Transform the Power System for Future Generations

SONI TSO Business Plan 2020-25

SONI

The current. The future.

Foreword

As the Transmission System Operator for Northern Ireland, SONI (System Operator for Northern Ireland) is at the centre of Northern Ireland's electricity system.

SONI is responsible for a safe, secure and reliable supply of electricity both now and in the future. It provides homes and businesses with the power they need, whenever it is required. SONI ensures that electricity demand and supply are balanced at all times, which is a complex job.

Price controls are used by regulatory authorities, such as the Utility Regulator, to set the amount of money that can be earned by companies like SONI over a particular period of time. The Utility Regulator acts as a proxy for competition in order to protect the interest of customers.

SONI is submitting this business plan which sets out its funding requirements for the five year period – from October 2020 to September 2025. Almost all of SONI's income (>95%) comes from this regulated price control process.

The current Price Control period 2015 to 2020 has seen some step changes for the industry. New wholesale trading arrangements for the Single Electricity Market came into operation on 1st October 2018. This new integrated SEM has delivered a more liberalised energy market which also facilitates trading in real time. Our world leading DS3 programme has facilitated delivery of the 40% renewables target. When combined with a twofold increase in the number of units operating on the system, this has seen the start of a transition in the energy system, which has put downward pressure on prices.

A further transformation of the electricity industry is needed to deliver UK's ambitious target of net zero greenhouse gas emissions by 2050. This is a legally binding target, which will require all sectors of the economy in Northern Ireland to play their part.

This business plan seeks to deliver our ambitious strategy with stretching outcomes which contribute to decarbonisation and the 2050 target. We however, remain mindful of the need to ensure that our economy and opportunities from this energy transition are not lost for today's customers. The period of 2020 to 2025 will be an important one to ensure that we have a green energy system ready to maximise the value from significantly higher levels of renewables on the system. The electricity system in Northern Ireland needs to evolve and strengthen in order for this to happen. Making these changes now is critical if we are to transform the energy system for future generations.

Jo Aston
SONI
Managing Director

Layout of the SONI TSO Business Plan

The SONI TSO Business plan comprises a number of chapters and appendices, which work together as set out in the table below. Within this document, we have colour coded the chapters so that the reader knows which section they relate to.

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Introduction to the SONI Business

Chapter 1
SONI Strategy

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1 SONI Strategy

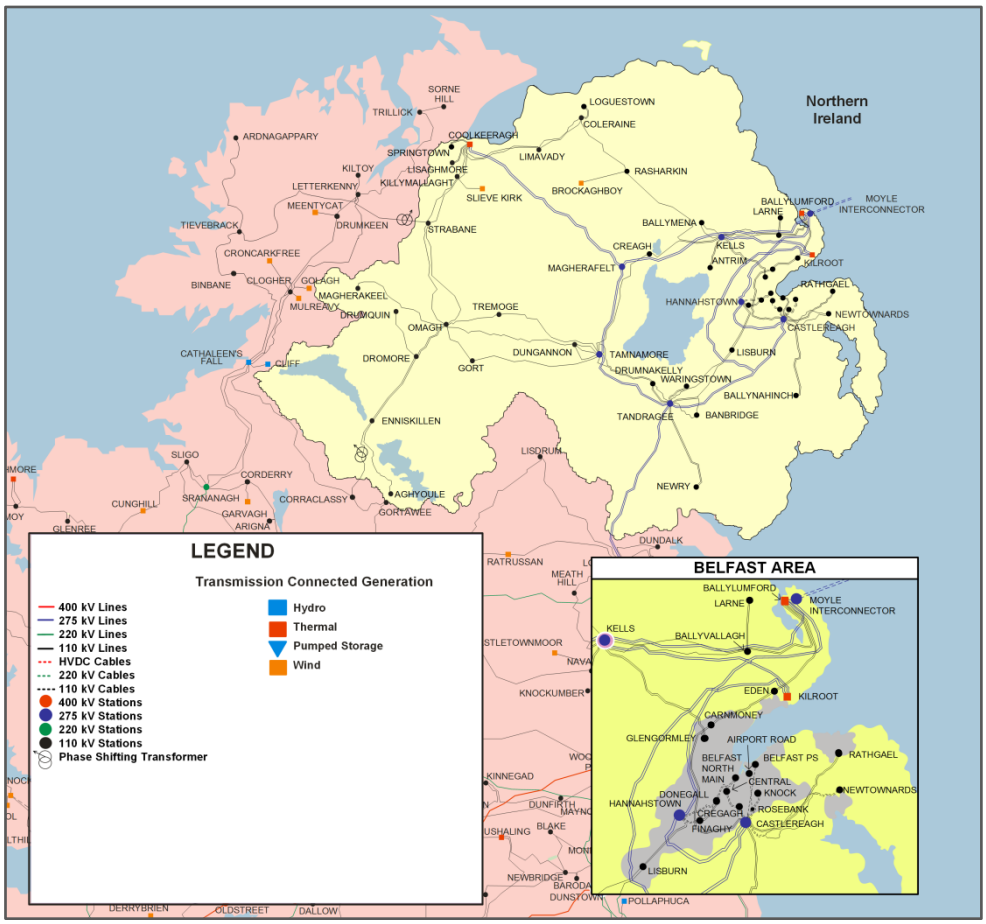
1.1 Introduction to SONI

1.1. As the Transmission System Operator (TSO) for Northern Ireland, SONI (System Operator for Northern Ireland) is at the centre of Northern Ireland's electricity system.

1.2. SONI is responsible for a safe, secure and reliable supply of electricity for now and in the future. It provides homes and businesses with the power they need, whenever it is required. This requires SONI to ensure that electricity demand and supply are balanced at all times, which is a complex job.

1.3. The electricity system is made up of transmission and distribution networks, and the most common analogy is to think of it like a road network. The transmission network is like the motorways and A roads, and is used to transport high voltage electricity quickly until it gets to the B roads. From there, the voltage of the electricity is reduced and taken to businesses and homes by the Distribution Network Operator (DNO). The transmission network is operated by SONI and comprises 876 km of 110kV and 1,477 km of 275kV lines across Northern Ireland, as shown in Figure 1.1. Northern Ireland Electricity (NIE) Networks is the DNO for Northern Ireland and it also owns all of the electricity network assets, e.g. the electricity grid.

Figure 1.1: Northern Ireland Transmission System



1.4. SONI does not generate or sell electricity. Nor does SONI own or maintain the electricity grid, so there is no financial benefit to it for the development of the transmission network. Critically, SONI is an independent entity with no vested interest in either the electricity network or energy market.

1.5. SONI is part of EirGrid Group, which operates a single electricity system across Northern Ireland and Ireland. This partnership achieves economies of scale and provides greater security of supply compared to two separate systems. It provides significant cost savings to the Northern Ireland customer compared to if SONI had to operate entirely on its own.

1.1.1 What SONI Does

1.6. SONI is authorised to participate in the transmission of electricity by means of a licence issued by the Department for the Economy under Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 (hereafter called 'the Order'). It is regulated by the Northern Ireland Authority for Utility Regulation or the Utility Regulator (UR).

1.7. Under the SONI Transmission Licence SONI is responsible for planning the transmission network and operating the transmission system in a safe, secure and economic way to ensure a reliable supply of electricity.

1.2 SONI's Customers

1.8. SONI interacts with a much smaller customer base when compared to other utilities like NIE Networks and Northern Ireland (NI) Water. SONI's customer base includes the following:

- Large electricity generators and demand units that are directly connected to the Transmission network;
- Suppliers and generators seeking to use the Transmission System, which requires a Transmission Use of System Agreement (TUoSA);
- Generators and market participants that have contracted with SONI to provide specific system services as part of the "Delivering a Secure, Sustainable Electricity System" or DS3 programme;
- Market participants that want to participate in capacity auctions to buy or sell electricity[1]; and
- Local communities and landowners that host electricity infrastructure projects.

1.3 The Changing Energy Industry

1.9. The energy industry is undergoing a transformation as a result of the fact that large, fossil fuel power stations which are directly connected to the transmission system are being replaced by smaller, generally distribution connected, renewable generation (e.g. wind and solar). These types of renewable generating unit have very different characteristics from a system operation perspective when compared to traditional thermal generation.

[1] While many of the issues related to these customers are the remit of SEMO, SONI TSO also carries out a number of activities that support market operations. This is explained in more detail in Appendix A.

1.10. In addition, advances in technology and increasing customer participation mean that the energy sector is changing more quickly than in the recent past (Figure 1.2).

1.11. The last time such a comparable feat was undertaken was during the period of rural electrification in Northern Ireland, which occurred in the late 1960s to early 1970s. Global megatrends, such as increased connectivity, data production and personalisation, are changing the position of technology and customer experience within society. As a result, traditionally separated sectors, including transportation and heating, are becoming increasingly convergent.

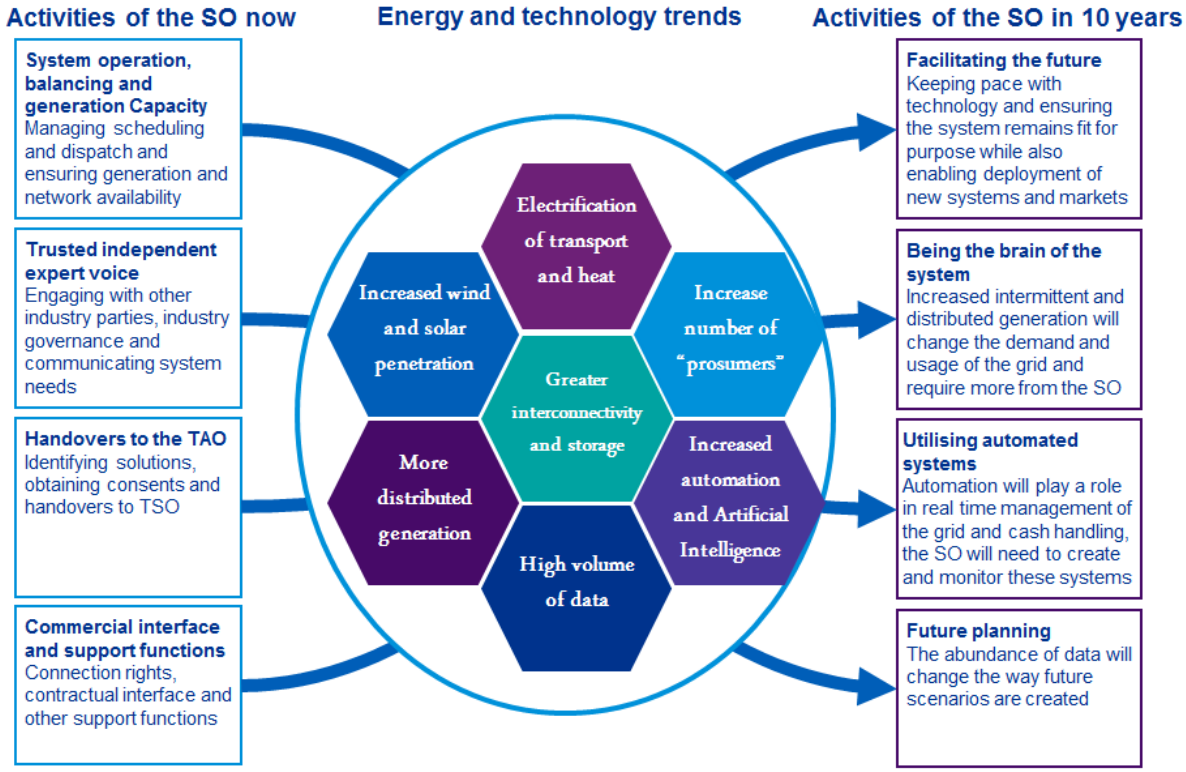
1.12. Within the electricity industry around the world, increasing decarbonisation, decentralisation and digitalisation is leading to the sector undergoing a dramatic transformation. As TSO for Northern Ireland, SONI is working with other organisations such as the UR and NIE Networks to help shape this transformation in order to realise the benefits of these changes for customers in Northern Ireland.

1.13. SONI has an important role to play in this transformation. As a key player, SONI is constantly assessing the future of the electricity system, looking to what challenges the future might bring and continuing to proactively prepare for these, as we have since the current Strategic Energy Framework (SEF) was launched in 2010.

1.14. The shape of the energy transition in Northern Ireland will ultimately be determined by the strategy set by government and the public response to that strategy. When the 40% target was set in 2010, the contribution made by small scale generation was not predicted, nor was the supporting role played by the uptake of Demand Side Units (DSUs). These have greatly assisted in Northern Ireland's over achievement against the target[2]. Therefore, while we know that rapid change is very likely over the next decade, SONI needs to be agile in our response to ensure that unforeseen opportunities are captured while shaping the direction of travel where possible. We will continue to respond to these changes as well as spearhead the future of the energy system. It is highly likely that the future of the energy industry will be one few of us can currently imagine.

[2] https://www.economy-ni.gov.uk/news/electricity-consumption-and-renewable-generation-northern-ireland-year-ending-june-2019

Figure 1.2: Future Energy and Technology Trends



1.4 Delivering a Green Energy System – Policy Context

1.15. It is important to consider the underlying policy context for this business plan submission given that the Northern Ireland Executive has not been functioning since January 2017. SONI believes it is critical that it continues to prepare for the transformation of the electricity industry in order that it is ready to move forward as soon as the Executive reforms and begins making crucial decisions.

1.16. SONI will not be working alone in this. Through this period SONI will be working closely with key stakeholders including the Department for the Economy, NIE Networks and the UR. The ultimate goal is realising a green energy system which delivers for todays and future generations.

1.17. Concern about the changing climate has been ongoing since the Rio Earth Summit in 1992, from which the Rio Declaration set out 27 guiding principles for sustainable development emphasising that long-term growth needed to occur in the context of environmental protection. Policy has evolved since Rio, with growing societal pressure on governments to do more to tackle serious environmental issues such as climate change.

1.18. The current policy relevant to Northern Ireland in the context of this price control is set out below.

1.4.1 Strategic Energy Framework

1.19. The current Strategic Energy Framework (SEF) comes to an end in 2020, and Northern Ireland has already delivered the 40% renewables target, a year ahead of programme. The DfE are currently working on an updated SEF with the intention of publishing a call for evidence by the end of November 2019. SONI are part of the senior electricity steering group informing the development of the next SEF. This Price Control submission has been informed by this involvement and SONI believes that our assumptions in relation to the drive to substantially increase the renewable target is not contrary to departmental thinking.

1.20. SONI also notes that following the call for evidence, the DfE intends to then carry out a formal consultation. SONI is working in partnership with NIE Networks to further inform the DfE consultation on the SEF. The expectation is that a ministerial decision on the targets to be achieved and other aspects of the SEF will be made towards the end of 2020.

1.21. However, SONI does believe that anything within this business plan will be negatively impacted by the final SEF as the commitment of net zero carbon by 2050 is the ultimate destination with the pace of that change being determined by the SEF. The work that is set out in this business plan is about ensuring that our energy system is ready for the transition, with renewable sources being the dominant fuel for energy needs in the future.

1.4.2 Net Zero Emissions by 2050

1.22. On 27 June 2019, the UK put into law a commitment to cease its contribution to global warming by 2050. The law enacted the recommendations made in the Climate Change Committee report published in May 2019[3]. In practice, it means reaching a target of net zero greenhouse gas emissions by 2050 and all regions of the UK, including Northern Ireland will be required to contribute to the achievement of this goal.

1.23. Figure 1.3 reflects targets for 2030 already set by Scotland, Wales and overall UK to deliver this commitment. Also included is the target set by Ireland, which is also relevant given the all-island context of the electricity sector on the island of Ireland.

1.24. In light of the above regional UK targets for 2030, it is difficult to conceive that the target for NI renewables on the system by 2030 will vary greatly either side of 70% by 2030. This in turn will require radical change of our energy system, the way we trade electricity, the way customers engage with energy consumption and the way we plan development of the grid. It is this transformation that has informed our strategy and this business plan submission.

1.25. Given's SONI's pivotal role in both operating the electricity system, the wholesale market and managing the flows on the interconnectors, it is crucial that in this price control period we advance a green energy system, ready for the increasing levels of non-synchronous generation and increasing electricity demands, if Northern Ireland is to play its part in delivering net zero carbon by 2050.

[3] https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

Figure 1.3: 2030 RES-E Targets in the UK and Republic of Ireland

1.4.3 Environment Bill 2019

1.26. On 15 October 2019, the UK Government introduced its proposed Environment Bill to parliament. The Bill seeks to improve the UK's environmental protections and it helps to enable the energy transition by setting up an independent Office for Environmental Protection. This office will enforce and uphold UK's environmental standards, including all climate change legislation, and will hold the government to account on the commitment to net zero emissions by 2050. While the proposed bill applies only to England at present, it is clear that over half of the proposed measures are designed to apply across the UK[4].

1.5 SONI Strategy 2020-25

1.27. SONI believes that a company with a strong vision will deliver better outcomes for society, the environment and the economy for the long-term. The SONI Strategy 2020-25 was formally launched in October 2019[5]. It clearly sets out the company's purpose and goals for five years, from 2020 through 2025. These have been captured and fully reflected in this business plan submission for the 2020 - 2025 Price Control period.

1.28. The fundamental requirements of those who use electricity are universal. All electricity users across the island expect a reliable and competitively priced supply of power.

1.29. Equally, the UK Government and the UR are both addressing the need for low carbon electricity as part of efforts to tackle climate change. They are seeking ambitious and cost-effective responses from electricity system operators. This requires a commitment to innovation without disrupting stability.

1.30. In June 2019, the UK Government committed to a target of net zero carbon emissions by -2050, which is consistent with global best practice. While Northern Ireland has not yet set a target, the move to clean energy generation is well underway.

1.31. SONI has a proven track record of innovating to respond to Northern Ireland's needs. The initiatives put in place over recent years have allowed for up to 65% instantaneous use of

[4] https://www.gov.uk/government/news/government-introduces-ground-breaking-environment-bill
[5] http://www.soni.ltd.uk/about/strategy-2025/

renewable energy on the Northern Ireland grid. This figure will need to increase in order to deliver Northern Ireland's share of the UK's commitment to net zero. SONI will use our expertise in the 2020 - 2025 Price Control period to begin planning for this change, which will eventually increase the level of instantaneous use of renewables on the system to over 95%.

1.5.1 SONI Purpose

1.32. SONI's purpose for this period is to "Transform the Power System for Future Generations".

Figure 1.4: SONI Strategy 2020 - 2025

1.33. This purpose is necessary in order that Northern Ireland does its part to help tackle the climate crisis. Climate change is well understood and beyond scientific doubt. The only question now is how fast society can respond to limit the damage, and so protect our planet for current and future generations.

1.34. The power system will need to be transformed in order to enable the transition to low-carbon and renewable energy. There will be major changes in how electricity is generated, and in how it is bought, sold, and used.

1.35. The electricity system will carry more power than ever before and most of that power will be from renewable sources. Coal, peat and oil-based generation will be phased out in the next decade. While this happens, new technology will allow electricity users to generate and store power, and return any surplus to the grid.

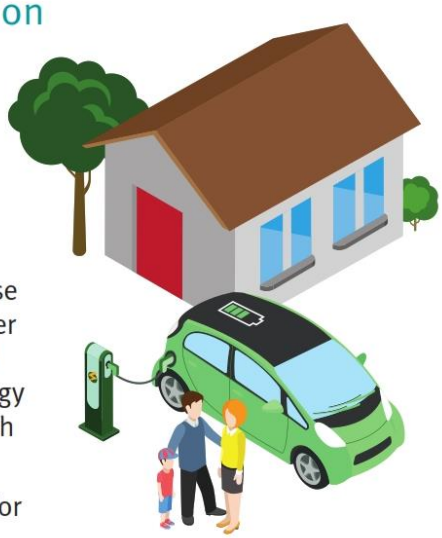
1.36. Transforming the power system to enable these changes will create opportunities for all. This purpose has been distilled into four specific goals for SONI, which are described below.

Primary Goal - Lead the electricity sector on sustainability and decarbonisation

Electricity from renewable sources will play a vital role in the global response to the climate crisis. Heating and transport are switching from carbon-based fuels to electricity, which will increase demand for power.

SONI has responsibility for a unique set of roles, which gives it the depth of knowledge and expertise needed to deliver a low-carbon, cost-effective power system. That is why SONI is making a commitment to provide real leadership on elements of this energy transition, together with other leading partners such as the DfE, UR and NIE Networks.

SONI will be a beacon towards an ultimate future for electricity that is sustainable and free from carbon.



1.37. Achieving this goal will require significant change. Meeting the UK's target of net zero carbon emissions by 2050 will require substantial amounts of additional renewable electricity on the system. A target of 70% of electricity consumption from renewable energy sources will require the grid to operate with over 95% renewable power on the system at any one time. In order to achieve this, around 1,600 MW of new renewable generation will need to be connected in Northern Ireland. In turn, this will require SONI to operate the system in a more dynamic and responsive way.

1.38. SONI is committed to be visible in leading the change towards a carbon-free electricity system. It will work with other partners across Northern Ireland to provide visible and trusted leadership together. This is because Northern Ireland cannot achieve this goal without public, political and regulatory support.

1.39. In order to deliver on this goal, SONI plans to undertake seven initiatives during the 2020 - 2025 Price Control period. The detail of these initiatives is set out in Chapter 8 and Appendix F.

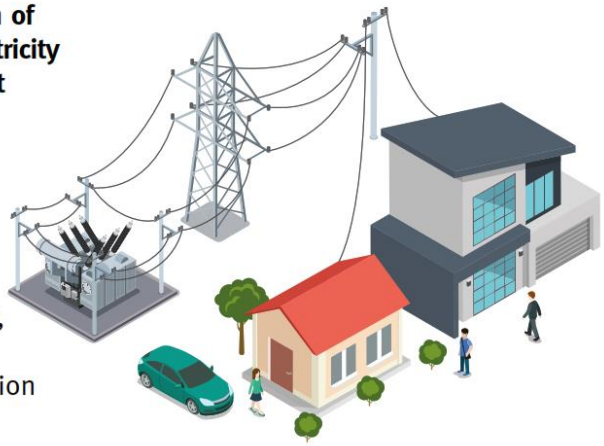
1.40. In particular, our work towards a clean electricity system will support:

- Affordable and clean energy;
- Industry, innovation and infrastructure;
- Sustainable cities and communities; and
- Climate action.

1.41. While Northern Ireland's exact target for 2030 is not known, the direction of travel is clear. SONI believes that it is vital to start planning for this energy transition as early as possible during the 2020 - 2025 Price Control period. Delaying this work is likely to lead to higher costs for customers as it will create challenges in system operation ultimately leading to increased constraint costs.

Supporting Goal – Operate develop and enhance the Northern Ireland electricity grid and market

The safe, reliable and efficient operation of the transmission system and single electricity market is the core purpose of SONI. That is why SONI's new strategy includes a restatement of this promise.



Society depends more than ever on electricity in almost every aspect of our work, social and family lives. As the grid powers the distribution network, every home, farm and small business relies on the operation of the transmission system to function.

To meet this promise, SONI will keep the grid strong, flexible and increasingly enabled with technology. SONI will also make sure that the wholesale market is efficient and effective.

1.42. SONI believes strongly in the ambitions set out in the strategy, but we cannot forget our core purpose as TSO. That is why this is explicitly set out as one of the strategy goals.

1.43. The Single Electricity Market (SEM) that operates throughout Northern Ireland and Ireland is key to this. In 2018, SONI and EirGrid completed a process to integrate this market more closely with European markets. This created a more liberalised market which could trade in real time. In turn, this introduced greater competition – and downward pressure on prices.

1.44. As a result of the SEM and changing technologies, the core activities that SONI undertakes on a daily basis have changed significantly and this is particularly relevant to the Information Technology (IT) services we provide. This evolution in our business as usual activities is the new baseline for SONI. Appendix D sets out SONI's spend over the current price control periods and in the 2020 - 2025 Price Control period. It also details all of SONI's proposed IT initiatives for the 2020 - 2025 Price Control period.

1.45. Additionally, SONI has identified 14 initiatives (Appendix G) that will improve the quality of our service and deliver efficiencies in the operation of the transmission system and market.

1.46. SONI will deliver this goal by:

- Ensuring the electricity market is balanced, transparent and open;
- Preparing for growth in demand side participation as more users start to generate and store their own power;
- Planning for a system that can take advantage of future interconnection; and
- Optimising existing assets and developing new infrastructure where necessary.

Supporting Goal – Work with Partners for Positive Change

SONI has always recognised the need for successful partnerships in order to achieve its goals. Now that its strategic ambition is evolving to respond to the climate crisis, SONI will need these relationships more than ever.

SONI works every day with NIE Networks, who owns and builds the transmission network, and also operates the electricity distribution system in Northern Ireland. A major collaborative partnership with NIE Networks is essential for the period of PC 20-25 in order to deal with the changes caused by the switch to electric vehicles and electric heating in the home.

SONI has a responsibility to the consumers who depend on us for a constant, reliable supply of electricity. SONI is guided by the government and the UR, and it works in partnership with them to realise government policy.

1.47. SONI works in partnership with governmental departments, the UR, NIE Networks and the customers generate and use large amounts of electricity. SONI is guided by government and regulators, and works with them, to realise UK and Northern Ireland policy.

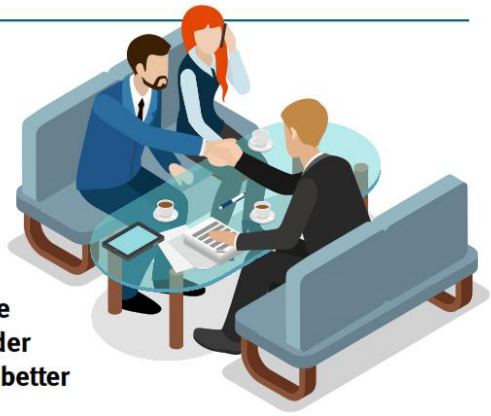
1.48. Technology will play a key role in this energy system transformation. SONI expects to develop new strategic partnerships with global players to help with this change. We will seek partners who can assist us in delivering the best and most cost-effective solutions on the power system.

1.49. SONI recognises the key role that government and regulatory policy will play in enabling the energy transition. SONI will put our resources and expertise to use in order to provide data and analysis to assist and help inform policy in Northern Ireland.

1.50. In order to achieve these strategic goals, SONI will invest effort with a renewed focus on getting the best from existing and new partnerships. Working together with our partners, SONI will play its part in delivering the most significant change to the energy system since rural electrification.

1.51. SONI will achieve this by having a common purpose, common goals and a common view on what success looks like for everyone. There is no specific business case associated with this goal. Rather, SONI recognises that objective underpins all of the work that we do and that we can only achieve success together with our partners.

Supporting Goal – Engage for better outcomes for all



In recent years, SONI has transformed our public and stakeholder engagement and is committed to further improvements where required. SONI will continue to look for innovative new ways to engage with all stakeholders in order to achieve world-class standards, and to deliver better results for everyone as a consequence.

Advances in technology are increasingly helping SONI to find less intrusive ways to move large amounts of power. But all electricity grids, in any country, depend on a backbone of large-scale infrastructure. This means that the grid still relies on pylons, substations, and overhead wires.

Asking landowners and local communities to accept new infrastructure has never been an easy task. SONI never takes these decisions lightly, or without first investigating all alternative solutions, but where new infrastructure is essential, SONI needs to inform and persuade this audience of its importance.

1.52. Our new focus on accommodating more renewable energy is a significant evolution. It will lead to major changes in how we operate the electricity system and the wholesale market.

1.53. It will also need us to make the grid robust, resilient and more flexible. This will be essential as we prepare the grid to move away from the predictable certainty of power generated by burning fossil fuels.

1.54. Making the case for the long-term benefits of new grid infrastructure to concerned landowners or their neighbours is challenging. SONI aims to deepen and broaden our consultation, and to respond in meaningful and persuasive ways to fears and concerns.

1.55. SONI will continue to invest our time and resources in a strategic and transparent approach to regulatory engagement. The UR is a primary stakeholder in our new focus on sustainability.

1.56. To achieve this, we will re-align our current engagement to our new strategy and SONI will do this in an open and transparent manner.

1.57. Appendix H details six initiatives that SONI will deliver over the 2020 - 2025 Price Control period to enhance our engagement with customers, stakeholders and partners to deliver better outcomes for everyone. SONI considers that these initiatives are fundamental to winning the hearts and minds of all of our customers, no matter what age they are.

1.58. Our aim is to collaborate with the UR and other key partners to find the best solutions to manage the energy transition in response to the challenge of climate change and to deliver a low carbon future for Northern Ireland.

1.6 Outcomes and Benefits to Customers

1.59. In approaching this price control, SONI and the UR agree that customers and the Northern Ireland consumer will receive greater benefit if the regulatory framework evolves to focus more on principles and outcomes.

1.60. SONI has given significant attention to the roles and services that the company provides across the electricity system, which will help develop understanding of how SONI can influence the system for the benefit of everyone. This business plan focusses on the roles and services that SONI currently delivers (Appendix A), as well as how these are likely to change during the 2020 - 2025 Price Control period (Chapter 8).

1.61. It is critical that SONI identify opportunities to deliver greater value for customers as they arise, and that it is able to take critical decisions at the right time. Within this business plan SONI presents a framework which it believes will deliver for all customers (Chapter 11 and Appendix N).

1.62. While the SONI strategy is focused on transforming the power system for future generations, we remain mindful of ensuring that our economy and opportunities from this transition are not lost for today's customers. It does not therefore loss sight of the need to continue to operate, develop and enhance the Northern Ireland electricity grid and all island market. To meet this goal SONI will keep the grid strong, flexible and increasingly enabled with technology. SONI will work to ensure that grid infrastructure is prepared for the future. At a fundamental level, this means ensuring the electricity system can accommodate additional renewable generation. This can be accomplished by optimising existing assets, and through developing new infrastructure where it is required and the future need is justifiable.

1.63. Where possible SONI will use innovative, yet proven, technologies to minimise the need for new infrastructure. SONI will work with NIE Networks in taking our consultation on Tomorrow's Energy Scenarios to the next stage of a needs assignment ensuring optimisation of the roadmap to deliver a green energy system. In tandem SONI will also make sure that the wholesale market is efficient and effective, taking a holistic view of the transformation of the grid and market.

1.64. As TSO for Northern Ireland, SONI will play an important leadership role in Northern Ireland together with other organisations. SONI is committing to be an enabler for the changes that are needed to allow Northern Ireland to move away from carbon emitting generation. Our business cases set out the need and rationale for the initiatives the SONI will deliver over the 2020 - 2025 Price Control period, in line with our strategy.

1.65. The electricity system needs to evolve and strengthen in order for this transition to happen. Making these changes now has the potential to secure the future for current and future generations.

Chapter 2

Making the Right Decisions at the Right Time

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2 Making the Right Decisions at the Right Time

2.1 Introduction

2.1. As TSO for Northern Ireland, SONI has a large sphere of influence over many factors in the energy sector which affect levels of service and customer bills. The current price control largely focused on minimising SONI's internal costs, which represent a very small percentage of the customer bill (Chapter 3). While it remains important that SONI's internal costs are well justified and efficient, for the 2020-2025 Price Control period it will be important to prioritise achievement of the UK's climate change commitments and the delivery of outcomes for the benefit of the Northern Ireland customer.

2.2. SONI agrees with the UR that customers will receive greater benefits if the 2020-2025 Price Control period is recalibrated to focus on the delivery of outcomes that bring benefits for customers. There are two aspects of this submission that we believe will facilitate the delivery of better outcomes for customers:

- Firstly is the SONI strategy, focused on decarbonisation and having a green energy system that is ready for the transformation to a much higher level of energy from renewable sources.
- Secondly our incentive mechanism which seeks to balance decarbonisation targets, with grid security and cost for customers.

2.3. This second aspect seeks to enable SONI to target areas with the potential to provide better value for money for customers providing a means for funding necessary investigatory work. Both the SONI strategy and the incentive mechanism are important as the work that SONI delivers can have wide ranging, and often indirect, influence on other activities that impact positively for customers. In this Price Control period, SONI's aim is to work in partnership and engage with customers to deliver better outcomes for all.

2.2 Price Control 2020-25

2.4. Price controls are used by regulatory authorities, such as the UR, to set the amount of money that can be earned by companies like SONI over a particular period of time. This is needed as SONI is a monopoly company in Northern Ireland, therefore the UR acts as a proxy for competition in order to protect the interest of customer.

2.5. Almost all of SONI's income (>95%) comes from this regulated price control process. SONI collects this revenue through charges made to suppliers, and suppliers pass these costs through to their customers. In collecting this revenue, SONI needs to cover the cost of running the company and to earn a reasonable return on this effort.

2.6. For the 2020-2025 Price Control period, SONI is submitting this business plan which sets out its funding request for this five year period together with the outcomes that will result from the work it carries out. In preparing its submission, SONI has given detailed consideration to

the Final Approach Paper published by the UR in March 2019[1], which set out a number of goals for the 2020-2025 Price Control period. The UR's goals for SONI are:

- *"Confidence that SONI's service meets customer expectations and is aligned with system wide interests;*
- *Confidence that SONI is providing high-quality service and performance which improves over time;*
- *Confidence that costs are reasonable and efficient;*
- *SONI service and cost transparency and clarity; and*
- *Confidence that framework provides SONI's investors with a fair package of remuneration and risk."*

2.7. The UR is asking SONI to provide a range of wide services and to do so in a way that delivers good value for money for customers.

2.8. SONI has given due consideration to the UR's strategic objectives, including how our business may contribute to the achievement of these objectives, as shown in Figure 2.1.

Figure 2.1: SONI Contribution to UR Strategic Objectives[2]

2.9. Additionally, in its Final Approach Paper the UR is proposing to assess SONI's submission across eight test areas, which can be grouped and summarised as follows.

[1] https://www.uregni.gov.uk/publications/soni-price-control-final-approach
[2] Adapted from the UR's Corporate Strategy 2019-2024 (https://www.uregni.gov.uk/sites/uregni/files/media-files/Corporate%20Strategy%202019-24%20final%20for%20web.pdf)

Table 2.1: UR Test Areas for SONI TSO

Grouping	No.	Test Area Name
Service Contribution to Good Outcomes	**1**	Delivering Value for Money
Services and Costs	**2**	Delivering Services and Outcomes
	3	Securing Cost Efficiency and Managing Uncertainty
	4	Aligning Risk and Return
Trust in Delivery	**5**	Consumer, Customer and Stakeholder Engagement
	6	Ensuring Resilience and Governance
	7	Accounting for Past Delivery
	8	Securing Confidence and Assurance

2.10. Throughout this business plan SONI references the appropriate test area within the different chapters. In addition, Appendix T maps the eight test areas to the appropriate section(s) of the submission to assist the reader in understanding how these have been addressed.

