments have been made to align load and non-load expenditure programs in the interest of optimising expenditure profiles and eliminating duplication
  - The LRE in the Network Assessment Management Plan (NAMP) is phased to deliver network capacity enhancements in line with the ED1 capacity forecast indicated in the LI tables
  - The review of a sample of the forecast substation capacity tables and associated LI categorisations detailed in the RDP's in comparison with the detailed LI tables (which serve as the source data for the RDP's) has confirmed that these sources of information are broadly aligned
  - The narrative documents for each area provide a detailed overview of the approach taken by UK Power Networks to incorporate a range of factors that can be expected to influence the area load profiles and requirement for future network capacity investments e.g. impact of electric vehicles, heat pumps and distributed generation
  - The LI calculations for SPN and EPN take into account distributed generation that contributes to system security (in line with ENA ETR130 requirements) in determining the available firm capacity for the purposes of LI calculations. Whilst the data provided does not conclusively demonstrate the same for LPN, discussions with UK Power Networks staff has confirmed that the approach adopted in accounting for distribution generation is the same across the three licensed areas
  - In relation to the supporting narrative documents, the count of substation sites classified as LI4 and LI5 at the beginning of ED1 indicated in each of the three license areas aligns with that shown in the accompanying LI tables
  - From review of the documentation provided and discussions with UK Power Networks' staff, it is evident that a number of management interventions in relation to LRE and the impact on the LI tables have been performed across all three networks. Whilst we have not reviewed these interventions in detail we are satisfied having discussed the overall LRE and LI process with UK Power Networks' staff that such revisions are necessary and appropriate in developing the final LI tables

Operating Expenditure on Faults, Inspections and Maintenance and Tree Cutting

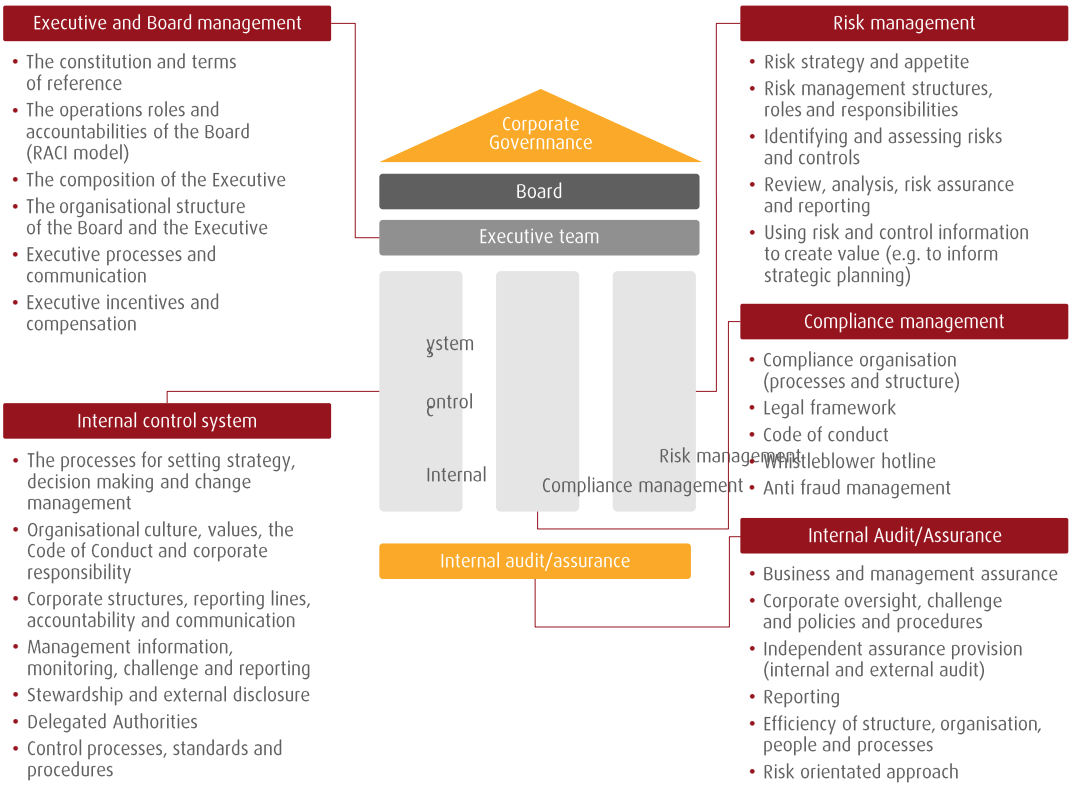
- The Operating expenditure assessment was broken down into three categories: faults; inspection and maintenance (I&M); and tree cutting. The elements of the overall process were critically reviewed against specific tasks, with a focus on the consistency and validity of the source data and formulation methodology. The business plan narratives were also reviewed for consistency. With regard to these elements of UK Power Networks' RIIO ED1 submission procedures, our review finds the following:
  - The established forecasting methodologies are generally applied consistently across the various asset classes. Where differences were noted, they were due to management interventions, engineering judgement and the assumptions that drive those interventions
  - The methodologies utilise historical data sources which are considered appropriate for the cost forecasting process and dialogue with UK Power Networks' Strategy and Regulation staff has been able to demonstrate that the unit costs are suitably benchmarked
  - A cost efficiency policy has been adopted within the business for the ED1 period, and the remainder of DPCR5, leading to significant changes in total expenditure projections compared to historical values. Whilst we cannot verify the achievability of the efficiency goals, it is clear that the unit costs developed from these goals are closer to the industry average than historical values
  - It was observed that an element of engineering judgement is applied to determining volume trends within the Opex Fault narrative; however this has been applied in a consistent manner throughout the documentation, with consideration given to management intervention requirements
  - The management interventions and assumptions applied in the forecasting process are generally reasonable, although not always clearly stated in the documentation
  - The Opex activity profiles proposed in the business plan narrative documents were found to be consistent with the forecast data. In a few cases, data errors were observed due to human error in typing or copying. The process of finalising the justification documents should give the opportunity to correct these errors

