

**Scottish Water Plan for Transformation
Strategic Environmental Assessment (SEA)
Environmental Report**

SEA Environmental Report Version C

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Contents

1	Introduction.....	1
1.1	Background	1
1.2	Purpose and Objectives	1
1.3	How to Comment on this Environmental Report	2
1.4	Statutory Requirements.....	2
1.5	Structure of this Report.....	3
2	Overview of the Plan for Transformation.....	5
2.1	Introduction.....	5
2.2	Background to the Plan for Transformation.....	5
2.3	Purpose and Objectives	5
2.4	Preparation of the Draft Plan for Transformation	6
2.5	Form and Content of the Draft Plan for Transformation.....	6
3	Environmental and Policy Context	8
3.1	Introduction.....	8
3.2	Key Environmental Challenges	8
3.3	Key Environmental Issues.....	12
3.4	Relationship with Other Relevant Plans	16
3.5	Summary	16
4	The SEA Process.....	17
4.1	Introduction.....	17
4.2	SEA Purpose and Objectives	17
4.3	Addressing Statutory Requirements.....	17
4.4	Approach to SEA	19
4.5	SEA Assessment Phase.....	30
4.6	Approach to Reasonable Alternatives	31
5	How Has the SEA Informed the Draft Plan for Transformation?	32
5.1	Introduction.....	32
5.2	SEA Recommendations	32
5.3	Summary	34
6	SEA of the Plan for Transformation	35
6.1	Overview.....	35
6.2	SEA Key Findings.....	35
6.3	Compatibility of Draft Plan for Transformation with SEA Framework.....	40
7	Further Enhancement and Mitigation Measures	51
7.1	Introduction.....	51
7.2	Further SEA Mitigation and Enhancement Recommendations.....	51
8	Conclusion	52
8.1	Summary of Environmental Report	52
8.2	How to Comment on this Environmental Report	52
8.3	Next Stages of Draft Plan for Transformation Preparation and SEA	52

8.4	Monitoring.....	53
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Tables

Table 3.1	Key Environmental Issues for the Plan for Transformation.....	13
Table 4.1:	Requirements of the 2005 Act and How They are Met Through this SEA ER.....	18
Table 4.2:	Summary of SEA Scoping Comments Regarding Plan Development.....	20
Table 4.3:	Summary of SEA Scoping Consultation Responses - Assessment Issues.....	23
Table 4.4	Scottish Water Plan for Transformation Final SEA Framework.....	25
Table 5.1	SEA Recommendations.....	33
Table 6.1:	Compatibility of Draft Plan for Transformation with SEA Objectives.....	41
Table B.1	Relevant Policy Documents.....	66

Appendices

Appendix A	Baseline Review
Appendix B	Review of Plans and Programmes
Appendix C	SEA Review of Transformation Programme Key Workstreams

1 Introduction

1.1 Background

- 1.1.1 A fully integrated Plan for Transformation is being prepared by Scottish Water to kickstart a long-term Transformation Programme, and in doing so, implement the vision, outcomes and objectives set for the organisation within Scottish Water's Strategic Plan¹ (February 2020). The emerging Plan for Transformation has been in development since late 2020, resulting in the publication of the settled Draft Plan for Transformation which this report accompanies. Following completion of a six-week consultation period the finalised Plan for Transformation will be approved and implemented by Scottish Water.
- 1.1.2 M² has been commissioned by Scottish Water to undertake a Strategic Environmental Assessment (SEA) of Scottish Water's Plan for Transformation in accordance with relevant statutory requirements². The SEA process has been undertaken in tandem with plan development. Building on previous SEA Scoping, this Environmental Report ('the ER') documents the findings of the SEA carried out in respect of the Draft Plan for Transformation, which was approved for consultation by Scottish Water's Board in Autumn 2021. The introductory section identifies the purpose, objectives and structure of this ER. It then outlines core statutory requirements for undertaking a SEA and provides a summary of the content and purpose of the Plan for Transformation.