2.3 Evolving Requirements for a TSO

2.11. There are many moving parts to this energy transition and as the pace of technological change increases, our roles and responsibilities as the TSO will evolve. Designing a framework today that supports the activities which are needed now, as well as what is needed of a TSO in 5 or 10 years is an incredibly complex task.

2.12. However, what defines success is not being able to foresee every possible scenario for the future requirements of the TSO but rather delivering a system that provides what is needed when it is needed, and that is responsive to the evolving market.

2.13. Therefore, as the TSO, SONI must be:

- **Agile** – The pace of change of technology and electricity industry itself is fast and we need to prepare for these developments and shape the response to them to avoid being significantly behind the curve and limiting customers benefiting from technology developments. As an asset light business we are well positioned to do this. However, a price control that supports and incentivises such agility, enabling us to deliver for our customers, is vital.
- **Flexible** – It will be important that this price control is able to facilitate uncertainty as we develop the vision and crystallise the roadmap for the Northern Ireland energy transition. This will be achieved in partnership with the DfE, NIE Networks, the UR, and other key stakeholders and policy makers. Working together, all parties need to be flexible, to allow us to respond to the changing needs of the customer and technological developments that impact system requirements.

- **Customer Focused** – In line with the UR Final Approach Paper, SONI has focused on delivering outcomes for customers and in seeking to deliver added value has developed and included a benefits sharing framework. This framework enables SONI to hone in on activities which can deliver the most value for customers across the three high-level, top down metrics of decarbonisation, grid security and cost (Chapter 11 and Appendix N). It incentivises SONI to be innovative and proactive. It involves a shift in the regulatory regime to focus on customer outcomes and added value.

2.14. Through our role as an independent energy systems expert, SONI should also be sending strong signals to industry on the future needs of the transmission network while continuing to scan the horizon for forthcoming change.

2.15. This increasingly complex environment will require a variation in approach to the traditional price control to further allow us to create and maintain a system that is delivering for the needs of society and for us to continue to adapt and change our ways of working in order to enable SONI to take a proactive approach to external market changes. In developing our approach, SONI has been cognisant to ensure that we remain consistent with the UR's objectives, both at a strategic level and at a more granular price control level.

2.16. To this end, SONI has recently published the first consultation on Tomorrow's Energy Scenarios (TES), which sets out a range of possible future energy scenarios for Northern Ireland. Following the consultation, feedback received will be used when developing the final TES, and in carrying out the associated dispatch modelling. These scenarios will then be considered further in the TES Northern Ireland System Needs Assessment, which considers the long-term needs of the electricity grid in Northern Ireland out to 2040.

2.4 Unlocking Value for Customers – A Revised Benefit Sharing Framework

2.17. Where SONI can identify opportunities to deliver greater value for customers, we need to be able to make those decisions at the right time. This means having agile mechanisms in place, which while keeping the UR informed, facilitates SONI pursuing benefits for customers. In order for this framework to function property it is important that SONI is incentivised to take risk and commit its own capital where this can deliver better outcomes for customers. In this submission SONI has therefore proposed a benefit sharing framework, which takes a holistic approach and seeks to balance the trilemma of decarbonisation, grid security and cost. The benefit sharing mechanism is discussed in greater detail in Chapter 11 and Appendix N.

2.18. The current price control design does not fully facilitate the achievement of the above objectives because replicating that would require us to set out rigid 5-year business plans that would be delivered irrespective of the eventual needs of an industry in the middle of a transition. Building on the framework published by the UR in their Final Approach Paper, SONI has put forward an incentives package that seeks to deliver greater value to customers, while continue to operate as an efficient and cost effective TSO.

2.19. To ensure that beneficial outcomes for customers are not stifled, the regulatory model will also need to be agile, flexible and proportionate. It will be important that the time requirements of oversight are balanced with the fact that a delay to some activities would

cost the customers money and hinder the achievement of policy objectives. For example, achievement of higher levels of renewables on the system will require the development of new control room tools and further innovation around system services if we are to maximise the value for customers of facilitating 95% penetration of wind at any one time. A delay to commencing the new enabling technology onto the system would ultimately mean that customers pay more in constraint costs that could otherwise have been avoided.

2.5 Delivering Outcomes in Partnership

2.20. Government and regulatory policy play a key role in enabling the energy transition. SONI believes that its resources and expertise play an important role in informing and shaping the development of a Northern Ireland energy strategy and accompanying policy. SONI has already commenced and committed to work with NIE Networks in order to provide data and analysis to DfE and the UR to help inform the next SEF for Northern Ireland. As set out in Chapter 8 and Appendix H, SONI recognises that it will only be able to deliver on its strategic goals if it works in partnership with others.

2.21. In order to prepare for more ambitious targets, SONI is and will continue to work in partnership with DfE, the UR, NIE Networks and other partners in order to:

- Plan for the increasing levels of RES-E on the transmission system;
- Determine how to make best use of current connections through innovation; and
- Identify how the transmission network might need to change as the electricity system transforms.

2.22. SONI can plan for this increase in RES-E targets during the 2020-2025 Price Control period, and it believes that planning for decarbonisation is the right decision.

2.6 Conclusions

2.23. It is important that the price control design includes appropriate risk-return mechanisms and a framework that supports and encourages SONI to make the right decision at the right time and to focus on what matters to customers. This can be done by ensuring that SONI faces the right financial incentives to do the right thing and is not encouraged to delay these activities until the next period because to do so would mean that customers either miss out on value accretion opportunities or do not realise the benefits as quickly as they could have done.

2.24. There is also value for the customer in proactivity. As stated above, the future needs of the system and the roles of a TSO are uncertain but there are many times where moving in a "least regrets" direction now is hugely beneficial when compared to being constrained by a "no short-term regrets" philosophy that stifles the response to new opportunities when they arrive.

2.25. We believe the delivery of the goals set out in the SONI Strategy, married with the introduction of a new benefit sharing framework in this Price Control will facilitate better outcomes for all. It will also fundamentally enable SONI, together with other stakeholders in Northern Ireland, to transform the power system for future generations.

2.26. SONI is however, mindful of the importance of the cost to customers and the ultimate impact on consumer bills. The cost of this submission, on customer bills, is set out in detail in the next section.

Chapter 3
Value and Costs to Customers

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3 Value and Cost to Customers

3.1 Introduction

3.1. SONI plays a critical role in the electricity industry in Northern Ireland. Decisions made by SONI can impact on the final bill paid by end users in many ways. These include:

- The dispatch balancing costs charged through the imperfections tariff;
- System services payments to generators;
- Capacity market charges;
- Transmission network costs; and
- Factors used to determine wholesale prices[1].

3.2. In our business plan we set out how we propose to update our services to make sure we meet stakeholder expectations for the 2020s. While investment in SONI will increase our own tariff, the SSS tariff, many of our proposals will secure savings in other elements within the final bill.

3.3. The landscape that SONI operates in is expected to change considerably over the period of this 2020 – 2025 Price Control, as we endeavour to prepare the electricity system for the energy transition. We expect new technologies to connect to the grid to support the increase to the level of energy sourced from renewables. During this period it will be crucial that SONI is creating and informing the optimal roadmap to deliver maximum customer benefit.

3.4. We will need to balance the need to decarbonise the system with maintenance of grid security while avoiding excessive cost to customers. This transition should also create new opportunities for customers to shape their relationship with energy providers.

3.5. Our indigenous renewable generation will reduce the prices in the wholesale market at times of high wind and clear skies; however to unlock these savings, SONI must face the challenge of keeping the power system stable without the inertia and other services inherent in the supply of electricity from thermal generators.

3.6. This means that SONI will need to invest in its ways of working and update its services to ensure that this transformation benefits Northern Ireland customers. Fortunately, SONI is an asset light and agile business, where a relatively small investment can unlock considerable value elsewhere in the supply chain.

3.7. Our business plan sets out what we need to achieve if we are to be successful if delivering the right outcomes and benefits for customers and the cost associated with it. In this chapter we outline the impact that this business plan will have on the costs that SONI will charge through its SSS tariff and how this is shared across various customer groups.

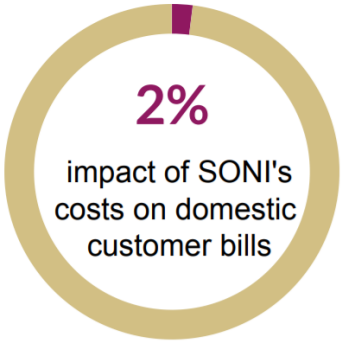
3.8. The way that we have calculated this is set out in Appendix R.

[1] Currently in SONI's TSO licence but not in effect. Decision to activate will be made by the SEM Committee.

3.2 Current Cost of SONI's Services

3.9. While SONI's direct costs are currently less than 2% of the typical domestic electricity bill, our actions and decisions can positively influence a much larger portion of the costs that customers pay.

3.10. The average cost for a domestic consumer is approximately £10.50 per year. This includes the controllable and non-controllable opex costs.



£10.50

This is the impact of SONI's current costs on domestic customer bills per year.

£535

This is the average domestic electricity bill in Northern Ireland per year.
It is made up of a number of items. SONI's costs are approximately 2% of this.

3.3 Cost of SONI's Business Plan

3.11. SONI's business plan details the work which SONI has to carry out over this period. This includes many initiatives that will put downward pressure on the cost to customers.

3.12. Appendix R set sets out in detail how this cost to domestic customers has been calculated.

3.13. The cost of the full package of work included in our business plan translates to an increase of £6 million/annum over the five year period. It is however expected, as has been the case for the current price control, that financial benefits accruing to customers from SONI's work will far exceed the cost for providing the service.

3.14. From this it can be seen that an average household will pay less than £3 extra per year for the investment that will deliver initiatives which will either directly reduce costs in the wholesale market or protect against undesirable outcomes.

3.15. When the imperatives of addressing the climate crisis are added into the mix and the value to the Northern Ireland economy of indigenous power sources are also considered, it is clear that SONI's business plan makes good economic sense.

£2.76

This is the additional cost to the average domestic customer of the new initiatives proposed by SONI for the 2020 - 2025 period.

0.5%

This is the percentage change of the average domestic customer of the new initiatives proposed by SONI for the 2020 - 2025 period.

Chapter 4

How the Past is Shaping the Future

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4 How the Past is Shaping the Future

4.1 Introduction

4.1. While SONI's business plan covers the period from 2020 to 2025, it builds upon the current funding arrangements, delivery model and business efficiencies established during the current control. The purpose of this chapter is to set out how SONI has delivered the key objectives of the current price control which presents the foundations, both in terms of service delivery and in terms of funding requirements, upon which this 2020-2025 Price Control business plan is built.

4.2. Further detail on SONI's delivery over the 2015 to 2020 period is set out in Appendix B. Together these two sections also address Utility Regulator's Test Area 7: Accounting for Past Delivery.

4.2 Context of 2015-20 Price Control

4.3. The period covered by our 2015-20 price control was one of considerable change for SONI, both as a consequence of the substantial redesign of the all-island single electricity market and because of the 40% target set for renewables on the system in Northern Ireland. Each of these had significant programmes of work which involved formal all-island project working. The UR and SONI both acknowledged at the start of the control period that it would be very difficult to accurately assess the TSO costs associated with these projects.

4.4. Consequently, when SONI made its price control submission in 2014, we knew that some of our key roles and objectives would be adjusted and/or added to when the new trading arrangements associated with I-SEM were implemented.

4.5. We also knew that the EU Network Codes and the work associated with the DS3 programme, required to achieve the 40% renewables target, would impact on our day to day activities and investment needs.

4.6. An "Agreed Approach Document"[1] was signed off by both regulators in agreement with both SONI and EirGrid for reimbursement of project costs arising from the I-SEM programme. A less formal but similar approach was taken for the DS3 project.

4.7. Both the I-SEM and DS3 projects have resulted in added complexity and changes to ways of working for SONI. A price control re-opener was made in 2018 to provide for the forecast incremental costs associated with I-SEM. Where allowances provided by UR and actuals as incurred by SONI are set out in this chapter they reflect this re-opener.

4.8. In this context we note that the 2020-2025 Price Control period also has considerable uncertainty associated with it as Northern Ireland seeks to contribute towards the UK commitment of net zero carbon emissions by 2050. Both the UR and SONI will play

[1] https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-15-004%20Published%20AAD%209%20Jan%202015.pdf

significant roles in meeting this commitment, as reflected in both organisations' corporate strategies, which strive to deliver a sustainable, decarbonised future.

4.9. The proposed benefit sharing framework, set out in more detail in Chapter 11 and in Appendix N, provides SONI's response to managing uncertainty whilst ensuring delivery of benefits to customers and that SONI is incentivised to do the right thing.

4.10. In this context we would note the success of the Dispatch Balancing Cost incentive included in the 2015 – 2020 Price Control period, which delivered savings of more than £10 million for Northern Ireland customers over the first three years of the price control. SONI and EirGrid have worked together to achieve these savings for customers through initiatives such as reducing the volume of reserve that they are required to hold through countertrading on the interconnector and through trialling ambitious changes to operational constraints without compromising system security.

4.3 SONI's Key Achievements 2015 - 2020

4.11. In this section we set out a brief summary of our key achievements and outcomes for customers in this price control period to date.

4.12. The UR called out three key deliverables for SONI over the 2015 to 2020 period:

- The transition to the new trading arrangements from I-SEM;
- The delivery of the DS3 programme, to meet the 40% renewables target for Northern Ireland; and
- The granting of planning permission for the second North - South Interconnector.

4.13. All three deliverables have been achieved, noting a qualification in relation to the granting of planning for the North South Interconnector:

- The integrated or new SEM was implemented on 1 October 2018;
- The DS3 programme has not only has seen the achievement of 40% wind on the system one year in advance of the 2020 target, but also 65% level of penetration of wind on the system at any one time. This means that more value can be extracted from renewable wind sources than would have been safely permitted at the starting level of instantaneous penetration; and
- Planning permission for the North - South Interconnector was received in January 2018[2].

4.14. Delivery of the I-SEM and the achievement of 40% renewables on the system, married with the successful delivery of 65% of wind on the system at any one time as a result of the DS3 programme, brought considerable complexity and changes to SONI's business as usual practices. It also however brought great benefit for customers, putting downward pressure

[2] On 8 February 2019, the Department for Infrastructure conceded to a legal challenge against the planning permission. This challenge argued that planning approval could not be granted in the absence of an Infrastructure Minister. SONI is hopeful of a final decision on the North South Interconnector in the coming months.

on prices. The revised capacity market auction process has delivered a saving of £50 million per annum for the Northern Ireland customer[3]. The DS3 programme has increased the value that can be extracted from renewable generation connected to the system.

4.15. Additionally the new I-SEM energy trading arrangements facilitated trading in real time and optimised flows across the interconnector, all of which have put downward pressure on costs.

4.16. It is worth noting that the cost of electricity for domestic customers in Northern Ireland over that period is amongst the cheapest in Europe[4].

[3] https://www.uregni.gov.uk/news-centre/utility-regulator-comments-isem-capacity-auction-outcome

[4] From the UR quarterly retail report it can be observed that the average price electricity for medium domestic users (between 2,500 and 4,999 kWh per year) is 15.6 p/kWh, which is lower than the average cost in GB and the EU median which are both of 18.0 p/kWh .

Figure 4.1: Key Achievements during the 2015 – 2020 Price Control

4.4 SONI's Changing Landscape 2015 - 2020

4.4.1 Volume of Renewable Generation

4.17. Since October 2015, SONI has supported the connection of 573 MW of renewable generation to the Northern Ireland system which has allowed the 40% target to be reached ahead of the target date of 2020. Connecting renewable generators requires detailed modelling by SONI to ensure:

- That access to the transmission system is allocated fairly; and
- That any technical issues that could impact on the stability and security of the system are identified.

4.18. To accommodate the connection of the significant volumes of renewable generation, SONI and EirGrid have been implementing the world leading DS3 programme. This is essential to ensure that we have the flexibility and necessary volume of system services to keep the system stable. The programme has included a wide range of work streams including the introduction of new system services, new procurement frameworks (both tariffs and auctions) to support the changing generation portfolio, and the development of new control centre tools.

4.19. The DS3 Programme has enabled SONI and EirGrid to increase levels of instantaneous system non-synchronous penetration (SNSP) from 50% to 65%, with the aim of increasing this incrementally to 75% in 2020.

4.20. Between October 2018 and July 2019 wind and solar generation accounted for over 40% of Northern Ireland's demand; at times, wind generation provided up to 85.5% of all-island demand. Also at one point in 2018 wind met 129% of the demand in Northern Ireland. The power system was operated above 50% SNSP for 31.5% of the time.

4.4.2 New Trading Arrangements

4.21. SONI has also worked with EirGrid to implement new trading arrangements. The SEM Committee's cost benefit analysis[5] for this project estimated the value provided to the market is in the range of €600 million to €1 billion up to 2030.

4.22. This integration project has also introduced the concept of balance responsibility for market participants and it changed the objective of the SONI's scheduling and dispatch activities. SONI worked with the regulatory authorities on the island and with EirGrid to jointly deliver this integration. The new trading arrangements went live on 1 October 2018.

4.4.3 Complexity of Scheduling and Dispatch

4.23. While the maximum demand for electricity in Northern Ireland has remained fairly flat over the past five years, the complexity of the consumption patterns underpinning demand and the sources of energy available to meet that demand has increased dramatically.

[5] https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-14-085b%20I-SEM%20SEMC%20decision%20on%20HLD%20Impact%20Assessment.pdf – see table 2 on page 7

4.24. The number of units that SONI interacts with, including more complex non synchronous and intermittent units, has almost doubled over the first three years of this price control period.

4.25. Demand Side Units (DSUs) have entered the market in Northern Ireland during the first three years of this price control. Over the first three years of this period 124 demand sites[6] have become market participants through aggregators.

Figure 4.2: Key Metrics of Volume of TSO work in Northern Ireland

4.26. The metrics outlined in Figure 4.2 gave resulted in increased complexity of system operation in Northern Ireland.

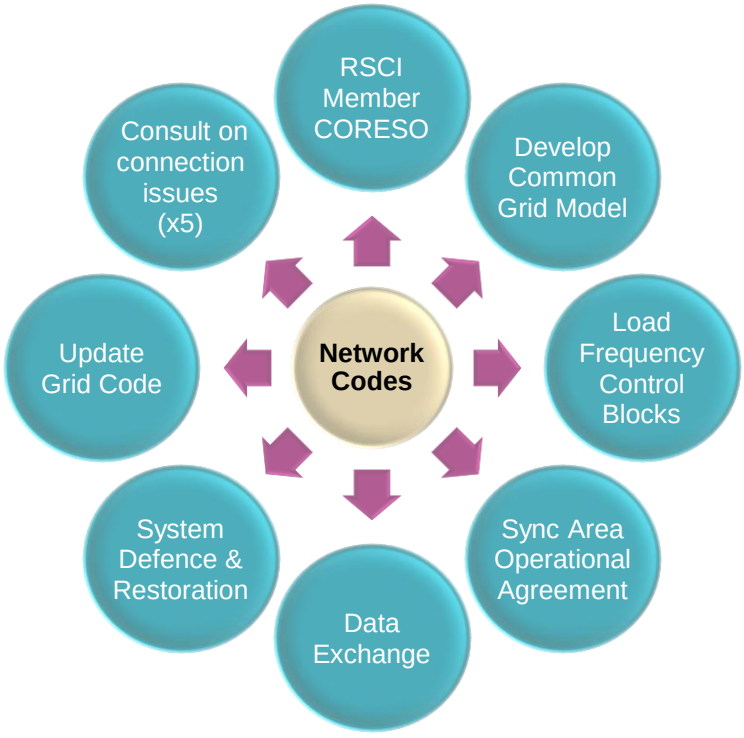
4.27. SONI's obligations also continued to expand and evolve over the 2015 – 2020 Price Control period. The changes to SONI's licence in the same period are shown graphically in Figure 4.3.

[6] This number is continuing to increase

Figure 4.3: Modifications to SONI's Licence Obligations Since October 2015

4.28. SONI is currently implementing the EU Network Codes (Figure 4.4). While a portion of the works required under the codes that are related to the market have either been funded through the I-SEM project SONI is carrying out the other additional activities within its existing *ex ante* allowances.

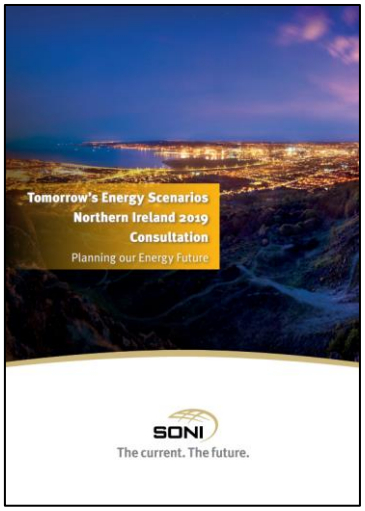
Figure 4.4: European Network Codes – Technical Only (excludes market codes)



4.5 Stakeholder Engagement 2015-20

4.29. In implementing its new obligations and developing its approach to the 40% renewables target during the 2015-20 period, SONI has been cognisant of stakeholder needs and perspectives which have been obtained via various engagement activities (such as public consultations, panels, etc.). This has been particularly important though the development of the new trading arrangements and the DS3 system services procurement processes, where stakeholder engagement far exceeds that undertaken when implementing the original SEM arrangements and the initial harmonisation of system services procurement across the island. One such example is our Tomorrow Energy Scenarios which set out the evolving energy landscape in Northern Ireland into the future as shown in Figure 4.5.

Figure 4.5: Tomorrow Energy Scenarios Northern Ireland 2019



4.30. SONI has also worked closely with NIE Networks to ensure that the processes to connect to the Northern Ireland Transmission and Distribution Systems are up to date. Jointly with NIE Networks, we have undertaken extensive consultation on both the introduction of contestable connections and alternative approaches to processing connections.

4.31. Responsibility for obtaining consents for transmission network projects moved to SONI in 2014, just before the start of this price control period. We have reviewed our approach to consulting with interested parties and have updated it to ensure that it supports the timely consenting of acceptable infrastructure.

4.32. The full scope of SONI's routine stakeholder engagement is set out in Appendix A, SONI's Roles and Services.

4.6 Recognition & Learning

4.33. SONI continues to reflect on ways that we can improve and has built in its learnings to the initiatives set out in this plan for the 2020 - 2025 Price Control period. This has also underpinned our new strategy and the initiatives that are set out in Chapter 8 of this business plan and its appendices.

4.34. SONI has also been nominated for a number of awards since 2015. These reflect the high standards of customer and stakeholder engagement that SONI delivers, in addition to the ground-breaking nature of some of our achievements. SONI and EirGrid have been considered for many awards for the DS3 programme, including:

- Irish Times 2018 Innovation Awards – Nominated in the Sustainability Category, DS3
- SEAI Energy Awards 2018 – Winner of Renewable Energy Category, DS3
- Green Energy Awards 2019 - Nominated in Sustainable Energy Achievement, DS3

Figure 4.6: DS3 Programme Award

4.7 Outturn & Efficiency 2015-20

4.35. The UR included challenging efficiency targets within its determination for SONI between 2015 and 2020. The current regulatory framework provides that SONI benefits from 50% of any difference in allowances and costs incurred through the annual k factor adjustment process. The framework provides that SONI can, and should, make efficient trade-offs between opex cost categories and between opex and capex. Taken together these are sometimes termed totex. The SONI risk share mechanism set out in its licence operates on a totex basis.

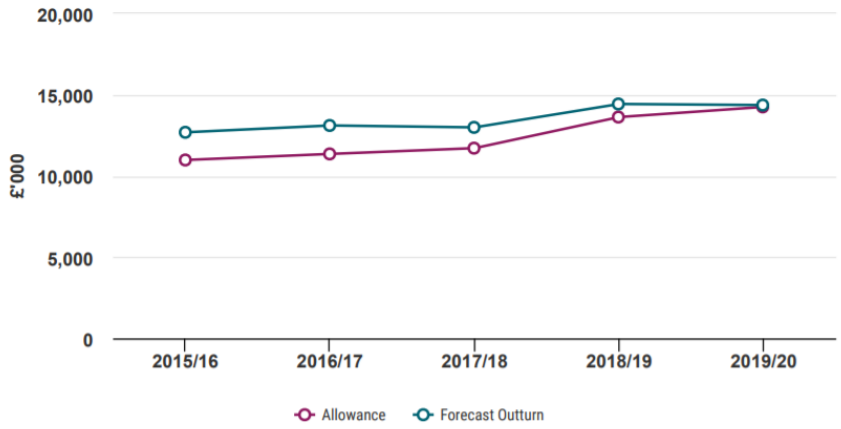
4.36. When calculating SONI's revenue entitlement over the 2015 -2020 Price Control period, the UR assumed a particular composition of SONI's future cost base. SONI has striven to achieve these efficiency targets.

4.37. The figures below break out SONI's financial performance against the 2015 -2020 Price Control in terms of both operating costs and non-network capital spend. These are presented in nominal terms. With the additional complexity of the system that SONI has had to operate within, the management of SONI's business within the allowances provided by UR has been challenging.

4.38. This was particularly so in the early years of the control. In the early years of this period, our costs significantly exceeded the provision made by the UR[7].

[7] The makeup of the allowances for the 2015 – 2020 Price Control is complex. This is due to the late commencement of the Price Control and the outcome of the CMA determination.

Figure 4.7: Graph of Forecast Opex against Allowance



4.39. Over this period, we have also had to make trade-offs against capex spend to fund our share of increased investment in the telecoms network that we share with NIE Networks[8] and to offset higher IT operating costs. We have also had to reallocate capex to maintain our building to ensure that it remains in good condition. The capex forecast outturn against allowance is set out in Figure 4.8.

Figure 4.8: Graph of Forecast Capex against Allowance

4.40. SONI has also sought to meet the UR's challenge through maximising the additional efficiencies that could be obtained through deeper integration within the EirGrid Group. The employment of deeper synergies was necessary if SONI was to operate as closely as possible to the assumptions made in UR's 2015 - 2020 Price Control determination and to maintain the service levels expected by Northern Ireland customers.

4.41. We have taken measures to minimise our staff costs through a natural attrition in terms of both staff numbers and seniority of staff and in actively managing our pay bill.

4.42. SONI reviewed a number of discretionary aspects of our staff reward package and made changes where possible; for example ceasing in 2016 the discretionary company

[8] SONI has to match the increased funding provided to NIE Networks by the UR in its RP6 determination

performance award which provided for up to 5% of salary. [redacted]

4.43. While SONI saw overall costs exceed allowances in the price control period, through the measures above SONI has by the last year (2019/20) reduced its costs to be broadly consistent with that provided by the Utility Regulator.

4.8 Costs Outside SONI's Core Price Control Allowance

4.44. Network Projects, referred to as Transmission Network Pre-construction Projects or 'TNPPs', are projects that SONI undertake pre-construction work on before transferring to NIE Networks who undertake the construction part of the project. The project costs, including SONI's pre-construction costs (for which SONI is reimbursed by NIE Networks when the project is transferred), eventually end up on the NIE Networks Regulated Asset Base (RAB).

The TNPP investment in the period to the end of the 2018/19 Financial Year has been almost £10m. A substantial portion of this related to the N-S Interconnector. SONI has not yet transferred any TNPPs to NIE Networks, although two are ready for transfer imminently. A review of the work undertaken to date under the TNPP process during the 2015 - 2020 Price Control period is included in Appendix J.

4.45. SONI also incurs additional opex costs that are not recoverable through Bt term in its revenue formula. These are recovered through the Dt uncertainty mechanism. These include uncontrollable costs that are assessed and funded through the Dt process such as the ENTSO-E ITC arrangements, Interconnector Administrator Costs/Income etc. Some new obligations have also been funded through the Dt process.

4.46. A further uncertainty mechanism was included for Special Projects following the CMA appeal called Zt. This allowed for SONI to recover depreciation and a return for special projects over five years. This included the following:

- Implementation of the I-SEM; and
- The costs of the DS3 programme, including control room tools and the costs of establishing the DS3 system service.

4.47. The first year of recovery for both of these projects will be in the 2019/20 tariff year and amounts to £6.9m.

4.9 Econometric Benchmarking of Efficiency

4.48. In its Final Approach Paper, the UR encouraged SONI to provide benchmarking evidence to support its cost base. SONI employed KPMG to undertake this assessment. Their report is included within this submission as Appendix M. KPMG summarise their conclusions as follows:

"A range of evidence for potential comparator companies (other SOs) and publicly available independent sources (e.g. wage indices, survey data and other benchmarking exercises) was assessed to determine if a robust benchmark for determining the scope for catch-up

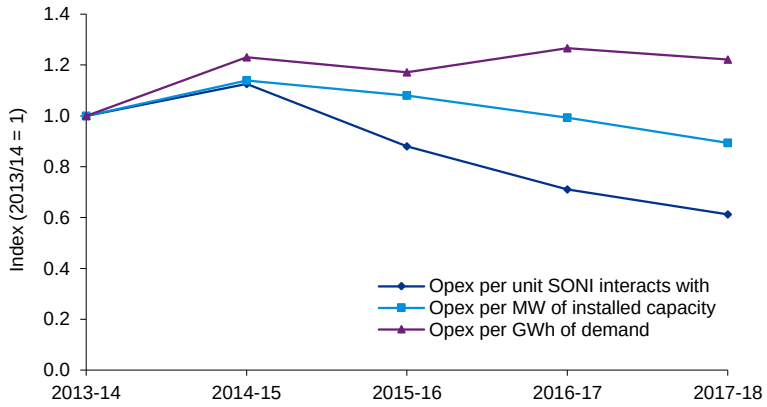
efficiency in SONI's cost base could be established. This analysis considered the activities which SONI undertakes, characteristics of the industry in which it operates, and how SONI could be compared against publicly available data sources.

…..The available information for other SOs is not sufficiently comparable to SONI to allow robust cross-sectional comparisons to be made. This finding is consistent with previous independent studies, in particular pan-European TSO benchmarking studies commissioned by the CEER Unbundling, Reporting and Benchmarking Task Force[9], which concluded that robust benchmarks for system operations costs could not be established.

At a more disaggregated level, publicly available sources of data do not provide sufficient detail to allow robust benchmarks to be established for individual cost areas (e.g. staff or other operational costs). Overall, the available evidence is not sufficiently robust to allow for a reliable estimate of catch-up efficiency, using top-down approaches, which could be applied to SONI's cost base."

4.49. What is evident however is that when looked at through the lens of the increasing activity undertaken by SONI as set out in this chapter that against almost every metric the unit cost of delivery by SONI is falling. When compared to the total demand for electricity in Northern Ireland, SONI's efficiency has reduced marginally, however when the complexity of the sources of that electricity are considered, efficiency has improved over the period. High level trend lines are set out in Figure 4.9.

Figure 4.9: High-level Opex Unit Cost Results



Source: SONI data & KPMG analysis

4.10 Baseline Costs for 2020 - 2025

4.50. SONI has assessed its cost base and challenged the assumptions underpinning it. This new baseline includes for the costs of operating under the new trading arrangements which were introduced mid current control.

[9] Frontier Economics (2013), E3GRID2012 – European TSO Benchmarking Study: A Report for European Regulators

4.52. The calculation is set out below:

Opex Area	Actual Total (£m)
Payroll and Pension	8.5
Staff Related Costs	0.5
Total Telecoms & IT Costs	3.6
Total Professional Fees	0.8
Total Facilities Costs	0.6
Net Recharges	0.1
Total Other Operating Costs	0.3
Total Bt Opex	**14.4**

4.53. SONI is currently part way through a revaluation of its Pension Scheme. The initial results have shown that we will have to substantially increase our employer contributions into the scheme. We provide further detail around this in Appendix W. These increases are not reflected in our baseline costs presented above.

4.11 Conclusion

4.54. SONI has delivered significant achievements over the 2015 - 2020 Price Control period. SONI has also seen a considerable increase in complexity in its activities in the period.

4.55. SONI has continued to deliver efficiencies to the benefit of customers throughout the control period. These efficiencies have been difficult to achieve as SONI has a largely fixed cost base and SONI found itself the subject of industrial action at one point during the control.

4.56. The savings delivered through these measures have however enabled SONI to forecast spend for the final year of the current control period (2019/20) broadly in line with the allowances proposed by Utility Regulator.

4.57. Many of these efficiencies were delivered through realising further synergies with EirGrid. Both the transmission system and market are operated on an all island basis and with the changes in I-SEM are increasingly integrated. SONI bears only a proportion of the costs of delivery of all island initiatives, often as low as 20 - 25%. Northern Ireland customers therefore benefit from significant economies of scale and see significantly lower costs than if SONI had to carry out these functions standalone.

4.58. SONI has therefore established a firm base level of costs and is at operating at the efficiency frontier at £14.4m per annum, or £6.48 per average domestic electricity customer, in operating costs terms. This provides a solid platform where consumers can be assured they are receiving value for money from SONI as SONI plans to deliver for the future.

2

A Future Energy System for Everyone

Chapter 5

Changing Industry Context and Consumer Priorities

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5 Changing Industry Context and Consumer Priorities

5.1 Introduction

5.1. SONI has adapted to unprecedented change over the current price control period, with the introduction of new trading rules and innovating to allow up to 65% non-synchronous generation on the system at any time. We are however, about 20 years into a 50 year energy transition and so the future will be different to the past. The challenge will be to not lose sight of the destination, net zero carbon by 2050, while providing an electricity supply that is constant, reliable and competitive.

5.2. Many changes and technological advances are already emerging that will continue to alter and shape the landscape that we will be operating in. Over the period of the current price control SONI has influenced and informed change. We have adapted our operating practices to accommodate it. This will continue and it is crucial that SONI, given its wide sphere of influence, manages and steers the change in order to deliver consumer priorities.

5.3. This chapter provides an overview of the developments that SONI has to deliver if Northern Ireland is going to optimise and be ready for, and benefit from the energy transition.

5.2 Increased Complexity

5.4. The sources of generation competing in the wholesale market have changed significantly over the last five years. This has been strongly influenced by a number of factors, the capacity market, incentives for renewable generation and the introduction of system services revenue stream.