9.2 Background to Governance and Assurance within UK Power Networks

UK Power Networks (UKPN) operates within a structured governance framework to ensure delivery of its organisational strategy, compliance with applicable legal and regulatory obligations as well as meeting the requirements of its key stakeholders.

Risk management, compliance management and internal control processes act as enablers for the delivery of effective governance and provide the structures to demonstrate that adequate internal controls are in place and operating satisfactorily for all stewardship and reporting obligations. The key components of the framework are as follows:

Figure 49: Key components of the governance framework



A description of each component of the governance model is set out below:

The Board

The Board of Directors is responsible for the performance of the company in both the short and long term and seeks to balance the competing objectives of its stakeholders in the best interests of UK Power Networks. The Board has established a number of Committees to assist in the execution of its duties and to allow detailed consideration of complex issues. These committees are:

The Audit Committee

This committee assists the Board with its responsibilities for financial reporting and maintaining an efficient system of internal control and internal and external audit processes.

The Risk Management and Compliance Committee

This committee assists the Board with its responsibilities in relation to risk management and oversees compliance with obligations determined by statute, legislation, regulation, contract or agreement.

The Treasury Committee

This committee oversees the treasury strategy, policy and procedure development and ensures that all treasury risks are identified, measured and controlled in a manner consistent with corporate strategy and treasury policy.

The Remuneration Committee

This committee makes recommendations to the Board on the policies and structure in relation to the remuneration of senior management and employees.

Executive Management Team

The Board has put in place a clearly defined and documented delegation of authority to ensure that all information and analysis is appropriately considered within the organisation before it is distributed more widely. All information is reviewed by one or more members of the executive management team with the appropriate experience and knowledge of the activities being reported on and the processes followed to compile the reported information.

As a minimum, before any information is submitted to the Regulator it is reviewed and approved by the EMT member responsible for the subject matter and the Director of Strategy and Regulation and CFO.

The System of Internal Control

Operating an appropriate system of internal control with sufficient rigour applied to transactional and management oversight controls has ensured that UK Power Networks' internal and external reporting is reliable and supports compliance with law and regulation. The control system encompasses policies, processes, tasks, behaviours and other activities to facilitate effective and efficient operations that enable UK Power Networks to respond to significant business, operational, financial and compliance challenges. The principal policy for managing the regulatory requirements for reporting to the regulator is UK Power Networks' data assurance framework policy.

It should be noted that the data assurance framework reduces but cannot eliminate the possibility of poor judgement in decision making, human error, management overriding controls and the occurrence of unforeseen circumstances.

Compliance Management

UK Power Networks has also put in place a suite of ISO procedures and monitors compliance with these as part of an Integrated Management System that was accredited by an external agency for compliance with BS EN ISO 9001:2008 Quality Management Systems, BS EN ISO 14001:2004 Environmental Management Systems, OHSAS 18001:2007 Occupational Health and Safety Management Systems and PAS 55 Asset Management System.

Independent Assurance

Independent assurance is received from a number of different sources:

The **financial statement auditor** who provides an independent opinion on the financial statements and also performs a series of procedures agreed by Ofgem to confirm compliance with several additional aspects of the licence.

Other external assurance providers – As and when required, independent assurance opinions will be procured from third party consulting organisations with specialist experience and knowledge.

The internal audit function – Within UK Power Networks the internal audit function is independent of executive management as it reports directly to the Audit Committee Chairman. The function carries out independent assessments and analysis of the adequacy and effectiveness of the risk management and internal control systems within the business.

