Appendix 07.02.05

Whole System Solutions – Joint Network Planning

This output case describes the way we will work collaboratively with others to help decarbonise the energy system.

During RIIO-2 we will work with network companies, other partners and stakeholders in the Energy Networks Association (ENA) to coordinate approaches to procuring regional data. This will include creating a central hub for network spare/scarce entry and Exit Capacity and develop a joint network planning service.
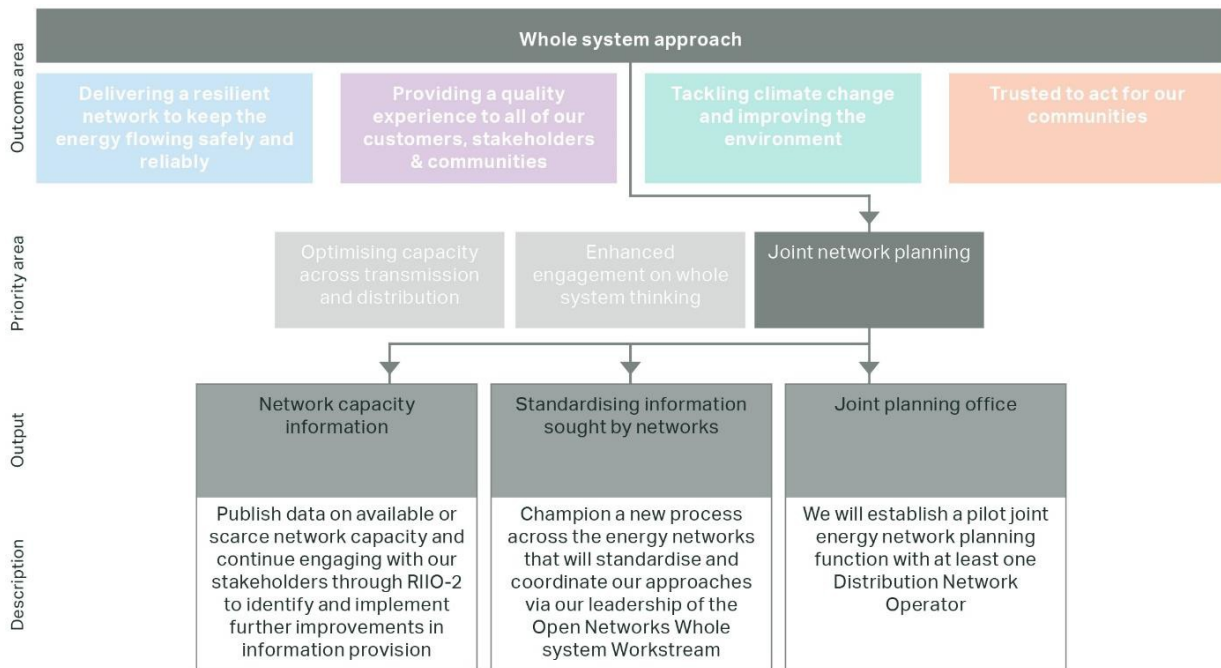
We will deliver:

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How we have developed our proposals:

We considered the context – The challenge of reducing greenhouse gas emissions will require the transformation of multiple sectors. There is a consensus that energy networks need to work with the whole system to deliver benefits for consumers.

1. We considered our experience of working with stakeholders during RIIO-1 and our on-going work within the ENA.

2. Our engagement with stakeholders supports the view that we can play a valuable role in delivering whole system solutions – We can do more to work with others.

3. **This provided us with a clear problem statement** – How can we best engage to promote whole system solutions?

4. **Under the auspices of the ENA** we defined five categories of customer benefit to assess proposals which revolve around whole system solutions:
   - Improved safety and reliability
   - Lower bills than would otherwise be the case
   - Reduced environmental damage
   - Improved quality of service
   - Benefits for society as a whole

5. We then identified three deliverables for support by the ENA workstream:
   - A coordinated approach to procuring regional data
   - Creation of a central hub for network spare/scarce entry and exit capacity
   - A joint network planning service

6. **We are not seeking additional funding to deliver this** – The resources to deliver this are included within our base plan.

7. **What will the future look like after we embed our RIIO-2 commitments?** – Whole system approaches will be the natural way of resolving solutions.