5.2.1 Impact of Capacity Market

5.5. The SEM Committee introduced a new capacity remuneration mechanism as part of the I-SEM transition. The aim of this was to provide an exit signal to generation units that were less useful in the energy and system services markets, while attracting new investment in units that are able to respond more competitively to the signals sent out by these markets.

5.6. The first auctions have resulted in two conventional thermal units closing in Northern Ireland, while the volume of demand side participation has increased to 28 MW. This has delivered substantial savings for consumers around £50 million[1] per annum for Northern Ireland electricity consumers, while maintaining the security standard specified by the SEM Committee.

5.7. The capacity auctions are expected to continue to deliver efficient levels of necessary reserve and new investment as required within the Northern Ireland generation fleet. Over the next price control period, SONI will need to adapt its operating practice in response to the new generation technologies that will replace plants that are expected to retire.

[1] https://www.uregni.gov.uk/news-centre/utility-regulator-comments-isem-capacity-auction-outcome

5.8. Because this capacity mechanism only funds an economic volume of generation it has reduced the surplus capacity previously available to provide a buffer for outages. This in turn has required SONI to continue to adapt its ways of working to avoid unnecessary costs or risks during the outage cycle.

5.9. ***Security of supply and reliable service is of utmost importance to consumers. This change in procurement of capacity has therefore a consequential impact on our assessment of system needs and supports the priority of developing new control room tools and the next generation of the system services project to ensure the sound operation, development and enhancement of the grid and market. This is particularly important as we continue to increase the level of renewables on the system.***

5.2.2 Portfolio Mix

5.10. The number of large thermal generation units in Northern Ireland has decreased from 17 units with a total capacity of 2584 MW down to 15 units with 2293 MW capacity. Meanwhile the volume of dispatchable non-synchronous intermittent generation has moved from 551 MW in the third quarter of 2015 to 1125 MW in the third quarter of 2018.

5.11. This trend is expected to continue into the next decade, with emerging technologies providing the system services that have traditionally been a by-product of conventional power generation.

5.12. The proportion of demand that is supplied by small scale and domestic sources has increased dramatically over this price control. For example from April 2016 to September 2018 this increased by 156 MW. Innovation in technology as well as consumer awareness of the options available to them is expected to continue to drive this trend into the next decade.

5.13. This smaller scale generation impacts on the distribution system as well as at transmission voltages. SONI is partnering with NIE Networks to ensure that we are able to unlock value from these developments while maintaining the security and stability of the system.

5.14. We expect the challenge posed by the transformation of the generation portfolio is to increase dramatically over the 2020-25 period, and our business plan contains a range of initiatives that will help us to rise to this challenge.

5.15. One particular change that has started to emerge in recent years is the introduction of hybrid sites. These sites contain a range of complementary technologies behind one connection point. These operate under different weather conditions (e.g. wind and solar) and can facilitate greater utilisation of the export capacity available at the connection point. As these increase in number, both SONI and NIE Networks will need to adapt our ways to working to maintain supply standards.

5.16. ***The change in the portfolio mix, alongside the various size and locations of connections, means that we need to consider the planning of the grid in a holistic way, taking both a transmission and distribution perspective. Considerations need to include, maximising the value of the network that exists, optimising network build solutions married with system stability. It will be important that we take consumers views into consideration as we contemplate the potential range of changes and options as we transverse the energy transition. We are already working in partnership***

with NIE Networks to ensure that we collaborate, develop a common vision for a green energy system to get the best outcome for consumers.

5.3 Digitalisation & Data Services

5.17. The greater complexity of the generation portfolio and market is increasing the number of data points that SONI needs to capture and store. This trend is expected to increase over the next decade. These data points can also deliver value for consumers, if SONI has the infrastructure necessary to process them. SONI can use this information to drive performance, both its own and that of market participants. These data also need to be stored and accessed for compliance purposes.

5.18. In response to the growing volume of data required for a smarter electricity system in GB, the Office for Low Emission Vehicles has launched a call for evidence on impact that smart charging of electric vehicles will have on system operators[2].

5.3.1 Automation of Performance Monitoring

5.19. SONI is required to collect data about market participants outputs (both generation units and DSUs) under various codes and rule sets. The number of participants in the market is expected to continue to increase and we are likely to need to monitor more parameters for each participant. When there were only a few large generators in Northern Ireland, it was practical to undertake manual assessments of performance. This is no longer feasible and the growing digitalisation of the electricity market requires automation of performance monitoring. Fortunately the advances in information technology and the data storage services available in the current IT market place make this more accessible to SONI than in the past.

5.3.2 Control Centre Tools

5.20. SONI's control centre is another area where data volumes are growing. The numbers of parameters that SONI needs to assess and forecast to ensure a stable and secure transmission system have increased over the current period. This is expected to continue to grow over the next decade as we push the boundaries of operating a system with a world leading proportion of non-synchronous generation. Automation of the data input to the decisions made in the control room will be vital if we are going to deliver value for customers from the energy transition. SONI is at the forefront of the development of these automated solutions which process the volume of data that we need to consider when making scheduling and dispatch decisions.

5.3.3 Data Centres

5.21. The volume of data that SONI will need to store is increasing, however we are not the only industry with growing volumes of data to be housed. Electricity is required to store the data that society now depends on. While there are no large scale commercial data centres operating in Northern Ireland at present, they can deploy quickly and a small change to the

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817107/electric-vehicle-smart-charging.pdf

economics of data storage in Northern Ireland could result in a rapid change in the electricity consumption profile of our system.

5.3.4 IT Solutions

5.22. The advances in IT provide SONI with many possibilities. We can increase the flexibility of the storage and software that we use through adapting to cloud technology. This introduces new options to be considered when we are choosing our IT solutions. The use of Internet Protocol (IP) technology for telecoms links also unlocks potential for the collection of additional data that can be used to monitor and improve performance.

5.23. The interconnected nature of our systems increases the importance of cyber defences. As the custodians of critical infrastructure, we need to ensure that we attain best practice levels of cyber and physical security. This challenge is only going to increase over the next decade.

5.24. ***Data has the potential to change behaviours through its translation into information, the power to inform market behaviour incentivising to deliver the desired outcomes. We will be the custodians of a vast array of data and we will look to share and utilise this to the best advantage to drive value and empowerment for consumers and market participants.***

5.4 Decentralisation

5.25. During the current price control period, Northern Ireland has experienced a rapid growth in small scale generation embedded in the distribution system. NIE Networks has started a process to transition itself into a more active operator of the distribution network. While the trend towards decentralisation of electricity production impacts most directly on the distribution network, the scale of this transition in proportion to our demand profile means that impacts will also be experienced at transmission voltages.

5.4.1 Small-scale Generation

5.26. The installed capacity of this small scale (non-dispatchable) generation is already equal to the minimum electricity demand in Northern Ireland. The economics of these technologies are expected to continue to improve over the next decade and more householders and businesses are expected to seek the benefits of decentralised electricity generation.

5.27. Traditionally, electricity transmission has been a top down process with large synchronous thermal generating units providing active power, inertia, reactive power and other technical characteristics that are essential for a stable and secure system. Over the next decade, the role of these large units will change. The majority of the active power will come from non-synchronous units, many of which will be embedded deep in the distribution system. Other system services will be obtained from a range of sources, which may not provide any active power.

5.28. This decentralisation changes the paradigm in which SONI will be operating the transmission system in Northern Ireland, from one where minimising the cost of producing active power resulted (almost automatically) in the lowest cost to consumers, to one where multiple factors will have to be taken into account.

5.29. This transition will take place over the next decade and in this business plan, SONI sets out some proposals that start the journey to the new decentralised landscape.

5.4.2 Demand Trends

5.30. Technological advances are changing many areas of our lives. The volume of data each person creates is growing year on year. The appliances in our homes are changing and with them the role of electricity in our lives. An increasing number of appliances have batteries included and controllers to delay their start times. Over time, social trends will result in changes to domestic consumption patterns. While there is currently no possibility for domestic time of use metering in Northern Ireland, this may not endure if demand for this type of supply contract increases. This may not be a barrier to the provision of system services by an aggregator of small scale participants.

5.31. New types of electricity demand are also emerging in Northern Ireland. The demographics of the greater Belfast area, with many two car families and relatively short daily commutes, are ideal for electric cars. A market for second hand electric cars, potentially imported from Great Britain, may develop over the next decade in Northern Ireland as consumers discover the economics of this form of transport for the second car in the family. Smart charging and the provision of Systems Services may emerge as a possibility.

5.32. Heat pumps provide an alternative to oil or gas fired domestic heating, and may become particularly attractive to households in rural areas or areas do not have access to the natural gas network. Underlying economics are likely to drive a shift towards this new form of heating, although the transition could be accelerated by changes to building control regulations or government incentive schemes.

5.33. ***All of these possibilities are the factors which must be considered as SONI seeks to lead within its sphere of influence and expertise in the transformation to a green energy system. An important part of this will be working with NIE Networks and brainstorming possible developments and creating a shared vision and roadmap. Consumers views, policy and the regulators funding decisions will also play an important part. SONI's forecasting and scheduling processes will need to keep pace with these changes to the electricity consumption habits of Northern Ireland's consumers.***

5.5 Democratisation

5.34. Social media and the internet have increased the ability of individuals to access information and to express their opinions on matters they care about. This introduces challenges for service providers such as SONI, but also creates opportunities.

5.5.1 Transparency

5.35. When the SEM Committee was developing the new trading rules, a concern emerged around the transparency of this more complex market. Transparency is also a foundation that the current European market is built on. SONI has an important role as the provider of Northern Ireland's transparency data to the European platforms. We also publish increasing amounts of information about our own scheduling and dispatch processes.

5.36. While the role of the TSO, and SONI as the Northern Ireland representative, are well established within the industry and at an European market level, this is not our experience at a local level. The demands from consumers for transparency are unlikely to slow down over the next decade. We find that the SONI name is confusing to people and results in low levels of brand awareness which form a barrier to our participation in these processes.

5.37. While Northern Ireland consumers may care about matters such as fuel mix or grid development in their area, if they do not know who SONI is, what we do, or where to find us, we are hindering their participation in the democratisation of the electricity system in Northern Ireland.

5.38. SONI welcomes the challenges posed by demands for increased transparency and we identify engagement with consumers as an important goal within our strategy.

5.39. During the initial construction of the electricity system in Northern Ireland many decades ago, residents who were impacted by the schemes had little say in the choices made. Fortunately, this has changed significantly, and now people expect to have their voices heard when decisions affect their lives are made by public authorities.

5.40. ***SONI has a critical role in building acceptance of transmission infrastructure in an increasingly involved and democratised society. We have updated our processes to reflect stakeholder expectations and will continue to learn from this as we deliver the consents for each project. We need however to develop our approaches to find effective ways to engage consumers and their representative bodies in what are technical conversations.***

5.6 Sustainability and Decarbonisation

5.41. The impact of emissions on our environment and climate have been known for a long time, however the world is now approaching a tipping point and decision makers are increasingly taking note of these issues. The UK government are a signee to the Paris Climate Change agreement. In an effort to accelerate the UK's effort towards tackling climate change the UK Government Committee on Climate Change (CCC) report[3] provided economic evidence that there was a cost neutral impact by changing the UK (Green House Gas) GHG reduction to 100% by 2050.

5.42. The GB capacity auctions and off shore wind development has realised significant reductions in costs over the last five years. For example the first round of contracts for offshore wind in 2014 delivered a cost difference of between £140 and £150 per MW which reduced to between £57.50 and £74.50 in 2017.The Department for the Economy is working on a new energy strategy that seeks to ensure that NI plays its part in contributing to the UK government's commitment to deliver net zero carbon by 2050.

5.43. SONI's strategy for 2020-25, acknowledges this direction of travel and within our business plan we have included a range of initiatives. These initiatives will be essential if SONI is to be in position to accommodate the transformation in the electricity sector necessary and meet the milestone by 2030, which will be determined by the Departments Energy Strategy.

[3] https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

There is no time for complacency; if anything the timeframe for meeting this challenge is likely to be reduced given the growing understanding and acceptance of the damage that is being done to the planet.

5.44. Northern Ireland relies heavily on fossil fuels for heat and transport, while indigenous renewable electricity generation comes almost exclusively from intermittent sources. Long term energy security and diversity will evolve as we develop a low carbon economy. The question will be how do we ensure a diversified and reliable renewable energy mix, and consideration towards new and innovative technologies will be required such as Power to Gas, offshore wind, tidal and battery technologies.

5.6.1 Indigenous Fuel Sources

5.45. When the Department developed the current strategic energy framework for Northern Ireland in 2010, it highlighted that one of the benefits of an increase in renewable electricity generation here is a reduction in our reliance on imported fossil fuels.

5.46. The risk of sudden price rises or even absolute shortages of gas and oil is still only one global political crisis away. While decarbonising Northern Ireland's electricity supply system will not eliminate our need for fossil fuel generation in the short to medium term due to stability and security reasons, the introduction of new technologies to provide system services will reduce our vulnerability to global events and in particular the impact on prices.

5.6.2 Storage

5.47. SONI has received a number of connection applications from potential battery storage schemes. These have the potential to provide system services and to smooth the overall demand profile in Northern Ireland.

5.48. Developing the operating regimes and obtaining the best value for customers from large scale battery storage will be a challenge that SONI will need to respond to over the next couple of years.

5.49. Sustainability is at the core of everything we do. It is important this is appropriately balanced with Grid security and cost. In this submission SONI sets out a revived benefit sharing framework with the central objective of ensuring this is the case. This is covered in detail in Chapter 11.

5.7 Outside Drivers

5.50. There are a number of external factors that will shape the way that SONI responds to the challenges set out here. These include legislation that will ensures that SONI remains aligned with other neighbouring energy markets. This will be essential if we are to maintain the competitiveness, access the liquidity and consequently maximise the downward pressure on prices for NI consumers. It will also be important that SONI facilitates the opportunities arising from the electricity transformation, attracting new investment and being in a position to facilitate the introduction of technologies.

5.7.1 Legislation

5.51. There are two sets of European legislation that will impact on SONI's ways of working if we are to continue to benefit from the European electricity market. These are:

- **Electricity Balancing Guidelines**: SONI is commencing work to implement the Electricity Balancing Guidelines. The timing of these obligations and the method of their transition into the I-SEM arrangements is still to be determined. This could require substantial investment by SONI. Given the uncertainty regarding the implications from the changes required by this legislation, we have not been in a position to develop a robust and costed business case for associated work. We are however engaging to understand requirements and to ensure that we are best placed to implement requirements when known. The funding requirements for this will be processed through the regulatory Dt mechanism.
- **Clean Energy Package**: This legislation is currently being translated into network codes. We expect it to support our work to facilitate the decarbonisation of the electricity sector in Northern Ireland. However, because the precise requirements are still to be finalised, we have not been in a positon to develop a robust and costed business case for associated work. The funding requirements, when known, will be processed through the regulatory Dt mechanism.

5.52. As a member of ENTSO-E, we will continue to use our influence to ensure that the rules established for our synchronous system remain appropriate for our circumstances.

5.7.2 Longer Term Technologies

5.53. Northern Ireland's coastline has great potential for offshore renewable generation. While development of these resources is not foreseen over the 2020-25 period, these have the potential to play a part in the achievement of the longer term goals of net zero emissions by 2050.

5.54. Even with large scale battery storage and the electrification of transport and heating, there will be considerable periods of time over the next decade when Northern Ireland has surplus renewable generation. Therefore there is a longer term potential for projects converting electrical energy to other forms, such as gas. The term 'Power-to-X' is used to describe the range of conversion pathways that are used to store surplus energy from renewable sources and longer term used to develop a sustainable pathway to a decarbonised gas system.

5.55. It will be crucial that SONI continues to scan the horizon for new technologies so that they can compete in the market place to deliver maximum benefit for consumers. SONI will however, maintain its technology neutral approach in operating all markets.

5.8 Technical Challenges

5.56. All of the trends described above will increase the complexity of SONI's core activities. Our control engineers will need to consider a greater number of factors when scheduling and dispatching the system. Over the next decade, optimising and scheduling system services will become an even more complex task. This is an area where SONI will be able to provide increasing value for consumers.

5.57. Our IT systems will need to evolve rapidly to keep pace with the potential value that can be secured through flexible and reliable infrastructure. SONI will need to anticipate emerging cyber threats to maintain the security of Northern Ireland's critical infrastructure. Without our IT and telecoms systems as a foundation, we cannot oversee the system and maintain the electrical, information and financial flows.

5.58. This chapter has set out the evolving trends in a complex industry. If we are to meet these changes and challenges we cannot simply sit still. In formulating our response and in making sure it represents the best interests of all of society, SONI engaged with its stakeholders and incorporated their views and feedback. This is set out in the next chapter.

Chapter 6
Stakeholder Engagement

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6 Stakeholder Engagement

6.1 Overview

6.1. In carrying its duties as TSO, SONI does not interact with members of the public as direct customers on a day to day basis in the same way as many other utility companies such as NI Water or NIE Networks. The exception to this is in the area of network planning, where SONI is responsible for engaging with landowners, communities and statutory consultees as part of the project development process. For the most part, if SONI performs its operational role well and the supply of electricity is constant and reliable, the majority of the public may never be aware of SONI's existence.

6.2. SONI does however interact regularly with its customers and stakeholders, providing information on the transmission system, as well as giving them opportunities to provide feedback and to shape SONI's future plans. Our customer base includes the following:

- Large electricity generators and demand units that are directly connected to the Transmission network;
- Suppliers and generators seeking to use the Transmission System, which requires a TUoSA;
- Generators and market participants that have contracted with SONI to provide specific system services as part of the "Delivering a Secure, Sustainable Electricity System" or DS3 programme;
- Market participants that want to participate in capacity auctions to buy or sell electricity[1]; and
- Local communities and landowners that host electricity infrastructure projects.

6.3. Each of these customers has different needs and SONI works across this diverse customer base to deliver the best service possible. Since the start of the current price control in 2015, SONI has seen a marked increase in the number and type of customers we deal with on a daily basis.

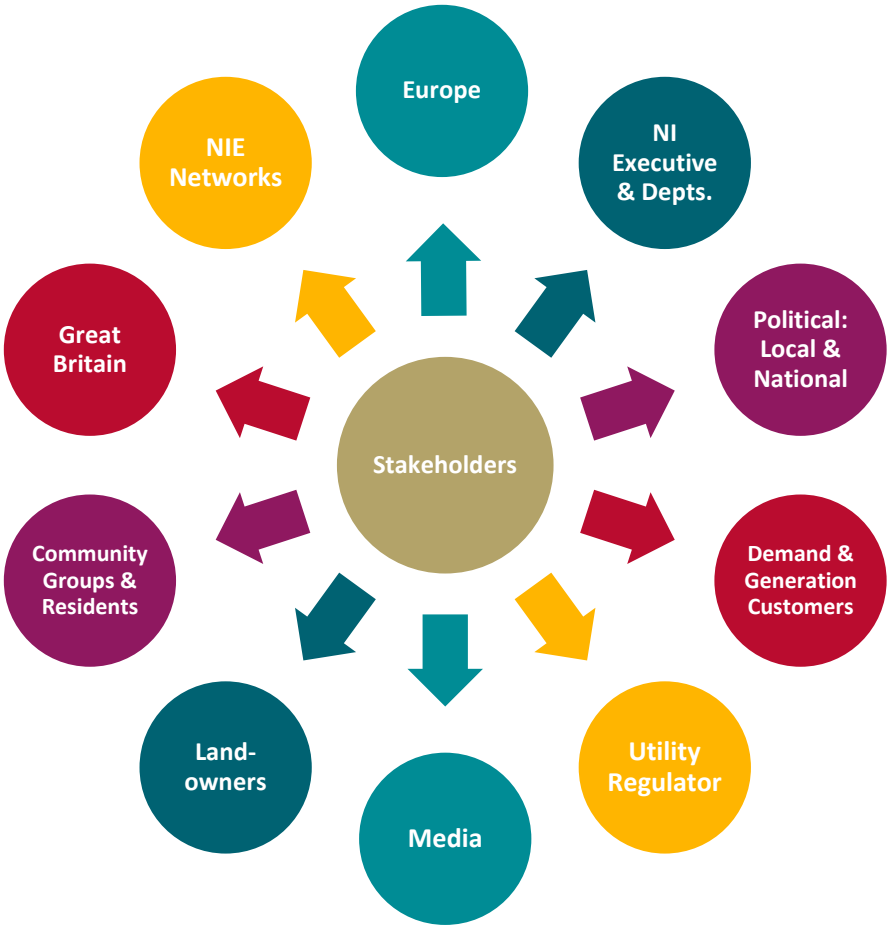
6.4. In this chapter we explain how SONI engages with its customers and stakeholders (Figure 6.1), both in the context of the wider business and as related to the development of this business plan:

- The nature and breadth of engagement that are regularly carried out across the business, including those related to the all-island electricity market;
- The insights gained from the ongoing development of the SONI strategy (Chapter 1);
- Input from the Stakeholder Expert Challenge Group (SECG), set up by the UR, to provide input and challenge to the SONI price control development process;

[1] While many of the issues related to these customers are the remit of SEMO, SONI TSO also carries out a number of activities that support market operations. This is explained in more detail in Appendix A.

- A summary of what we learned; and
- How our relationship with customers is changing as a result of feedback.

Figure 6.1: SONI's Customers and Stakeholders



6.1.1 Formation of the SECG

6.5. In summer 2018, the Stakeholder Engagement Challenge Group (SECG) was set up to challenge the UR's emerging approach to 2020-2025 Price Control period and regulatory expectations, as well as to provide insight and challenge to SONI as part of the development of the business plan. The SECG comprises of a number of representatives from across the industry, which includes utility companies, industry representatives, energy sector experts and energy users in Northern Ireland. Two members attended as observers, one from the DfE and another from NIE Networks.

6.6. All members of the SECG had a good understanding of how the electricity transmission network operates from the outset, in order that they could bring sufficient challenge to both the UR and SONI as part of the price control process. SECG members volunteered their time to this process. Membership of the SECG has evolved, with some departures, and additional members joining.

6.7. More information on the SECG, including the Terms of Reference can be found on the Utility Regulator's website[2].

6.8. SONI has welcomed the formation and involvement of the SECG throughout this process. The challenge and insights provided by the group have been beneficial to the scope and breadth of the business plan. SONI has endeavoured to clearly and transparently address the matters raised by the SECG within the business plan, including providing direction as to how particular issues will be addressed during 2020-2025 Price Control period.

6.2 SONI Approach to Engagement

6.9. Stakeholder engagement is central to our organisation. The position we hold in the industry means it is crucial that our business is informed and shaped by our stakeholders input for the benefit of all. Engagement helps SONI to develop a working relationship with our stakeholders, customers and communities hosting our transmission network projects. By increasing the dialogue with our customers and stakeholders, we aim to improve understanding of the services that SONI provides and to work together to implement change.

6.10. In 2014, SONI engaged two external consultancies to review how the company consulted and engaged with its customers[3]. The company made three commitments to engagement following these reviews, which were implemented during the 2015 – 2020 price control period:

1. Develop a Participative Approach

- Move to a more community-focused approach when developing electricity projects - to enable greater stakeholder participation from the outset

2. Change our Culture & Processes

- Change the culture in our organisation - to develop stronger relationships with stakeholders and communities

3. Encourage Leadership & Advocacy

- Seek support from the political system and state bodies - to better explain energy issues and make the benefits of a stronger system clearer to all

6.11. Our consultation review highlighted the importance of engaging with the public and with communities directly impacted by SONI, including those affected by new grid projects. However, SONI recognises that while significant steps have been taken, there are additional measures that can be implemented to improve future engagement.

[2] https://www.uregni.gov.uk/stakeholder-engagement-challenge-group
[3] This review was completed as part of an assessment carried out for the wider EirGrid Group.

6.3 SONI Engagement Activities

6.12. Stakeholder engagement is embedded within many of the day to day activities carried out by SONI. In fact, the majority of SONI's responsibilities have been subject to extensive stakeholder consultation during the 2015-2020 Price Control period. This includes the transition to the new I-SEM trading arrangements, the development of the DS3 programme and the review of connection arrangements.

6.13. Consultation and engagement is embedded into the SONI culture not only on transmission infrastructure projects but extending into all aspects of the business.

6.14. SONI carries out engagement related to its roles and the services it provides on an enduring basis, as set out in Appendix A. This engagement is considered to be part of SONI's normal operations and is captured in the baseline costs. Given the extensive engagement and industry consultation that has occurred in relation to many of SONI's roles and services, it is assumed that these will continue for 2020-2025 Price Control period. Some examples of the enduring industry engagement are:

- Grid Code Review Panel;
- Trading and Settlement Code;
- Annual review of Balancing Market Principles Statement; and
- Public consultation for proposed network projects in line with the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 and in the spirit of the Aarhus Convention 1998.

6.15. In addition to the TSO led consultations, a number of other means of engagement have been employed which have influenced the development of the business plan. The SECG is the most directly relevant form of engagement, as this group was established by the UR with the remit to provide input and challenge to both the UR and SONI as part of the 2020-2025 Price Control process. A summary of the SECG engagement and other engagement activities is set out below.

SECG Engagement

6.16. A total of six face to face meetings and three webinars were held with SECG between October 2018 and June 2019. Initial meetings were designed to enable the SECG to input and to challenge the UR's emerging approach to 2020-2025 Price Control period, and to inform SONI's approach to the development of the business plan. The latter meetings, from April to June 2019, were to enable the SECG to provide input and challenge to the development of specific areas of the SONI business plan which were presented to the group.

6.17. The input from the SECG to the development of the business plan is discussed in more detail later in this section.

Other Engagement Activities

6.18. The UR recently consulted on the draft Transmission Development Plan for Northern Ireland (TDPNI) 2018 – 2027, and many of the consultation responses received are relevant to the development of the 2020-2025 Price Control. Consultation responses to the TDPNI highlight the need for SONI to continue to improve the information available to generators, in order to

enable them to make informed decisions about development projects. Respondents highlighted the need for SONI to be proactive and plan for increased renewables targets, which will mean accommodating increased levels of renewable penetration. It is imperative for SONI to continue with its innovative work in delivering increasing levels of System Non-Synchronous Penetration (SNSP), enabling greater connection of and value from renewable energy.

Engagement as part of Strategy Development

6.19. In parallel to the development of the business plan for 2020-2025 Price Control period, SONI published its strategy in October 2019 (Chapter 1). The strategy is based on the vision of where SONI wants to go as an organisation from 2020 to 2025, and it sets four goals for the company to focus on and to deliver. Insights from the process have fed into the development of the business plan resulting from Executive level meetings held with stakeholders, together with internal company workshops and staff input.

6.20. The input from the Strategy to the development of the business plan is discussed in more detail later on in this section.

Engagement on Network Projects

6.21. SONI is responsible for planning the transmission network, which includes taking the projects through the consenting process in line with planning requirements. As part of this, SONI regularly engages with the relevant local authority as well as with landowners, community groups and local residents in the vicinity of our transmission network development projects. Examples of the network projects that SONI is currently undertaking include the North South Interconnector, the Agivey Cluster Project, and the Sydenham Road Substation project in the Belfast Harbour area. SONI also carries out this process for third parties looking to connect to the transmission system[4].

Engagement with Key Stakeholders

6.22. As the Northern Ireland TSO, SONI regularly engages with a number of key stakeholders:

Department for the Economy (DfE)	SONI provides technical support to DfE, which underpins the development of future energy policy.
Department for Infrastructure (DfI)	During the consents projects for transmission network projects, SONI liaises with planners and key teams within DfI.
Utility Regulator (UR)	In operating the transmission network safely, securely and efficiently SONI works with UR to discharge its licence obligations.
NIE Networks	SONI engages with NIE Networks on many technical matters, transmission network projects, and the connections process.

[4] http://www.soni.ltd.uk/customer-and-industry/becoming-a-customer/

6.4 Key Themes Influencing 2020-2025 Price Control period

6.23. The secure and reliable functioning of the power system is fundamental to the economy, society and modern life in Northern Ireland. As discussed in Chapter 5, the energy system is changing rapidly due to technological advances, societal influences and the growth in data (e.g. the Internet of Things). Given the reliance on the energy system, it is important that the transmission network is resilient and able to respond to the key drivers influencing this change.

6.24. Through our engagement activities, a number of common factors have been identified as driving the future of the SONI business. Table 6.1 summarises this feedback by theme.

Table 6.1: Summary of Customer and Stakeholder Feedback

Theme	Summary of Customer and Stakeholder Feedback
Transparency	Need for transparency in SONI's decision making, processes and information provided. When it comes to costs, the NI consumer needs to clearly understand what they are paying for, why they are paying for it and how this will benefit them. Specific mention was made in regard to greater transparency on how the auctions and markets worked, and how tariffs were set.
Better Information & Understanding	SONI needs to do more to educate people about the roles it undertakes, and to provide impartial guidance on important issues, e.g. Tomorrow's Energy Scenarios. Consumers need to better understand the role that SONI plays in operating and planning the transmission network and the benefits that this work brings to them; need to understand what proportion of the energy bill relates to SONI[5]. Better information provision, with more regular updates, is important. Need to provide short to long term information so that customers and market participants can make well informed decisions.
Data Analytics & Availability	SONI gathers a lot of data in its role as TSO. Data analytics is becoming more important, and will be vital for SONI in predicting future trends for the safe and secure operation of the Transmission System. There is a growing expectation that data will be made accessible to customers in order to allow them to better inform their decisions in relation to energy consumption.
Agile and Flexible TSO	The rate of change of the electricity network is increasing, and as a result SONI will need to be agile and flexible in order to proactively respond to this change. SONI needs to be clear what it is doing to prepare, plan for and manage for future changes. SONI needs to think holistically and for the long-term, so that infrastructure will be available when it is needed.
Working with Partners	Working relationships with NIE Networks, as both DNO and TO, and other types of market players are growing in importance. Interactions

[5] In 2018/19 SONI's controllable costs were £7 per domestic customer per annum, which represents between 1.3 – 2.2% of the annual average domestic customer bill (Chapter 3).

Theme	Summary of Customer and Stakeholder Feedback
	between groups need to be clear and coordinated as a result. Improved relationship between SONI and NIE Networks is required.
Customer Journey	Connections process could be improved and simplified. Continued need for SONI to provide a high quality customer service.
Improved Timelines	Consider how TDPNI process and associated timelines can be improved to deliver network projects more quickly and efficiently.

6.5 Price Control Specific Engagement

6.25. SONI involves stakeholders in decision making processes by way of consultation processes and working with UR to implement any additional feedback as part of our standard practices, not just for the Price Control. The majority of the roles and services that SONI delivers are shaped through extensive stakeholder consultation during the current Price Control period (see Appendix A for details). The UR created the SECG as a specific forum to provide input and feedback to both the UR and SONI regarding 2020-2025 Price Control.

6.26. SONI has found the SECG to be an invaluable forum for Price Control specific engagement, which builds on the industry engagement that has taken place over the past few years. A total of six meetings were held with the SECG, together with three webinars hosted by SONI. The initial SECG meetings were hosted by UR and focussed on the overall approach to the price control, as well as explaining the breadth of the SONI business and how this had evolved over time in the context of the enduring European legalisation transition.

6.27. The webinars focussed on aspects of the SONI business plan that were able to be flexed to accommodate stakeholder preferences in areas where we have discretion. The SONI webinar presentations are provided in Appendix C. A summary of the SECG meetings and webinars are provided below.

6.5.1 Summary of UR Led Meetings for SECG

6.28. Four SECG meetings were hosted by the UR at Queens House from September 2018 to February 2019. The initial meeting was to discuss the role of the group and how it would feed into the UR's approach and SONI's business plan development. It also clarified certain elements of the scope of 2020-2025 Price Control, which were:

- The MO licence is out of the scope of the price control;
- The price control is for a 5 year, single revenue control; and
- The need for non-disclosure agreements due to the sensitive nature of some discussions.

6.29. In subsequent meetings, a number of key principles and ideas were discussed which were given further consideration by SONI, the UR and the SECG. The topics illustrated in Figure 6.1 set out the key areas of discussion and how they were actioned by SONI over the course of the SECG meetings. These concepts were then incorporated into the SONI business plan, along with a range of other topics, as set out later in this chapter.

Figure 6.1: Key Topics of Discussion with SECG

6.5.2 Summary of SONI Led Meetings for SECG

SECG Meeting 5 – 15 April 2019 at Castlereagh House

6.30. SONI discussed how it was approaching the business plan in the context of the UR's test areas and some emerging areas (e.g. decarbonisation, customer focus), through a series of presentations. An update on SONI's roles and services was set out and some examples of how these worked in the context of the UR's approach paper and test areas were presented. SECG members went on a tour of the control room, following which SONI presented some ideas on how it was approaching the area of incentives. Some challenging discussions were

held around this last point which fed into the development of SONI's prepared benefit sharing framework set out in Chapter 11.

SONI Webinars – 22 May, 31 May and 6 June

6.31. Three webinars were presented by SONI to SECG members (who had the option to attend the webinars or watch them back online) on specific topic areas:

- **Low Carbon Future** – discussed the backdrop in which SONI was working (e.g. policy vacuum) and what this means for the company. SONI presented its preferred approach to plan for increased renewable energy targets and to allow for this in the price control submission, with more details expected to emerge in coming years.
- **SONI Proposed Initiatives** – SONI gave a high level overview of a number of the new initiatives it planned to propose for the 2020-2025 price control period. The webinar covered initiatives related to scheduling and dispatch, system adequacy, enhanced customer journey and SONI resilience (e.g. cyber security, backup control centre replacement).
- **Unlocking the Value for Customers** – KPMG provided an overview of the incentives framework being considered by SONI. The framework is designed to simulate a competitive market where SONI is able to take risk and commit its own capital to deliver better outcomes for consumers. The incentives package continued to be refined in the lead up to the business plan submission, and will continue to be open to discussion and agreement with the UR during the draft determination phase, as expected.

6.32. SECG members were able to ask questions during the webinars (via chat). They were also encouraged to provide feedback via email or using surveys that were circulated by SONI. While the responses were generally supportive of SONI's proposals, they only represent a proportion of the SECG members and therefore are not discussed in detail in this chapter, however this is summarised in Appendix C.

SECG Meeting 6 – 14 June 2019 at Castlereagh House

6.33. A final meeting was held to cover the material presented by SONI and to get feedback from SECG members. SONI gave an overview of each of the webinars and time was allowed for discussion.

6.34. Outcomes of the SONI led meetings were:

- In general, support was indicated for the general direction of SONI's initial proposals, particularly in the context of the environment which SONI is operating in.
- SECG members noted that SONI needed to clearly justify the need for any proposed initiatives, include benchmark as necessary, and reflect end-cost/value-add to consumers in the Business Plan.