9.3 Application of the governance and assurance model to the RIIO ED1 business plan

To manage the risk of not delivering a well justified business plan UK Power Networks has followed the main principles of its governance and data assurance framework policy. In doing so, UK Power Networks has ensured the components of the business plan with the most significant impact on the price reset have received the appropriate level of internal and external scrutiny before submission.

The objectives of the data assurance framework policy have been reviewed to ensure that UK Power Networks identifies and manages the significant risks that affect the quality of analysis and information that support the business plan. To enable the mitigation to be effective, specific assurance activities, both internal and external, have been conducted that:

- Assess the quality of the business plan narrative and supporting data tables to ensure they are robust, reliable, produced on a timely basis and reviewed and approved in accordance with corporate policy
- Identify potential weaknesses in the information or analysis and set out the corrective actions required to be taken before submission of the business plan

The principal components of the assurance framework followed were:

Risk assessment

To ensure that the assurance activities conducted are proportionate to the importance of the information within the business plan, the key components of the business plan contents were risk assessed. The basis of the assessment was changed slightly from the data assurance framework policy so that they were aligned more closely with the needs of the business planning process. The risk assessment criteria were revised to be:

- Process risk: an assessment of the likelihood of inaccurate or incomplete reporting or misreporting of data and narrative analysis in the business plan
- Impact risk: an assessment was made in relation to the size of financial impact on the regulatory revenue settlement of inaccurate or incomplete reporting or misreporting of data and narrative analysis in the business plan

The matrices used to assess process and impact risk are set out in Appendices 2 and 3.

Assurance model

The assurance model being followed is consistent with the UK Power Networks data assurance framework and follows three lines of defence model similar to that employed to monitor the effectiveness of the system of internal control.

First Line of Defence

Management operates a monitoring and review process over the preparation of the plan narrative and associated data. This process seeks to provide a mechanism to demonstrate that a reasonable approach to assurance has been taken, with confirmation in writing provided that the data for which they are responsible has been validated for completeness, accuracy and is internally consistent with the accompanying narrative explanations. In terms of making this representation, management has as a minimum, ensured the following:

- The information provided complies with the regulatory requirements
- A sample of source data has been checked and it matches to the figures in the final report
- Data calculations and extractions from systems used to support the submission are correct
- Manual manipulation of the data has been reviewed and appropriately justified
- Relevant data has been input into the correct cells
- Variances in data from the previous years is understood and where material an explanation is provided

Second Line of Defence

The Regulation, finance and Business Planning functions have reviewed and challenged the information prepared by management to ensure that it stands up to the level of scrutiny consistent with that expected from the Regulator.

Third Line of Defence

Independent assurance has been provided in relation to the principal components of the business plan, specifically in relation to the completeness, accuracy and appropriateness of the data analysis and accompanying narrative.

In addition to the above there are further internal checks and reviews on the information and analysis, most notably:

- Executive Management review and approval
- Regulatory Governance and Business Planning Committee review
- CEO review and approval

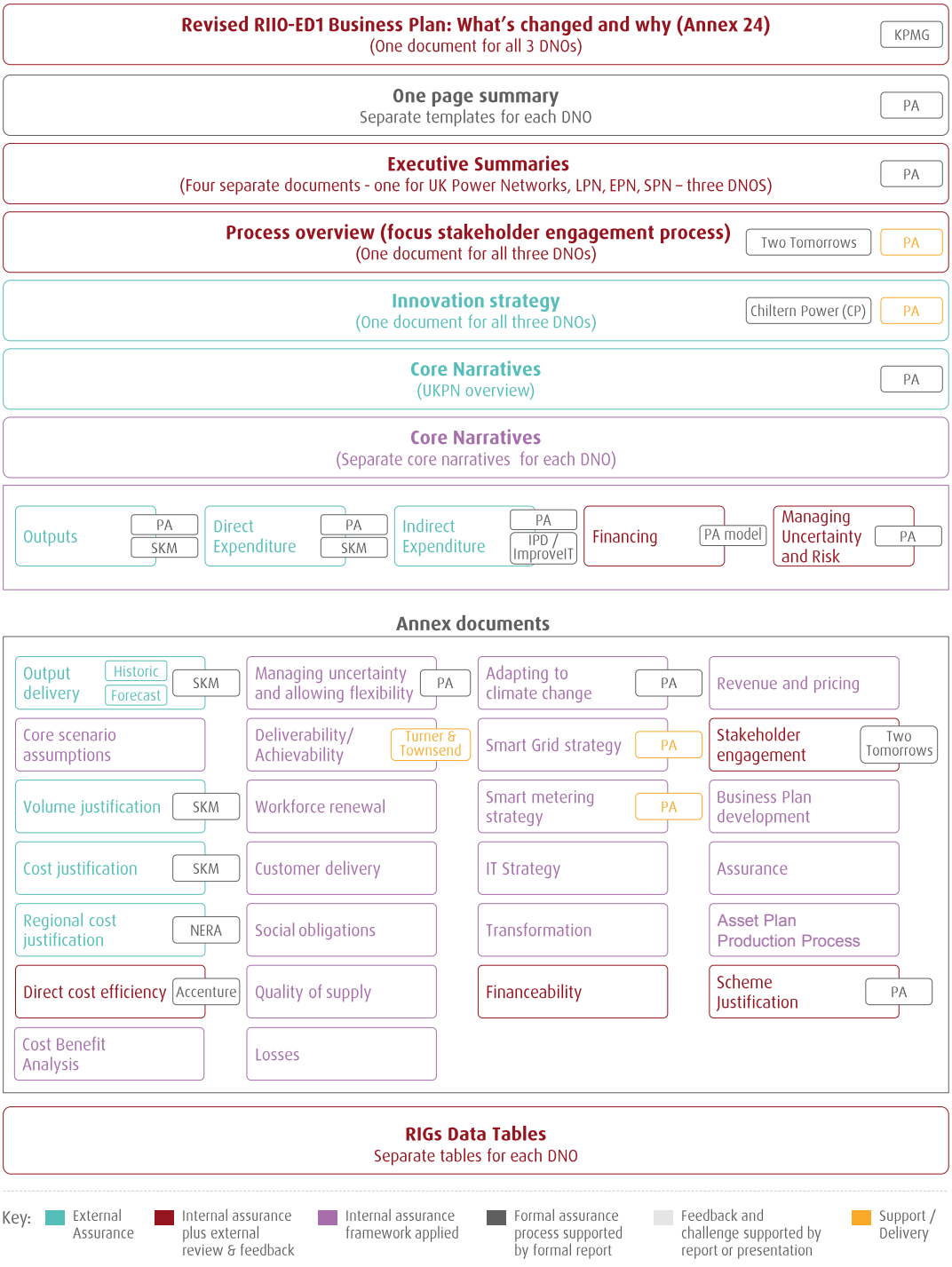
At the date of the submission, all assurance activity was completed, with both Director and CEO review and approval steps being concluded.