1.2 Purpose and Objectives

SEA

- 1.2.1 The Plan for Transformation is being developed to help transform Scottish Water's water and wastewater services to improve the life and wellbeing of people, businesses, communities and the environment across Scotland. The Plan also sets out a series of proposals for transformation to enhance operational effectiveness, achieve service excellence and go beyond net zero emissions. It therefore represents a strategic decision-making gateway for Scottish Water and, for the reasons detailed in **Section 1.4 – Statutory Requirements**, a SEA needs to be undertaken in tandem with developing the Plan for Transformation.
- 1.2.2 In addition to fulfilling statutory requirements prescribed within the Environmental Assessment (Scotland) Act 2005 ('the 2005 Act'), the objectives of the SEA being carried out in respect of the Plan for Transformation are to:
- Provide a proportionate environmental evidence base to inform the development and subsequent implementation of the Plan for Transformation;
 - Assess and enhance the effectiveness of the Draft Plan for Transformation as prepared in addressing climate and environmental risks and impacts; and,
 - Embed environmental considerations into Scottish Water's decision making and longer-term Transformation Programme.
- 1.2.3 These objectives emphasise that, notwithstanding the imperative of demonstrating statutory compliance, this SEA process is being used as a plan making tool. To date the SEA has sought to inform, challenge, test and refine the emerging Plan for Transformation throughout its development to optimise environmental outcomes and overall plan effectiveness.

Environmental Report

- 1.2.4 The purpose of this ER is to document the findings of a SEA carried out in respect of the Draft Plan for Transformation, which has been prepared by Scottish Water. In doing so, this ER responds to relevant statutory SEA requirements placed on Scottish Water as a SEA Responsible Authority, considers the evolution of the emerging Plan for Transformation to date and presents an assessment of likely effects from the Plan as drafted. As required by statutory

¹ Our Future Together – Scottish Water 25 Year Strategic Plan.

² M² is a joint venture comprising Stantec UK and Mott MacDonald appointed to provide technical consultancy support to Scottish Water.

requirements, a Non-Technical Summary (NTS) of this ER has also been prepared to summarise the key findings from the SEA.

- 1.2.5 The main objectives of this report are to fulfil statutory SEA reporting requirements, to identify likely significant environmental effects from the Plan for Transformation and to identify mitigation or enhancement measures which should be incorporated in its final version to enhance its effectiveness and environmental performance.

1.3 How to Comment on this Environmental Report

- 1.3.1 This ER in respect of the Draft Plan for Transformation is being consulted on for a period of 6 weeks. Details of how to participate in the consultation are provided on Scottish Water's website and, in accordance with statutory requirements, will be published in a local newspaper.

1.4 Statutory Requirements

- 1.4.1 The 2005 Act requires Responsible Authorities, such as Scottish Water, to assess the likely significant effects on the environment of implementing relevant Plans, Programmes or Strategies, as defined within the 2005 Act. This assessment must also examine the likely significant effects of implementing any identifiable reasonable alternatives to proposals under consideration (i.e. the content of the Draft Plan for Transformation). The assessment is carried out by following a staged process of reporting known as Strategic Environmental Assessment (SEA).
- 1.4.2 The Plan for Transformation is considered to constitute a relevant and qualifying plan under Section 5(3) of the SEA Regulations, meaning there was no option to exempt it from being subject to a full SEA. This is the case as the Plan satisfies all of the relevant statutory tests:
- It is required in order to implement the existing Strategic Plan (2020)³ for water management purposes and will underpin the future functioning of Scottish Water, including to fulfil statutory duties required under the Water (Scotland) Act 1980, Water Industry (Scotland) Act 2002, Water Resources (Scotland) Act 2013 and Climate Change (Scotland) Act 2009; and,
 - By defining a suite of initiatives to drive transformational change, the Plan for Transformation will directly influence how Scottish Water responds to the climate emergency and manages its portfolio of assets (existing and future) over the period to 2040. The Plan for Transformation will therefore underpin strategic decisions by a public body, Scottish Water, regarding infrastructure development and asset management (including replacement), meaning it has the clear potential to influence or set the framework for future development consent of major water management developments. Importantly, the Plan for Transformation will support the implementation of Scottish Water's existing Net Zero Emissions Routemap (2020) and Asset Management Routemap, and it will underpin future investment decision making.
- 1.4.3 The need to undertake a full SEA of the Plan for Transformation was set out within a SEA Scoping Report, which was submitted to the SEA Consultation Authorities ('the CAs') via the Scottish Government's SEA Gateway in April 2021. Responses received from the CAs supported this view and welcomed the intention to undertake a SEA as a means of helping to develop the Plan for Transformation.
- 1.4.4 Under the 2005 Act, once the need for SEA has been established (see above) a three-stage process is required:
1. SEA Scoping Responsible Authorities must provide the CAs with sufficient information to enable them to consider the proposed scope, level of detail and consultation period for an Environmental Report to accompany the emerging plan or programme under consideration. This requirement was fulfilled through the submission of the aforementioned SEA Scoping Report to the CAs in April 2021, with responses received from SEPA, NatureScot and Historic Environment