The table below summarises our commitment in this area:

Table 1 Our commitment

Output: Whole System Solutions – Network Planning	
Common / Bespoke	Proposed common
Output type	*Base plan totex
Comment	n/a
Target	n/a
Cost implications (annual)	*£0.5m annual
Incentive range	n/a
CVP	Qualitative only

1. Defining our customers' needs

In their RIIO-2 guidance, Ofgem notes that energy systems are becoming increasingly interlinked. This means that the actions of a network company are more likely than ever to impact on other network companies, the wider energy sector and non-energy sectors such as transport.

Meanwhile, greenhouse gas emissions, and their impact on our global climate, are one of the most pressing issues facing society, and protecting the environment was near universally important to customers when discussed during our RIIO-2 customer engagement.

The Paris Agreement, the UK's Committee on Climate Change (CCC) and the Climate Change Act (2008) all stress the need for deep and urgent reductions in greenhouse gas emissions. Indeed, the CCC recently stressed the need for radical reductions before 2030, if irreversible climate change is to be avoided.

The growth of cross system linkages is increasing the value of cooperation across the whole system, particularly regarding the environment. As such, Ofgem's RIIO-2 guidance states that networks should focus on the goals of decarbonisation and sustainable development when considering whole system thinking.

We are supporting policymakers to adopt a whole energy systems perspective as they seek to decarbonise the energy system.

There are no options for decarbonising heat and transport that do not have some impact on the electricity and gas networks. From diverting fuels and feedstocks, to providing secure back up or storage options, decarbonisation should to be viewed through a whole energy system lens. However, to date, a whole energy system coordinated vision has been limited.

While this Output Case focuses on network related elements of whole systems approaches, we have applied whole systems thinking across our Customer Outcomes, in recognition that, as the largest gas distribution company in the UK, we have a significant part to play in providing a cleaner, greener, responsible and sustainable future.

1.1. Sources of insight

6,205

Stakeholders and customers engaged

17

Sources of insight

14

Tailored RIIO-2 engagement activity

Our engagement on this topic encompassed a range of methods and events and is based on a large volume of stakeholder and customer feedback representing a variety of groups.

Table 2 Engagement activities

Phase	Date	Source name	Source description	Questions asked	# of stakeholders	Score
Historical Engagement	Nov-18	Energy UK Future Energy roundtable	We attended the Energy UK Future Energy roundtable, where 25 participants discussed key challenges for electricity and gas.	N/A	25	1.0
	Nov-18	Meeting with Coventry and Warwickshire Chamber of Commerce	We met with Jeremy Wright MP at the Coventry and Warwickshire Chamber of Commerce at an event with approximately 150 delegates. The purpose of this annual conference is to discuss future topics and sustainable business growth.	N/A	150	1.0
	Jan-19	Smart metering feedback	For the last three years we have asked energy suppliers to provide feedback on the way we provide them with information on incidents we have reported as a result of their smart meter installations. In 2017 and 2018 this was email based feedback, but in 2019 we introduced a consistent set of questions. Overall, the results are positive, and suppliers are pleased with the service we provide.	In 2017 and 2018, we asked for general feedback via email. In 2019, we prompted suppliers with questions including the level of support we have provided during smart meter roll out, additional expectations and their views on the particular approaches we have taken.	11	1.5

Discovery	Nov-17	Regional stakeholder workshops	We held four workshops in different regions to seek feedback from key stakeholders on the early development of our business plan. Each workshop began with a short presentation, followed by roundtable discussions. Electronic voting was also used to ask stakeholders about preferred options.	The workshops explored a number of topics, including: safeguarding (e.g. PSR awareness, partnerships and innovation opportunities); the future role of gas and the decarbonisation of home heating. Our general approach to our business plan was also discussed, for example the importance and coverage of the four outcome areas identified, the extent to which the plan should respond to the needs of specific customer groups or regions,– the question "how strongly do you feel that networks should collaborate?"	127	2.0
	Sep-18	Deliberative workshops	We delivered full day deliberative workshops in each of our regions to discuss what services customers find important, find our customer expectations of GDNs and gather feedback on our (at the time) four draft customer outcomes. The sessions began with information-giving and building knowledge of us, then eliciting participants' views of services and priorities.	Participants were asked about their awareness of us and expectations of a GDN. Participants were also asked for their views on the four draft outcomes in our business plan: keeping your energy flowing safely, reliably and hassle free; protecting the environment and creating a sustainable energy future; working for you and your community safeguarding those that need it most; value for money and customer satisfaction at the heart of all our services. The aim of the discussions was to shape these draft outcomes and identify any gaps.	206	2.0