9.4 Determination of assurance scope and provider

The results of the quality and impact risk assessment were used to drive the assurance model. Low risk activities generally followed an internal assurance procedure with a fixed scope of work consistent with that noted above in the first line of defence section.

The high risk areas or areas with significant levels of management judgement had a greater level of external assurance and these are shaded blue on Figure 50. Areas where external input was sought on the quality of the content of the business plan but assurance provided internally are coloured orange and those highlighted green were only subjected to internal assurance processes.

Figure 50: Assurance on our business plan documents



9.5 Description of the activities being externally assured

Set out below are the areas of the RIIO ED1 business plan that were subject to external assurance and the scope of work to be completed by the external experts.

Business Plan Executive Summary and Core DNO submission documents

Two review and challenge activities were completed, one by Indepen and one by PA Consulting.

The Indepen challenge was provided by an expert panel drawn from senior executive from across government, regulated and unregulated businesses as well as inside and outside the electricity sector. The focus of the challenge process was to assess whether:

- The information as presented would be understandable to Ofgem and that the UK Power Networks point of view fits comfortably within the strategic context of the business plan, and
- The business planning and stakeholder engagement processes UK Power Networks has adopted reflects, where possible, best practice and that as a result, the businesses will be able to deliver against the assumptions it has made.

The challenge from Indepen was complimented by PA Consulting work. PA Consulting provided an overarching sense check that the story and key messages UK Power Networks was conveying in its business plan resonated with Ofgem requirements.

PA Consulting has also confirmed that the key messages and historic data contained within the business plans were consistent with supporting evidence provided.

Desk top reviews of the published business plan consultation documents were conducted by Navigant Consulting and PwC to assess whether the plans would fulfil the requirements of the regulator, when measured against the published criteria set out by Ofgem.

Stakeholder engagement

Two Tomorrows reviewed the stakeholder engagement aspects of the business plan and provide comments on whether it resonates with their understanding of what is happening in practice.

Network outputs

SKM performed a technical assurance review of the network output elements of the business plan submission and associated data. The review addressed key aspects of the submission and included:

- A review of load forecast methodologies, the scenarios adopted for the capacity prediction and whether these are then correctly interpreted into Load Indices (LI). This assessment being supported by a review of a sample of projects to determine if the Network Asset Management Plan addresses the forecast,
- A review of Health Indices (HI) to confirm that the recommendations made in a recent assessment of the HI process have been completed. A review of the new methodology for assessment of asset risk criticality and how it has been implemented. As for LI's a sample check of projects was undertaken to confirm that the models and methodologies have been correctly applied to develop the HI table used in the submission and that the business plan narrative is supported by the data, and
- A review of the Opex elements of Faults, Inspection and Maintenance and Tree cutting to assess how the forecast was developed and whether the delivery plans had been appropriately constructed and that the unit costs used were reasonable.