³ For the purposes of Section 5(3) of the SEA Act, the Strategic Plan (2020) now constitutes an existing administrative provision.

Scotland (HES) in May 2021. Details of how these Scoping consultation responses have been addressed in this SEA are provided in **Section 4.4**;

2. Whilst the SEA 'Assessment Phase' culminates in the preparation of a SEA Environmental Report (ER), following SEA best practice this phase comprises two distinct parts:
 - Part 1 - Testing and refinement of relevant emerging plan components (as identified through SEA Scoping) to:
 - Advise regarding environmental implications to optimise coverage of key environmental issues and sustainability performance;
 - Identify and test any reasonable alternative options; and,
 - Inform refinement of relevant initiatives and development of any additional components needed to implement environmental commitments.
 - Parts 2 - Formal assessment reporting. Preparation of this SEA ER to accompany consultation draft plan. The ER needs to "*identify, describe and evaluate the likely significant effects on the environment of implementing*" the emerging plan and its reasonable alternatives, as well as outlining proposed monitoring measures in respect of predicted likely significant environmental effects from implementing the plan. Both the ER and associated emerging plan must be consulted on in tandem prior to final approval of the plan; and,
 - This SEA ER has been prepared in response to the above SEA 'Assessment Phase' requirements and to demonstrate how the SEA process has informed the preparation of the Draft Plan for Transformation.
3. Preparation of a Post Adoption SEA Statement: Following modifications as necessary to respond to comments submitted regarding the Draft Plan for Transformation and this associated ER, Scottish Water will update the Plan for Transformation as necessary and then approve the finalised Plan. Following plan approval a statement must then be prepared to set out, amongst other matters, how environmental considerations have been taken into account and how any likely significant effects of the implementation of the Plan for Transformation on the environment (as predicted through this SEA process) will be monitored.

1.5 Structure of this Report

- **Section 2** explains the background to the development of the Plan for Transformation and provides a summary of its proposed content and purpose;
- **Section 3** provides an analysis of baseline characteristics, the predicted evolution of the baseline in the absence of the Plan for Transformation, and a Review of other Plans and Programmes. The purpose of this section is to identify key environmental and sustainability issues which require consideration in the preparation of the Draft Plan for Transformation and in this SEA. The environmental baseline analysis is supported by a review of relevant environmental designations provided in **Appendix A**.
- **Section 4** provides an overview of the SEA process undertaken to date and explains how the SEA has been carried out for the Draft Plan for Transformation;
- **Section 5** explains how the SEA process has informed the preparation of the Draft Plan for Transformation and improved its environmental performance;
- **Section 6** presents the key findings of the SEA undertaken for the Draft Plan for Transformation. This is informed by a review presented in **Appendix C** of four key workstreams being developed under Scottish Water's longer-term Transformation Programme which have the potential to generate likely significant environmental effects;

Environmental Report
Scottish Water Plan for Transformation

- **Section 7** identifies further mitigation and enhancement recommendations which should be considered post-consultation to enhance the clarity and environmental performance of the Draft Plan for Transformation prior to the finalisation of the plan; and,
- **Section 8** sets out the next steps in the SEA process and outlines potential monitoring arrangements.