Discovery	Oct-18	Domestic survey	We ran an online survey of a representative sample of our domestic customers (and non-customers). This aimed to test the findings of the earlier deliberative workshops and focus groups.	Participants were asked closed questions on 14 topics we could cover in the business plan (e.g. minimising leaks, affordability) and asked to rate how important they are. They were then asked more open questions about the level of importance and whether anything was missing from the list of 14. Finally, they were asked a multiple-choice question on their preferred engagement methods for the future.	2,332	2.0
	Oct-18	Public survey	We ran an online survey that anyone could take part in (so unlike the domestic survey, it was not a representative sample). This followed the same approach as our domestic survey, aiming to test the findings of earlier deliberative workshops and focus groups.	Participants were asked closed questions on 14 topics we could cover in the business plan (e.g. minimising leaks, affordability) and asked to rate how important they are. They were then asked more open questions about the level of importance and whether anything was missing from the list of 14. Finally, they were asked a multiple-choice question on their preferred engagement methods for the future.	165	1.5
	Oct-18	Focus groups with hard to reach groups	We held focus groups with individuals considered 'hard to reach' in each of our regions. Each group contained 8-10 participants and lasted two hours. Participants covered three groups: urban customers with English as a Second Language, Future Generations and Non-Customers (predominantly from rural areas). These built on our previous deliberative workshops, whose voices could otherwise become 'lost within the crowd'.	Participants were asked what they expected of us. The four draft outcomes for the business plan were shared with participants and they were asked for their views on these, what they wanted to see from us and whether there were additional outcomes that we should include.	57	2.0

Discovery	Oct-18	Customers in vulnerable situations report	We interviewed customers in vulnerable situations and professionals working to support them (e.g. district nurses). We selected participants based on PSR needs codes and recruited via community organisations.	The interviews sought to understand what services were important to customers in vulnerable situations and what expectations such customers had of us to safeguard them and accommodate their specific circumstances. Participants were also asked their views of the four draft outcomes in our business plan.	20	2.0
	Feb-19	Ofgem's RIIO-2 stakeholder workshop	We attended Ofgem's RIIO-2 stakeholder workshop with other industry participants and gas networks.	N/A	N/A	2.5
	Feb-19	ENA and Accent RIIO-2 stakeholder engagement (decarbonisation)	A broad range of stakeholders from across the country, across different areas of the sector and representing a range of organisations were brought together by all GDNs to understand their views of how the gas networks should individually and collectively support the decarbonisation of heat through their RIIO-2 business planning. Most stakeholders preferred taking a broad definition of 'whole systems' and wanted future-proofed assets and decision-making with the longer-term end goal in mind. But they emphasised the need for urgency in putting the stepping stones in place to reach decarbonisation targets.	Stakeholders were asked what a whole energy system approach should look like, and what gas network RIIO-2 business plans should focus on in the context of decarbonising the gas system. The impact on customers in vulnerable situations, collaboration between gas networks and the funding of, and barriers to, decarbonisation were also discussed.	37	2.5

Targeted	Apr-19	Cadent London stakeholder engagement event	We conducted a poll of 92 stakeholders to understand their views on disruption to inform our business plan for RIIO-2. The poll explored what they found most disruptive (e.g. roadworks, customers being off gas or digging holes in the road or on private land), what improvements we should focus on, and willingness to pay for such improvements. Roadworks were considered most disruptive, and multi-utility working to mitigate this was viewed positively.	When you consider disruption caused by utility providers, what do you consider 'disruption' to be in your role? The disruption that I would like Cadent to work hardest to eliminate is? For roadworks disruption, what kind of improvement would you like Cadent to focus on? For disruption caused by customers being off gas, what kind of improvement would you like Cadent to focus on? For disruption caused by digging holes in the road or on private land, what kind of improvement would you like Cadent to focus on? If Cadent could find ways of reducing disruption, how much more do you think bill payers would be willing to pay?	92	1.0
	May-19	Cadent customer forums: Interruptions and Reinstatements	The third round of customer forums was held at four locations (Ipswich, London, Manchester, Birmingham) involving 104 customers. The forums are designed to be ongoing conversations with customers, with engaged discussions around our role within society. The third customer forum focused on planned and unplanned interruptions and public and private reinstatements to inform these sections of the RIIO-2 business plan. Within these themes, we investigated how customers are impacted and what level of customer service they think we should provide.	Customers were guided through different questions about the current service during planned and unplanned interruptions and new ideas we were considering around: communication, length of interruption, provisions and timeslots to get gas back on. Discussions on public reinstatement focused on: impact of public reinstatement on customers, communication, and multi-utility working. Discussions on private reinstatements focused on the quality and duration of works.	104	2.0