6.6 Views on Future Service Needs

6.35. The outcome of 2015-2020 Price Control period meant that SONI has largely focussed on achieving internal cost efficiencies, driving maximum efficiencies from the integrated group

structure with EirGrid. As a result, SONI has concentrated its efforts on the delivery of our licence obligations and key projects in the most cost effective manner rather than improving our service delivery for customers. While value for money continues to be an important theme for 2020-2025 Price Control period, the UR Approach Paper highlights the need for SONI's service offering to be *"in line with customers' needs and expectations, drawing on stakeholder engagement"*.

6.36. In this section, we set out the process that SONI used to develop our proposals for 2020-2025 Price Control including the vital role that stakeholder feedback played in shaping our submission.

6.6.1 Process for Incorporating Stakeholder Views

6.37. The SONI Strategy development process was underpinned by a number of face to face engagements with current and future customers, and key stakeholders. The strategy was launched in October 2019. Our first step in developing both the strategy, as well as the proposals for 2020-2025 Price Control period, was to understand what is truly important to our customers and stakeholders.

6.38. Feedback from the strategy development process shaped the initial range of proposals that were considered by SONI for inclusion in 2020-2025 Price Control period (Table 6.1). The initial proposals have been internally and externally challenged and subsequently revised in order to ensure that they are high quality and meet the standards needed for the price control process. From the outset, the proposals were developed to meet the needs of SONI's customers and stakeholders, while ensuring that they represent value for money to the consumer.

6.39. The SECG was also presented with a wide range of SONI's proposals and their feedback has also been taken on board (see Appendix C) in the development of 2020-2025 business plan. SONI's proposals for 2020-2025 Price Control period can be broken down into three main categories:

- Continuation of Business as Usual (BAU) activities, in compliance with our licence obligations;
- New or enhanced service offerings and outputs proposed for 2020-2025 Price Control period to deliver the strategy; and
- Areas of innovation where work is likely to be required during 2020-2025 Price Control period, but the full scope and cost of the work cannot be fully defined at this time.

6.40. New initiatives proposed by SONI were presented to the SECG via two webinars on 22 and 31 May 2019, and in a SECG meeting held on 14 June 2019. The views and queries expressed by the SECG during this process, together with any actions taken are presented in Appendix C.

6.7 Views on Service Needs

6.41. SECG members were generally supportive of the proposals put forward by SONI; however, it is important to note that detailed costs were not available for them to reflect on at the time of the presentations. At the 14 June meeting, the SECG noted that it was important that the

TSO is sufficiently funded for 2020-2025 Price Control period, but that it was equally vital that SONI demonstrates how value for customers is being delivered. It was noted that value for money was not all about SONI's internal costs, but that the outputs and outcomes were of equal or greater important when assessing value. The issue of delivery and value for money is addressed throughout the document, and in particular in Chapters 3, 10 and 11.

6.42. Feedback on service needs related to specific areas is summarised below.

6.7.1 Low Carbon Future

6.43. All parties acknowledged that current situation in Northern Ireland presents a challenge to the development of this area of work as the country is operating in the absence of the NI Executive and an up to date Strategy Energy Framework. Despite this, the SECG noted that the direction of travel in the UK was clear, given public sentiment and that the Government has committed to net zero greenhouse gas emissions by 2050.

6.44. During the presentations, SONI noted that the lead time for a project of this nature was considerable and that it was important to continue planning for the transition already commenced and expected in the future, of which increasing renewables penetration is one strand. Failing to do so risks Northern Ireland falling behind other parts of the UK, and may also affect transmission system flows of energy as we operate an All Island system (see Chapter 5 for more detail).

6.45. A few SECG members strongly communicated their view that it was vital for SONI, and others, to continue progressing plans that enable increased levels of renewable energy to connect to the energy system. Additional points made were:

- It was sensible for SONI to prepare for increasing renewable energy targets (albeit without an exact target) and for further integration of renewables on the system.
- Equally, SONI will need to consider and develop the necessary control centre tools to enable the further integration of renewable energy.
- The SECG stressed that it was critical that the UR, SONI and NIE Networks all work together on this.
- SECG members commented that SONI (together with EirGrid) has delivered a world-leading renewables integration programme, and that it was important that this work continued.

6.46. SONI believes that the energy system will continue to evolve at a rapid pace in order to meet expected c.2030 energy targets. Therefore, it is important to set the groundwork for this change during the 2020-2025 period or it is likely that Northern Ireland will fall behind.

6.47. As a result, SONI is proposing a package of work which will prepare the Northern Ireland transmission system for an increase in levels of renewable energy that are likely to materialise. These proposals are set out in detail in Chapter 8 and Appendix F. It is important to note that the proposal recognises the lack of clear policy direction at present, and allows SONI and the UR the flexibility to adapt to future energy targets once known.

6.7.2 Future Development and Resilience of the Grid and Market

6.48. Technology is rapidly shifting and it will be important that SONI is able to keep pace with these technological advances in order to ensure system adequacy and to readily deploy new systems and markets. Additionally, these technological advances also mean that cyber threats are on the rise and will have great significance if they occur. So it is vital that SONI keeps pace with technology, but in a way that is secure and safeguards the electricity network.

6.49. SONI has put forward a number of measures that will enable us operate, develop and enhance the grid and market during 2020-2025 Price Control period in a safe and resilient manner. These proposals are set out in detail in Chapter 8 and Appendix G.

6.50. The SECG was generally supportive of the proposals made by SONI in this regard. The group recognised that data management and analysis were of increasing relevance to SONI. The SECG acknowledged that this could be valuable to customers and market participants if it increased the amount of information available that allowed industry to make better informed decisions based on strong data sets. There was general consensus that robust performance management of contracted parties was essential, so that units were only paid for services actually provided. The group also agreed that the resilience of SONI and the electricity network was critical, but stressed that these proposals needed to be explained clearly and the need justified, with costs to the consumer clearly understood.

6.7.3 Enhanced Customer Services

6.51. SONI received feedback from the SECG and other stakeholders that the connections process could be improved and simplified. In the SECG engagements, SONI presented some possible options for how the connections process might be enhanced. The SECG generally welcomed the proposals, but it is recognised by all parties that there are practical constraints on both SONI and NIE Networks that limit the options available to SONI. As a result, there is no specific proposal related to the connections process itself. However, we will continue to give this matter consideration and will engage with NIE Networks on the issue.

6.52. Another issue discussed with the SECG was the continued need for SONI to provide a high quality customer service, and this includes the information provided to connections customers and market participants. SONI has proposed additional resources in our access and network planning teams, which will enable us to develop a more structured pre-application process, to improve our ability to offer feasibility studies, and to provide more up to date system information to our customers. Further details of this proposal can be found in Chapter 8 and Appendix H.

6.7.4 Working in Partnership

6.53. The need for SONI to work in partnership with NIE Networks and the UR was raised a number of times by SECG members. SONI agrees that these working relationships are critical to the future success of Northern Ireland and we recognise that improvements in our interactions with these parties are possible. Other than this, the approach that SONI is putting forward to address this issue is set out in Chapter 7.

6.7.5 Network Development Process

6.54. Our connecting customers, as well as SECG members told SONI that timescales for the development of network projects could be improved. SONI agrees that project development timelines can be improved and believes that the most effective way to accomplish this is through a change to the TNPP process. This process was introduced in 2018, and based on the experience to date SONI believes that the regulatory burden could be reduced in earlier stages of this process which would improve project timescales. The detail of the proposed change is set out in Appendix I.

6.7.6 Transparency

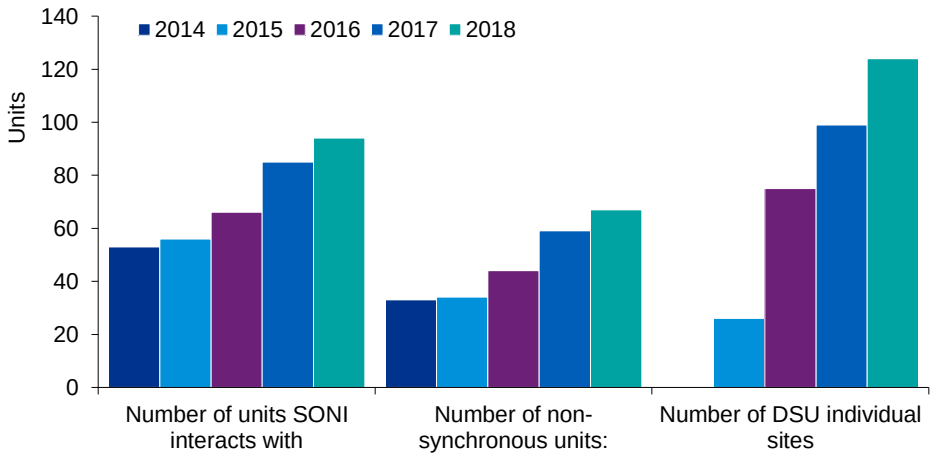
6.55. Our stakeholders, including the SECG, have told us that they would like to see greater transparency in how SONI works with its partners, in particular NIE Networks; contractual costs, in particular the balancing market price; and how activities are separated between SONI and EirGrid. As a first step, SONI has tried to provide greater clarity about the roles and services that we provide (Appendix A), focusing on the outputs and deliverables that our customers see. Chapter 8 sets out how SONI's roles and services will need to adapt to meet future requirements.

6.8 Views on Costs & Efficiency Measures

6.56. As the TSO, SONI performs an essential service to homes and businesses in Northern Ireland ensuring that they have access to a reliable electricity supply. Over the coming years, the energy industry will continue to change at an unprecedented pace placing greater importance on the role that SONI plays. One of the overarching questions considered as part of this price control is how SONI can best deliver the roles and services we provide, acting in the best interests of consumers and protecting them from potential cost inefficiencies.

6.57. Despite levels of demand falling in Northern Ireland in recent years, the level of activity that SONI carries out in interacting with generation and demand units, facilitating new capacity and new system services has increased dramatically. Since 2014 the number of units which SONI interacts with has almost doubled (Figure 6.2), while the number of non-synchronous (e.g. wind) and DSUs on the system have increased significantly. Over the course of the current control period SONI has maintained a relatively flat opex profile while also delivering increased levels of outputs in an increasingly complex operating environment. As a result significant efficiencies have been detailed for customers.

Figure 6.2: Trends in SONI Generation and Individual DSU Sites



6.9 SECG Views

6.58. During the SECG engagements it was discussed that the TSO has small area of full control, together with limited discretionary spend. However, SONI does have a large sphere of influence over the entirety of the energy sector. In this type of situation, where SONI has influence but not control, then encouraging activities that deliver value for the consumer is likely to be of much greater significance than the actual internal costs of delivering these activities.

6.59. The SECG clearly stated that an approach solely focussed on incentivising SONI to minimise internal costs is not the best way to deliver value. Rather, the group emphasised the need to focus on outputs and outcomes when assessing value for money as it relates to TSO activities. It was recognised that SONI's overall cost to the consumer, in the context of the proportion of the overall electricity bill is quite small (Chapter 3). As such, the SECG agreed with the principle that an increase in SONI's internal costs may ultimately be outweighed by a decrease in the overall bill price as a result, although this benefit would be seen in the medium to longer-term. SONI has taken on board this feedback and reflected it in the holistic benefit sharing framework set out in Chapter 11.

6.60. The SECG was also clear that SONI's internal costs are not irrelevant and they need to be scrutinised in a proportionate manner and in a way that encourages the company to pursue activities that will reduce consumer's costs. The group clearly encouraged SONI to the following:

- Explain the need for all proposed initiatives;
- Clearly set out exactly what is being proposed for each initiative;
- Transparently set out how the initiative will impact consumer costs;
- Explain the outputs and outcomes of the initiative, including how success will be measured; and
- Provide relevant benchmarking, where possible, while realising in some cases this was not possible as an appropriate comparator does not exist.

6.61. SONI has set out its proposed initiatives in Chapter 8 and Appendices D to I, and we have endeavoured to meet the criteria above to the best of our abilities.

6.62. In addition, a framework for unlocking this value for the NI consumer has been proposed by SONI as part of the 2020-2025 Price Control period business plan. It is set out in Chapter 11 and Appendix N.

6.9.1 Importance of Timing

6.63. As SONI goes through the price control process, it is important to recognise the criticality of timing in the context of a fast changing energy system. SONI has to balance the need for investment and new initiatives against a need to be a flexible and proactive TSO while ensuring that we are cost efficient.

6.64. The SECG commented that in order to deliver system security, cost efficiency and decarbonisation, it appears there is a need to deliver significant investment during 2020-2025 Price Control period. It is SONI's view that a failure to invest in the IT, tools, system services, and security capabilities required to facilitate innovation and maintain a resilient, secure network would be a false economy as it could lead to higher costs being incurred in the long run.

6.10 What we learned from the SECG?

6.65. A number of recurring themes emerged from the engagement with the SECG, which SONI has focused on addressing throughout the Business Plan. Table 6.2 summarises the themes that arose and indicates where each theme is addressed in more detail in this Business Plan.

Table 6.2: SECG Feedback on SONI Themes

Theme	Description of Theme Feedback	Where this is Addressed in the Business Plan
Collaborative Working	Co-ordination and working arrangements between SONI and NIE Networks need to improve given the increasing complexity and rate of fast paced change of the energy system.	Chapter 1 – SONI Strategy Chapter 7 – Partnership and Engagement Appendix H – Partnership and Engagement for Better Outcomes
Future Energy Transition	This was discussed in the absence of NI specific targets beyond 2020, but acknowledging the UK's target of net zero emissions by 2050 and the likely impact this would have on Northern Ireland. SECG members in attendance on 14th June 2019, and those that replied to the survey following the Low Carbon Future webinar indicated general agreement with SONI's proposal to plan for increased renewable	Chapter 2 – Making the Right Decisions at the Right Time Chapter 8 – SONI's Focus: Roles and Services for the Future Appendix F – Sustainability and Decarbonisation

Theme	Description of Theme Feedback	Where this is Addressed in the Business Plan
	energy targets. It was acknowledged that there would be significant and serious delays, which would impact NI's ability to meet any increased targets, if SONI did not start to plan for the transition of the energy system during 2020-2025 Price Control period.	
Greater Transparency	Greater transparency needed across a range of areas: • How SONI works with partners, specifically NIE Networks. • Contractual costs, including the balancing market price. • Separation between SONI and EirGrid activities.	Chapter 8 – SONI's Focus: Roles and Services for the Future Chapter 10 – Securing Efficiency Appendix S - Confidence and Assurance
Innovation	Many of the services that SONI provides have linkages to innovation and needs to be brought out in the business plan.	Chapter 9 – Innovation
Outputs for the NI Consumer	Need to be clear what outputs the NI consumer is paying for and these need to be economically justified, including how much they will cost the NI consumers. The SECG recognised that while minimising energy bills was important, value to the NI consumer was about more than internal cost efficiencies. It was established that SONI may be able reduce costs to consumers in the longer term, through activities and outputs it could deliver during 2020-2025 Price Control period.	**Outputs:** Chapter 8 – SONI's Focus: Roles and Services for the Future Appendices D to J **Value for money**: Chapter 3 – Cost to End Users Chapter 10 – Securing Efficiency

6.10.1 Challenge of SONI Cost Proposals

6.66. As part of the development of the SONI business cases (provided in Appendices D to H), opportunities to challenge the assumptions, scope and cost of the proposals were built into the project programme.

6.67. Following this, SONI's external consultant (KPMG) provided additional independent challenge of the business cases. The KPMG review was led by a team of specialists that had extensive regulatory and financial expertise. This was an iterative process focused on defining the need for the proposal, as well as strengthening the evidence of the cost base underlying the business case.

6.11 Summary of Stakeholder Engagement

6.68. SONI carries out a significant amount of consultation on a regular basis with market participants, industry, and connecting customers. As part of the planning process for network projects, SONI engages with landowners, members of the public and statutory consultees. In addition, we carried out engagement with key customers and stakeholders to gain input into the development of the SONI Corporate Strategy, which was launched in October 2019. All of this engagement has fed into the development of the SONI submission for 2020-2025 Price Control.

6.69. A welcome difference for 2020-2025 Price Control was the formation of the SECG by the UR, as set out in this Chapter 6. The SECG comprised a range of representatives with good knowledge of the electricity sector in Northern Ireland. It also included observing members from the DfE and NIE Networks and the group was formed in order to provide guidance, critical challenge and feedback to both the UR and SONI in the development of the 2020-2025 Price Control submission.

Chapter 7
Partnership and Engagement

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7 Partnership and Engagement

7.1 Purpose

7.1. As the energy transition unfolds, it will be important that industry leaders and decision makers are able to work together in partnership to deliver benefits for everyone. SONI recognises that our key partners include:

- Government, in particular the Department for Infrastructure (DfI) and DfE;
- Utility Regulator;
- NIE Networks;
- Other TSOs, in particular EirGrid;
- Stakeholder Groups; and
- Industry Representatives

7.2. SONI recognises that these relationships need to be improved in some cases, and enhanced in many others. That is why SONI has made a clear commitment in our Strategy (Chapter 1) to work together with our partners, building trust and respecting the expertise and contributions that each other can make.

7.3. True partnership will mean having a shared purpose and common goals, leveraging the strengths of each organisation so that the sum of the outcome is greater and more significant than what could be delivered by each organisation on its own.

7.2 On-Going Development of our Partnerships

7.4. SONI has already committed to a number of partnerships, some of which are established and others which will be crucial for us in delivering our strategy and this business plan. These are set out below.

7.2.1 Steering Group

7.5. The Department for the Economy has established a Senior Electricity Steering Group to discuss and inform future energy policy in Northern Ireland, for which a call for evidence is planned by the end of November. The SONI Managing Director is a member of this group, alongside senior representatives from NIE Networks and the Utility Regulator.

7.2.2 SONI and NIE Networks Joint Working Group

7.6. A joint working group between SONI and NIE Networks was established in August 2019. The purpose of this group is to produce a common vision and roadmap for a decarbonised energy system in Northern Ireland, which will input and support the DfE in the development of future energy policy. This partnership recognises the important role that both organisations play and the benefit that can materialise if input between SONI and NIE Networks is aligned and are consistent.

7.2.3 Business as Usual Engagement with NIE Networks

7.7. In addition to the Joint Working Group described in Section 7.2.2, SONI has a number of partnerships with NIE Networks that take place on a regular basis. This includes the following:

- Implementing and updating the Transmission Interface Arrangements (TIA) as required;
- Developing a 'Code of Practice' for landowner easements;
- Regular working level meetings on a range of specialist areas, such as the TIA Connections Panel and TIA Operations Panel; and
- Carrying out joint industry consultations, where relevant.

7.8. SONI will continue to work in partnership with NIE Networks, and will look to build upon and improve our working relationship with NIE Networks as both the Transmission Owner and the DNO.

7.2.4 Public Consultation and Engagement

7.9. In 2017, we published the findings and recommendations made by The Consultation Institute following an independent review of SONI's processes and procedures for public consultation[1]. While the report highlighted a number of positive steps that SONI had taken, it highlighted the need for improvements to the consultation framework going forward.

7.10. SONI has taken this feedback on board and is continually working to improve the ways that it consults with landowners, neighbours and local communities that host its network projects. Appendix H includes specific initiatives that would enhance the consultation and engagement that SONI undertakes. In particular, these initiatives focus on how SONI can improve the messaging and tools used in its engagement, together with a targeted education campaign to help improve understanding.

7.3 Future Initiatives

7.11. In addition to the initiatives already underway, SONI is also proposing future partnerships and engagement activities to take place following submission of this business plan.

7.3.1 Price Control Engagement

7.12. As mentioned above, SONI has set out seven initiatives for 2020-2025 Price Control period in Appendix H: Partnership and Engagement for Better Outcomes. These initiatives are based on current ways of working and make the most of All-Island synergies in order to keep SONI's costs low. However, we also recognise that there are other approaches that could be taken and SONI has committed to further engage with the UR and the SECG on these initiatives following the submission of the business plan.

[1] https://www.stratagem-ni.com/media/1177/final-soni-review.pdf

7.3.2 SECG or other Stakeholder Group for duration of Price Control

7.13. The SECG has been a very beneficial forum for SONI in the preparation of its business plan. SONI also recognises that as it currently stands, the SECG members are acting on a voluntary basis and many of them hold quite senior positions within their own organisations.

7.14. As part of the benefit sharing framework (Chapter 11 and Appendix N), SONI is proposing a 'balanced scorecard' approach whereby an independent panel is involved in qualitatively assessing whether SONI has met the target for 'what good looks like' (as defined relative to each metric). It may be that the SECG or a similar group is best placed to be involved in this assessment. It may also be that a group of this nature could provide other feedback to SONI throughout 2020-2025 Price Control period depending on what basis it is established.

7.15. Given the technical nature of the TSO business, SONI believes that it is important that members of any such a group have a reasonable level of knowledge of the electricity sector. As such, SONI is committed to working with the UR and the SECG in the coming months to determine the best means of assembling such a group, should this be something that the UR seeks to pursue.

7.16. If the SECG, or similar group, were to continue to meet over the course of 2020-2025 Price Control it will be important to convene such a group in a way that ensures individuals involved have both the necessary understanding of the industry but also the availability to commit to participating and providing timely feedback.

7.4 Conclusions

7.17. Appendix H sets out seven specific initiatives that SONI believes will deliver better outcomes for consumers through partnership and engagement.

7.18. In this business plan, SONI recognises the need to improve our partnerships with key groups – particularly the UR and NIE Networks. This is a key focus of the business plan for 2020-2025 Price Control.

7.19. SONI will continue to invest its time and resources in a strategic and transparent approach to regulatory engagement. The UR is a principal stakeholder in our new focus on sustainability. To achieve this new approach, SONI will re-align our current organisational structure and engagement to support our new strategy. Once this is completed, we will brief the UR on the new structure and on any implications for our Business Plan.

7.20. SONI has tried to reflect its approach to improving the services that we offer to our customers, in particular through our partnerships and engagement activities. SONI recognises that it will only be able to deliver on its strategic goals if it works in partnership with others.

Delivering Better Outcomes & Innovation

Chapter 8
Delivering Outcomes

Table of Contents

8 Delivering Outcomes

8.1 Introduction

8.1. SONI is continually adapting how it discharges its roles and services to ensure that our approach remains current and appropriate for the world around us. When reviewing the trends in the energy sector in Northern Ireland and the potential policy direction, we noted significant commonality between the initiatives SONI would need to deliver outcomes, both the expected direction of energy policy and also to keep up with the fast pace of expected technological change.

8.2. By combining these initiatives into a pro-active strategy, SONI is able to *"take such steps as are reasonably practicable to ensure the development and maintenance of an efficient, co-ordinated and economical system of electricity transmission which has the long-term ability to meet reasonable demands for the transmission of electricity"*[1].

8.3. In SONI's view, to deliver net zero carbon by 2050, it is will vital that action is taken now so that the electricity system is ready for the radical change that this will require. SONI in its strategy reflects the importance of taking a holistic and coordinated grid and market approach. Therefore in this chapter we set out:

- The essential evolution of our business as usual activities;
- The work that we need to do to keep pace with external obligations; and
- Our response to the wider transition in Northern Ireland's energy landscape, including the steps that SONI will need to take to prepare its response to an ambitious decarbonisation target.

8.4. SONI will deliver these changes in the context of greater complexity and uncertainty than we have ever faced before. Our customers, partners and the whole energy system in which we operate is more closely connected, and part of a more active and multi-dimensional, system-wide conversation than has previously been the case. Combined with our rigorous assessment of the value for money provided across all of our business cases, SONI now is able to propose the following plan with the confidence that we speak with the needs of our customers at the centre of every proposal.

8.5. This chapter (sections 8.4 to 8.8) describe the initiatives planned for the 2020-25 Price Control period in line with the business cases presented in Appendices D to J.

8.6. This chapter is supported by 8 appendices, which provide a more detailed description of specific initiatives or changes that we propose to make. These are:

- Appendix D Business As Usual IT Capex
- Appendix E Telecoms Business as Usual
- Appendix F Sustainability and Decarbonisation
- Appendix G Operate, Develop and Enhance the Grid & Market

[1] https://www.legislation.gov.uk/nisi/1992/231/article/12

- Appendix H Partnership and Engagement for Better Outcomes
- Appendix I Funding Model for Feasibility & Scoping Works
- Appendix J Network Projects 2020 - 2025
- Appendix W Pensions (Confidential)

8.7. Section 8.9 presents these same initiatives in terms of the roles and services that SONI provides (Appendix A), incorporating expected changes to these roles.

8.2 Overview

8.8. The initiatives presented in this chapter have been identified in response to a number of drivers, which are reflected in the goals we have defined for our strategy. These are:

- Maintaining our Business As Usual (BAU) activities;
- Sustainability and decarbonisation;
- Operate, develop and enhance the grid and market; and
- Partnership and engagement for better outcomes.

8.9. While all of these initiatives are interrelated, and work together to deliver a coherent and strategic approach to the challenges we will face in the next decade, we have grouped them into four appendices, each focusing on a strategic theme.

8.10. As a part of EirGrid Group, SONI is able to realise significant cost savings and other synergies related to specialist expertise. Almost all of our initiatives will be delivered jointly with EirGrid. This results in substantial savings to Northern Ireland customers, when compared to the counterfactual. The cost and quality of the solutions will also benefit from the specialist knowledge that we are able to share as part of a larger group. Furthermore many of the initiatives will undergo a competitive procurement exercise to ensure value for money is achieved.

8.11. SONI has provided a significant level of both internal and external challenge in relation to the development of the initiatives outlined in this chapter. Senior level management challenge was provided to ensure robust needs, options, costs and outputs were developed for the initiatives. Furthermore SONI retained KPMG to provide a level of external challenge to ensure that the best business cases could be submitted.

8.12. SONI recognises that the initiatives represent an increase over the current BAU level. SONI, however has a proven track record in delivering complex work packages such as I-SEM. SONI will ensure that the required structures and systems are in place to deliver on the new initiatives outlined in this chapter.

8.13. The strategic themes and associated initiatives are shown in Figure 8.1.

Figure 8.1: SONI Initiatives for the 2020-25 Price Control Period

Sustainability & Decarbonisation — Appendix F

#	Initiative	Description	Cost Allocation (%)	Cost (£m)
F1	Renewable Strategy (DS3+)	This programme will ensure that the system can operate with world leading levels of renewables and new technologies.	25	7.1
F2	Control Centre Tools	These tools will ensure that the system can operate with world leading levels of renewables and new technologies.	50	4.6
F3	Smarter Outage Management	To manage the increased complexity of managing transmission outages.	25	[redacted]
F4	IP Communications	To facilitate the increased volume of communications with decentralised sites	100	1.1
F5	Data Science	Initial funding to help scope requirements to manage increased volume of data	20	0.1
F6	System Planning	To manage the increased complexity associated wuth the new technologies and renewables.	25	0.5
F7	Promoting Change	To build internal and external stakeholder trust	25	0.1
F8	Clean Energy Package	Initial funding to help scope requirements in this leglislation.	25	0.1

Overall Benefits

- Establish effective processes and tools to operate a power system where the majority of the power comes from non-synchronous intermittent sources.
- Strengthen data and communications networks to secure better access to real-time data and the means to analyse it.
- Promote more informed choices through an improved approach to investment appraisal and improved engagement with internal and external stakeholders.

70p impact to customer bill

Operate, Enhance & Develop the Grid and Market — Appendix G

#	Initiative	Description	Cost Allocation (%)	Cost (£m)
G1	Disaster Recovery Site	Investment is needed in this area.	100	[redacted]
G2	Control Centre Training	Due to new systems and tools we need to keep pace in our training environments.	33	1.2
G3	Physical Security	We need to keep pace with threats in this area.	100	[redacted]
G4	Cyber Security	We need to keep pace with threats in this area.	20	[redacted]
G5	Network Codes	We need to manage increased obligations.	66	0.8
G6	Capacity Market: Secondary Trading	To deliver on this functionality which was de-scoped for I-SEM go-live	25	[redacted]
G7	DSU Compliance with State Aid	This is required to ensure compliance with the EC state aid decision	25	[redacted]
G8	Capacity Market: Algorithm Change	This will help drive savings for customers	25	[redacted]
G9	Capacity Market: State Aid Cross Border	To facilitate cross border participation	25	[redacted]
G10	Governance, Risk Management & Compliance	To manage increased requirements in this area	25	0.2
G11	Metering System	To ensure this can manage increased volume into the future	25	[redacted]
G12	Project Delivery Support	Skilled operational staff are required to support IT project delivery	50	1.2
G13	Electricity Balancing Guideline	This refers to the resources required to apply the requirements of the EBGL to current balancing practices	TBC	TBC
G14	Multi - NEMO Arrangements in the SEM	This will see the introduction of designated NEMOs into SEM.	TBC	TBC

Overall Benefits

- Deliver efficient, economic operation of the power grid for the benefit of all customers and consumers in Northern Ireland and deliver value for money
- Improve the resilience of the operation of the power system in Northern Ireland
- Secure the operation of the grid (in partnership with NIE Networks) in a manner, which is capable of addressing the latest physical and cyber security threats
- Meet the core remit of the TSO in a way which complies with changes to the regulatory and legal environment, adhering to emerging changes in industry standards and best practice

76p impact to customer bill

Partnership and Engagement — Appendix H

#	Initiative	Description	Cost Allocation (%)	Cost (£m)
H1	Targeted Education & Engagement Campaign	To increase our stakeholder engagement to help us shape an energy transition to benefit consumers	100	3.3
H2	Customer Journey	To improve and streamline the connection process, from initial enquiry through to commissioning	27	0.8

Overall Benefits

- Re-Position Our Brand in the Context of Redefined Purpose and Local Audiences;
- Continue to Transform Our Engagement with Customers, Communities and the Public; and Build World Class Stakeholder Relationships.

37p impact to customer bill

8.3 Business as Usual Initiatives

8.3.1 BAU IT Capex

8.14. In Appendix D, SONI sets out its business as usual investment requirements for IT. These are broken down into a number of initiatives. A large proportion of this investment is directly driven by the need to maintain SONI's scheduling and dispatch service and to keep pace with the evolution in the generation portfolio resulting from the capacity and system services markets. These changes increase the volume of data that SONI has to store, process and transmit onwards.

8.3.2 BAU Telecoms

8.15. SONI relies on telecoms infrastructure to send instructions to the generating stations and to monitor the system. This is currently funded through a complex arrangement, whereby the assets are 100% owned by NIE Networks, although SONI contributes 30% of the capital investment. The quantum of match-funding that SONI must provide changes in line with NIE Networks' price control cycle.

8.16. While we set out our expected requirements for match-funding out to October 2025 in Appendix E, we note that we are unable to forecast our requirements for the last year and a half with the same degree of accuracy as the early years, because these will be dependent on the UR's determination for RP7. We would welcome an opportunity to discuss this issue with the UR and NIE Networks as part of the engagement around the SONI 2020 - 2025 Price Control submission.

8.17. The investments that are required to maintain the joint assets are set out in section 4 of Appendix E. SONI will also incur costs related to telecoms infrastructure that it owns. These are set out in section 5 of Appendix E.

Table 8.1: Description of BAU IT Capex and Telecoms Initiatives

Ref	Initiative Name	Description
D1	Replacement of end of life assets including EMS	SONI has reviewed the optimum useful life of its IT assets and will refresh them on this basis. This programme includes mission critical systems, such as our energy management system that we use to operate the transmission system.
D2	Cloud Adoption	SONI has reviewed its software and storage strategy and identified long term benefits from moving to cloud services for appropriate packages. This will provide the flexibility that we require to adapt to the greater digitisation of our industry.
D3	IT Operating Model	A further evolution of SONI's operating model for centralised IT services is required in order to embed efficiencies across the group, optimise our commercial management of major IT contracts and support our

Ref	Initiative Name	Description
		teams to operate as a single IT infrastructure system.
D4	Standardisation of IT Solutions and Processes	SONI experiencing multiple changes to our operating environment, many of which are likely to be further refreshed in advance of the next price control period, and are treated here as 'BAU' requirements. This initiative comprises updates to our systems that are necessary in order to meet these evolving demands.
D5	Maintaining Cyber Security	SONI needs to maintain its cyber security infrastructure at the current standards; this includes the replacement of security assets that have reached the end of their life.
D6	Workplace BAU	SONI needs to provide a secure and functional workplace, which includes maintaining our building.
E	Telecoms	SONI relies on telecoms infrastructure to send instructions to the generating stations and to monitor the system. This is currently funded through a complex arrangement with NIE Networks.

Table 8.2: Summary of Costs for BAU IT Capex and Telecoms Initiatives

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
D1	Replacement of end of life assets including EMS	-	5,543	5,543
D2	Cloud Adoption	922	747	1,669
D3	IT Operating Model	702	222	924
D4	Standardisation of IT Solutions and Processes	-	1,242	1,242
D5	Maintaining Cyber Security	-	504	504
D6	Workplace BAU	-	460	460
E	Telecoms	7,270	1,370	8,640
Total		8,894	10,088	18,982

8.4 Sustainability and Decarbonisation

8.18. Sustainability and decarbonisation are what is driving the energy transition. The initiatives included here are focused on enabling a low carbon future that can accommodate an increase in renewable energy generation and drive the significant change to the power system in Northern Ireland.

8.19. SONI's role in delivering this transition includes:

- Overseeing the strategic development of the transmission network, and facilitating the connection of new generators and demand customers.
- Supporting market participants to broaden the range of technologies that can compete in the energy, capacity and system services markets.
- Operating the system and managing the effects of renewables intermittency to maintain a high quality and security of supply for consumers at efficient cost.

8.20. SONI has a track record in delivering on decarbonisation targets. SONI has worked with EirGrid to ensure world leading levels of renewable electricity on the all-island power system. SONI are committed to delivering on the ambitious targets contained within the sustainability and decarbonisation area.

8.21. To meet the challenges associated with our role making the transition to a renewables-based power system, we have identified seven initiatives that are described in Table 8.3. Costs for the initiatives are presented in Table 8.4. Appendix F describes this business case, and the associated initiatives in detail.