In addition, as part of the network outputs considerations, UK Power Networks also asked Chiltern Power to review and comment on the smart networks interventions proposed and the impact these would have on network outputs. This work considered the merits of the schemes being implemented by UK Power Networks, in terms of feasibility of practical deployment, availability and supply chain considerations, suitability to the network and its organisation, completeness in regard to alternatives or variants, and at a general level the consumer engagement requirements or impacts.

Real price effects and total factor productivity

NERA was asked to review calculations of Real Price Effects (RPEs) and Total Factor Productivity (TFP) for the period 2015 to 2023.

As part of the RPE review, NERA examined the principal cost indices (some of which Ofgem has identified in the strategy consultation) in order to assess which index will most closely reflected UK Power Networks costs by:

- Theoretical robustness: Does the index (or combination of indices) measure the evolution of costs for a category of expenditure close to the categories identified, and
- Empirical fit: Does the index closely match UK Power Networks past cost inflation.

As part of the TFP review, NERA helped identify and estimate proxies for a true measure of TFP, suitable for use in ED1 as well as 'Partial Factor Productivity' (PFP) for individual network investment estimates (again, the relevant factors of production) by reviewing historical time-series evidence drawing on the EU KLEMS (capital (K), labour (L), energy (E), materials (M), and services (S)) database. The database provides TFP and PFP estimates for UK (and other countries) for the period since 1970.

Other matters covered by external assurance or challenge activities

Cost of debt and equity

Advice on the cost of capital and other financial matters was provided by OXERA through the Energy Networks Association.

Financial modelling

An independent firm of chartered accountants reviewed the corporate financial model and confirmed that the assumptions used within the model have been appropriately modelled, correctly calculated and presented accurately in the primary financial tables.

Cost benchmarking

Various other reviews were conducted by third party experts to assess the credibility of the indirect expenditure estimates made by UK Power Networks.

- Frontier Economics, who supported the development of a totex benchmarking model, which was subsequently adopted by Ofgem,
- Accenture, who supported the preparation of 'to be' unit costs as part of the Direct Cost Efficiency project, and
- PA Consulting reviewed our indirect costs to identify opportunities for greater efficiency, based on benchmarking our business support costs against a range of other utility companies.

Where possible, we have published many of the outputs of these assurance and benchmarking activities on our website. However due to confidentially/legal constraints we have not been able to publish everything.

10 Next steps

10.1 Business plan assessment process

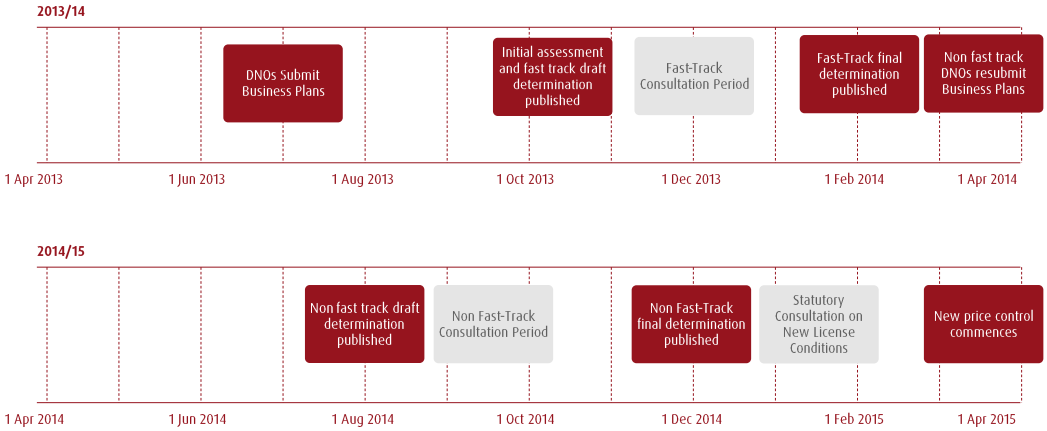
Our Submission in March 2014, has taken account of the feedback we received from Ofgem and have provided additional justification of key areas.

We are seeking approval for our business plan for our three DNOs. Our business plan satisfies Ofgem's assessment criteria:

- It is well-justified through a robust process including comprehensive stakeholder engagement,
- It delivers the majority of outputs that our customers, stakeholders and our regulator expect from us,
- Our proposed expenditure is efficient and prudent,
- We propose a balanced approach to deal with uncertainty and risk, and
- Our financing proposals reflect the market and are efficient and our revenues and prices deliver value for our customers.

Following initial questions, Ofgem will publish their initial business plan assessments and fast track draft determination for the DNOs in July 2014. The timetable is shown below up to the commencement of the new price control in April 2015.

Figure 51: RIIO ED1 – Ofgem timetable



10.2 Ongoing stakeholder engagement

This document demonstrates our Business Plan has been tested with various stakeholders, through multiple channels over an eight-month period.