2 Overview of the Plan for Transformation

2.1 Introduction

2.1.1 This section provides a brief outline of the Draft Plan for Transformation. In doing so, the section summarises the approach adopted to prepare the plan, its main objectives and an overview of the content of the Draft Plan for Transformation which this ER accompanies.

2.2 Background to the Plan for Transformation

2.2.1 Published in February 2020, Scottish Water's Strategic Plan defined a vision and a suite of long-term outcomes and objectives for the organisation, aligned with achieving Scotland's ambitious Water Sector Vision. To deliver the stated outcomes, vision and objectives, the Strategic Plan identified the need for a holistic and far-reaching transformation of the way Scottish Water works.

2.2.2 The Strategic Plan sets out three strategic ambitions for Scottish Water for their ambition to achieve Scotland's ambitious Water Sector Vision:

- **Service excellence:** adapting to a changing climate, managing ageing assets and meeting our customers' evolving expectations;
- **Beyond net zero emissions:** showing leadership in mitigating climate change and enhancing Scotland's natural environment; and,
- **Great value and financial sustainability:** customers will receive great value, now and in the future, and we will be financially sustainable.

2.2.3 To achieve these outcomes, the Strategic Plan set the following ten strategic objectives, each supported by underlying drivers and commitments:

- Transforming our emissions;
- Embracing the circular economy;
- Enhancing the natural environment;
- Delivering consistently excellent water supply;
- Transforming wastewater services;
- Enabling sustainable and inclusive economic growth;
- Empowering customers and communities;
- Keeping services affordable;
- Making smarter investment choices; and,
- Transforming how we work.

2.2.4 The Strategic Plan therefore provides a long-term strategic framework and sets a direction of travel, but it does not address operational matters or identify specific actions. Instead, to deliver the stated outcomes and objectives the Strategic Plan identified a need for a holistic and far-reaching transformation of the way Scottish Water works to bring about change in all areas of its business.

2.2.5 A fully integrated Plan for Transformation is being prepared to drive a long-term Transformation Programme, and in doing so, implement the vision, outcomes and objectives set within the Strategic Plan. Approved by Scottish Water's Board in Autumn 2021, the Draft Plan for Transformation has been developed through a series of intensive 'sprints' involving senior management within Scottish Water and external advisers.

2.3 Purpose and Objectives

2.3.1 Whilst the Plan for Transformation and longer-term Transformation Programme need to respond to the strategic objectives and commitments set out within the Strategic Plan, particular consideration is required regarding decarbonisation, climate change adaptation, asset

management, investment decision making and service delivery. The Plan for Transformation is intended to outline a high-level transformation strategy for Scottish Water and to underpin a longer-term Transformation Programme, as many of the potential specific transformation activities have yet to be fully developed.

- 2.3.2 To ensure Scottish Water is able to continually respond to the climate emergency and other changing needs, this SEA recognises the limited details available within the Draft Plan for Transformation itself but also takes account of relevant workstreams and initiatives being developed under Scottish Water's long term Transformation Programme which relate to environmental issues. A SEA focused review of four relevant transformation workstreams has been carried out and is presented in **Appendix C**.

2.4 Preparation of the Draft Plan for Transformation

- 2.4.1 Preparation of the Draft Plan for Transformation was led by a cross-departmental team within Scottish Water, comprised of approximately 100 employees, and was informed by external technical advisers and an extensive engagement process with over twenty leading organisations to explore best practise in organisational transformation. Content for inclusion within the Draft Plan for Transformation was developed via four 'Sprint' exercises which were undertaken to review and establish the key elements of transformation across Scottish Water's activities. This ranged from initial identification of transformation themes and priorities (Sprints 1-3) to collation of refined themes and development of the draft plan (Sprint 4).
- 2.4.2 Information developed through each 'Sprint' was provided to the SEA assessment team, who provided regular SEA strategy advice and identified procedural requirements. Development of the Draft Plan for Transformation has also been informed by SEA 'testing and refinement' of emerging plan components.