Table 8.3: Description of Sustainability and Decarbonisation Initiatives

Ref	Initiative Name	Description
F1	Renewables Strategy and Implementation Programme (DS3+)	SONI will need to design and build the processes and tools necessary to safely maintain system resilience with high levels of renewables and new technologies. The challenges associated with high levels of variable non-synchronous renewable energy are widely recognised. SONI will need strategies to minimise the negative effects of variable renewable energy, while maximising the benefits and improving the cost-effectiveness of the power system. This initiative will help ensure that the system will be able to cope with increasing levels of RES generation without significantly increasing curtailment costs in the long run.
F2	Control Centre Tools	Decentralised and low carbon technologies will fundamentally change the way the power system behaves. The development and deployment of a range of innovative tools will ensure secure operation is maintained and optimal use of renewable energy can be achieved in the

Ref	Initiative Name	Description
		most cost-effective way. The enhanced control centre functionality will ultimately facilitate the delivery of policy outcomes and lower bills for customers as the cost of renewable energy falls.
F3	Smarter Outage Management	As the energy network evolves at pace and becomes more complex and more dispersed, we are finding that the challenges associated with managing outages are increasing. SONI has identified the potential to use new approaches and technologies to increase the smartness of our approach to outage planning. This system will result in improved functionality of the network outage management system, ensuring security of supply for the customer in an effective and efficient manner.
F4	IP Communications	Our EMS will need additional communications functionality to allow it to integrate and control a diverse and dispersed network of power generation. Increased automation and the deployment of smart grid technologies will also trigger new bandwidth and connectivity requirements. [redacted] Improving the energy meter connectivity keeps the connections secure and available to support operations.
F5	Data Services	The volume of data available to SONI will increase dramatically over the next decade. If used appropriately this can unlock great value for the market. This initiative will define our approach to data capture, management and analysis, in the context of data security, governance and quality This initiative will help identify areas to improve system operations by providing real or near real-time analysis and discovery and increase efficiency, delivering cost benefits to customers. This initiative seeks an initial upfront allowance, while the full costs will be subject to a re-opener.

Ref	Initiative Name	Description
F6	System Planning	We need to update and enhance our appraisal processes to deal with the added complexity associated with new technologies and renewables. In particular reviewing those that require dynamic analysis. This type of analysis requires much more detailed parameters, models, tools, and a much higher skill level than equivalent steady state analysis. The increased capability here will help support further introduction of new technologies into the transmission system, which will provide new opportunities.
F7	Promoting Change	We will need to build internal and external stakeholder trust by transparently communicating the challenges and opportunities associated with sustainability and decarbonisation, engaging with stakeholders to involve them in key decisions and reporting progress and risks. We also need to ensure we are leaders in sustainability internally and build best practises into day to day operational activities.
F8	Clean Energy Package (CEP)	Initial cost to begin work on the CEP, which comes into force in Summer 2019 and will apply from 1 January 2020, having a significant impact on TSOs and the wider energy industry. This initiative seeks an initial upfront allowance, while the full costs will be subject to a re-opener.

Table 8.4: Summary of Costs for Sustainability and Decarbonisation Initiatives

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
F1	Renewables Strategy and Implementation Programme (DS3+)	3,500	3,580	7,080
F2	Control Centre Tools	590	3,970	4,560
F3	Smarter Outage Management	60	[redacted]	
F4	IP Communications	800	270	1,070
F5	Data Services	0	90	90

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
F6	System Planning	500	0	500
F7	Promoting Change	100	0	100
F8	Clean Energy Package (CEP)	0	110	110
Total		5,550		

8.5 Operate, Develop and Enhance the Grid & Market

8.22. As TSO, SONI has a vital role in managing the electricity system and the opportunities and challenges affecting the market. We need to operate the grid to provide a resilient, stable and secure supply of energy for Northern Ireland. The way we deliver this will need to reflect the growing expectations in the energy environment including growth of renewables, the way electricity is consumed, and the demand growth forecast which impacts demand across the network.

8.23. This group of fourteen initiatives respond to specific changes in the external environment, including the TSO role in the wholesale market and requirements to meet emerging changes in the legal framework we operate in.

8.24. Whilst the proposed initiatives are driven by changes in external obligations and increased complexity in the power system, we also believe these initiatives deliver value for money for our customers and improve the quality of our services. Each initiative has been scrutinised and costs challenged to ensure value for money. Ultimately our preferred solutions have been shaped by what we believe to be in the best interests of customers.

8.25. The fourteen initiatives under this business case are described in Table 8.5. Costs for the initiatives are presented in Table 8.6. Appendix G describes this business case, and the associated initiatives in detail.

Table 8.5: Initiatives Under Operate, Develop and Enhance the Grid & Market

Ref	Initiative Name	Description
G1	Disaster Recovery Site	Investment is required in our business continuity site to ensure ongoing resilience of the operation of the power system across Northern Ireland.
G2	Control Centre Training	By increasing and improving the functionality of our control room training, we can simulate a wider range of scenarios. These will inform real time decision making. This initiative will drive greater security of our operations.

Ref	Initiative Name	Description
G3	Physical Security	This initiative will deliver a more secure operation of the grid by making a number of investments in the physical security of personnel, contract staff, facilities and assets.
G4	Cyber Security	Cyber security threats are increasing and SONI will have to keep pace with developments. This programme of measures will improve our effectiveness in managing cyber security risks. This initiative will help ensure that we comply with changes to the regulatory and legal environment, i.e. NIS Directive.
G5	Network Codes	Our obligations in this area are increasing. While the wider market will benefit from the standardisation and harmonisation across Europe, SONI will require additional staff to implement these codes and to deliver the ongoing requirements. Being compliant with the Codes will help Minimise the risk of network failures, by having a consistent, efficient and coordinated approach.
G6	Capacity Market Secondary Trading	We will design and implement a secondary trading platform within the Capacity Market which allows suppliers to trade between one another in the event they are not able to deliver their energy obligations, improving reliability and reducing costs in the capacity market. This will ensure orderly maintenance of the power system by ensuring participants can undertake necessary maintenance.
G7	Demand Side Unit Compliance with State Aid	We will need to make changes to the treatment of DSUs in the capacity market to ensure compliance with the EC state aid decision.
G8	Implementing a Mixed Integer Programming Solver	We will design and implement the next form of auction algorithm approaches to be used in the Capacity Market, which will drive customer savings.
G9	State Aid Cross Border Capacity	We will need to facilitate cross borer participation in the capacity market to ensure compliance with the EC state

Ref	Initiative Name	Description
		aid decision.
G10	Market Related TSO Governance, Risk Management and Compliance	SONI needs to ensure compliance with the TSO responsibilities related to the wholesale market, the increased complexity of codes and legislation, and new European directives.
G11	Metering system	SONI's current metering system is reaching the end of its useful life and its functionality is outdated. This will be replaced with a new metering system which automatically collects, aggregates, substitutes and validates energy metering data. This will ensure more efficient and economic operations.
G12	Operational Support for IT	Skilled operational staff will be required to support the increased implementation of the IT projects, to ensure effective and efficient delivery.
G13	Electricity Balancing Guideline (EBGL)	This refers to the resources required to apply the requirements of the EBGL to current balancing practices. This initiative will be subject to a re-opener.
G14	Multi-NEMO Arrangements in the SEM	This will see the introduction of designated NEMOs into SEM. This initiative will be subject to a re-opener.

Table 8.6: Summary of Costs Under Operate, Develop and Enhance the Grid & Market

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
G1	Disaster Recovery Site	[redacted]		
G2	Control Centre Training	830	400	1,230
G3	Physical Security	[redacted]		
G4	Cyber Security			
G5	Network Codes	0	800	800

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
G6	Capacity Market Secondary Trading	[redacted]		
G7	Demand Side Unit Compliance with State Aid			
G8	Implementing a Mixed Integer Programming Solver			
G9	State Aid Cross Border Capacity			
G10	Market Related TSO Governance, Risk Management and Compliance	0	200	200
G11	Metering system	[redacted]		
G12	Operational Support for IT	0	1,200	1,200
G13	Electricity Balancing Guideline	TBC	TBC	TBC
G14	Multi-NEMO Arrangements in the SEM	TBC	TBC	TBC
Total		[redacted]		

8.26. Two other potential initiatives have been identified under this category, but costs are not included due to the high level of uncertainty associated with them. These are:

- Electricity Balancing Guidelines; and
- Multi-NEMO Arrangements in the SEM.

8.6 Partnership and Engagement for Better Outcomes

8.27. The need to engage for better outcomes for all is recognised in our strategy and dominates our approach to delivery of it. This business case covers a wide range of initiatives which we consider fundamental to overcome our greatest challenge of all, winning the hearts and minds of our old and young customers. Our focus is not just at the level of supporting the noble cause of climate change but in engaging, supporting and facilitating the realisation of what that change means.

8.28. The six initiatives under this business case are described in Table 8.7. Costs for the initiatives are presented in Table 8.8. Appendix H describes this business case, and the associated initiatives in detail.

8.29. SONI wishes to collaborate with the UR to agree how best to manage the energy transition, a vital part of which is partnership for positive change and engagement for better outcomes.

Table 8.7: Description of Partnership and Engagement for Better Outcomes Initiatives

Ref	Initiative Name	Description
H1	Rebranding	Our current brand is confusing and is not associated with our expertise. We plan to update this, which will underpin our delivery over 2020-25.
H2	Education & Engagement Campaign	We will engage proactively with stakeholders to ensure that our brand is known and trusted across Northern Ireland. This initiative will help support acceptance at all levels for grid infrastructure projects; minimising delays and the cost of those delays.
H3	Formalised Pre-application Process and Enhanced Availability of Data	The energy transition will only be delivered if new market participants and service providers connect to the system. SONI proposes to improve and streamline its processes for that, to ensure an efficient and effective process from initial enquiry through to commissioning. The highest value benefits from this initiative will be derived from better decision making by potential market participants as a result of enhanced data availability, driving down costs in the wholesale and system services markets.
H4	Industry Partnerships	We will build relationships through investment in partnerships to educate and inform our stakeholders of the vital work we do. Investing in partnerships with local authorities, bodies within the industry, customer groups and government will facilitate increased support for our projects and reduce the level of opposition or planning delays which results in costly delays to infrastructure development.
H5	Industry Consultations	By improving the reach of our consultations, we will secure better outcomes from them.
H6	Dedicated Customer Account Team	With the increase in number and range of parties who will be connecting to the system over the next decade, it is essential that SONI is able to provide an interface that supports those parties to ensure efficient outcomes in the wholesale market.

Table 8.8: Summary of Costs for Partnership and Engagement for Better Outcomes Initiatives

Ref	Initiative Name	Opex (£'000s)	Capex (£'000s)	Total (£'000s)
H1	Rebranding	40	-	40
H2	Education & Engagement Campaign	1,760	-	1,760
H3	Formalised Pre-application Process and Enhanced Availability of Data	410	-	410
H4	Industry Partnerships	1,340	-	1,340
H5	Industry Consultations	100	-	100
H6	Dedicated Customer Account Team	400	-	400
Total		4,050	-	4,050

8.7 Funding Model for Network Projects

8.30. The SONI TNPP process was introduced in March 2018. Over the last year, SONI has made submissions for all projects that were ongoing at that time, along with those for new projects that have commenced since that date.

8.31. Following the first year of operation of the process, SONI has undertaken a review of these ways of working to ensure that the processes support the timely identification of the optimum network investments and to consider any changes that could be made to realise the value from these projects as quickly as possible.

8.32. Appendix I considers possible options for refining the TNPP process and makes a recommendation as to SONI's preferred approach and the one that we feel will be most beneficial for everyone.

8.33. Appendix J sets out the preconstruction works that SONI expects to undertake up to 2025. It is our current best estimate, based on the latest Transmission Investment Plan (TIP) agreed with NIE Networks (Summer 2019).

8.8 Pensions

8.34. Appendix W contains a summary of changes over the current price control period. It also sets out SONI's expectations of the contributions to and operating costs of its pension scheme up to October 2025.

8.9 Mapping to SONI Roles and Services

8.35. In Table 8.9, we map our business cases to the SONI roles and services, as we understand that the UR would find this helpful.

8.36. Our current roles, services and obligations are described in Appendix A and are shown in Figure 8.2.

8.37. SONI's roles and services are intertwined and we aim to deliver them seamlessly, therefore the initiatives listed here must be considered in a holistic way. The outcomes that each initiative will deliver are provided in greater detail in the relevant appendix.

8.38. Overall they form an efficient and coordinated response the challenges that SONI will face out to 2025 and beyond and we work to deliver a strategy that will ensure that Northern Ireland customers benefit from the imminent energy transition.

Figure 8.2: SONI Roles and Services

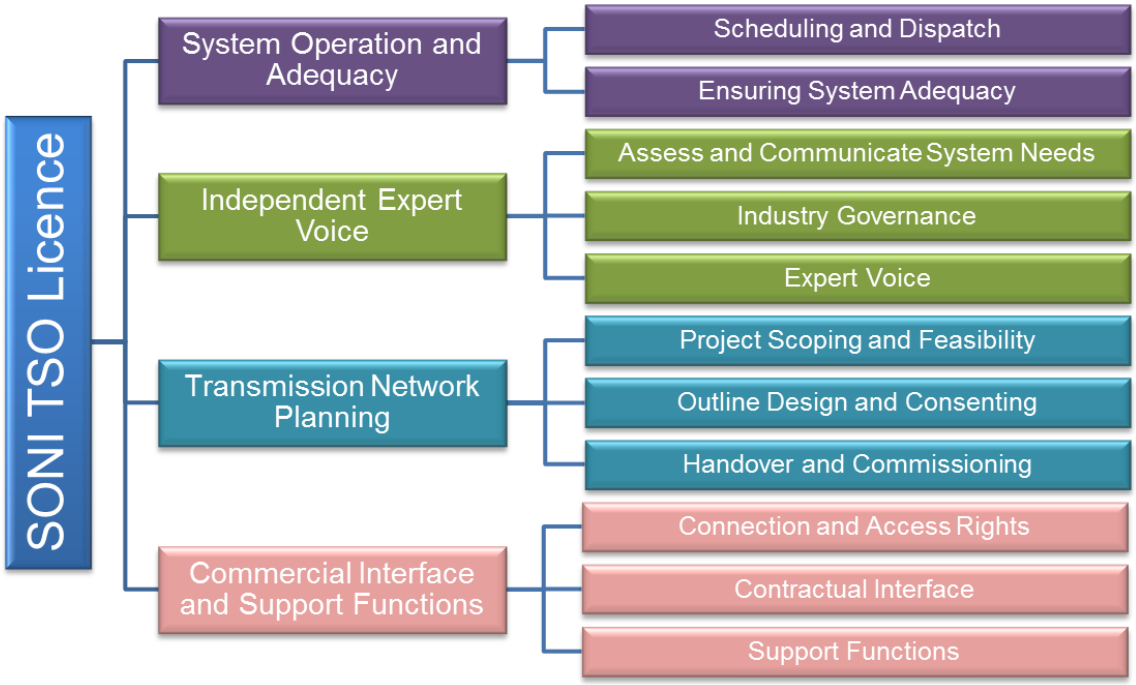

Table 8.9: New Initiatives Mapped to Roles and Services

Role	Service	Initiative Reference	Initiative Title
A. System Operation and Adequacy	**A1. Scheduling and Dispatch**	Appx E	Telecommunications (BAU)
		D1	IT - Business as Usual
		D5	BAU Cyber Security
		F2	Control Centre Tools
		F4	EMS IP Upgrade
		F5	Data Services (initial investigation)
		G11	Metering System
		G12	Operational support for project delivery
		G2	Control Centre Training
		G4	Cyber Security
	A2. Ensuring System Adequacy	F3	Smarter Outage Management
		F8	Clean Energy Package (Early Stage)
		G1	Disaster Recovery Site
		G3	Physical Security
		G6	Capacity Market: Secondary Trading
		G7	DSU Compliance with State Aid
B. Independent Expert Voice	B1. Assess and Communicate System Needs	F6	System Planning
	B2. Industry Governance	G5	Network Codes
		G10	Governance, Risk Management & Compliance
	B3. Expert Voice	F7	Sustainability
		H1	Targeted Education and Engagement Campaign
D. Commercial Interface and Support Functions	**D1. Connection and Access Rights**	H3	Customer Journey
		H6	Dedicated Customer Account Team
	D3. Support Functions	D2	Cloud Adoption
		D3	Operating Model
		D6	Workplace BAU
		G12	IT Support for IT

Chapter 9
Innovation

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9 Innovation

9.1 Introduction

9.1.1 Background

9.1. This Price Control is facilitating the energy transition in a time of significant change and innovation has an important role to play. Innovation also forms a key part of most regulatory frameworks (for example Ofgem's RIIO framework), as the UR aims to incentivise the regulated company to maximise value, while protecting customers from excessive risk.

9.2. In its Approach Paper the UR highlighted that it is "minded to consider ways in which the price control framework can finance and support specific innovation initiatives" and set out three possible options for this:

- **Option 1:** ex-ante allowance set at price control review for innovative projects or research initiatives.
- **Option 2:** ad hoc allowances on a case-by-case basis.
- **Option 3:** combination of Option 1 and 2.

9.3. The UR proposed that Option 3 would provide the greatest flexibility to encourage SONI to innovate over the 5 year price control.

9.4. In this chapter we set out how we integrate innovation within our business plan and explain how this fits into our wider framework. We also explain why innovation is essential for our basic service provision over the 2020-25 period, and not an optional add-on feature.

9.1.2 Link to UR Test Areas

9.5. Innovation features in two of the UR's test areas. Under test area 2, the guidance states that an excellent Business Plan should include "Innovation in how the TSO can be held to account in a way that supports good outcomes". We discuss the development of the regulatory framework in Chapter 11, explaining how it can unlock value for customers.

9.6. Innovation is also referenced in test area 3. This highlights innovation as an enabler of efficiency. We summarise the areas where innovation will result in efficiency in this section.

9.7. While not explicitly called out in the test areas, we also provide the information identified in the Approach Paper as being necessary for UR to assess SONI's plans for innovation[1].

9.2 SONI Need for Innovation 2020-25

9.8. Northern Ireland is transitioning from an energy system in which the majority of generation is from a small number of large, fossil fuel generators to a system in which a significant portion of generation will come from a large number of small, Renewable Energy Source (RES) generators.

[1] List of bullet points on page 38 of the Approach Paper.

9.9. Northern Ireland's indigenous renewables are intermittent and use non-synchronous technologies (wind or solar PV). There is no pumped storage or hydropower of any notable scale and therefore the volume of variable and non-synchronous sources introduces challenges for Northern Ireland. Added to this is the relatively small scale of the energy system and its limited interconnection compared to other European markets, which have hydro power or generation from other low carbon sources such as nuclear and much more interconnection with neighbouring countries. This therefore has driven the need for innovation and the successful DS3 Programme.

9.10. By the end of the current price control we expect to be able to operate the system with up to 75% of generation coming from non-synchronous sources. This is world leading and the result of considerable innovation by SONI working with, and alongside, EirGrid.

9.11. The volume of small scale, non-dispatchable, generation has grown significantly and is now greater than the minimum demand in Northern Ireland. In order to ensure that customers benefit from increasing volumes of indigenous renewables and that developers are confident to locate here, effectively lowering curtailment and ultimately the cost of renewable generation, SONI will need to ensure that, by 2030, up to 95% of demand in Northern Ireland can be supplied by non-synchronous sources at any time.

9.12. Our corporate strategy, explained in Chapter 1, is based on this pressing need to decarbonise our system and to contribute to UK government targets. While we believe that this ambitious goal is achievable, it will require a fundamental transformation in the way we operate the system. World leading innovation will be essential to secure value for customers. Therefore, we have embedded significant innovation projects within the core of our business plan which we believe are essential if we are to realise decarbonisation ambitions alongside grid security at an affordable cost to consumers.

9.13. Our plan also includes challenging assumptions around productivity improvements; therefore we will need to continue to innovate in order to remain at efficient. The calculation of these challenges is set out in Chapter 10 and in Appendix M.

9.14. Because of the essential need for SONI to innovate, we consider that option 1, an ex-ante allowance set at price control review for innovative projects or research initiatives, is the most likely to deliver value for customers. This is particularly the case where we have an understanding of the volume of work that will be required. Under option 1 we would expect innovation to be treated in a similar manner to the other allowances, thus helping ensure appropriate prioritisation and balance of the benefits that can be obtained through undertaking innovative activity. Further details on the proposed benefit sharing framework in respect of ex ante allowances are set out in Chapter 11.

9.15. There may be other needs for innovation that emerge before 2025; these can either be managed through an "option 2" style framework or through the incentive framework set out in Chapter 11 of this business plan. Whatever the approach, it will be important that the innovation framework dovetails with the benefit sharing framework and importantly does not constrain or disincentive SONI in engaging in innovative projects, ultimately disadvantaging customers. The final choice of route will depend on the specific circumstances at the time, and we see no benefit in unnecessarily constraining the options, by selecting one route over another at this time.

9.3 Innovation Included in our Business Plan

9.16. In the Approach Paper, the UR poses a number of questions related to SONI's innovation proposals. The initiatives in our business plan that relate to innovation are set out in appendices F and G. The detailed answers to the UR innovation questions can also be found there.

9.17. Each relevant initiative is referenced below.

9.3.1 Essential Innovation

9.18. We have four initiatives that are designed to facilitate decarbonisation that require significant innovation in order to be successful. These are:

- **Renewables Strategy and Implementation Programme (DS3+) (F1)**: SONI will need to design and build the processes and tools necessary to safely maintain system resilience with high levels of renewables and new technologies. The challenges associated with high levels of variable non-synchronous renewable energy are widely recognised. SONI will need strategies to minimise the negative effects of variable renewable energy, while maximising the benefits and improving the cost-effectiveness of the power system. Increasing non-synchronous penetration to levels which are already ahead of other systems globally, offers SONI innovation in terms of how our pioneering approach to managing the system at these levels can be exported around the world (e.g. service hub, performance monitoring, entire philosophy etc.).
- **Control Centre Tools (F2):** decentralised and low carbon technologies will fundamentally change the way the power system behaves. The development and deployment of a range of innovative tools will ensure secure operation is maintained and optimal use of renewable energy can be achieved in the most cost-effective way. Where the tool or capability does not exist in the market, there will be an opportunity to collaborate with leading software companies to develop bespoke tools uniquely suited to the power system on the island of Ireland. These collaborations will build positive relationships with global software vendors, where the opportunity to learn from other TSOs through the vendor would be beneficial.
- **Smarter Outage Management (F3):** As the energy network evolves at pace and becomes more complex and more dispersed, we are finding that the challenges associated with managing outages are increasing. SONI has identified the potential to use new approaches and technologies to increase the smartness of our approach to outage planning A smart outage management system is intended as an augmentation of various existing processes into a more complete solution utilising elements of new and supplementary applications. It offers the potential to incorporate financial and reliability modelling along with dynamic security assessment into the powerflow modelling suite utilised by SONI and streamline the tool such that it can feed effectively into the outage management software to be used by the Near Time office and the Control centres.
- **System Planning (F6):** We need to update and enhance our appraisal processes to deal with the added complexity associated with new technologies and renewables. In particular reviewing those that require dynamic analysis. This type of analysis requires

much more detailed parameters, models, tools, and a much higher skill level than equivalent steady state analysis. Many of the new technologies which are driving this change in the analysis are controllable and/or tuned devices. They therefore offer the opportunity to change their controls and/or be returned to deal with changing needs of the power system.

9.19. These all require innovation from SONI. Some of above initiatives will be SONI taking tools that have been developed for other situations and adapting their use for our system, however the control centre tools that we need to develop and the work to incorporate unprecedented volumes of non-synchronous intermittent generation will require world leading innovation and primary research.

9.20. Given both the context of the SEM, and the degree to which both EirGrid and SONI can benefit from synergies in undertaking innovative activity, it is proposed that SONI undertake these initiatives in conjunction with EirGrid and the business plan has been prepared and costed on this basis. As a result SONI is in general bearing only 25% of the projected cost with the remainder (75%) allocated to EirGrid.

9.3.2 Innovation for Efficiency

9.21. Due to our increasing workload and the growing complexity of our day to day activities, there are few initiatives that SONI has proposed that will introduce efficiencies in our internal costs, through either cost reduction or absorbing additional complexity for a similar cost. We do however have ongoing business as usual initiatives, such as evolving our IT operating model to standardise and simplify, which we have not outlined here as they would not fit the traditional definition of innovation. These innovative initiatives do however have the potential to enable both SONI, and other actors in the value chain, to deliver enhanced outputs and/or improved system performance.

- **Data Services (initial) (F5):** The volume of data available to SONI will increase dramatically over the next decade. If used appropriately this can unlock great value for the market. This initiative will define our approach to data capture, management and analysis, in the context of data security, governance and quality. The use of Data Science methods will help us to explore innovative uses for the data available to us, for example to drive better performance in market participants or to improve competition through transparency.
- **Control Centre Training (G2):** By increasing and improving the functionality of our control room training, we can simulate a wider range of scenarios. These will inform real time decision making. The innovative use of this facility, including the development of realistic but challenging scenarios, should improve system performance and help minimise DBC.
- **Capacity Market: Auction Algorithm Changes (MIP Solver) (G8**): we will design and implement the next form of auction algorithm approaches to be used in the Capacity Market. This requires bespoke equations that we will need to define and codify, using innovative algebra to put downward pressure on prices.
- **Capacity Market: Secondary Trading (G6):** will design and implement a secondary trading platform within the Capacity Market which allows suppliers to trade between

one another in the event they are not able to deliver their energy obligations, improving reliability and reducing costs in the capacity market. This system is not available off the shelf, and will require innovation from SONI to develop it.

- We expect to explore the potential to use new grid technologies to increase functionality and/or reduce construction costs. These will be progressed through the TNPP process and in partnership with NIE Networks.

9.22. As with the essential innovation projects, we propose including these in the overall framework to ensure proportionate decision making, with savings in customer bills given equal weighting whether they come from our internal cost savings or innovation that drives down market costs.

9.3.3 Potential for Further Innovation

9.23. We are aware of two other areas where we will need to implement new requirements over the 2020-25 period: the Clean Energy Package; and the Electricity Balancing Guidelines.

9.24. While we do not know the precise scope of work or compliance deadlines for these, we expect to have to develop some bespoke solutions as part of that implementation. We will discuss any innovation needs as part of the uncertainty mechanism that will apply to these projects.

9.4 Summary

9.25. Innovation will form an important part of 2020 – 2025 Price Control period if we are to meet customers' needs. SONI has proposed a level of ex ante funding for well-defined innovative initiatives – effectively Option 1 within the Utility Regulator's framework. However, SONI concurs with Utility Regulator that ultimately a combination of Option 1 and Option 2 is likely to provide the best overall approach.

9.26. In each instance the approach to innovation needs to dovetail with the approach to benefit share and incentivisation set out by SONI in Chapter 11.

9.27. Before looking at further this we set out in the next chapter how SONI has ensured that its proposals in this Business Plan deliver efficiency to customers and to consumers in Northern Ireland.

4

Value for Money & Managing Uncertainty

Chapter 10
Securing Efficiency

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10 Securing Efficiency

10.1 Purpose and Scope

10.1. In its Test Areas, the UR has asked SONI to demonstrate that its proposed services provide value for money and to set out how ambitious and challenging the company's proposals are against the aim of securing cost efficiency to the benefit of NI customers.

10.2. This chapter covers all aspects of efficiency related to SONI's price control, from quantitative benchmarking through to the decisions made by SONI that impact the efficiency of the wider transmission system. In particular, it focuses on:

- SONI's approach to ensuring that its business plan reflects only the efficient cost of delivery;
- The efficiency that is embedded in our business plan because SONI is part of wider Group;
- The wider efficiency that SONI can influence; and
- Econometric benchmarking of SONI's efficiency.

10.3. SONI is aware of the shortcomings of the business plan that it submitted for the 2015-2020 price control and has learnt from that experience. Consequently we have adapted our processes for the preparation of this plan.

10.4. Efficiency has therefore been at the forefront while we have been preparing our business plan. One of our first pieces of work was to employ an external consultant (KPMG) to critically examine our current levels of efficiency. Their report can be found at Appendix M.

10.5. We have also been conscious of the duty upon us to ensure that we play our part in developing an efficient, economic and coordinated transmission system. This requires us to strike a balance between our internal cost efficiency and that of the wider system.

10.6. One of the key changes that we made was to employ an external consultant to act as a "critical friend" to challenge our plans. They also developed a cost tool that could be used to ensure the integrity of the cost data that would populate our financial model and business plan questionnaire.

10.7. We have also employed them to challenge the preparation of our business plan to ensure that it is based on the best cost data available to us (in the context of a five- year horizon) and that all activities are included only once.

10.8. Their report on this work can be found at Appendix K.

10.2 SONI's Approach to Developing an Efficient Business Plan

10.2.1 SONI's Concerns and Challenge Process

10.9. SONI wanted to be sure that our business plan covered all expected needs out to 2025. We therefore started by compiling an unconstrained list of potential initiatives.

10.10. This was whittled down to the plan we have submitted here through a number of engagements and challenge sessions:

- "Dragons' Den" sessions: where the sponsor of each initiative presented it to a panel of senior staff from KPMG and the business and was then the subject of robust challenge on the case of need, choice of solution and cost estimate.
- Once the feedback from the first phase of challenge had been processed, the remaining initiatives were subject to an iterative challenge process from KPMG experts. This included focused interviews and ongoing engagement to challenge the underlying evidence.
- Each initiative was recorded in the cost tool, where challenge was applied to ensure that the data being used were consistent and that each initiative was unique.
- This work by KPMG was used to inform our decision on the final list of initiatives, now included in this business plan.

10.11. As part of this role, KPMG robustly challenged the assumptions behind the costs that we have based our business plan upon. These are also listed in Appendix K, along with some examples of the challenges that they applied to our proposals.

10.2.2 Outcome

10.12. SONI developed an initial unconstrained list of initiatives. Through the challenge sessions, any potential duplication was removed and the scope of work consolidated into the final initiatives presented. We moved a couple of areas where the timing and scope of work remain extremely uncertain, such as the Clean Energy Package and the implementation of the Electricity Balancing Guidelines, into the Dt uncertainty mechanism.

10.3 Efficiency from Scale

10.3.1 Background

10.13. When SONI was acquired by EirGrid, the SEM Committee acknowledged in its consultation paper (SEM-08-176), that "nothing within the applicable general duty of independence shall act so as to constrain EirGrid and SONI, as separate businesses, from harnessing beneficial economies of scale and other synergies (such as costs saving on shared services) for the betterment of customers."

10.14. SONI has been able to secure material efficiencies in its specialist areas as part of the EirGrid group. These efficiencies come from:

- Sharing the cost of bespoke software solutions;
- Bulk discounts on IT systems; and
- Sharing expertise and knowledge.

10.15. Each of these are discussed below.

10.3.2 Bespoke Solutions

10.16. SONI has a very similar role to EirGrid, and requires the same specialist IT solutions to fulfil its obligations in Northern Ireland as EirGrid has in Ireland. By developing and purchasing together the bespoke software that is needed to schedule and dispatch the system, we are able to pool resources and costs. Both control centre sites act as back-up for each other, reducing the physical infrastructure that would otherwise be required by both companies. This is not only more cost effective but also importantly increases system resilience.

10.17. The cost of these IT solutions is shared on the basis of our cost allocation principles that are set out in Appendix L. Were SONI operating on a stand-alone basis, it would have to incur the full cost of development and would also probably have to purchase additional back-up infrastructure.

10.18. The savings available to SONI though the joint development and procurement of our bespoke systems is embedded into our business plan, and we have not undertaken a specific exercise to determine indicative additional costs that would be incurred if SONI were required to undertake these essential investments on a standalone basis.

10.19. However, given the majority of the initiatives are developed on a Group wide basis it would not be unreasonable to assume that the cost of the relevant initiatives if pursued by SONI in isolation could be more than double, given that, in the context of group operation, SONI will never pay more than 50% of the costs and in many cases pays only 25% of the shared investment.

10.20. SONI is also able to leverage additional services as part of a wider group; this includes aspects of stakeholder engagement, materials and services related to advice and governance. These synergies are also reflected in our plan.

10.3.3 Synergies and Efficiencies

10.21. Before being acquired by EirGrid, most staff in SONI had to cover a broad range of technical areas due to the small size of the company. As part of a larger group focused on delivering the same services, staff in SONI can share expertise with EirGrid and specialist knowledge can be pooled.

10.22. This delivers benefits through both lower costs and higher quality of outputs. This is particularly visible in areas such as cyber security, where SONI and EirGrid are both responding to the same external threats. Pooling expertise and services in this area provides greater security at a lower cost.

10.23. The synergies from pooled expertise and shared services are reflected throughout this business plan.

10.3.4 EirGrid Group Discounts

10.24. Due to the significant overlap in our duties, SONI and EirGrid both require a very similar suite of IT services. These are the type of purchases where discounts are available based on the scale of purchase.

10.25. While SONI would be able to obtain a level of discount against list price if it was purchasing these on a stand-alone basis, significantly greater discounts are available as part of a larger group whereby SONI can take advantage of the greater purchasing power.

10.26. We have investigated the differences in the discounts available and have discovered that these additional discounts are typically in the range of 5% to 15%. Table 10.1 below (which is confidential) sets out these savings for four categories of IT asset.

Table 10.1: Economies of Scale in Purchasing IT Equipment CONFIDENTIAL

10.4 System Wide Efficiency

10.27. The above examines efficiencies in our internal cost base, in particular leveraging economies of scale and careful managing our direct costs. Almost all of our activities are mandatory under statute, licence or codes, therefore options to drive internal efficiency through a reduction in our activities are limited. We have absorbed significant additional complexity and volume in the 2015 – 2020 Price Control period, which is reflected in the higher operational costs which we incurred over this period, particularly in relation to IT. This is perhaps not unexpected given the added complexity and volume in the 2015 - 2020 Price Control period, including a doubling in the number of generator units we have manage on the system.

10.28. Over the 2015-20 period, our direct cost allowance that we were allowed to charge to customers through our SSS tariff was £15.1 million per year. The efficiencies that SONI can deliver for customers through the changes and initiatives that it implements can deliver a greater magnitude of efficiency within the wider electricity system than any saving we could make on our internal costs.

10.29. From our engagement with the Stakeholder Expert Challenge Group it was clear that they recognised the importance of focusing on benefits for consumers more than being limited by restrictive operational allowances which would, in fact deter us from pursuing desired outcomes and value for consumers.

10.30. As evidence for this, SONI has over the 2015-20 period had to bear the cost of expenditure exceeding its allowances, without any corresponding recognition where such expenditure delivered benefits to consumers.