We are yet to hold the following stakeholder events:

- Further customer Focus Groups
- Solar Panels and Distributed Generation
- Fifth Critical Friends' Panel sessions – Business Transformation

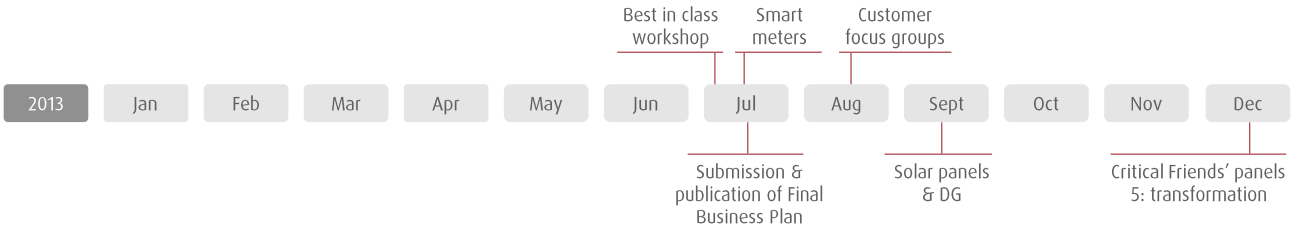
We will continue to engage with its key stakeholder through the Critical Friends' Panels, specific issue engagement and a range of other stakeholder engagement activities.

Specifically, we expect to consult our stakeholders on our vast and ambitious Transformation Project that will change the way we do business. By consulting stakeholders at the formative stage of the project, which is due to run until April 2015 – and thus become a transition phase to RIIO ED1 – we intend to make stakeholders part of the decision-making process.

It is planned that the Critical Friends' Panel sessions will continue, becoming an enduring process with a recognised panel. In time, the intention is that they will be led by an independent chair that would set the agenda, ensuring impartiality and allowing the stakeholders to address the issues that are of key importance to them.

Following the Business Plan submission to Ofgem on 1 July 2013 further. Stakeholder events were held in 2013 as shown.

Figure 52: 2013 stakeholder events



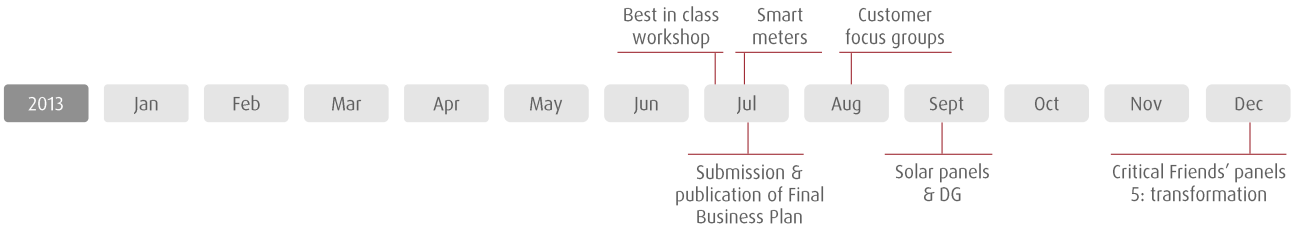
UK Power Networks has made the commitments in its RIIO ED1 outputs to:

- Continue with three Critical Friends' Panels per DNO per annum
- Review whether it is possible for an independent chairperson to the Critical Friends' Panels be appointed
- Publish and review our annual planning assumptions through the critical friend panels
- Publish an annual report on the progress against the RIIO ED1 business plan
- Discuss the annual report annually at the RIIO ED1 critical friend panels

In February 2014, Critical Friends' panels were held at each DNO. We presented the results of Ofgem's modelling of our 2013 business plan submission, and provided information on our plans for the resubmission in March 2014.

Furthermore, our specific issue engagement will continue throughout RIIO-EDI period. Alongside large events that address broad issues (e.g. transition to low carbon economy or evolution to DSO), we plan to hold regular specialised sessions on niche subject in order to consult stakeholders on all the issues that interest them.

Therefore our typical programme of engagement in a year will have the following format, ensuring our comprehensive programme of stakeholder engagement continues:



Appendix


RESERVE BUS BAR DISCONNECTOR
RESERVE BUS BAR DISCONNECTOR
RESERVE BUS BAR DISCONNECTOR
BUSBAR MAIN
BUSBAR RESERVE
BUSBAR MAIN
BUSBAR RESERVE
LOADING BAY

Figure 53: Ongoing annual programme of stakeholder events

A.1 Our Business Plan documentation

The suite of documents that comprise our business plan cover UK Power Networks as a whole, and the specifics for each DNO (LPN, SPN and EPN):

- A What's changed and why document (one across UK Power Networks)
- A One Page Summary of each DNO's business plan
- An Executive Summary of each DNO's business plan, plus an overview for UK Power Networks
- A Process Overview document (one for UK Power Networks)
- An Innovation Strategy (one across UK Power Networks)
- A Core Narrative (technical) for UK Power Networks as a whole and each DNO
- RIGs Actuals and forecast data tables and commentary