2.5 Form and Content of the Draft Plan for Transformation

- 2.5.1 The Draft Plan for Transformation comprises a non-technical summary document, supported by a more detailed appendix which outlines the approach being adopted across nine transformational themes. Sections for each theme include a set of objectives, deliverables, timescales and owners in order to outline the priorities and direction of travel for each theme. The themes will be implemented through nine related workstreams, under which individual initiatives will be developed and implemented through the longer-term Transformation Programme. This means that the Draft Plan for Transformation does not specify individual transformation initiatives or projects, rather it provides a high-level strategy to guide the future development and implementation of individual transformational initiatives.
- 2.5.2 Covering matters of operational performance and business health, the following nine workstreams have been developed to underpin the Plan for Transformation and the associated longer-term Transformation Programme:

Performance Themes

- Customer & Community Centricity;
- Sustainable Investment Decision Making;
- Intelligent Asset Base;
- Lean & Agile Solutions Delivery; and,
- Partner Ecosystem.

Organisational Health Themes

- Engagement, Motivation and Place;
- Learning and Innovation;
- Skills and Leadership Development; and,
- Performance, Pay and Recognition.

Environmental Report
Scottish Water Plan for Transformation

- 2.5.3 Of these, the first five relate to performance matters and incorporate aspects which are likely to generate direct and indirect environmental impacts. Substantive content associated with each of these workstreams has therefore been subject to SEA in line with the approach set out within the SEA Scoping Report (April 2021), although as noted above the Draft Plan for Transformation now comprises a high level strategy rather than setting out individual initiatives which could be assessed. The remaining four organisational health themes will address organisational change issues (e.g. human resources) and are not likely to result in any environmental effects so have been scoped out from further consideration in this SEA.

3 Environmental and Policy Context

3.1 Introduction

3.1.1 This section identifies the key environmental challenges facing Scottish Water which the emerging Plan for Transformation needs to respond to. The section also summarises wider environmental conditions and policy drivers which must be taken account of within both the Plan for Transformation and this SEA, with supporting detailed baseline and policy reviews provided in **Appendices A** and **B** respectively.

3.2 Key Environmental Challenges

3.2.1 Linked to the stated objectives of Scottish Water's Strategic Plan, the Draft Plan for Transformation includes a clear focus on addressing the following broad environmental challenges through transformational change:

- Responding to the climate emergency – decarbonisation and climate adaptation;
- Developing, managing and replacing infrastructure assets; and,
- Enhancing environmental quality.

3.2.2 This Environmental Report (ER) accompanying the Draft Plan for Transformation therefore seeks to demonstrate how the SEA process has informed the development of the Plan for Transformation to date and how the plan appropriately responds to key environmental challenges.

Responding to the Climate Emergency

Climate Change Mitigation

3.2.3 As of 2020, Scottish Water's current operational emissions amount to over 254,000 tCO₂e each year, the equivalent of 40,000 car journeys around the world⁴. Approximately 63% of these emissions can be attributed to grid electricity⁵, 17% process emissions, 14% gas, 6% transport & travel, 2% others & -2% self-generated renewable electricity. Scottish Water is also a major landowner, owning more than 22,500 hectares of land, which offers the potential for carbon sequestration and biodiversity improvements.

3.2.4 The carbon intensity of water supply and treatment services are 0.1 gCO₂e/Litre and 0.19 gCO₂e/Litre. To date, Scottish Water has already achieved a 45% reduction in operational emissions since 2007⁶, transitioning towards lower carbon practises including the production of 53GWh of renewable energy produced and used annually on Scottish Water's sites with a further 831 GWh of third-party renewable energy hosted on Scottish Water's land and exported to grid. As of August 2020, Scottish Water had 21 electric vehicles in the fleet.