10.31. For example:

- **The I-SEM**: the new trading arrangements went live in October 2018, and have resulted in lower average prices for customers. This includes a reduction in the cost of generation capacity of approximately £50 million per year for Northern Ireland

customers. It is SONI TSO that runs the capacity auctions, and manages the scheduling and dispatch of generators in its control room.

- **DS3 Programme**: this has seen a world leading approach to the integration of non-synchronous intermittent renewable generation that has been an essential part of Northern Ireland's early achievement of its target of 40% renewable electricity by 2020 and has placed significant downward pressure on prices in the wholesale market.
- **DBC**: over the first three years of the 2015-20 price control, SONI saved £10 million[1] for Northern Ireland customers by reducing system constraints.

10.32. The above are industry wide initiatives. SONI has also delivered benefits through:

- New means of system services delivery and system services contracting;
- Facilitating the introduction of contestable connections;
- Increased system resilience;
- Introduction of new industry wide publications such as the Transmission Development Plan and Tomorrow's Energy Scenarios; and
- Ensured the network was developed only where appropriate, stepping back from the development of projects where the need was no longer justified.

10.33. All of these have given rise to increased efficiency within the electricity system.

10.34. We are cognisant of the importance of efficiency in the wider system that we can unlock by challenging ourselves. This has shaped the formation of this business plan submission. In the next section we set out proposals that we believe will unlock considerable value for customers, while maintaining a balance between SONI's internal costs and wider priorities.

10.35.

10.36.

10.37.

[1] 2015/16 = €10.5, 2016/17 = €15.3, 2017/18 = €18.8. This has been allocated 25% to SONI with an exchange rate of 0.8953 GBP = 1 EUR

10.38. [redacted]

10.39.

10.6 Costs of an Efficient TSO

10.6.1 Background to the Efficiency Assessment

10.40. SONI commissioned KPMG to examine the potential evolution of the costs of an efficient electricity TSO in Northern Ireland for the five year period 2020 to 2025. Their report assesses the potential for improvements in cost efficiency rather than the efficiency of the costs proposed by SONI as part of its business plan submission. This report is included as Appendix M of this business plan.

10.41. Historically, UK regulators (including the UR) have assessed the potential for improvements in cost efficiency for regulated sectors based on a combination of:

- **Relative efficiency:** the process by which less efficient firms learn from and 'catch-up' to the most efficient firms in a given sector. For a regulated monopoly such as SONI, regulators will set catch-up efficiency targets to try and mimic the competitive pressure that would otherwise drive efficiency gains in a competitive market. A firm's catch-up efficiency is typically estimated using historical trends of costs against outputs which are benchmarked across comparable companies or industries.
- **Ongoing productivity gains**: capture the rate at which the most efficient company in the sector can improve its productivity over time. The underlying rationale is that one might expect SONI to be able to improve its cost efficiency at a similar rate to other comparable companies, or sectors, in the economy.
- **Real price effects (RPEs):** capture the difference between input price inflation (e.g. wage growth) and the price index used to index the revenues during the control period. The scope for SONI to improve its cost efficiency will be offset by growth in the cost of its inputs. RPEs incorporate the genuine cost pressures faced by SONI based on the inputs of its business rather than the more general movement of goods and services which make up inflation indices.

10.42. The total scope for cost efficiency improvements is the aggregate impact of ongoing productivity gains, RPEs and catch-up efficiency. Assessing the scope for efficiency gains requires one to establish a comparator against which SONI can be measured. KPMG's report assesses the evidence for determining the scope for cost efficiency gains from a top-down perspective and considers whether evidence is sufficiently robust for use in a regulatory setting for the next price review.

10.6.2 Ongoing Productivity

10.43. The available evidence supports a range for ongoing productivity gains of between -0.3% and 0.6% per annum for a company operating in similar sectors of the economy as SONI. This is based on an assessment of:

- **Independent forecasts for productivity in the UK economy:** based on a range of sources including the Bank of England (BoE) and the Office for Budget Responsibility (OBR);
- **An independent estimate for productivity based on EU KLEMS**: a dataset produced by the European Commission that allows for the estimation productivity of different sectors in the economy; and
- **Precedents from previous regulatory determinations** were assessed for a range of sectors and companies (e.g. those that are capital intensive versus asset light sectors).

10.44. Recent trends in productivity across the UK economy have shown a relatively low, or negative, growth in productivity since the financial crisis. Independent forecasters, including the BoE and OBR, indicate near-term (up to 2022) expectations for productivity growth to be low and much more in line with recent trends than with longer-term or pre-financial crisis trends. The expectations range between 0.3 to 0.6% per annum. Given these near-term (up to 2022) expectations, we have placed more weight on recent evidence of productivity gains when examining EU KLEMS.

10.45. An independent estimate for productivity based on EU KLEMS was constructed by KPMG using a composite index of industries from the KLEMS dataset that reflect the activities undertaken by SONI. The Total Factor Productivity (TFP) analysis generates a range of between -0.3 and 0.6% growth in TFP per annum. Given the implication from independent forecasts that recent evidence of productivity gains is most relevant, the TFP analysis focussed on the more recent time periods (rather than longer-term estimates). The arithmetic average of TFP growth (value added and gross output measures) over the two most recent time periods available in the dataset is 0.28%.

10.46. Precedents from previous regulatory determinations were assessed for a range of sectors and companies (e.g. those that are capital intensive versus asset light sectors). The most relevant precedents are considered to be other asset light sectors. This indicated a range of between 0% and 0.3% per annum.

10.47. To arrive at a point estimate for ongoing productivity, a point estimate for each approach (independent forecasts, EU KLEMS and regulatory precedent) was considered. The mid-point of the regulatory precedents (0.15%) and independent forecasts (0.45%) was used as there is no compelling evidence to place more weight on the upper or lower ends of these ranges. The TFP point estimate (0.28%), which places more weight on more recent data, is also in line with those sources. To derive an overall point estimate for ongoing productivity, equal weighting was placed on each of the three sources of evidence. This results in an estimate for ongoing productivity gains of 0.3% per annum. Overall, there is little evidence to support a change in the ongoing efficiency target of 0.3% used by the UR in the previous price review.

10.6.3 RPEs

10.48. The inputs that make up SONI's cost base are not proportionate to the items which make up the Consumer Price Index (CPIH) which will be used to index SONI's revenues in the next control period (the current control being indexed to RPI). This creates a risk that the efficient

costs for a TSO are increasing more quickly (or slowly) than SONI's revenue allowance. In the presence of positive RPEs, SONI may be unable to cover its costs with its revenue allowance which could have knock-on impacts on the company's ability to finance its activities and carry out its statutory functions.

10.49. To estimate an RPE that could be applied to SONI's opex, trends in price indices related to SONI's inputs were compared to CPIH inflation. Inputs costs were split into two broad categories for analysis of differential inflation:

- **Labour costs**: These are SONI's main cost category and represent over 50% of its controllable Opex. Therefore, the evolution of these costs was isolated for careful considered.
- **Non-labour costs**: SONI's other non-labour inputs can mostly be characterised as services rather than goods. Therefore, it is important to consider the evolution of service prices as distinct from the prices of goods.

10.50. Long-term averages, which smooth exceptional price shocks, and the shorter-term averages (2015-2018) which reflect the recent macroeconomic environment over the course of SONI's current control period were considered for each category.

10.51. For labour RPEs, composite indices were constructed by KPMG at different level of Standard Occupational Classification (SOC) codes using wage data from the Annual Survey of Hours and Earnings (ASHE) dataset published by the Office of National Statistics (ONS). Comparator job types were identified in this dataset and weighted together based on relative weights in SONI's Opex. A similar process was undertaken to build composite indices of sectors and industries using Index of Labour Costs per Hour (ILCH) data. [redacted]

10.52. Other non-labour costs reflect a range of inputs including facilities, professional fees, insurance, etc. SONI's remaining cost areas were aggregated into a single group as they individually represent relatively smaller areas of spending. This grouping of inputs was classified as being more similar to a general definition 'services' rather than a specific type of input. Evidence suggests that the 'services' component of CPIH typically tracks above the CPIH index overall. The evidence considered in this report suggests that this trend will persist into the future. Therefore, a point estimate of 0.6% that gives equal weighting to the longer-term (c. 0.4%) and shorter-term (c. 0.75%) estimates was selected.

10.53. [redacted]

10.6.4 Relative Efficiency

10.54. Relative efficiency accounts for the process by which less efficient firms learn from and 'catch-up' to the most efficient firms in a given sector. The total of relative efficiency and

ongoing productivity equal the potential level of efficiency that a firm in a sector could achieve over a period of time.

10.55. A range of evidence for potential comparator companies (other SOs) and publicly available independent sources (e.g. wage indices, survey data and other benchmarking exercises) was assessed to determine if a robust benchmark for determining the scope for catch-up efficiency in SONI's cost base could be established. This analysis considered the activities which SONI undertakes, characteristics of the industry in which it operates, and how SONI could be compared against publicly available data sources.

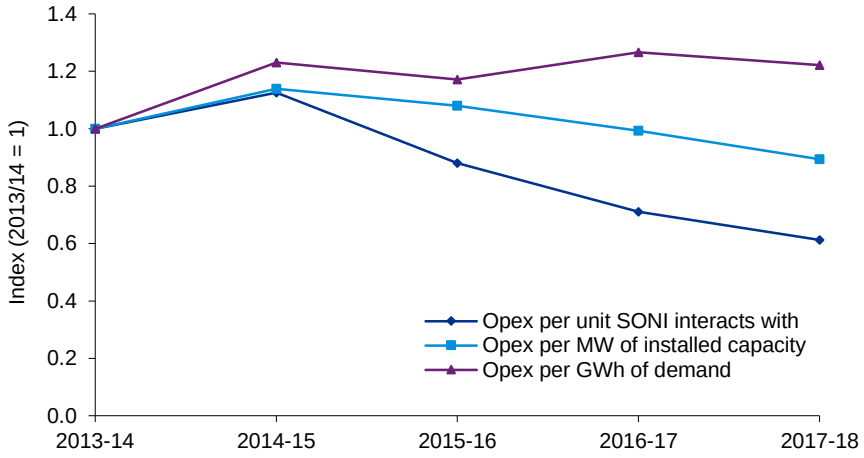
10.56. There are a range of issues and challenges that affect the ability to establish comparator companies for SONI. This limits the ability to undertake meaningful and robust benchmarking analysis to estimate catch-up efficiency for SONI. This is primarily because:

- SONI operates in a different industry structure to other SOs which is more suitable to the system it operates, and is designed for the SO to fit licence and legislated requirements; and
- Each transmission system differs in terms of the requirements it must satisfy, the geography in which it is located, the size of the system and the generators connected, all of which result in TSOs undertaking a different mixture of activities.

10.57. The available information for other SOs is not sufficiently comparable to SONI to allow robust cross-sectional comparisons to be made. This finding is consistent with previous independent studies, in particular pan-European TSO benchmarking studies commissioned by the Council of European Energy Regulators ('CEER') Unbundling, Reporting and Benchmarking Task Force, which concluded that robust benchmarks for system operations costs could not be established.

10.58. KPMG did however examine trends in SONI's efficiency over time. This exercise is described in detail in Appendix M. This showed that overall, over the past five years SONI has faced additional challenges around minimum levels of demand and managing non-synchronous units while continuing to improve some of its key service quality metrics.

Figure 10.1: High-level Opex Unit Cost Results



Source: SONI data & KPMG analysis

10.59. KPMG's analysis of trends in our costs shows that Opex trends have remained relatively flat since 2013/14. They conclude that SONI has clearly been delivering increased levels of outputs directly related to key core activities (e.g. greater interaction with larger numbers of generation units and DSUs for system balancing and increased grid connections) and the complexity of its operations has increased (e.g. due to high penetration of non-synchronous generation). High-level measures of Opex unit costs (e.g. Opex per GWh) demonstrate a downward trend, indicating increasing levels of efficiency in the operation of the system. Therefore, embedded within SONI's Opex is a certain level of ongoing productivity improvement.

10.60. [redacted]

Table 10.2: Summary of Efficiency Analysis Undertaken by KPMG

Efficiency parameter	Description	Range	Point estimate	Rationale for point estimate
Ongoing productivity	SONI should be able to increase its productivity at the same rate to other comparable companies or sectors in the economy. This value would be subtracted from RPEs when determining the overall cost trend.	-0.3 to 0.6%	0.3%	Independent forecasts show expected productivity growth in the UK to be in line with the recent past. This resulted in more weight being placed on more recent time periods when assessing TFP growth using EU KLEMS data, as these would be considered the more relevant that longer-term averages. The overall range was established by combining estimates from independent forecasts, EU KLEMS data and regulatory precedents in asset-light sectors (as they more closely resemble SONI's cost profile than 'asset heavy' sectors). The data revealed no compelling reason for preferring one source over another and the overall point estimate treats each source equally. The overall point estimate averages the TFP point estimate and point estimates for regulatory precedents and independent forecasts (both mid-points of the respective ranges), producing an ongoing productivity estimate of 0.3% per annum.
Real Price Effects				
Labour	SONI's productivity improvements will be offset by underlying pressures on the price of inputs used by the company. Staff wages and other non-labour Opex make up SONI's Opex. The price of these inputs do not move in line with inflation metrics, implying the efficient costs for SONI would be expected to increase over time in real terms.	[redacted]		
Non-labour		0.42 to 0.75%	0.6%	The remaining cost can broadly be classified as being similar to 'services' (rather than goods) as measured by CPIH. Evidence suggests that CPIH 'services' typically tracks above the CPIH index overall. Longer-term and shorter-term estimates are relatively similar and a mid-point has been selected that gives each an equal weighting.
Total RPE		[redacted]		The range and point estimate for a total RPE is estimated by weighting results of the sub-components by their share in overall Opex.
Relative efficiency	Relative efficiency captures the extent to which SONI has potential to become as efficient as the most efficient firms in its sector.	No sufficiently robust evidence to determine a reliable benchmark	No sufficiently robust evidence to determine a reliable benchmark	There is insufficient evidence to reliably determine a robust estimate for relative efficiency to be applied to SONI's cost base. Trends in SONI's cost base and the outputs it delivers could be used to determine if SONI has been improving its cost efficiency over time. Any further relative efficiency targets would need to be based on detailed assessment to ensure comparisons are on a like-for-like basis.
Total Cost Trend		[redacted]		

10.7 Summary

10.61. In preparing this submission SONI has ensured that its base level of input cost are efficient, that it has incorporated ongoing productivity improvements but most importantly it is equipped to deliver output efficiency to the benefit of customers.

10.62. It is important the regulatory framework supports this output delivery and unlocks the value for customers. A key plank of this submission, the enhanced benefit sharing framework, is outlined in the next chapter.

Chapter 11
Unlocking Value for Customers

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11 Unlocking Value for Customers

11.1 Introduction

11.1. The UR's approach paper is clear that an outputs and outcome focused control is in the best interest of Northern Ireland consumers and that this should be supported by a revised performance incentive structure.

11.2. The Stakeholder Expert Challenge Group (SECG) has also emphasised the importance of SONI's focus on outputs and on SONI being suitably incentivised to deliver on those things which benefit customers.

11.3. SONI is somewhat unique as a regulated utility for not having a comprehensive regulatory financial performance incentive package in place. Examples of regimes with incentives embedded in the regulatory frameworks include Ofgem's RIIO framework, Ofwat's PR19 and Civil Aviation Authority (CAA) for NATS (en route) Limited (NERL). Incentive frameworks have also been applied by the UR in the case of other utilities such as the Power Procurement Business (PPB).

11.4. SONI commissioned an independent expert report by KPMG to assist in the design of a regulatory framework that meets both the specific needs of SONI and its stakeholders. This chapter draws largely on this expert report which can be found at Appendix N.

11.2 Benefits of a Performance Incentive Framework

11.5. There are many benefits of moving to a more performance incentivised outputs and outcomes based framework. These are briefly outlined below:

- **Customers are better off**: Any incentive package would be designed to ensure customers are better off (on an expected basis) than they would have been without the benefit sharing mechanism.
- **It creates alignment between company and consumers:** By designing the incentive package in such a way that incentivises SONI to deliver incremental value for customers, SONI's success is aligned with benefits to customers.
- **It allows companies to take risk in order to deliver greater value for consumers and helps to simulate market outcomes:** Incentives create a framework which simulates a competitive market where the company is able to take risk and commit its own capital to deliver better outcomes for consumers.
- **It encourages innovation and new ways of working:** Rewarding outcomes rather than setting allowances based on inputs encourages SONI to be innovative and look for alternative, better ways of delivering. The performance incentive framework will also therefore help unlock the benefits of innovation set out in Chapter 9.

11.6. To create greater alignment between the inputs and outputs of SONI's activities, and incentivise additional effort where this unlocks additional benefits, SONI proposes moving towards a benefit sharing framework which, as stated in KPMG's expert report, needs to:

- Create a clear linkage between customer benefit and SO performance;
- Equalise the SO performance implications for delivering customer benefit on both inputs and outputs; and
- Change the nature of engagement and the conversation with regulators and customers.

11.7. SONI's current regulatory framework is centred on the management of internal costs through the ex ante revenue cap and this has helped to drive efficiency in our processes over the last couple of price controls. However the framework has limited links to our outputs and the value we provide for the wider electricity system and to our customers.

11.8. Whilst it is important for SONI to face financial incentives in respect of its internal cost management there is a concern that the current framework may drive undue focus on internal cost management at the expense of delivery of outputs and outcomes.

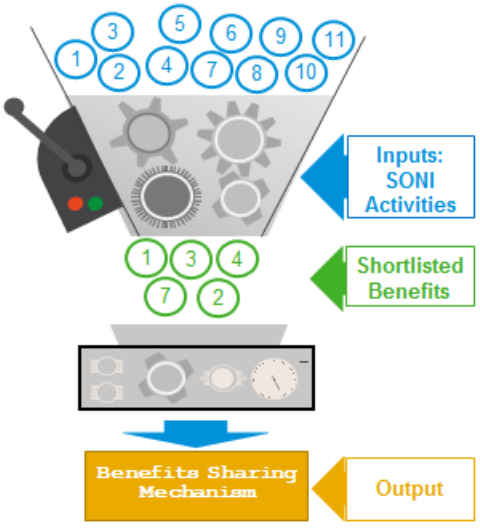
11.9. The sole output and outcome based incentive SONI has had related to the management of DBC. Where SONI had this incentive it was able to deliver significant savings (£25.5m since 2013/14) to customers as further outlined in Chapter 4.

11.3 Process to Identify Elements within the Incentive Package

11.10. To identify the areas of value potential in its activities SONI applied a bottom up approach facilitated by KPMG through a number of workshops with SONI managers and staff.

11.11. This started from the SONI activities, assessed the value that can be created for customers in these activities when we go above and beyond what is expected and delivered a list of benefit levers that, when incentivised, can provide a powerful benefit sharing mechanism.

Figure 11.1: Process to Identify Areas of SONI Benefit/Incentive Structure



11.12. The KPMG report outlines the process that was undertaken in more detail, but this is summarised below.

- **Stage 1:** High level analysis mapping the activities to the quadrants in the benefit sharing framework based on effort and value potential. "Filtering out" activities where the trade-off between additional cost and benefit does not justify the incremental effort.
- **Stage 2:** Identify value areas that are most impacted by the shortlisted SONI activities. Define long list of metrics and to measure the value created by SONI activities for customers.
- **Mechanism design:** The selected benefit areas move on to the next stage where the design of benefit sharing mechanism for each will be considered:
    - Constraint 1: value accreted > value of the incentive payment; and
    - Constraint 2: value of benefit sharing payment > cost of investment.

11.13. As a result of this involved and process driven approach, SONI narrowed down the areas where greatest value is expected to be deliverable:

- **Decarbonisation:** The decarbonisation of the electricity system is of great importance to customers and a vital component of the energy transition.
- **Grid Security:** A secure and reliable electricity network that is fit for the future of the electricity systems needs is vital to customers and market participants.
- **Cost:** Ensuring customers get value for money and benefit from cost efficiency should be paramount. However the costs for customers should be viewed holistically.

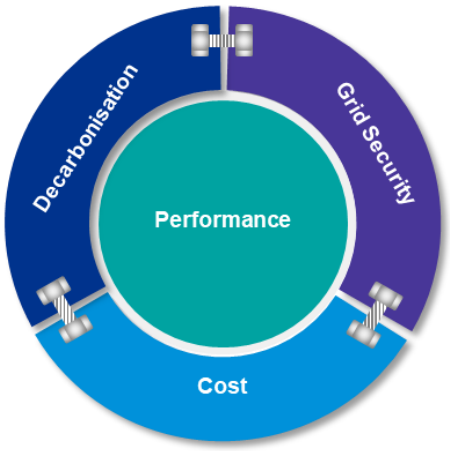
11.14. It was evident when undertaking the assessment process that SONI's value to customers often comes not only from what we do but by how we do it. Therefore, in addition to the three value areas above, a fourth component needs to be at the centre of our framework:

- **Performance:** Whilst delivering on decarbonisation, grid security and cost, SONI will also need to meet the expectations of its stakeholders. Creating a transparent information sharing environment accompanied by the timely completion of our tasks will create frictionless and efficient working relationships between the parties acting in the market.

11.15. The inclusion of a specific performance element also helped balance the mechanistic and evaluative based approaches called out by the UR in its Approach paper, discussed further below.

11.16. SONI therefore proposes using these four value components as the basis for the proposed incentive framework, as illustrated below.

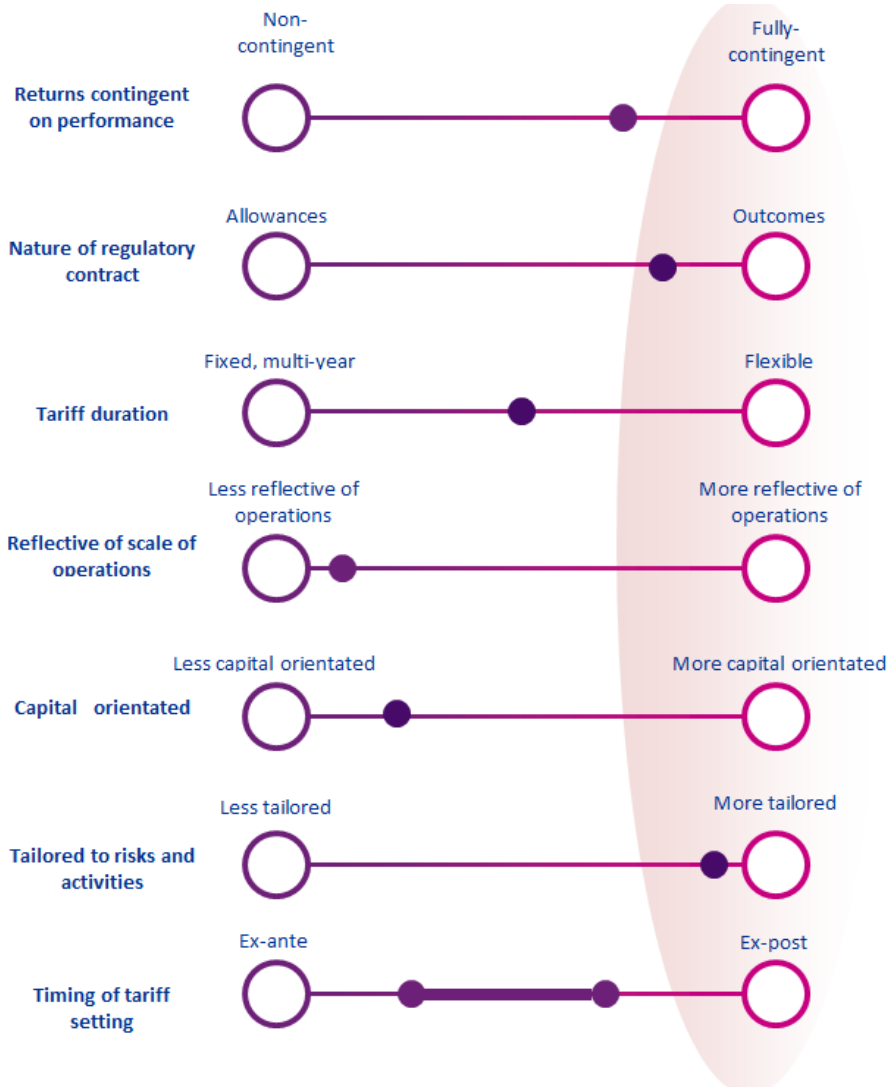
Figure 11.2: The Bolt Together Framework



11.17. SONI also carefully considered the five areas set out by the UR in the Approach decision paper. For most of the areas set out SONI was of the view that a balance is appropriate; for example between a wholly evaluative or wholly mechanistic approach, or between fully discrete (narrower measures more directly in SONI's control) or fully system wide activities (wider measures over which SONI has less direct influence and may involve other industry participants).

11.18. SONI is however clear that it is important that the package is a holistic one and that application of a small number of disparate incentives would be much less likely to deliver benefits and would have the potential to give rise to perverse incentives. SONI is also clear that given the need to invest discretionary capital in achieving the desired outputs and outcomes that greater application of financial incentives would be expected to be more beneficial.

Figure 11.3: Balance of Framework Considerations



11.19. SONI therefore believes that a framework based on these benefit components creates a holistic package bringing together all the things that are important to consumers. These benefit components are in natural tension to each other so by bolting all of the components together in the framework we will be incentivised to look at the benefits to customers as a whole rather than focusing on one component to the detriment of another.

11.20. As stated in the KPMG report often *"regulatory incentive design incentive packages have been an additional element to the overall regulatory framework."* It is SONI's intention with this proposed framework to build the incentives into the very foundation of the regulatory design.

11.21. As a result this changes the price control in an important way to one where every decision made is about doing the right thing for customers. In so doing, and in applying a holistic package, it not only complements the revenue cap framework but fully encapsulates and embraces it.

11.22. The proposed framework holistically joins together all of the elements of value for customers and 'bolts together' this framework to the well understood existing regulatory design around

the allowance based revenue cap. Creating value for customers is no longer an optional extra but integral to the overall framework.

11.4 Aligning the Sharing Factor for Inputs and Outputs

11.23. If the benefit share is further aligned in terms of inputs and outputs then it ensures SONI always and everywhere is incentivised through the regulatory framework to make the most appropriate choices and to do the right thing.

11.24. As the UR notes in its Approach Paper this current internal costs framework is currently based on a 50% sharing factor in respect of any benefits SONI derives in respect of management of its internal cost savings; conversely SONI is exposed to 50% of any internal costs incurred which exceed allowances.

11.25. A lower benefit share helps manage uncertainty. Effectively with a lower benefit share customers are better protected from either SONI or the UR mis-forecasting that which is ultimately required for the period.

11.26. The UR recognises this and has suggested the possibility of a lower benefit share in its Approach paper. Application of lower benefit share is also being considered by Ofgem in the case of National Grid Electricity System Operator (NGESO). This is particularly relevant in this period of significant change in the electricity system and energy landscape.

11.27. As part of the preparation of this business plan SONI has given consideration to the application of the appropriate benefit share. Ultimately SONI believes the appropriate benefit share lies somewhere between 10% and 20%. In this business plan submission SONI is proposing this is set at 15%.

11.28. A 15% benefit sharing means that SONI faces sufficiently powerful incentive to both deliver outputs and to manage costs. It also means that customers, quite rightly, see most of the benefits and the delivery of £1m of benefits under a 15% benefit sharing factor would see customer benefit to the tune of almost £6m. Customers would see additional benefits in the longer run as they would capture 100% of benefits following the 5 year control period.

11.29. A benefit share less than 15% runs the risk of diminishing the power of the incentive and failing to enable SONI to invest and put capital at risk to achieve higher quality outcomes. A benefit sharing factor greater than 15% could be seen to ‘over-reward’ SONI for the delivery of those outcomes, particularly where the level of additional discretionary effort were to be relatively low and would mean customers would not immediately see such a significant payback factor.

11.30. It is necessary for the integrity of the model that whatever benefits sharing factor applies to outputs, should also apply to inputs and to cost management. KPMG term this the Common Sharing factor. In the case of cost management the benefits to customers from ongoing improvements are linear and the sharing factor would be symmetric.

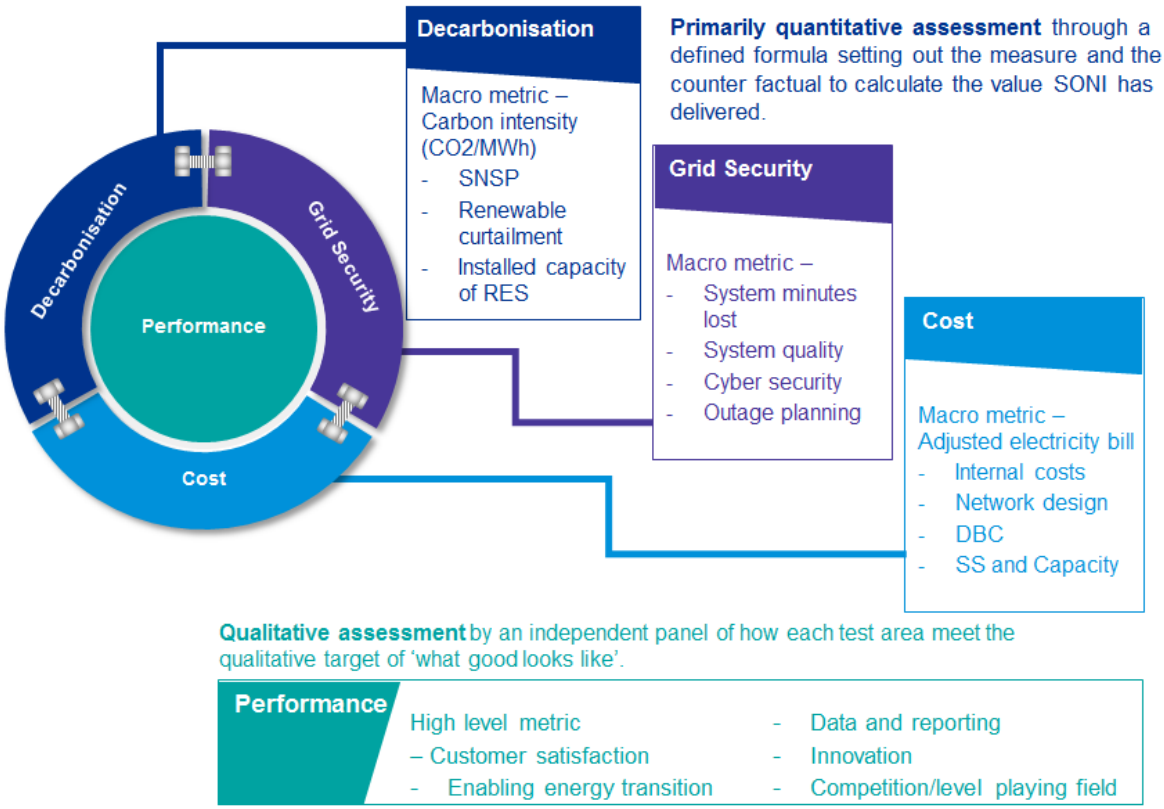
11.5 Proposed Incentive Package Design

11.31. SONI is proposing using a combination of quantitative and qualitative assessments to determine the additional value to customers. The assessment of decarbonisation, grid security and costs should be through quantitative assessment, through a defined formula setting out the measure and the counter factual to calculate the value we have delivered.

11.32. The assessment of SONI's overall performance could be through qualitative assessment by an independent panel of how each test area meet the qualitative target of 'what good looks like'. Metrics can also be evaluated with a combination of quantitative and qualitative assessments, for example, where the assessment is initially formulaic a qualitative approach can be used to account for changing circumstances and to ensure the target is still appropriate.

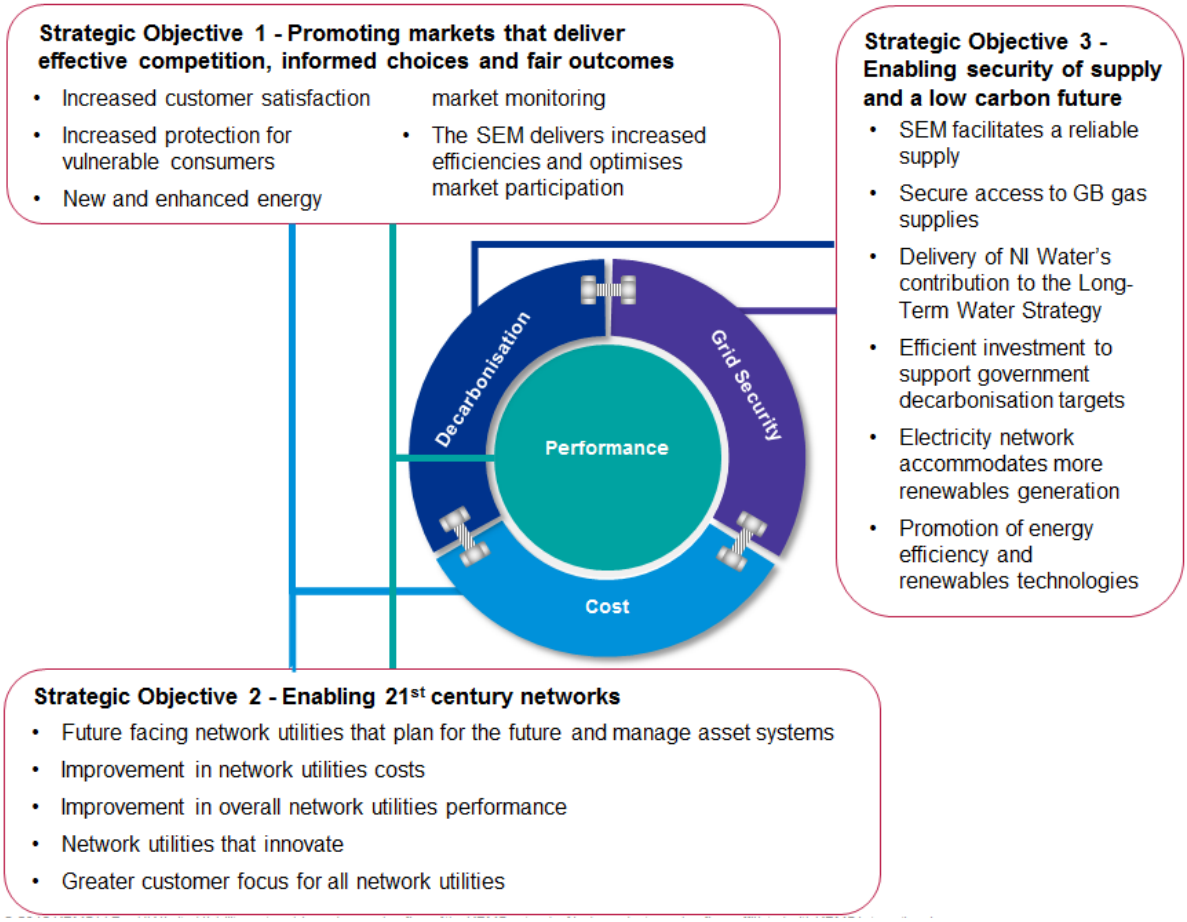
11.33. As discussed in KPMG's report, there is a balance to be struck when choosing metrics to incentivise. To strike this balance, the metrics that are suggested below are a combination of both macro and granular measures with each incentive element having a macro measure plus a small group of metric what are more in the our control.