Business Options Testing	Jun-19	Cadent customer forum, round 4, Traverse	We held our fourth customer forum in Ipswich, London, Birmingham and Manchester to get customers' views on their priorities on a range of issues. This cross section of customers discussed with us various options (some proposed by us, some suggested by them) in a deliberative style session. Key topics discussed included: customer service; replacing pipes; reinstatement; interruptions; fuel poverty; carbon monoxide; decarbonising energy and becoming carbon neutral.	Participants were asked questions about a range of topics. On customer service, we explored what "great" looks like. We also asked about timeliness and communication with respect to reinstatements. We also tried to understand the level and type of service customers want during an unplanned interruption, including views on provisions, length of time without gas, and timeslots for getting the gas turned back on. We also asked for views on our options for addressing fuel poverty and carbon monoxide. With regards to resilience, we sought to understand what risks customers prioritise when replacing mains pipes and how this is influenced by bill impact as well as views on minimum standards of service. On the environment, we discussed: whether the theft of gas should be a priority (and who should benefit from successful recovery), whether connecting off-grid communities was a good way to decarbonise (and who should pay for this) and customer views on our plans to make our business operations carbon neutral.	200	1.0

Business Options Testing	Aug-19	Cadent's Trust & Transparency commitments - Executive Summary	We commissioned Enzen to compile a report onour trust and transparency commitments. This provided us with a view of what other organisations are doing with respect to issues such as community funds, employee volunteering, and charitable giving.	N/A	0	1.0
	Aug-19	Business customer workshops, Traverse	We commissioned Traverse to engage with 74 business customers through deliberative workshops to understand their views on options for our business plan in relation to a number of areas that would affect their businesses such as the supply and demand of gas, interruptions, reinstatements and minimum standards. One of the topics discussed was demand-side response. Many businesses said they could turn gas down or off to some extent but noted that education and awareness were critical.	Businesses were asked about their priorities. The future of gas, including decarbonisation, was also discussed in terms of business awareness of the issue and potential implications. The ability and willingness for businesses to reduce their demand under certain circumstances was also discussed. The impact of interruptions and reinstatements on their business was also explored including the need for provisions during interruptions, the desirability of timeslots when gas is switched back on, multi-utility working and communication. Businesses were also asked if they would be willing to pay for us to go beyond minimum standards.	74	1.5

Business Options Testing	Aug-19	Public consultation, BOT, qualitative phase, Traverse	We commissioned Traverse to conduct a survey of 2,605 members of the public to understand views on certain aspects of our business plan in each of the 4 outcome areas (environment, quality experience, trusted to act for society and resilience). The survey revealed strong support for utilities working together to minimise disruption and for outstanding customer service, as well as providing useful information on the relative importance to customers of different types of information and different environmental initiatives.	Participants were asked questions to understand their views and preferences on issues within each of the four outcome areas. On resilience, customers were asked which one single improvement we should make to reduce disruption the most. In relation to a "quality experience", customers were asked what level of service they'd love the most and how much they'd be willing to pay to ensure a customer in a vulnerable situation could get enhanced help if their gas stopped working. On the environment, customers were asked their relative preference for initiatives to achieve carbon neutrality and eliminate avoidable waste to landfill. Customers were also asked how much they knew about the decarbonisation challenge. Finally, for "trusted to act for society", customers were asked what the most important information to know about us was and how we can help the customer / Cadent conversation flow. We also asked about their awareness of us .	2,605	1.5

Key to scoring

Criteria	Robustness		Relevance
The score shown is based on a combination of the robustness of the source information (judged on whether it was recent, direct and representative) and the relevance to this area.	<=1	One or zero criteria met	Limited relevance
	1>=2	Two criteria met	Significantly relevant and contributory
	2>=3	All criteria met	Highly relevant and contributory

1.2. Engagement feedback & insights

Participants in our deliberative workshops suggested that there was potential for us to work more collaboratively with others. This desire for common working was also reflected in responses to our domestic survey when 78% of people said that collaborating with other companies was important.