3.2.5 In addition to operational emissions, investment activities also generate emissions at all stages of the development and operation processes. In response, Scottish Water has developed the Capital Carbon Accounting Tool which can be used to calculate the emissions impact from supply chain activity. This is measured by assessing the carbon intensity of investment to maintain and improve services, currently estimated to be within the range of 200-400 tCO₂e per £m of investment.

3.2.6 The Strategic Plan specifically responds to the Scottish Government's declaration of a climate emergency and decarbonisation targets by committing Scottish Water to achieve net zero emissions by 2040. Published in August 2020, Scottish Water's Net Zero Emissions Routemap provides a high-level framework for how Scottish Water will tackle emissions across five key

⁴ Tonnes carbon dioxide equivalent per annum

⁵ 31% Wastewater treatment, 21% Water Treatment, 19% Wastewater Network, 14% Water Network, 14% Sludge, 1% admin.

⁶ Operational emissions calculated using the UK Water Industry Research Ltd Carbon Accounting Workbook and independently verified.

areas – electricity, processes, gas, transport and travel and investment. It states that by 2040, Scottish Water will:

- *“Operate all of its assets, including 239 water treatment works and 1827 wastewater treatment works across Scotland, using renewable power;*
- *Transition its entire fleet of vehicles, currently 1600-strong and one of the most high-profile in the country, to zero emissions vehicles and reduce mileage of 17 million miles per annum by 50%; and,*
- *Reduce the carbon intensity of its £700m a year investment by 75%, with a similar reduction in its supply chain, by adopting zero emissions design and using low carbon construction materials”.*

3.2.7 The existing strategy set out within the Net Zero Emissions Routemap (NZER) will continue to be implemented and reported against, with activities developed through the Plan for Transformation and associated longer-term Transformation Programme intended to support and where possible accelerate the delivery of this strategy. The Routemap states that Scottish Water’s decarbonisation progress will be measured under the following themes:

- *“Becoming more energy efficient;*
- *Using lower-carbon energy products;*
- *Embracing low carbon construction; and*
- *Storing away emissions that cannot be avoided”.*

Climate Change Adaptation

3.2.8 The Climate Ready Scotland Adaption Programme 2019-2024 outlines Scotland’s changing climate, predicting summer and winter changes up to 2070. With regard to precipitation, summers are predicted to be between 11% and 14% drier and winters between 8% and 18% wetter (based on low/high emissions scenarios). Summer temperatures are predicted to increase by range of between 1.4°C and 2.6°C, while winter temperatures are predicted to increase by between 1.0°C and 2.2°C . The Programme also predicts an increase of coastal flooding from storm surges and high tides as sea levels rise faster, predicting an 8cm rise between 1990 and 2030. Sea levels have already risen by a similar amount but over a longer period between 1900-1990.

3.2.9 The Strategic Plan identifies a need to upgrade existing infrastructure to be able to adapt to a changing climate, including a higher frequency of extreme weather events, to ensure the continued supply of clean, high quality drinking water and functioning of wastewater treatment. Improvements to infrastructure capacity and efficiency will also play a critical role in the low carbon transition of Scotland’s infrastructure and to provide for the needs of Scotland’s growing population.

Implications for the Plan for Transformation

3.2.10 The Strategic Plan & Net Zero Emissions Routemap have been reviewed to inform this SEA in terms of understanding Scottish Water’s existing response to the climate emergency and which commitments are being addressed through transformation activities. In overall terms, the Strategic Plan identifies the following key areas for transformation within Scottish Water to respond to the climate emergency:

- *“eliminating the net emissions associated with our activities;*
- *our approach to investment planning and the long term management of our assets;*
- *the robustness of our water supply systems;*
- *the management of surface water;*
- *embracing the circular economy;*
- *activities whose cost can be transformed through simplification and technology; and*
- *the way in which our people and supply chain partners work to deliver our services”.*