Figure 11.4: Holistic Incentive Design Package



11.34. Through the proposed value sharing framework we are working to realise UR's objectives and deliver the best result for customers. With that in mind below we demonstrate how the framework links to the strategic objectives for UR and the objectives of this price control.

Figure 11.5: Alignment of Incentive Package with UR Strategic Objectives



- **UR Strategic Objective 1** - Promoting markets that deliver effective competition, informed choices and fair outcomes

  The framework incentivises SONI to help deliver the lowest cost, yet still high quality outcomes for consumers, as well as retaining the requirement for the creation of a level playing field for the sector and provision of good quality data and information.

- **UR Strategic Objective 2** - Enabling 21st century networks

  The framework encourages innovation and new ways of working to deliver better outcomes. It incentivises operational performance and maintenance of high reliability standards despite the challenges of operating with an intermittent and asynchronous generation fleet which will be a feature of the 21st century.

- **UR Strategic Objective 3** - Enabling security of supply and a low carbon future

  The framework directly incentivises SONI to help deliver decarbonisation whilst maintaining stringent security of supply standards.

11.35. When calibrating the package the incentive levels will need to be meaningful and powerful whilst also ensuring financeability. A floor to the overall package is required to ensure that there is a limit to downside exposure and is important to ensure the company is financeable.

11.36. A cap to the overall package is required to ensure that there is a limit to upside exposure for customers. This cap needs to be meaningful enough for the company to be encouraged to take on the high value adding activities for customers.

11.37. To create a strong and material incentive for SONI to create value whilst maintaining our financeability a collar of -£1.5m per annum from this package is proposed. The calibration of this collar is further discussed in the next chapter on the balance of risk and return.

11.38. To create a stretch target for SONI to realise the benefits which remain largely untapped SONI is proposing a cap of +£3m per annum. This is a 2:1 ratio of upside to downside provides a powerful incentive to SONI, while the customer exposure is still low (a maximum payout of £1.35 per domestic customer for the benefits delivered) in absolute terms. The 2:1 ratio is consistent with the existing incentive the UR has applied to SONI in terms of DBC.

11.39. As the framework comprises of four distinct areas, decarbonisation, grid stability, cost and performance, each of these areas will need to be individually meaningful as well. To further enable this, the sum of the individual caps and floors for the areas are greater than the total cap and floor on the overall package. A £4m on the upside and -£2m on the downside is proposed to deliver this.

11.40. The allocation of value across four areas is determined by the relative value to customers, the level of effort required by SONI to achieve those outcomes, as well as the level of influence. Because of these factors it is proposed that it is allocated on a 40:20:20:20 basis.

Table 11.1: Table of Disaggregated Calibration Factors

Area	Allocation	Total Upside (£000s)	Total Downside (£000s)
Cost	40%	1,600	-800
Decarbonisation	20%	800	-400
Grid Security	20%	800	-400
Performance	20%	800	-400

11.6 Refining the Package

11.41. The outputs in in this chapter and in KPMG's report are indicative. They are subject to refinement. SONI are proposing that this is through a process with both the UR and SECG over the months post this Price Control submission. The next stage of the development of this framework is outlined below:

- Refine and calibrate the package;
- Consider target setting methodology;
- Determine optimum profile for individual measures; and
- Determine sharing factors individually and in total.

11.42. It is important that this frameworks works for both SONI and UR and is supported by the wider industry. In the development of the proposed framework we have engaged with other parties to gather their views and adapt the framework appropriately.

11.43. SONI has engaged with both the UR and SECG on this framework and proposed metrics included within this submission to date. Further timely engagement with both the UR and SECG will determine the precise calibration of the framework, which best meets customers needs.

5

Financial Projections

Chapter 12
Balance of Risk and Return

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12 Balance of Risk and Return

12.1 Introduction

12.1. In the last chapter SONI set out how the application of a revised and enhanced performance incentive sharing framework that embraces the provision of cost allowances within it would help unlock and deliver enhanced value for customers.

12.2. In this chapter, we set out SONI's remuneration requirement for the layers of capital employed by SONI to handle the complex risks involved in operating the transmission system.

12.3. SONI has derived its remuneration requirement using the layers framework adopted by the Utility Regulator for the current 2015-20 period. This reflects the Competition and Markets Authority (CMA) decisions in its final determination and the Utility Regulator has reaffirmed this approach in the approach decision document for the forthcoming control period.

12.4. The UR's Final Approach Document builds on the layered framework that emerged from the 2015-20 TSO control.

12.5. The UR specifically notes that this is "to identify, and make allowance for, all layers of capital employed or needed to enable and support the notional TSO activities." and that "this includes making use of different methods and sources of evidence to inform the determination of allowances for different layers of capital (e.g. WACC*RAB approach for some core activities plus margins approach for revenue collection activities)".

12.6. This layered framework recognises that the risk and financing of SONI's various business activities have implications for SONI's remuneration requirements that go beyond the tangible regulatory asset base.

12.7. This can be thought through in terms of separate strands, or layers, of capital. Consistent with the 2015-20 control, the UR approach seeks to use different methods and sources of evidence to inform its determination of appropriate allowances for each of these layers.

12.8. SONI's capital base is small, but the impact it has on customers and the effective operation of the industry is significant. The total remuneration to SONI for capital employed equates to approximately £1.53 per domestic customer. SONI is proposing a further reduction in the cost of capital for the forthcoming control period in line with changes in the financial market conditions, which have seen interest rates decline in the period.

12.9. The revised incentive framework proposed in the last chapter has the potential to significantly change the SONI's risk profile. We believe this is a change for the better, is consistent with the UR's own objectives and will create substantial positive value for consumers, and at an overall lower cost basis than the current period.

12.10. To accommodate this desirable change in risk profile, while maintaining our financeability and avoiding increased costs for customers, our proposals include a change in the sharing factor and new cap and collar mechanisms. This contains our risk profile without compromising its structurally improved alignment with better customer outcomes.

12.11. SONI has therefore set out its assessment of the remuneration requirement on the basis of the existing regime, broken down into each of these components:

- The cost of capital employed in the RAB;
- The cost associated with the Parent Company Guarantee;
- The cost of the premium for asymmetric risk; and
- The cost of the margin for revenue collection agent activities.

12.12. We then consider SONI's financeability. Our assessment of financeability recognises that SONI's capital requirements are more complex than conventional regulated utilities and that the separate layers of capital will have limited capacity to support other than their respective cashflows and risks.

12.13. We are also alive to the cost impact on our customers and, throughout, we have sought to ensure our proposals deliver value for money and real scope for better system performance.

12.2 Cost of Capital Employed in the RAB

12.14. An important part of SONI's financing requirements is the investment it has made on its own account, to support its own operations or to undertake large-scale projects such as I-SEM or DS3 System Services, and the pre-construction projects (TNPPs).

12.15. From the customer perspective, these investments underpin and make possible the sector-level outcomes of decarbonisation, improved grid security and efficient system-wide costs.

12.16. Investment requires the commitment of capital and, consistent with established regulatory approach, investor confidence in a fair return is needed to attract that capital. Our estimate of that rate of return is informed by a report from our independent economic advisers KPMG, 'Estimation of the allowed return for SONI Ltd', which is included as Appendix O.

12.17. The KPMG report estimates the Weighted Average Cost of Capital which SONI requires on a real CPIH indexed basis[1]. The midpoint of the range proposed by KPMG is a Weighted Average Cost of Capital (WACC) of 5.08%. This represents an over 2 percentage point reduction in nominal terms, delivering savings of approximately 25% as compared to today's rates.

12.18. The return on this capital accounts for around £0.94 of the annual domestic electricity bill.

12.19. Consistent with widely accepted regulatory practice we evaluate the cost of capital employed in the RAB as a weighted average cost of debt and equity capital, using the capital asset pricing model to evaluate the cost of equity based on a notionally efficient company.

12.20. To ensure our WACC estimate is fairly calibrated by comparison with more conventional regulated networks, we adopt a gearing assumption of 55%. We discuss gearing in more detail below when we consider financeability.

12.21. We also mirror Ofgem's recent proposals for a debt beta estimate of 0.15. This is an increase over the current period estimate of 0.10 which has the effect of bringing equity beta significantly lower than the current period estimate.

[1] SONI separately sets out the management of the transition from RPI to CPIH indexation in Appendix Q.

12.3 Cost of Equity

12.22. UK regulators have re-evaluated the expected market return (widely referred to as the Total Market Return, or TMR), in part informed by a major March 2018 study commissioned by UK Regulators Network (UKRN). The UKRN study reduced the headline range for the TMR to 6.0-7.0%, from the level of 6.5 7.5% that was advised in the equivalent 2003 study (which the March 2018 study updates). This is despite it being based on CPIH rather than Retail Price Index (RPI). The underlying reduction is a substantial one.

12.23. The UKRN study also recommended using current market evidence for the risk-free rate, which brings the assessed risk-free rate down substantially in today's low interest rate environment. Although the assessed risk-free rate is lower, the consequential increase in the implied equity risk premium has a partially offsetting effect for a company with an equity beta close to 1.0.

12.24. Operational gearing within the SONI business will remain high relative to network utility comparators. Taking into account lower levels of operational gearing leads to a range for asset beta with a mid-point, at 0.57, a little lower than the UR determination level for the current period of 0.6.

12.25. We have followed the UR stated approach of "remuneration of corporation tax liabilities through an approximate uplift on cost of capital allowances (i.e. pre-tax WACC approach). Our calculation takes into account a reduction in the prospective corporation tax rate.

12.26. Overall, our estimate of the pre-tax cost of equity is significantly lower than the UR's assessment for the current period in headline rate terms and represents a substantial underlying reduction in the context of a re-basing to CPIH. This is because CPIH is structurally a full 1% per annum lower than RPI.

12.4 Cost of Debt

12.27. The UR evaluated the cost of debt for the current control period on the basis of a premium over the risk-free rate, taking into account the spreads between yields on corporate debt issued by comparator companies and an allowance for issuance costs.

12.28. The move in regulatory practice to a current-market basis for the risk-free rate (following a recommendation in the UKRN study) heightens the sensitivity of the cost of debt estimate, in particular for a company that relies on floating rate debt. Continuing to base the allowance on the risk-free rate assessment, now derived from a current-market reference point, would increase the risk of a shortfall between that allowance and the costs the company has to pay.

12.29. To resolve this issue, we asked KPMG to consider the cost of debt on a 'what if' the company used fixed rate debt basis. We considered the five-year trailing average of debt yields on a suitable iBoxx index (investment grade corporate non-financial) together with allowances for issuance costs and a small company premium, drawing from Ofwat's approach for water-only companies and the UR's approach for Firmus Energy.

12.30. This leads us to an ex ante estimate of the cost of debt of 2.14% CPIH-stripped. This is substantially lower than our allowance of 2.95% RPI-stripped for the current period.

12.5 WACC

12.31. Combining these estimates provide for an estimate of the weighted average cost of capital employed in the RAB as follows:

Table 12.1: Proposed WACC

	Current period: RPI-stripped	Proposal: CPIH-stripped
Gearing	55%	55%
TMR	6.50%	6.50%
RFR	1.25%	-0.60%
ERP	5.25%	7.10%
Ba	0.60	0.57
Bd	0.10	0.15
Be	1.21	1.09
CoE post-tax	7.61%	7.20%
Tax	20%	17%
CoE pre-tax	9.51%	8.68%
CoD	2.95%	2.14%
WACC (pre-tax)	5.90%	5.08%

12.32. By comparison, Ofgem's May 2019 sector-specific methodology decision adopts a working assumption of 6.25-6.75% for the CPIH-stripped TMR, and Ofwat adopted a point estimate of 6.50% in its July 2019 PR19 draft determinations. Ofwat's point estimate for the CPIH-stripped RFR is -0.45%.

12.33. Also for comparison, excluding the operational gearing adjustment for SONI given its significantly greater levels of operational gearing than traditional network based utilities, the post-tax vanilla WACC estimate (assuming an asset beta of 0.4) would be 3.16%. The figure of 3.16% is in line with Ofwat's July 2019 draft determination estimate of 3.08% for the Wholesale WACC on a CPIH basis.

12.34. We consider our mid-point estimate is broadly consistent taking into account a small company premium on debt reflecting the relatively small size of SONI's RAB business. It is also substantially lower than the estimates submitted by many of the water companies.

12.35. This significant reduction in the WACC contributes to better value of money for our customers.

12.6 Cost of the Parent Company Guarantee (PCG)

12.36. SONI's TSO licence and MO licences separately require the procurement of an undertaking and guarantee from EirGrid plc., a PCG, that has the effect of guaranteeing the financial and non-financial resources necessary to perform SONI's obligations and discharge any liabilities under those licences.

12.37. This requirement implicitly acknowledges that SONI does not have sufficient standing, as a standalone company with its already-provided capital, to secure its financeability. The PCG provides a necessary component of SONI's financial security, important to protect benefits to

customers and avoid undue transfer of risk, that gives it access to efficient credit facilities and permits it to carry out the functions necessary for day-to-day system operations.

12.38. SONI has procured a guarantee of financial support from EirGrid for up to an aggregate of £10 million. This £10 million represents part of the total equity capital commitment to the company.

12.39. In its November 2017 final determination, the CMA considered the cost of the TSO and MO guarantees separately, recognising that they were two separate guarantee requirements relating to different risks.

12.40. The CMA considered the PCG-provider would have a similar return profile to that of a lender, such as a corporate bond-holder. To evaluate the potential scale of risk overlap, and thus cost double-count, it considered the three components of a risk premium for a bond-like financial instrument[2].

12.41. The CMA decided that the cost of the TSO PCG to be recovered in the TSO price control should have a value of 1.75% per year.

12.42. We propose no change to the rate of remuneration of the PCG in SONI TSO at 1.75%[3] which, due to the real reduction in the level of the PCG, represents a real reduction in cost to customers.

12.43. This component will account for approximately £0.08 on the annual domestic electricity bill. As the PCG plays an important role in SONI's financeability at significantly lower cost than equivalent cash provision, we believe it provides value for money to customers. SONI's estimate of the cost of provision of the PCG to SONI as TSO is premised on the continued remuneration within the SEMO control at the current rate of 2.5% per annum.

12.7 Cost of Premium for Asymmetric Risk

12.44. The CMA determination identified that SONI has an additional revenue requirement in respect of asymmetric risk. Asymmetric risk arises in a cost recovery based regime where there is a risk of regulatory disallowance. SONI is required to incur substantial expenditure that is not covered by price control revenues that it can recover through the mechanisms for Dt or TNPP claims (transmission network preconstruction projects).

12.45. These mechanisms provide for the recovery of unpredictable costs or the pre-approval of expenditure up to a cap and ex post adjustments for outturns.

12.46. In contrast to the standard regulatory approach with an ex ante allowance and risk sharing, SONI can receive no reward for any efficiencies it makes in incurring such expenditure.

12.47. However, to protect consumers, the UR is able to disallow expenditure where it finds there has been 'Demonstrably Inefficient and Wasteful Expenditure' (DIWE). In return for this

[2] These three components are the default premium (or expectation of loss), the liquidity risk and the default risk premium. Since the expectation of loss would naturally be additive, the CMA considered the liquidity risk and default risk premium, together described as the 'contingent capital risk premium', would be where there could be some overlap. However, the CMA concluded it is impossible to identify with certainty how much of this premium would be a double-count, but that some non-zero adjustment is appropriate.

[3] This is on the assumption that the PCG continues to be remunerated at a rate of 2.5% within SONI's SEM Operator control framework.

consumer protection, an adjustment to the allowance for returns is necessary for this asymmetry, as otherwise the expected return for SONI will be below the cost of capital.

12.48. For the customer, this is the cost of having effective incentives on SONI for efficient management of these cost programmes. The premium permits SONI to take the risk involved in investing capital subject to ex post incentives, which is critical for early stage works to ensure that necessary investment is timely and total costs are as efficient as possible.

12.49. The CMA acknowledged the size of the adjustment for this risk is a matter of judgement, mirroring the fact that judgments would be involved in the associated disallowances. As it is challenging to estimate probabilities and impacts on an ex ante basis, we take the CMA's judgement of 3% as the appropriate benchmark.

12.50. This component will account for approximately £0.08 on the annual domestic electricity bill.

12.8 Cost of the Margin for Revenue Collection Activities

12.51. SONI manages a number of collection agent activities and is responsible for the handling of cashflow imbalances in respect of balancing costs, Transmission Use of System (TUoS) collection and payments in respect of system services.

12.52. Effectively the industry wide risk of the management of these imbalances is pooled in SONI and as a result industry wide costs, and ultimately costs to customers, are reduced.

12.53. However, SONI faces additional risks from managing the often volatile working capital requirements associated with the handling of these cashflow imbalances and in order to do so SONI must hold significant reserves of working and contingent capital. This is an essential service for delivering the benefits to consumers of a well-functioning electricity market.

12.54. As these risks are not priced in the cost of capital employed in the RAB there is an additional revenue requirement. This revenue requirement goes beyond the provision of allowances for the direct cost of working capital facilities because the risks also impact on SONI's broader ability to raise debt finance. These matters were discussed and debated at length at the CMA.

12.55. These risks are associated with the financing of future cash flows, the scale of which is both uncertain and substantial relative to SONI's price controlled revenues.

12.56. Liquidity allows expected and unexpected obligations to be met when needed. In the absence of sufficient cash resources activities may be jeopardised and the probability of encountering more severe financial distress increases. It is widely acknowledged, both theoretically and empirically in financial markets, that liquidity risk entails a cost. It can be seen as a corollary of the Capital Asset Pricing Model (CAPM)[4].

12.57. The level of risk, and thus the associated cost, relates to the size of the revenues being handled, and that it is appropriate for the revenue requirement to be in the form of a margin

[4] See Acharya, V & Pedersen, L 2005, 'Asset pricing with liquidity risk', Journal of Financial Economics 77, pp 375-410 and Liu, W, Luo, D and Zhao, H 2016, 'Transaction costs, liquidity risk, and the CAPM', Journal of Banking & Finance, 63, pp 126-145.

on revenues. It also relates to the relative risk of the cashflows concerned; this relative risk is expected to be somewhat greater in the PC 20-25 period than on average over the course of the current price control.

12.58. The relevant revenues are:

- DBC incurred by SEMO, variances in which are reimbursed by SONI - also known as imperfections charges;
- TUoS Charges, remunerated through the At term in SONI's price control; and
- Ancillary and other system services, also remunerated through the At term.

12.59. As expected, exposure to DBC increased following the introduction of the I-SEM. Levels of DBC charges are forecast to settle down, following a peak in the current year, to a level approximately 60% above pre-I-SEM levels. Weekly variations in imperfections outturns have been running at up to £6 million. SONI expects that continuing evolution of the electricity market on the island is liable to increase this exposure further.

12.60. TUoS charges are designed to cover NIE's regulated transmission revenue entitlement and the underlying level of revenues is therefore reasonably predictable. There would remain volatility in the level of actual TUoS revenues arising from applying TUoS tariffs and with changing consumption patterns in the context of the energy transition this volatility is expected to increase.

12.61. Other system services relate to payments for services necessary for the secure operation and restoration of the electricity system and to optimise the technical capability of the generation fleet. These payments are expected to increase significantly over the next regulatory period as a consequence of the DS3 programme (Delivering a Secure Sustainable Electricity System). With changing procurement and settlement patterns the relative risk will also increase.

12.62. The current margin provided for the provision of these services at 0.5%.

12.63. In reaching its estimate, the CMA considered analysis carried out by the Commission for Energy Regulation (CER), now the Commission for Regulation of Utilities (CRU), for the EirGrid price control. It also considered evidence provided by SONI in respect of charges made for comparable activities in other industries, notably invoice factoring, custodian fees and debit and credit card fees.

12.64. As outlined above the relative risk in the management of cashflows in each of the three areas is expected to increase in the forthcoming period. Leaving aside upward pressure from increasing market complexity and the evolving risk environment, the main factor dictating a change in the margin requirement is the company's exposure to risk arising from the introduction of the I-SEM.

12.65. In paragraph 12.144 of its final determination, the CMA identified this as an additional risk factor for the latter part of the 2015 20 control period, after 2018. Whilst the current margin of 0.5% applied across both the SEM and I-SEM periods within the current control, the higher level of relative risk in the I-SEM context would apply to the whole of the 2020-25 period.

12.66. As a result an increase in the margin requirement is necessary to account for this. We accordingly consider the margin requirement is 0.6%. This small increase provides for the

benefits of collection agent activities to be managed for the I-SEM for the whole of the 2020-25 period.

12.67. This component will account for approximately £0.40 on the annual domestic electricity bill, with the increased margin requirement costing customers approx.£0.07 additional per year.

12.9 Summary of Proposed Allowances

12.68. The following table summarises these assessments.

Table 12.2: Average Annual Margin Requirement (2020 – 2025)

Layer of remuneration	Current margin	Benchmark Range 2020-25	Point estimate 2020-25	Component	Average Annual requirement £'000
Cost of capital employed in the RAB	5.90%	4.5 – 5.7%	5.08%	RAB	43,082
				Remuneration	**2,090**
Cost of the PCG	1.75%	1.3 - 2.2%	1.75%	PCG	10,000
				Remuneration	**175**
Asymmetric risk premium	3%	2 - 4%	3%	D_t	2,707
				TNPP	5,234
				Remuneration	**238**
Margin for revenue collection activities	0.50%	0.5 - 0.7%	0.60%	TUoS	43,419
				SS	51,643
				DBC	54,211
				Remuneration	**895**
Total remuneration				**£000s**	**3,399**
Implied margin on total revenue				%	1.8%[5]

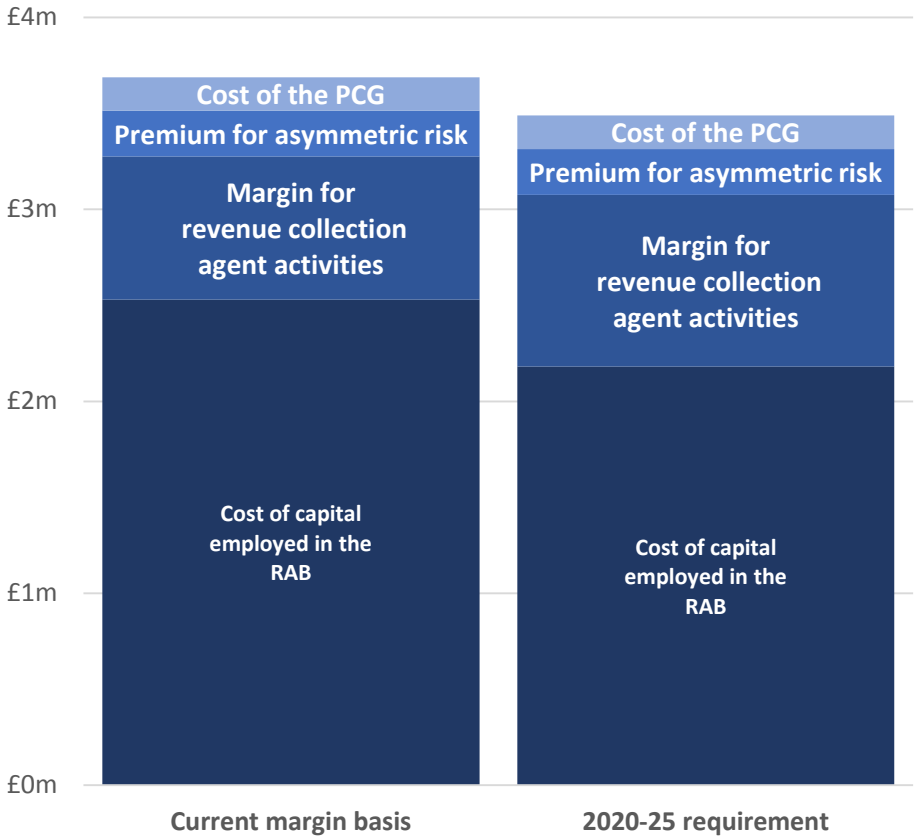
12.69. On an equivalent basis, our assessment of our margin requirement is 12.2% lower than would be calculated on the same activity and asset levels using the margin basis applied in current 2015-20 price control.

12.70. SONI is conscious of the cost implications for consumers and in ensuring consumers pay only that which is necessary and efficient. We calculate that our total requirement to remunerate the capital employed in the business accounts for about £1.53 on the average annual domestic electricity bill, or about 0.3% of the total electricity bill.

12.71. SONI has maintained the same remuneration framework as is in place for the 2015-20 period and been able to reflect significant reductions in cost of capital resulting in overall reduced cost to customers. In the context of the energy transition, the delivery of SONI's strategy and in the delivery of the outputs and outcomes as set out in the performance incentive framework in the last chapter the increase in value offered through this business plan is an order of magnitude higher. As a result, through this plan SONI is unlocking additional value for customers at no additional cost.

[5] The margin is calculated here on the basis of the allowed revenue and does not reflect the mean-expected disallowance with respect to asymmetric risk. The margins in Table 12.3 are calculated based on projections that include a downwards adjustment mirroring and offseting the additional revenue allowance.

Figure 12.1: Reduction in Average Annual Margin Basis



12.10 Financeability

12.72. The overarching financeability question becomes more critical in the context of a significant change in the company's risk profile as SONI moves to a more customer-oriented incentive regime which helps ensure maximum value is delivered to customers.

12.73. A more system-aligned incentive regime also exposes investors to behaviours and economic drivers over which SONI has a level of influence, but cannot directly control. We would expect some of those drivers would relate to or correlate with economy-wide factors, systematic risk, that would cause covariance with financial markets.

12.74. Designing a balanced portfolio of incentives that broadens the scope of alignment with the consumer interest involves reduced exposure to SONI's internal expenditure outperformance. Consistent with the principle set out in UR's final approach, it is appropriate that the cost incentive rate is reduced to a level that is no more than necessary to encourage efficiency.

12.75. While this is a natural consequence of better alignment with desirable societal outcomes, and the associated cost implications would be justifiable in value for money terms, we have sought to avoid increased cost to customers. Indeed, notwithstanding this change in risk profile to SONI, SONI's proposed WACC is significantly lower than that in the current period.

12.76. To proceed with a better-aligned incentive regime in the interests of customers while avoiding such a structural increase in cost, we have also proposed a cap and collar for the company's incentives. The benefits of the cap collar were set out in the last chapter.

12.77. In the sections of this chapter above, we have drawn from the CMA methodology to consider remuneration requirements on a layered basis. We have, however, also undertaken a higher level review of financeability. The purpose is two-fold.

12.78. Firstly, it first provides a cross-check that the aggregated remuneration for the separate layers of capital is appropriately scaled. In this context, the UR noted in its final approach document that *"We also consider that there may be a role for benchmarking SONI's overall returns with suitable comparators."*

12.79. Secondly, it informs the calibration of the collar and cap mechanisms that we see as integral to the incentive framework. Our calibration objective is to provide a sound basis for SONI's financeability.

12.80. To analyse financeability, we considered a suite of metrics, relating to both debt and equity, and including more or less conventional debt metrics. For reasons that are well understood, some of these would by themselves inadequately test for financeability in an asset-light business but we considered a wide suite to ensure we have the fullest insights.

12.81. Our financial modelling considers SONI as an integrated business. It is, however, a business with distinct layers of capital of which only one relates to the assets on its balance sheet. It is pertinent to reflect on the conditions for financeability for the layers separately before interpreting the results of our financial modelling.

12.82. Of these, the RAB layer is the only layer represented on the balance sheet. Were this layer to be a standalone business, we could safely consider its financeability with reference to conventional credit and equity metrics.

12.83. The PCG represents the commitment of capital off SONI's balance sheet. The third layer relates to SONI's revenue collection activities. Were this layer to be a standalone business, it would generate very positive credit metrics. The capacity of such a standalone business to support borrowing would, however, be strictly limited.

12.84. Caution is therefore required in interpreting conventionally-calculated credit metrics for SONI's integrated business. It also means that benchmarking of a Return on Retained Earnings (RORE) metric for SONI's overall business would be misleading since it would relate revenues for all layers with only one layer of capital.

12.85. Reflecting the heightened role for equity in SONI's financial management, as with comparable asset-light businesses, we consider that profitability metrics are most relevant.

12.86. Rating agency methodologies for asset-light businesses place weight on profitability metrics, principally EBIT margins, when assessing the overall credit rating. We identify Moody's rating methodologies for Business and Consumer Service Industry and Diversified Technology, service based businesses with low tangible assets, as particularly relevant

12.87. Drawing from Moody's published rating methodologies for the Business and Consumer Service Industry and Diversified Technology, Ofgem decisions in respect of Smart DCC and

benchmarks specified by the CMA in its June 2016 energy market investigation, we have identified threshold Earnings Before Interest & Taxes (EBIT) margins as follows:

- EBIT/controllable revenues 10 - 13%
- EBIT/total revenues 1.5 - 3%

12.88. SONI receives much of its revenue on a pass-through basis. To derive an appropriate benchmark for the EBIT/total revenue metric, we reflected on EBIT margins for regulated businesses with high pass-through activities, notably EirGrid in the Republic of Ireland, Ofwat's allowed margin for residential retail activities and DCC, to determine a benchmark range of 1.5 to 3%. We note that the CMA energy market investigation Appendix 9.13 refers to EBIT margins of 1.25 to 2%.

12.89. To inform our financeability analysis, we have developed a financial model of SONI operating under our proposed regulatory regime. The financial model is capable of modelling a wide range of scenarios and reflects the regulatory treatment of outturns for 2020-25 in accordance with the enhanced incentive regime.

12.90. We have used this model to evaluate our proposals, to stress test them under severe downside scenarios and for 'reverse' stress testing to identify the maximum scale of downside that SONI could realistically withstand. The table below sets out projected metrics for the base case scenario (notional financing structure).

Table 12.3: Financeability Metrics – base case (notional financing structure)

Metrics	Thresholds	2020/21	2021/22	2022/23	2023/24	2024/25	*Average*
EBIT margin on total revenue	1.5 – 3%	1.9%	1.9%	1.8%	1.6%	1.3%	1.7%
AICR (PMICR)	1.8x	2.6x	2.6x	2.8x	3.5x	4.0x	3.1x
FFO / Net Debt	12%	38%	41%	47%	68%	53%	49%
Net debt / RAB	55%	55%	55%	55%	55%	55%	55%

12.91. SONI's projected AICR and FFO / Net Debt are above thresholds, driven by the additional remuneration received relating to capital employed and risks to which the TSO business is exposed which are not related to the RAB, as well as short asset lives.

12.92. The base case projections show the inflated effect on credit metrics from blending the different activities within SONI and associated layers of remuneration, as highlighted above. The metrics are superficially positive as remuneration relating to activities that do not relate to RAB capital is included in the projected metrics, which are predicated on RAB capital, and will overstate SONI's actual financeability.

12.93. On average the achieved margin suggests that total profitability is consistent with market benchmarks derived from rating agencies and comparable asset-light companies.[6] However, the headroom is very limited and in a plausible downside event, it is likely that the EBIT margin could fall below the threshold.

[6] This is discussed in detail in section 6**Error! Reference source not found.**.

12.94. The high level results of our scenario modelling are set out in the following table (metrics below benchmark highlighted in red). This shows the effect of incentive downsides of -£1.5 million annually, the level we have identified through reverse stress testing that is the maximum scale of downside that SONI could realistically withstand. The right two columns show the effect of this downside combined with full use of the credit facility.

Table 12.4: Financeability Metrics – base case and -£1.5m downside scenarios (notional financing structure)

Metrics	Threshold	SONI 2020-25		
		Base case	£1.5m downside	
		ave	ave	worst year
EBIT margin on total revenue	1.5 – 3%	1.7%	0.9%	0.6%
AICR (PMICR)	1.8x	3.1x	1.7x	1.5x
FFO / Net Debt	12%	49%	44%	33%
Net debt / RAB	55%	55%	55%	55%

12.95. Our interpretation of the downside scenarios is more complex than the base case. The -£1.5 million downside scenarios represent the limit of what we consider is financeable in the contained context of a control period. We propose to introduce a collar at this level to provide protection against downside scenarios; commentary on the calibration of the collar is set out below.

12.96. It is also important to recognise that there are other layers of capital employed in the business (for example revolving credit facilities to manage the volatility of collection agent revenues). Projected financial metrics deteriorate further where the revolving credit facility is fully drawn, which reinforces our view that SONI is not resilient to sustained downside shocks in excess of £1.5m per annum.

12.97. In part, our judgement on the level of downside exposure that can be sustained by the business is informed by the scope for SONI's other cash flows to support the financing of incentive losses being limited, as we discuss above. Investors, notably lenders, would need to have confidence that poor metrics are exceptional, will not deteriorate further and can be expected to revert to more appropriate levels for a business with SONI's profile.

12.11 Calibration of the Cap and Collar

12.98. Investor confidence ultimately requires a sustainable regime that provides fair risk-adjusted returns and deals appropriately with exceptional or severe downside outcomes. Confidence is also supported if exceptional upsides are limited and handled in structured ways.

12.99. The collar and cap mechanisms provide centrally important support for this objective. The purpose of the collar and cap mechanisms would be to provide protections for both upsides and downsides and, at the same time, attenuate risk exposure in a way that helps (together with the cap) bring fair risk-adjusted returns into alignment with an acceptable level of regulatory allowances.

12.100. In light of our financeability analysis, we assess that a collar mechanism set at -£1.5 million annually, which is at the limit of what we can withstand, would ensure the quality of our customer-aligned risk exposure is substantially preserved and so maximise the potential value for customers. It would provide the necessary comfort to investors that the consequent poor metrics will not deteriorate further while ensuring the quality of our incentives for better customer outcomes is substantially preserved.