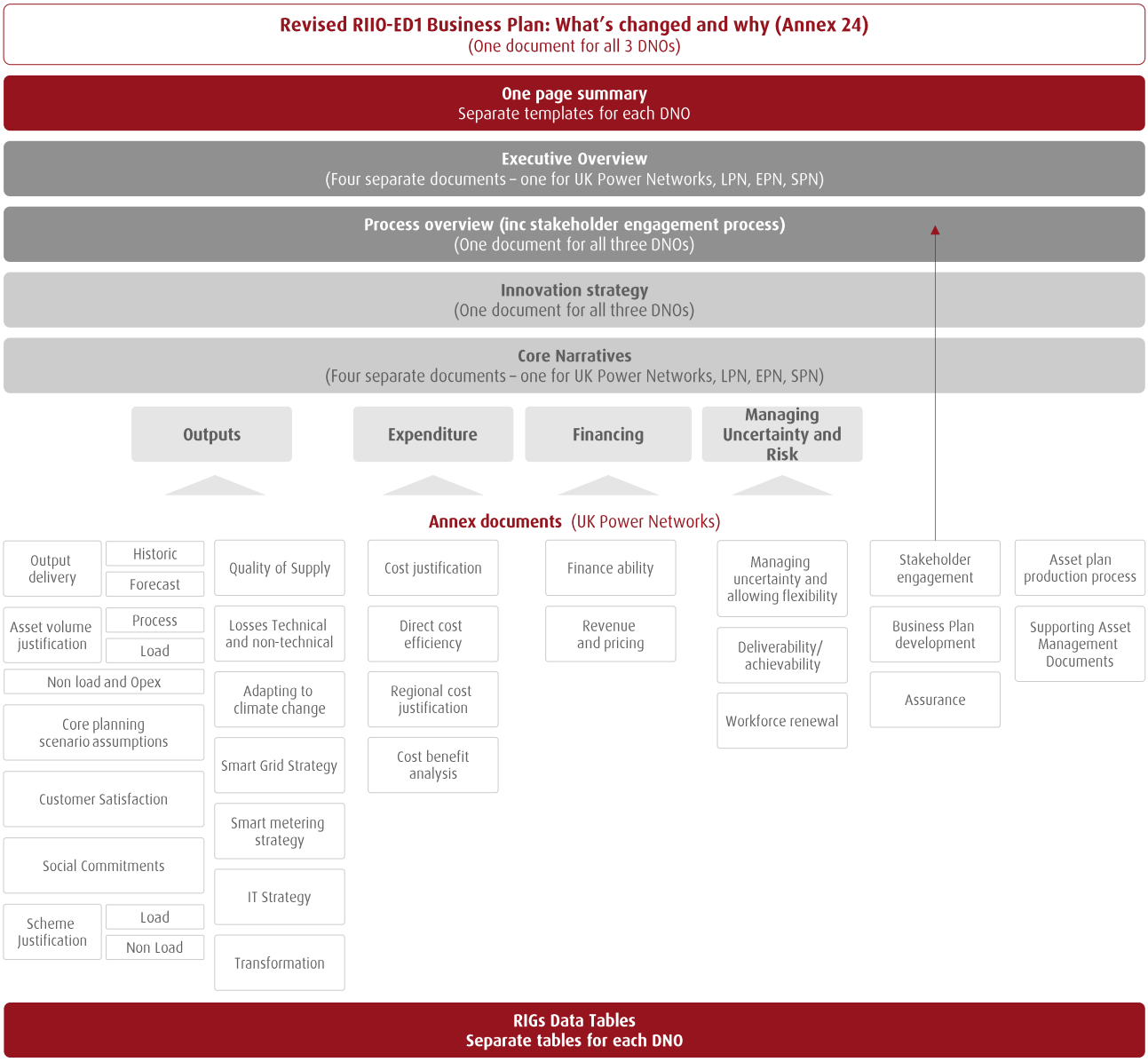
A range of annex documents (each at UK Power Networks level):

- Output delivery (historic and forecast)
- Core planning scenario assumptions
- Asset plans (volume) justification:
  - Asset Management Process
  - Load justification
  - Non-load and opex justification
- Cost justification:
  - Direct cost efficiency
  - Regional cost justification
  - Cost Benefit Analysis
- Managing uncertainty and allowing flexibility
- Deliverability/achievability
- Workforce renewal
- Customer satisfaction
- Social commitments
- Quality of supply
- Losses
- Adapting to climate change
- Smart grid strategy
- Smart metering strategy
- IT Strategy
- Transformation
- Financeability of the plan
- Revenue and pricing
- Stakeholder engagement process
- Business Plan development process
- Assurance