3.2.11 Taking account of the need to mitigate and adapt to climate change, relevant commitments stated within the Strategic Plan and Net Zero Emissions Routemap which need to be implemented include (N.B. not exhaustive):

- Increase internal and hosted renewable energy generation from 200% to 300% of electricity usage by 2030;
- Study assets and landbank for potential retrofit and hosting of renewable energy;
- Deliver options to maximise energy recovery from bio-resources;
- Deliver Juniper House refurbishment as a net zero building;
- Transition vehicle fleet to zero emissions;
- Achieve 75% reduction in the carbon intensity of investments (construction supply chain);
- Identify carbon storage needs and opportunities;
- Develop supply system interconnectivity; and,
- Deliver sustainability reductions (in abstraction).

3.2.12 Whilst many of the cross-cutting initiatives being developed through Scottish Water's long-term Transformation Programme relate to business processes and tools rather than practical environmental workstreams, the extent of technological and wider changes required within Scottish Water to achieve these commitments means that transformational initiatives will play an essential supporting role.

Developing, Managing and Replacing Infrastructure

3.2.13 Scottish Water operates a business model serving Scottish households (2.56m) and business customers (152,806) in addition to providing non-regulated services to customers and clients outside of Scotland. In 2019-2020, Scottish Water operated 237 water treatment works supported by 30,400 miles of water pipes which deliver 1.44 billion litres of drinking water. Scottish Water also operate 1,826 wastewater treatment works treating approximately 983m litres of wastewater, supported by 33,655 miles of sewer pipes Overall, Scottish Water delivered 1.44 billion litres of drinking water and removed 983m litres of wastewater.

3.2.14 Between 2015-2021, Scottish Water committed to investing £3.9 billion in managing and improving assets, with £673m invested in 2019/20. The Strategic Plan set out a new long-term approach to asset management as a cross-cutting enabler needed to achieve all of the plan's stated objectives. Headline targets include delivering excellence in asset management, increasing investment in asset replacement from around £250m per annum to over £800m per annum in 2045 and exploring how social, economic and environmental considerations can be embedded in infrastructure planning, prioritisation and delivery. Scottish Water has been developing an Asset Management Routemap alongside the Plan for Transformation.

3.2.15 Relevant asset management related commitments stated within the Strategic Plan which need to be implemented include (N.B. not exhaustive):

- Increase investment in asset replacement from around £250m pa at present to over £800m pa in 2045;
- Co-create a 10-year asset management plan with industry experts to transform investment decision making capability;
- Implement a resilient, dynamic and rolling process of investment planning and delivery;
- Prepare and implement Drainage and Wastewater Management Plans;
- Transition from wastewater treatment to recycling and recovery;
- Transforming investment decision making to encompass six capitals approaches (including social and natural) to investment appraisals and decision making; and,
- Investment prioritisation, including in relation to implementing a new asset management strategy, adapting to climate change and achieving net zero targets.

3.2.16 Whilst many of the cross-cutting initiatives being developed through Scottish Water's long-term Transformation Programme relate to business processes and tools rather than practical asset management or replacement workstreams, the extent of technological and wider changes required within Scottish Water to achieve these commitments means that transformational initiatives will play an essential supporting role.

Environmental Quality

3.2.17 There is a need to protect, conserve and enhance Scotland's natural environment and its unique biodiversity, soil and landscapes. The key findings of the State of Nature in Scotland 2019 Report found a number of ongoing concerns since recorded levels in 1970, including:

- 24% decline in average species abundance across 352 terrestrial and freshwater species;
- 14% decline in average species distribution of 2,970 terrestrial and freshwater species ; 2% lower than 2005 levels;
- 49% of species are showing either strong or moderate changes in numbers, with species decreasing in distribution since 1970;
- 62% of species are showing strong changes, the proportion of species defined as showing strong changes in abundance, either increasing or decreasing, rose from 45% since 1994 to 62% over the last 10 years;
- Around 11% of the 6,413 species found in Scotland have been classed as threatened and therefore at risk of extinction from Great Britain;
- There has been a 38% decline in the Scottish breeding seabird indicator between 1986 and 2016, with some signs of recovery in the Celtic and North Seas; and,
- Increasing urbanisation resulting in the loss of valuable wildlife sites and fragmentation as a result of the increases in transport systems and infrastructure. Other causes of habitat degradation in Scotland include pollution, commercial forestry, fishing, house building, agriculture and invasive non-native species.