There was also broad support for greater collaboration at our regional stakeholder workshops. In Birmingham, stakeholders felt strongly that there should be more collaboration on long-term goals across the different networks, including a cross-utility policy that enables renewables, and that we should lead this. Others noted that differences between networks could be an obstacle. In London, some stakeholders emphasised collaboration across networks as crucial to a whole energy approach while others felt that this would be very difficult due to the differential between electricity, gas and water networks in terms of modernisation and upgrading.

At the stakeholder workshop run by the Energy Networks Association and Accent, some stakeholders noted that a whole systems approach needed to be balanced and factor in demand on the electricity system for electric transport. They worried that electrification might not achieve the appropriate balance of resources to optimise decarbonisation.

In our vulnerability interviews, professionals suggested that we collaborate with others involved in the care of customers in vulnerable situations, such as hospitals, to identify customer needs and tailor services.

The 200 customers at our fourth customer forum, 2,605 participants in the August 2019 BOT public consultation, and 74 participants at the business customer workshops in August 2019, all recognised the benefits that can be achieved through multi-utility cooperation.

We have also received feedback regarding our performance in collaborative working to date. For example, suppliers informed us that we are leading the way in sharing information on smart meter issues and gas incidents. The most recent feedback from 2019 is that we have gone beyond industry expectations and that the information provided has materially improved over the last two years.

The provision of timely infrastructure has been raised by a number of stakeholders. Greater Lincolnshire Local Enterprise Partnership were the first to highlight this issue and led us to develop a potential solution, which we have then shared and tested with other stakeholders, including the West Midlands, Greater London, Liverpool City Region, Cheshire and Warrington, and Coventry and Warwickshire.

2. Assessing the measurement options

2.1. How does current activity deliver against customer outcome / priority?

Through developing relationships with local authorities, and our involvement on regional infrastructure boards, we identified the value in presenting a whole system approach to deliver our stakeholders ambitions.

An early example which highlighted the stakeholder benefit of a facilitated whole system approach involved a City Council's desire to provide the home for a new electric vehicle plant. A power grid constraint presented an obstacle to the City's ambition, adding a significant new cost, and more critically, a multi-year delay to install the electricity infrastructure. After lengthy discussions with the DNO, the Council decided to ask us if there was capacity on our network for a gas fired power generator. This solution could have been identified earlier had a whole energy system network planning been in place.

Playing a central and active role on the infrastructure boards has also helped us build strong working relationships with the DNOs as all parties share a desire to present solutions rather than obstacles for our stakeholders.

The ENA Open Networks Workstream 4 ("WS4") was created in response to stakeholder feedback in early 2019. Stakeholders supported the work of the Open Networks programme thinking across Transmission and Distribution networks in the electricity sector, and saw further value in looking across the whole energy system beyond existing work within electricity.

Upon creation, WS4 was recognised as the only working group where all GB energy network companies actively discussed interactions between gas and electricity networks. Groups exist to discuss regulatory price controls or overall governance of ENA as an organisation, and the only other forums for cross-fuel working were specific innovation projects involving a small number of networks to look at specific issues.

The first year of WS4 has highlighted that whole system thinking across gas and electricity network companies and their stakeholders was less mature than expected. The workstream has made significant progress in building the foundations for this thinking, and working, in the future through fundamental activity such as agreeing definitions and frameworks for tackling whole system challenges, as well as articulating and exploring a small number of tangible opportunities for value which can also provide the benefit of immediately piloting the foundations for collaboration that are being built.

2.2. Best practice

Ofgem has only recently emphasised the importance of whole energy system thinking and working, and initial progress in this area was limited to electricity transmission and distribution. It is only recently that it has become accepted industry thinking to widen this scope beyond electricity.

While thinking has widened beyond electricity, in the short term, the high value benefits are likely to be seen in the electricity sector, supporting investments for renewables and Electric Vehicles.