A range of asset management documents (each at individual DNO level):

- Scheme Justifications (Load and Non-Load)
- Asset Stewardship Reports
- Regional Development Plans

Figure 54: The structure of the suite of documents that comprise UK Power Networks' business plan



A.2 Assurance Impact risk assessment

Figure 55: Assurance Impact risk assessment

	Customers	Competition	Financial	Comparative Efficiency	Business Continuity
4	Creates a breach in licence conditions that has a major service impact on all public network customers or a major impact on all ICPs or a major impact on all IDNOs	High impact on the ability of third parties to compete in the market place	An error or omission gives rise to a major financial impact (>±5 per cent of price control revenue per annum)	Error will impact on comparative efficiency analysis and the error itself was ±£1 million per annum	High impact on whether a DNO can continue to perform its core licensed functions
3	Creates a breach in licence conditions that has a moderate impact on all customers or a major service impact on a small number of public network customers or a moderate impact on all ICPs or a moderate impact on all IDNOs	Moderate impact on the ability of third parties to compete in the market place	An error or omission gives rise to a significant financial impact (>±1 per cent of price control revenue but less than ±5 per cent)	Error will impact on comparative efficiency analysis and the error itself was ±£200k-£1 million per annum	Moderate impact on whether a DNO can continue to perform its core licensed functions
2	Has a moderate service impact on some public network customers or a moderate impact on some ICPs or a moderate impact on some IDNOs	Low impact on the ability of third parties to compete in the market place	An error or omission gives rise to a low financial impact (<±1 per cent of price control revenue)	Error will impact on comparative efficiency analysis and the error itself was up to ±£200k per annum	Low impact on whether a DNO can continue to perform its core licensed functions
1	Has no service impact on public network customers or ICPs or IDNOs	Has no impact on the ability of third parties to compete in the market place	No financial impact on the level of incentives receivable from the Regulator	Information provided in this return is not used for comparative analysis to set future allowances	No impact on DNO's ability to perform its core licensed functions

A.3 Assurance Process risk assessment

Figure 56: Assurance Process risk assessment

	Reporting Assessment				Control Assessment		
	1. Complexity of data sources	2. Completeness of data set	3. Extent of manual intervention	4. Complexity & maturity of reporting rules	5. Control framework	6. Experience of personnel	7. Evidence of historical errors with this data
High	Two or more data collection systems, with data collation and reporting routines that have not been fully automated.	Data not routinely captured by DNO to populate this report. Reporting for a significant number of elements of the submission is based on extrapolation of sample data rather than full data set.	More than 60 per cent of the data is manually collated and reported.	The rule set is incomplete or the rules require significant interpretation, judgement or assumptions or the first issue of rules have been completed within the last 12 months.	There are inadequate validation/preventative controls or controls have been in place for less than 12 months or systems and processes not documented and control points not assessed (i.e. any such material lacks substantial coverage) or Regulatory submissions not subject to effective review or supervision processes.	This submission being collated by employees with no prior experience of doing so and no method statement available to explain prior year approach to completing this report.	Material errors identified by Ofgem or audit processes for this report, or table level as appropriate, within the last two years; and the issues identified have not been addressed or no audit undertaken on this submission in the last five years.
Medium	Single data collection system with data collation and reporting routines that have not been fully automated.	Data routinely captured by DNO to populate this report but for less than two years or some elements of reporting based on extrapolation of sample data rather than full data set.	More than 0 per cent but less than 60 per cent of the data is manually collated and reported.	The rule set is complete and has not changed for at least 12 months but the rules require some interpretation, judgement or assumptions.	There are adequate validation/preventative controls and controls have been in place for more than 12 months but less than two years and systems and processes substantially documented and control points assessed and regulatory submissions subject to effective review or supervision processes.	This submission being collated by employees with no prior experience of completing this submission but using method statements for prior submissions to support them or this submission being collated by employees with prior experience of completing this submission – with no method statements for prior years available.	Material errors for this submission have been identified within the last two years for which all issues have been remediated but not yet validated by subsequent audits or no audits undertaken on this data within the last two years, but audit has been undertaken within the last five.
Low	Data collation and reporting processes that have been fully automated.	Complete data set routinely captured to populate this report for 2 years or more	Data collation and reporting are fully automated.	The rule set is complete; the rules require no interpretation, judgement or assumptions; the rules have been in place for more than 12 months.	There are extensive validation / preventative controls and controls have been in place for more than two years and systems and processes fully documented5 and control points fully evaluated and assessed and regulatory submissions subject to comprehensive and effective review and supervision processes.	This submission being collated by employees with prior experience of completing this submission – with method statements for prior years in place or collation is fully automated.	Audit has been undertaken on this submission within the last two years and no material errors were identified and either there were no previously identified issues or Audit confirmed that any previously identified issues have been properly addressed.

UK Power Networks Holdings Limited
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Delivering your electricity