12.101. We also protect customers from an increase in the revenue requirement that would otherwise follow from a change in our risk exposure, by limiting the potential amplitude and shape of that risk exposure. A cap calibrated at £3 million would limit the upside risk tail as the collar limits the downside tail. As outlined in Chapter 11 the 2:1 ratio of upside to downside in terms of application of the cap collar mechanism is consistent with that currently applied by the Utility Regulator in terms of DBC.

12.102. We see the collar and cap mechanisms as necessary to allow a sector-aligned regime to work. It would provide a proportionate modification to the risk profile to preserve both the strategic incentive properties for SONI, which better align its interests with the sector and wider society, and SONI's ability to finance its activities in this new risk context.

12.103. We consider collar and cap mechanisms calibrated at -£1.5 and £3 million respectively provide a proportionate safeguard that fairly balances the company's changed character of risk exposure. Our new benefit sharing framework would sharply expand the scope of our incentives to cover outcomes of greatest value to consumers and wider society. The collar and cap mechanisms make it a workable proposition.

12.104. We believe our collar/cap proposal is necessary to maintain the company's financial sustainability. It provides protections consistent with longer term financial sustainability. By providing a balance to the change in the quality of risk exposure, it avoids an unwelcome increase in the WACC while helping to drive desirable customer upsides. It would help ensure the company is able to respond nimbly, if necessary with additional equity capital, to its dynamic role as TSO as well as having the incentives to do so.

12.12 Conclusion

12.105. We recognise that our proposals for a new benefit sharing framework will significantly transform our business as we prepare for a significantly transformed energy sector. We think it is important, for our stakeholders and in particular for consumers and the wider interests of the sector, for us to introduce better-aligned incentives at this review and to propose proportionate collar and cap mechanisms to ensure the business remains financially sustainable and financially affordable for our customers. We wish to maximise the strategic benefits for society from the system we are operating while remaining within current acceptable levels of return requirements. Our carefully balanced proposals make it possible for us to deliver this ambition.

12.106. Finally, we wish to emphasise the importance of our collar and cap calibration. We have calibrated them so that they will work with our business plan assumptions. They bring together our objectives of a regime that drives us to better customer outcomes while allowing us to remain within our current remuneration framework, and the lower costs for customers that entails. Changes in those assumptions would necessitate changes in the levels of the

collar and the cap. Significant reductions in those levels would start to compromise the quality of alignment with better customer outcomes, and diminish the strength of our incentive regime.

12.107. The balance of risk and return is precisely that, a balance. The business plan, and the remuneration framework must ultimately be considered in the round. The package we have set out not only provides the potential to unlock additional value for customers but does so at lower overall cost to customers through reduced investor returns. It manages and balances the risk profile between SONI and customers with a view to securing financeability and ensuring that the regulatory package and framework is designed such that customers are ultimately significantly better off.

Chapter 13
Ensuring Long-Term Resilience

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13 Ensuring Long-Term Resilience

13.1 Why is Organisational Resilience Important?

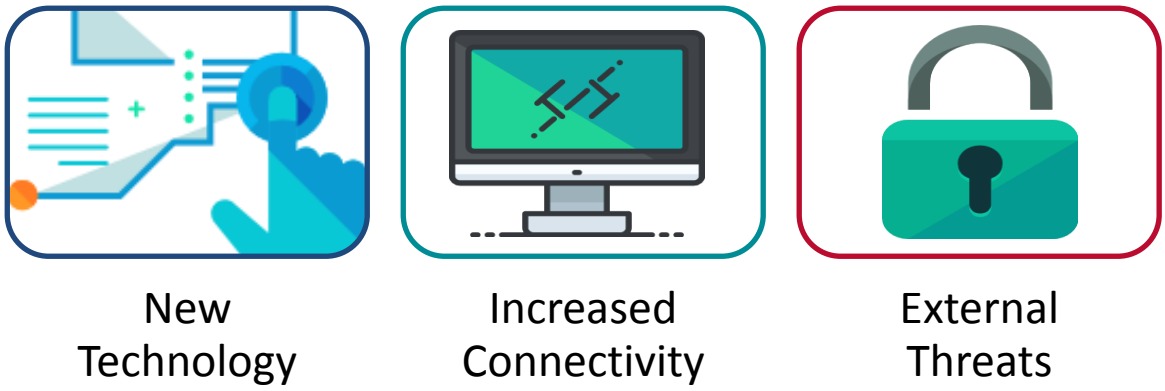
13.1. Electricity underpins almost every aspect of the Northern Ireland economy. With reliance on complex, multi-faceted technologies increasing rapidly (Figure 13.1) it is critical that the electricity network continues to operate safely, reliably and securely. While infrequent, the consequences of a disruption to the transmission network are significant and likely include widespread power outages that affect large numbers of customers and result in major economic impacts. This was demonstrated in August 2019, when large parts of southern England were left without power after two power stations abruptly went offline[1].

13.2 Organisational Resilience

13.2. The British Standards Institution (BSI) defines organisational resilience as "the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper"[2]. Resilience incorporates a number of behaviours and actions which enable companies to overcome challenging situations and to thrive over the long term. It includes recognising risks and building appropriate defences, as well as putting measures in place to ensure the business can recover as quickly and efficiently as possible following an incident, should one occur.

13.3. Organisational resilience can be explained as the way that a business foresees, prepares and responds to challenges and adapts to changes, both incremental and sudden. While every company approaches risk and resilience in a slightly different manner, organisational resilience can be explained by three common attributes (Figure 13.2), with specific strategies and behaviours for each.

Figure 13.1: Factors Driving Changing Resilience Needs



[1] https://www.theguardian.com/business/2019/aug/20/national-grid-blames-lightning-strike-for-blackout-ofgem
[2] BSI, 2014. Guidance on organisational resilience. BS 65000:2014.

Figure 13.2: Components of Organisational Resilience

13.4. SONI has a number of established processes which means that risks and threats are based on a wide variety of evidence, taken across all areas of organisational resilience. It is important that SONI continues to take a holistic, long term approach to managing resilience. In doing so, SONI needs to evaluate whether the services we deliver are supported by the correct people, processes, systems and infrastructure. Additionally, it needs to be acknowledged that SONI's resilience is intrinsically linked to both corporate and financial resilience.

13.5. As TSO for Northern Ireland, it is vital that SONI reviews its resilience across the organisation on a regular basis. SONI's resilience will continue to evolve and develop over the 2020-2025 Price Control period. The purpose of this Chapter is to illustrate how SONI manages the three key aspects of organisational resilience at present and how it proposes to improve on this in the future.

13.3 Corporate Resilience

13.6. Corporate resilience is the ability of an organisation's governance and assurance, risk management and other corporate processes to help avoid or respond to disruption and adapt to change.

13.3.1 SONI Strategy 2020-25

13.7. The SONI Strategy 2020-25 was formally launched in October 2019. It sets out SONI's vision to 2025, emphasising the need to work collectively across the industry in order to deliver an ambitious package of work to enable the continuing energy transition. The SONI Strategy and price control processes have been carried out in parallel, in order that there is a

clear strategic direction that will deliver future services to the benefit of customers and the Northern Ireland consumer in a cost effective manner.

13.3.2 Corporate Governance

13.8. SONI recognises that transparency in the decisions we make and the risks we manage is an important part of our resilience and accountability as a company. Governance processes are in place within SONI which ensure a holistic approach to identifying, quantifying and mitigating risks to the business. Both internal and external risks factors are regularly communicated with both the SONI and EirGrid Plc. Boards. Further details on SONI's Corporate Governance are provided in Appendix S.

13.3.3 Audit & Compliance

13.9. Our internal audit and compliance team is an independent team within the EirGrid Group, which reports into the EirGrid Board via the Audit Committee. The audit and compliance team is responsible for the examination and evaluation of the adequacy and effectiveness of the Group's governance, risk management and internal controls as well as the quality of performance in carrying out assigned responsibilities to achieve the organisation's stated goals and objectives. The team is supported by external subject matter experts from [redacted]

13.3.4 Risk Management

13.10. SONI is responsible for a safe, secure and reliable supply of electricity across Northern Ireland. In carrying out this duty, it is important to minimise the organisational risks associated with its activities. Risk management is considered to be fundamental to good management practice and a significant aspect of corporate governance in SONI. Effective management of risk provides an essential contribution towards the achievement of SONI's strategic and operational objectives and goals. It is an integral part of SONI's decision making processes and is incorporated within the strategic and operational planning processes at all levels across the organisation. Operational risk registers are maintained across company directorates, functions, programmes and projects.

13.11. In managing risk, SONI employs both a top down and bottom up approach. Risk registers are maintained for programmes and projects within the business, with key operational risks reported to the Directorate for review and assessment on a regular basis. The SONI and EirGrid Plc. Boards also identify strategic risks, which are evaluated by the executive management team and captured in relevant risk registers for action, as required. A Risk Committee has been established as part of the EirGrid Plc. Board to provide oversight and monitoring of the risk management process and its effectiveness.

13.12. The Risk Committee regularly reviews and monitors the implementation and effectiveness of the risk management process, including the development of appropriate risk management strategies. The key objective of this policy is to ensure SONI has a consistent basis for measuring, controlling, monitoring and reporting risk across all levels within the TSO business and the wider organisation.

13.13. Additional details are presented in Appendix S.

13.3.5 Vendor Management

13.14. SONI is world leading in the amount of variable non-synchronous renewable generation operating on our power system. This has been facilitated through the development of system policies and tools, which allow us to operate the system safely. As increasing levels of renewables connect to the system in the drive to carbon neutrality by 2050, this area of work will continue to evolve. In order to operate the system under these conditions, SONI relies on a number of specialist software providers and bespoke systems.

13.15. SONI has identified the potential to deliver greater benefits and improve resilience through a more holistic vendor management programme. It is important that our vendors are able to respond effectively to unfamiliar or challenging situations.

13.3.6 People Plan

13.16. SONI recognises that having the right people and skills within the organisations is just as important as having resilient systems and processes. This is true at present and also in the long term. A critical part of our people plan relies on identifying and developing our internal people skills, together with retention and continued development of our staff.

13.17. During 2020-2025 Price Control period, SONI has proposed a number of initiatives to ensure we improve the organisational culture of the business, meet future skills gaps and improve the performance of the business. The SONI Corporate Strategy sets out the values and culture that drive the organisation. We will continue to act as an independent, expert voice for the energy transition working in partnership with DfE and NIE Networks.

13.18. SONI will continue to train and develop young people through our industrial placement and graduate programmes. Generally four students in IT and engineering join SONI for a twelve month placement each year. This programme has led to many placement students joining SONI as a graduate. Our two-year graduate development programme focusses on engineering, IT and business candidates and assists SONI in developing a talent pipeline.

13.3.7 Health, Safety and Wellbeing

13.19. The health, safety and wellbeing of SONI's employees is taken very seriously and it is directly related to the resilience of the company as a whole. All SONI employees and contractors are given sufficient training and resources on the company's safety requirements.

13.20. As a company, SONI is committed to the wellbeing of its employees. It offers all employees access to a 24/7 employee assistance programme, which is available 365 days of the year. This service offers support on a wide range of issues and includes a counselling service, either over the phone or face to face. The company also offers a 2-day time, energy and resilience training course to all employees and a wellness week is held in SONI each year. SONI staff members are encouraged to participate in these activities and new initiatives are offered regularly.

13.4 Operational Resilience

13.21. Operational resilience is how SONI protects and sustains its core services in business as usual, but also during times of operational disruption or pressure. It is the how the company is able to adapt and manage key functions and processes even in adverse conditions.

13.4.1 Crisis Recovery Plans

13.22. SONI has tried, tested and improved plans to avoid and recover from disruption to services for customers. As noted below, we have recently reviewed our system restoration plan. This ensures a properly resourced response, organised in response to any incident and led by a manager of appropriate seniority. In addition we have implemented a Blackstart Emergency Communications Plan which details the actions required to manage the sharing of information with key stakeholders during a power system emergency. The primary focus of the plan is to alleviate concerns and maintain confidence to external parties that the system is currently being restored to its pre-incident state in accordance with agreed and well-practiced guidelines.

Loss of Load Expectation

13.23. Loss of Load Expectation (LOLE) is a metric used to represent the statistical number of hours per year where supply may not meet demand. LOLE is a metric for measuring security of supply as well as the reliability of the system, for example it is used in the Capacity Market. Capacity is now procured through an all island, state aid approved auction process. The LOLE for the auction is set by the SEM Committee and the two regulatory authorities (UR for Northern Ireland and CRU for the Republic of Ireland) determine the level of reserve to be included for each auction.

13.24. In assessing the adequacy for the Northern Ireland system, SONI uses LOLE in a number of ways:

- Identify local capacity constraints as part of the capacity market auction process;
- Determine capacity requirements for Northern Ireland;
- Model scenarios in the Generation Capacity Statement;
- Assess the impact of projects using the Transmission System Security and Planning Standards; and
- Assessing the impact of plant closures.

13.25. Decreasing the LOLE may improve the reliability of the system for its customers but doing so has significant cost implications, and that is why the regulatory authorities and the SEM Committee determine the LOLE and volume of capacity to be procured for each auction. This is informed by SONI expert analysis.

System Restoration Plan

13.26. Following industry consultation, SONI published a proposed System Restoration Plan for Northern Ireland in December 2018, which meets the requirements of Articles 4.5 and 21 of the EU Network Code 2017/2196 on Electricity Emergency and Restoration. In this plan, SONI sets out the measures that will be taken to restore power to the system following an

emergency state, such as partial or total black out. It includes measures for re-energisation, re-synchronisation and frequency management, including the use of Black Start services and training. Staff have been trained in the Dispatch Training Simulator (DTS) to carry out restoration functions. Emergency exercises have been held with stakeholders and the processes have worked well during amber alert events.

13.27. The operational response to a widespread electricity outage is detailed in the Power System Restoration Plan (PSRP). The Blackstart Emergency Communications Plan (BECP) has been designed to complement this in the event of a widespread electricity system blackout. Therefore, the BECP addresses strategic communications and stakeholder management.

Blackstart Emergency Communications Plan

13.28. SONI has implemented a Blackstart Emergency Communications Plan which details the actions required to manage the sharing of information with key stakeholders during a power system emergency. The primary focus of the plan is to alleviate concerns and maintain confidence through underlining to external parties that the system is currently being restored to its pre-incident state in accordance with agreed and well-practiced guidelines.

System Defence Plan

13.29. Following industry consultation, SONI published a proposed System Defence Plan for Northern Ireland in December 2018. The plan meets the requirements of Articles 4.5 and 21 of the EU Network Code 2017/2196 on Electricity Emergency and Restoration. It is the technical and organisational measures to be undertaken to prevent the propagation or deterioration of a disturbance in the transmission system, in order to avoid a wide area state disturbance and blackout state.

13.4.2 Integrated Energy Management System and Market Management System

13.30. The TSOs in Ireland and Northern Ireland carry out their day to day activities on integrated platforms. This enhances situational awareness and implicitly leads to an overall more secure power system. Each TSO has trained its control room staff who operate in the I-SEM to be able to complete all island roles (Scheduling and Dispatch).

13.4.3 Information Technology

13.31. Information Technology (IT) services underpin the entire SONI business, from the management of the transmission system through the control centre to the billing of its customers that use the system. It is critical that SONI is able to maintain service levels even during times of disruptions to its critical processes, or to recover from a disruption as quickly as possible in the case of a more significant incident. A number of measures are in place and continuously developing in order to protect the integrity of the network, as set out below.

Shared Services Model

13.32. IT services have been integrated to a shared services model across the SONI and EirGrid businesses. All applications and services are managed from a single domain, and key IT skills are distributed across both organisations. This is an important feature in SONI's

resilience model, as it means that IT applications, support and services can be managed from multiple locations during times of disruption. Further detail is provides in Appendix D.

Security Operations Team

13.33. A security operations team was established during 2015-2020 Price Control to manage the growing operational functions associated with data networks, perimeter security and security incident response in response to known threats. The team is responsible for developing, supporting and optimising data networks and IT security solutions across a variety of complex technical platforms and security domains. These solutions underpin SONI's corporate functions and mission-critical power system operation and market functions.

Cyber Security

13.34. The threats facing our cyber assets are constantly evolving and our operational security needs to stay ahead. The Network and Information Systems Regulations came into force in May 2018, placing increased focus on maintaining essential services i.e. the Operational Technology environment through improved security. A new Cyber Security Strategy was launched in early 2018, which set out a three year work programme to strengthen SONI's security environment.

13.35. SONI will increase its cyber security maturity by delivering on the cyber work program and by implementing and operating improved cyber security risk management processes in line with the Network and Information Security (NIS) Directive (2016/1148). The current plan is based on what we understand in relation to current cyber trends but a level of uncertainty still applies to what threats and impacts we may face by the end of the price review period.

13.36. In order to achieve compliance with the NIS Directive, SONI will implement security processes in the areas outlined in Table 13.1.

Table 13.1: Areas for Implementation of Security Processes in SONI

Security Principle	Area	Process
Identify	Asset Management	Systems and/or services that are required to maintain or support essential services must be determined, understood and documented
	Business Environment	Overall organisation mission, objectives, stakeholders, and activities are understood, prioritised and documented
	Governance	Policies, procedures, and processes to manage and monitor the regulatory, legal, risk, environmental, and operational requirements are identified, understood and documented
	Risk Assessment & Risk Management	Identify and understand the network security risk to operations, assets and individuals
Protect	Service Protection Policies & Processes	Define, communicate and document policies to direct the overall approach to securing systems and data that support delivery of essential services

Security Principle	Area	Process
	Identity & Access Control	Access to assets and associated facilities is limited to authorised users, processes or devices and to authorised activities and transactions/functions
	Data Security	Information and records are managed and documented consistent with the risk strategy to protect the confidentiality, integrity, and availability of information
	System Security	Network and information systems and technology critical for the delivery of essential services are protected from attack
	Resilient Networks & System	Incorporate resilience against cyber-attack and system failure into the design, implementation, operation and management of systems that support the delivery of essential services
	Staff Awareness & Training	Employees and partners are provided network security awareness education and training to perform their information security-related duties and responsibilities
Detect	Anomalies & Events Detection	Anomalous and unusual activity is detected in a timely manner and the potential impact of events is understood
	Security Continuous Monitoring	Information systems and assets are monitored in order to identify network security events and validate the effectiveness of protective measures
Respond	Response Planning	Response processes are executed, maintained and documented to ensure timely response to detected network security events
	Analysis	Analysis is conducted to ensure adequate response and to support recovery actions
	Mitigation	Take actions to prevent expansion of an event, mitigate its effects and resolve the incident
	Improvements	Response activities are improved and documented by incorporating lessons learned
	Communications	Response activities are co-ordinated with internal and external stakeholders including law enforcement
Recover	Recovery Planning	Execute recovery processes and procedures are executed to ensure timely restoration of systems affected by network security events
	Improvements	Improve recovery planning by incorporating lessons learned
	Communications	Coordinate restoration activities with internal and external parties, such as coordinating functions, Internet Service Providers, owners of attacking systems, victims, other Computer Security Incident Response Teams and vendors

13.37. Investments in monitoring (tooling, automation and 3rd party support services) [redacted] Investments in people, processes and technology for our newly established security operations centre will be made throughout 2020-2025.

13.38. In addition during the 2020-2025 period, SONI will:

- Increase investment in security awareness and threat intelligence;

- Increase oversight and reporting on threat and risk management capabilities in our critical supply chain; and
- Enhance our current asset identification and management capabilities.

Transition to Cloud

13.39. Where efficient, SONI is proposing to transition some services to cloud. Cloud computing will improve security as providers hold internationally recognised security certifications that are beyond the reach of a single organisation. Additionally, updates and new releases are installed automatically by the service provider meaning that systems remain up to date. When designed correctly, cloud services also improve resiliency as they can offer continuous access and improve business continuity. Further detail is provided in Appendix D.

13.40. SONI will adopt a number of practices for mitigating any risks to cloud adoption including:

- A risk based approach to determine the appropriate controls on a per application basis across a multi cloud environment.
- Network traffic segmentation to restrict access for specific applications from certain IP ranges.

[redacted]

- Use robust encryption and key management methods to secure data when it leaves SONI security boundaries.
- SONI will use data tiering and data classification. Data tiering is a classification exercise based on built-in or manually created policies. It categorises artefacts based on their content and once this classification exercise is run policies may be targeted against the documents, databases and so on. This will allow SONI to create a strategy to manage, protect, audit and monitor these features. A data governance document pertaining to cloud will be developed as part of the cloud journey in SONI.
- Keep log and audit trails. The SONI Cloud Architect and the Security Architect will develop a process for auditing and monitoring user and system actions within the cloud service providers and the on-premises solutions. This may require an extension of the current toolset in use or an addition of capabilities offered by Cloud Service Providers (CSPs). The cloud solutions will ideally be integrated with the SONI Security Information and Event Management (SIEM) solution.
- [redacted]
- SONI will adopt an integrated and modular view of security. Security is now a distributed set of interconnected software solutions. There is no single silver bullet

solution in this space but security tools will support the adoption of cloud architecture. Policies governing cloud security in SONI will consider this new threat landscape.

Employee Awareness

13.41. Employee education, awareness and mandatory eLearning programmes are rolled out annually in SONI, which is critical to maintaining resilience within the company. These modules provide employees with a regular update on the cyber security risks that they may encounter on a daily basis. Updating all staff regularly keeps them informed of the risks, as well as their roles and responsibilities within the company.

13.42. Employees are encouraged to report any suspected incidents, including security risks or suspicious activity, via the appropriate channels.

[redacted] Data Centre

13.43. SONI is in possession of large quantities of information. The management of the new data centre is handled by a service provider [redacted] In addition, this will allow SONI's IT team to focus on the core value by adding activities supporting the business and focusing on sustained value for money from vendors. Further detail is provided in Appendix D.

Supplier Risk Management

13.44. SONI uses the services of information technology service providers to deliver a wide range of services, including ones relating to critical energy management and market management solutions. Supplier risk management is another key aspect of ensuring resilience of SONI's information technology infrastructure.

13.45. Using external suppliers of information technology solutions or services means that SONI must be aware of the risks involved. SONI cannot assume that suppliers manage their risks to the standard required.

13.46. SONI will implement supplier risk management to manage the set of risks in Table 13.2.

Table 13.2: Supplier Risk Areas to be Managed

Supplier Risk Area	Description of Risk Area
Strategic	• Supplier may conduct activities that are inconsistent with the overall strategic goals of the SONI • SONI fails to implement appropriate and effective oversight of the Supplier • SONI has inadequate expertise to oversee the Supplier
Reputation	• Supplier delivers a poor service • Supplier practices do not comply with stated practices of SONI
Compliance	• Supplier does not comply with relevant laws and regulations • Supplier does not comply with consumer laws • Supplier has inadequate compliance systems and control
Operational	• Supplier experiences technology failures that impact SONI

Supplier Risk Area	Description of Risk Area
	• Supplier has inadequate financial capacity to fulfil obligations and/or provide remedies in the event of failure or breach • Supplier experiences fraud or error • SONI experiences difficulties or high costs in undertaking inspections
Termination	• SONI has no exit strategy in place because of over-reliance on one provider or the loss of relevant in-house skills • Ability to return services from Supplier is difficult, time-consuming or costly because of a lack of staff or loss of intellectual capacity
Financial	• Inadequate cost controls and charging mechanism leads to unexpectedly higher costs for SONI • Changes to services requested from Supplier are very expensive
Country	• Incorrect selection of applicable legal jurisdiction
Contract	• Supply relationship needs to be governed by contract that clearly describes all material aspects of the Supply arrangement, including the rights, responsibilities and expectations of all parties • SONI cannot enforce contract
Access	• Supply arrangement negatively impacts ability to provide accurate and timely information (there is an additional layer of complexity in understanding activities of the Supplier)

13.4.4 Resource Management

13.47. In order to meet the challenging initiatives in 2020-2025 Price Control period, SONI will need to recruit and retain a staff base with the necessary skills and experience. This will need to be delivered in the context of an employment market where IT skills are in high demand, making it a challenge to attract experienced staff. EirGrid Group is planning to develop a Workforce Plan which will assess the headcount, and use of contractors/agency workers, on a three-yearly cycle in line with the business plan and budgeting process for the company.

13.4.5 Network Planning - Future Proofing, Climate Change

13.48. SONI has had responsibility for planning the transmission network since 2014. Network projects are developed in order to keep the transmission electricity grid secure and reliable. They are also developed to prepare for future needs, a part of which involves making sure that the outcomes and outputs (such as maximising renewable generation) of any project are line with government policies.

13.49. When delivering network projects, SONI examines a range of potential solutions to these needs and identifies the best performing solution balancing technical capability, cost, environmental impact and stakeholder acceptability. SONI is also mindful of the need to future proof projects to the greatest extent possible, so that they are resilient to climate change and other pressures that may occur (e.g. changes in population growth or demand profiles). More information on the network planning process is provided in Appendices A and I.

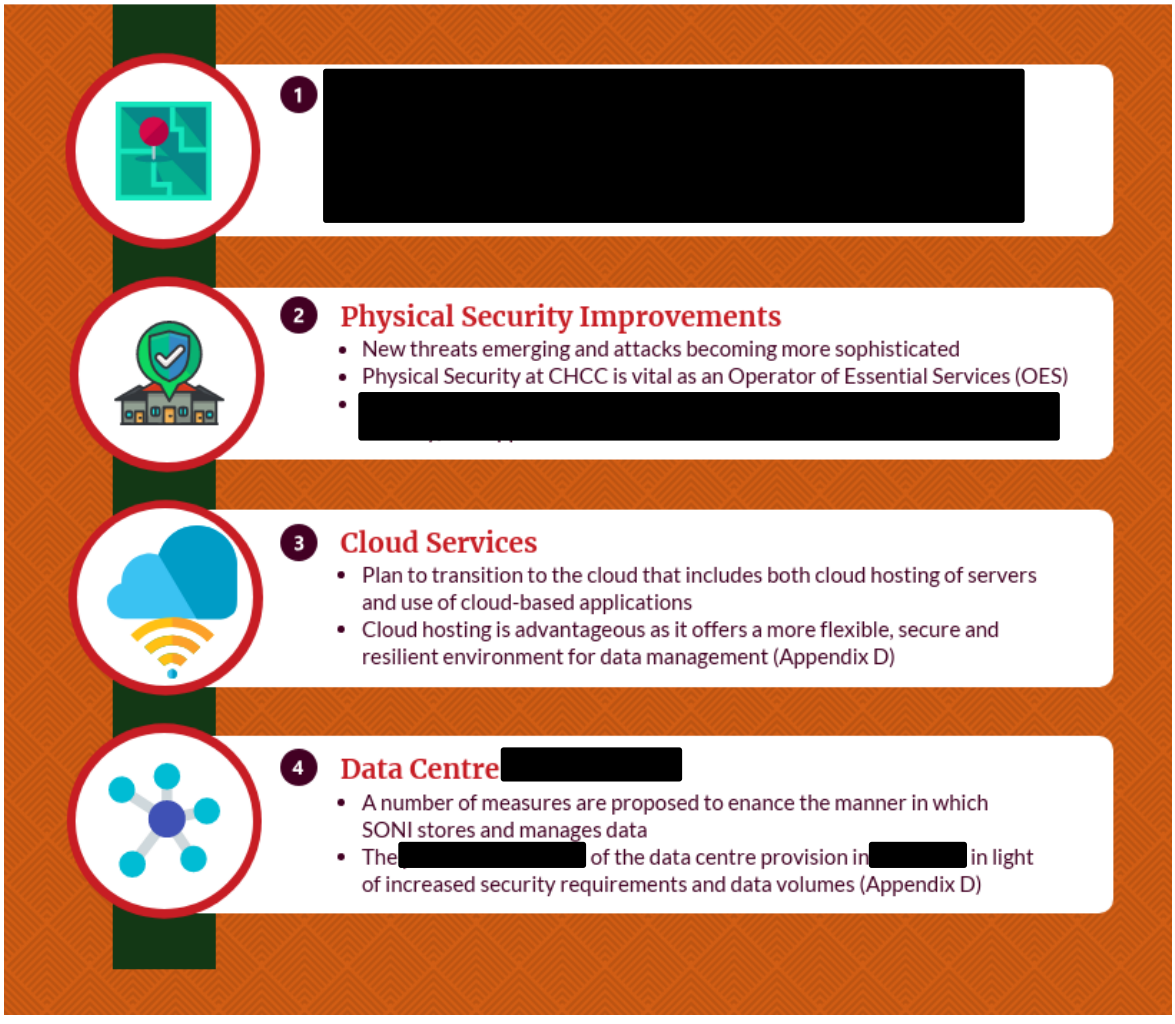
13.5 Financial Resilience

13.50. SONI has low tangible fixed assets compared to traditional, asset-heavy utilities resulting in a high operational gearing which means that SONI is more exposed to downside scenarios. As a consequence, any financial headroom could quickly be eliminated which would imply that SONI may have limited ability to absorb any finance risks. An important test of SONI's financial resilience is the assessment of whether sufficient financial headroom will be available to manage the risks to which it will be exposed over the 2020 -2025 Price Control period. This has been set out in Chapter 12.

13.6 Resilience Enhancements for 2020-2025 Price Control

13.51. While we are proud of the work that we do, we recognise there are opportunities to further improve SONI's overall resilience, particularly in light of the fast rate of change in the energy industry, as well as the current political and economic uncertainty. A number of improvement areas have been identified and projects are already underway. However, a number of other initiatives are proposed as part of our 2020-2025 Price Control plans which will enable SONI to continue to provide a resilient service to customers and industry. Some of the key initiatives related to SONI resilience are discussed in Figure 13.3 below.

Figure 13.3: Key SONI Activities to Enhance Organisational Resilience



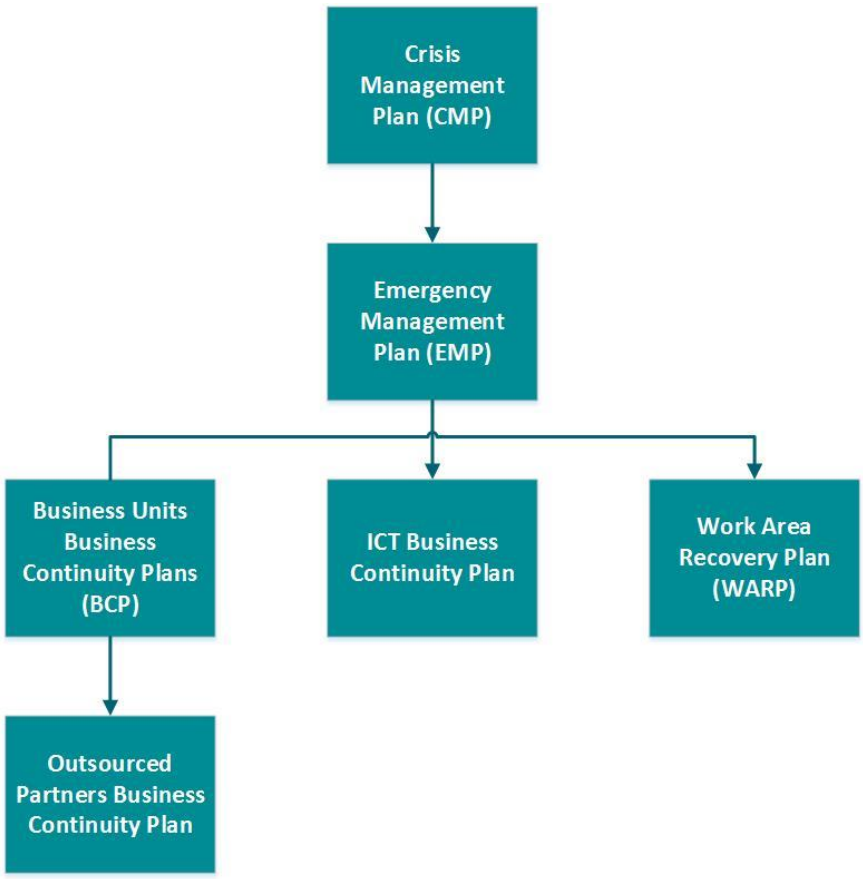
13.52. It is clear that Customers and stakeholders need to have a secure and reliable electricity network, and are unlikely to tolerate significant or more frequent disruptions to their electricity supply. It is likely that there is a willingness to pay for some improvements to increase the resilience of the transmission network, albeit the Northern Ireland consumer will still be concerned with the end cost.

13.53. SONI has considered all of these factors carefully in deciding which proposals should be taken forward for 2020-2025 Price Control period. Where costs are too uncertain to project at present, for example due to limited clarity of the requirements or the solution is too bespoke to accurately cost, SONI has put forward appropriate measures such as a pilot project or scoping exercise. Following which, a re-opener may be proposed once the final solution is known, enabling SONI to carry out the necessary investigations early in 2020 - 2025 Price Control period, while ensuring that customers only pay for what is actually required.

13.6.1 IT Resilience and Disaster Recovery

13.54. IT resilience and disaster recovery is part of a wider SONI response to crises. SONI will take a complete and inclusive view of information technology resilience and disaster recovery that includes all of the elements shown in Figure 13.4.

Figure 13.4: Elements of IT Resilience and Disaster Recovery



13.55. SONI's approach to internal information technology resilience and recoverability will consists of four key components:

- ***Facilities and Infrastructure*** - the underlying IT infrastructure and data must be structured to be resilient and recoverable;
- ***Processes and Procedures*** - Business Continuity/Disaster Recovery must be incorporated into standard processes and procedures;
- ***Operational Business Continuity/Disaster Recovery Plan*** - there must be an operational and tested plan to recover; and
- ***Business Continuity and Disaster Recovery Facility*** - there should be a facility from which the recovered systems can run.

13.7 Holistic Consideration of SONI Resilience

13.56. It is critical to our customers that SONI demonstrates financial, corporate and operational resilience when considering the company as a whole. In this chapter we seek to highlight many areas where the company clearly demonstrates resilience, we have also identified some areas where we need to develop a clear plan of action to strengthen SONI's resilience both in the short and long-term. Areas requiring additional focus include:

- Further development of our risk management framework;
- Enhanced security measures, including the alternative Disaster Recovery and Business Continuity (DRBC) site, physical security at Castlereagh House and Cyber security;
- Improvements in our organisational culture;
- Plans for developing our people and succession planning; and
- Enhanced data management and information provision for customers.

13.57. It is SONI's aim is to offer a robust, secure and reliable service for Northern Ireland while delivering stretching performance targets and we will review this resilience plan accordingly to make sure that we are delivering on our promises.