Best practice will be delivered through a clear focus on benefits for, and added value to, customers and stakeholders, proportionate to the level of costs incurred to deliver the service or initiative.

Decarbonisation energy systems cannot be achieved efficiently without a coordinated approach across the whole system because decisions taken in one sector will almost certainly have implications

in other sectors. This demonstrated, at a very high level, in the Navigant Gas Pathways report[1] in October 2019. Their electrified scenario, whilst reducing gas demand for heating, includes 100GW of hydrogen gas generation.

2.3. What options have we considered?

The Open Networks WS4 project involves all the electricity and gas networks as well as many other stakeholder representatives, including regional stakeholders and industry trade bodies. A larger group of stakeholders are represented on the overall Open Networks Advisory Group, which facilitates regular updates and opportunities to challenge and provide feedback.

The first meetings of WS4 involved workshops to capture views on activities and priorities. Further work distilled the workstreams thinking down to 4 areas:

1. Customer connection processes – a consistent and joined up approach to network connections across all networks

2. Real time operations and forecasting – sharing data to improve demand forecasting for gas generation customers and improve resilience planning for electricity networks

3. Planning timeframes (1-12 months ahead) – a more robust and cross-fuel approach to outage planning

4. Investment timeframes – consideration of network investment options across both gas and electricity

In April 2019, as a result of resource constraints, primarily on the part of electricity networks, the Open Networks Steering Group asked the workstream to focus on progressing the Real Time Operation and Investment Planning areas, the latter led byus. We were the natural leads for the development of Investment Planning, having previously championed the topic following engagement that demonstrated the importance of this area to our stakeholders, particularly regional bodies.

WS4 provides a framework to coordinate the development of new whole system initiatives. It also demonstrates the commitment of all networks, as well as wider stakeholder support. WS4 decisions are taken by the ENA Open Networks Steering Group for the Electricity Networks, and the ENA Gas Futures Group for the Gas Networks.

Real Time operation has also been taken forward. This primarily relates to information provision between gas and electricity networks, or other players, pertaining to the operation of gas fired power generation. The efficient, secure and reliable operation of the overall gas and electricity energy system is strategically vital. However, the solutions regarding data flows are relatively simple and low cost to implement. Information provision on network capacity that is relevant to local authorities, is also valuable to gas fired power generation projects.

Government strategy has not been finalised in relation to the decarbonisation of heat. However, existing Government policy is focused on electrification. Therefore, it is important to fully scope the impact of the pursuit of this policy.

It is also important to consider whether the electricity networks are best placed to undertake cost effective planning and operation of future networks or whether, for example, it would be more effective to invest in gas infrastructure to alleviate a potentially expensive constraint in electricity infrastructure.

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[1] http://www.energynetworks.org/gas/futures/gas-decarbonisation-pathways/pathways-to-net-zero-report.html

3. Assessing performance levels

1. Defining our customers' needs | 2. Assessing the measurement options | 3. Assessing performance levels | 4. Customer testing | 5. Our commitments | 6. Delivering our commitments

The delivery of a joint network planning service will be shaped, managed and monitored by the Open Networks project with its established governance arrangements, supported by existing regulatory and commercial frameworks.

The aim will be to deliver a universal service across the UK. However, as this may take time to achieve there will be regional variations for a period. Once in place, there will be a requirement to monitor progress, and make improvements, or other changes, as required and agreed by all parties involved.

It will therefore be necessary for the Open Networks WS4 to design an enduring framework to monitor performance and manage change on an ongoing basis. In the absence of a cross sector industry code, it is likely that this will be a standalone mechanism or methodology, managed by the Energy Networks Association or other relevant industry body.

The ENA Open Networks WS4 workstream defined five categories of customer benefit. The justification for the workstreams proposals will be against these benefits.

1. Improved safety and reliability

As the energy landscape continues to decarbonise and transform, the energy system has much more complex flows of energy, and there is much to do to maintain our system's high level of safety and reliability for consumers.

2. Lower bills than would otherwise be the case

Efficiently managing the whole energy system through system operation, markets, and network decisions lead to lower costs flowing through to the bills of end consumers.

3. Reduced environmental damage

Improving decisions made by the energy industry can enable a lower carbon energy system and reduce the broader environmental impact of our energy system.

4. Improved quality of service

Improved quality of service for the connected customers and stakeholders of energy networks ultimately benefits consumers as interactions in the value chains across industry become more seamless, efficient and effective.

5. Benefits for society as a whole

Providing transparent, accurate information can facilitate industry discussion, foster innovation and improve decision-making which ultimately benefits consumers and society as a whole.

We intend to use these categories to measure our future performance in delivering whole system benefits in RIIO-2.

4. Customer testing

4.1. Our preferred option

Through the Open Network Whole Systems Workstream, a wide body of customers, and stakeholders have influenced, overseen and supported the development of the deliverables. This includes input from representatives for trade associations, academics, Non-Government Organisations and the wider public via public events and consultations.

For the Investment Planning area, three deliverables have been identified and supported by the workstream:

- Coordinated approach to procuring regional data

- Creation of a central hub for network spare/scarce entry and exit capacity

- Joint network planning service

In addition to the support within the workstream, these three areas, and the establishment of a joint planning service, are strong themes emerging from regional bodies as they develop their industrial strategies and their decarbonisation plans, some in response to Climate Emergency declarations. Greater Manchester is an example where a whole system approach has been enshrined in their Energy Charter, and Electricity North West and Cadent are leading the Energy Innovation Challenge Group established by the Combined Authority to deliver the region's environmental ambitions.

We intend to continue to foster stronger relationships with the electricity networks to meet the needs of our regional stakeholders, and also at a UK level to encourage the emergence of a clear and coherent whole energy system consensus view on the future options for energy system decarbonisation. These regional whole system solutions will inform the development of our network to support low carbon gases, and their use, and will also indicate where our network may need to be decommissioned or scaled back. Full or partial decommissioning can only be implemented once the replacement for gas are in place and operating securely and reliably. This regional planning will therefore help us build any decommissioning requirements under a whole energy system framework.

Outside the WS4 activities, we have developed our proposal to support timely reinforcements. Our proposal involved a regional body accepting the stranding risk associated with delivering network capacity ahead of need. We would commit to providing the capacity in line with the agreed timetable, which may be many years before the full demand is seen.

We shared our thinking at bilateral meetings with regional stakeholders. We also held webinars to enable a wider body of stakeholders to provide feedback.

Figure 1 Proposal to overcome timing and capacity changes

All the responses we have received have been positive, with questions also asked on whether this can be applied to other sectors like electricity.

Attention on whole system benefits has focused on the electricity networks and, in particular, on identifying and delivering benefits across electricity transmission and distribution. This could result in large scale of potential expenditure to support the electricity system transition.

Coordination across gas and electricity distribution networks will also deliver benefits for customers and could result in lower cost options and solutions. This is because there are highly credible gas network alternatives to the full electrification of heat. Our regional stakeholders have supported the hypothesis that there are tangible benefits from such whole system thinking, including the provision of alternative solutions that may not be visible if networks operate in isolation.

For example, the expected growth in electricity use, through the electrification of heat and transport, could result in extensive reinforcement requirements on the power grid. Whole systems thinking will provide the opportunity to consider alternatives, at a local and national level, such as freeing up electricity capacity by converting concentrations of existing electric heating to a centralised district heating scheme.

Local bodies support for a whole system approach is also reflected in the gas and electricity network involvement in regional infrastructure forums and other local strategy development. The development of the local area energy plan for Bury, with GMCA, ENW and Cadent is a recent example.

We will continue to support regional plans during RIIO-2.

5. Our commitments

We will deliver the recommendations of the Open Networks Whole Systems Workstream:

Joint planning office

To support regional authorities in the development of their infrastructure strategies and plans, we will establish a pilot joint energy network planning function with at least one DNO by 31 March 2022. If successful, and subject to DNO agreement, we will roll these out across our entire footprint by the end of RIIO-2.

Standardising information sought by networks

Through our leadership of the Investment Planning activities within the Open Networks Whole Systems Workstream, we will champion a single coordinated strategy to procure, maintain and share regional data capture critical to the networks forward planning.

Network capacity information

We will publish data on available or scarce network capacity and will continue engaging with our stakeholders through RIIO-2 to identify and implement further improvements in information provision that might better facilitate the market in decentralised gas generation.

Timely reinforcement

To address the issue of timely network reinforcement we will progress a change to our connection charging methodology, approved by Ofgem, to enable third parties to underwrite network investments. We will also work with our colleagues in the other networks to implement a similar approach as the principles are common across gas and electricity.

These commitments contribute to benefits across the 5 category areas described above in Section 3. The outcomes have been summarised by the workstream as:

- Higher quality robust data

- Lower stakeholder and network costs

- Higher value solutions for customers and stakeholders

- Optimised network utilisation

- Delivering timely capacity

- Improved more efficient relationships

- More efficient decision making

A less obvious and hard to measure benefit is the improvement in relationships with regional stakeholders. By working together to deliver solutions, regional representatives will build up their knowledge of the energy sector and become increasingly intelligent customers for the sector's services. Such solutions align with the aspirations detailed in our Output Case "Establishing and raising the bar for all our customer and stakeholder experiences".

This regional partnering and planning will help us develop our plans for low carbon gases and their use and will also inform any full or partial decommissioning programmes.

As we develop net-zero plans, this level local knowledge will be critical to successful delivery. This need to build a local capability as an informed customer is a cornerstone of the thinking in the West Midlands, and a key part of their Innovate UK Regional Energy System Operator proposals. We are partners on this bid and represented the energy networks on the interview panel.

We have partnered in five other bids submitted this summer to Innovate UK for Smart Energy Systems.

The provision of timely reinforcement capacity, as well as unlocking earlier economic growth potential, may also result in more efficient network development, and fairer sharing of costs. For a large-scale development, construction on the ground is likely to be released in phases, potentially many years apart, with different developers. Early phases may not trigger network reinforcements, with subsequent phases triggering their own bespoke works. A scheme that can be designed to meet the full demand, right from the start, can be more efficient, and may also be able to optimise land and access constraints. It may also be possible to shape the development to utilise spare capacity around the development. At a higher level, early whole system engagement can enable local plans to select areas where there is spare energy infrastructure.

The cost to implement these whole system changes is minimal with an additional £0.5m pa included in our base plan. This cost may be offset, or additional resourcing funded, should the joint planning service that is rolled out become a chargeable service. This is a de minimus level of cost which can be justified by the clear stakeholder support, and qualitative benefit analysis undertaken within the Open Networks governance.

6. Delivering our commitments

The Open Networks Whole Systems WS4 proposals have delivery plans which are expected to be approved in December 2019. These involve delivery plans over a 12-month period to implement or pilot. The initial plan for the joint planning initiative is set out below.

The proposal for the roll out of a universal joint planning office would be produced in the 12-month period, with subsequent implementation.

Table 3 Initial plan for rollout

Activity	Duration
Identify trial areas	Jan-Feb 2020
Local Authority confirm objectives and constraints	March 2020
Energy networks identify constraints and required works	Apr-May 2020
Energy networks identify options to optimise capacity	June-July 2020
Options report presented to the LA	August 2020
Trial Feedback Report	September 2020
Go/No Go	October 2020
Design Universal Service	Oct-Nov 2020
Develop Implementation Plan	Nov-Dec 2020

We have agreed with SPEN Manweb to explore using the Liverpool City Region and Cheshire and Warrington as a potential trial area. Proposals with the West Midlands Combined Authority, Coventry City Council, WPD and the University of Warwick, to develop a regional energy system operator, will be a further opportunity to trial the whole system joint planning approach.

We intend to submit a change to our connection charging methodology to implement our mechanism to support timely reinforcements following industry and stakeholder consultation, prior to the commencement of RIIO-2.

Our commitment to share network capacity information is a key component of our digitalisation strategy and will also be considered by the ENA Energy Data Working Group, recently established to take forward the conclusions of the Ofgem/Government sponsored Energy Data Taskforce.

6.1. Protection against non-delivery

Failure to deliver will be visible to the industry through the Open Networks project governance.

By piloting and trialling the development of the proposals, with full network support, the likelihood of delivery failure is reduced. The risks of failure are further reduced by sensible planning, Go/No Go decision points, and effective trialling of the more challenging components.

If the joint planning service is chargeable, this would protect against financial downside and the risk of local authorities abusing the service with ill-defined requirements or spurious applications.

Our proposal to support timely network reinforcements could result in earlier capital expenditure. This will be recognised in the Uncertainty Mechanism designed for network reinforcements.