3.2.18 Across Scotland, peatlands and blanket bog play a crucial role in flood alleviation, carbon storage and water quality whilst also delivering significant biodiversity benefits. The Scottish Government Peatland Action Fund has provided the funds to undertake significant restoration and conservation works on over 19,000ha throughout the country. Peatlands are considered to be of global importance for carbon storage and biodiversity. Scotland alone has 60% of the UK's internationally important peatlands which play a key role in carbon capture and sequestration.

3.2.19 Scottish Water's water and wastewater services supply, transmit and process three broad types of water:

- Raw water – abstracted from licenced sources including individual rivers and wider catchments before being stored (e.g. in reservoirs) prior to treatment;
- Treated water – treatment of raw water to suitable environmental and drinking water quality standards prior to entering the potable water supply network (e.g. piped transmission through trunk mains); and,
- Wastewater – treated effluent prior to final discharge back into waterbodies.

3.2.20 The quality of raw and waste water can negatively impact aquatic ecosystem health through the transfer of invasive non-native species (INNS) and by the enrichment of nutrients which can pose a potential risk to ecological and human health. Inputs of nutrients into rivers from wastewater treatment works and from other sectors can lead to degraded biological and nutrient quality. Nitrate concentrations below 0.3mg N/l are considered to be naturally found or constitute background levels. Publicly available data shows that the percentage of sites with mean nitrate concentrations of less than 0.3 mg N/l increased from 27% in 2000 to 34% in 2015⁷.

3.2.21 With regard to potable water treatment in Scotland, the period from 1992 to 2015 saw the highest reductions in levels in consumer taps containing coliform bacteria, falling from 4.64% to 0.25%, while the percentage of Escherichia coli (E.coli) fell from 2.08% to 0.01% in the same

⁷ Key Scottish Environment Statistics 2016, Scottish Government

period⁸. Any transformation of ageing assets or construction and operation of new water infrastructure in Scotland must avoid adversely impacting the environment and by extension, human health.

3.2.22 Relevant environmental management related commitments stated within the Strategic Plan which need to be implemented include (N.B. not exhaustive):

- Develop and implement catchment management and land restoration partnerships;
- Manage reservoirs to enhance social and environmental capital;
- Identify, assess opportunities for and implement woodland creation on Scottish Water land;
- Assess opportunities for and implement peatland restoration; and,
- Demonstrate and implement combined carbon capture and biodiversity benefits of urban blue green solutions.

3.2.23 Whilst many of the cross-cutting initiatives being developed through Scottish Water's long-term Transformation Programme relate to business processes and tools rather than practical environmental workstreams, the extent of technological and wider changes required within Scottish Water to achieve these commitments means that transformational initiatives will play an essential supporting role.

3.3 Key Environmental Issues

3.3.1 With reference to the environmental topics prescribed within Schedule 3 of the SEA Act, **Table 3.1** below presents a summary of the key environmental issues which need to be addressed in the Plan for Transformation and taken account of in this associated SEA. This encompasses the environmental challenges discussed in **Section 3.2** above and wider pertinent environmental conditions identified in **Appendix A – Baseline Review**.

⁸ Key Scottish Environment Statistics 2016, Scottish Government

Environmental Report
Scottish Water Plan for Transformation

Table 3.1 Key Environmental Issues for the Plan for Transformation

Theme	SEA Environmental Aspects	Key Issues
Air and Climate	Air Quality Climatic Factors	<ul style="list-style-type: none"> ■ The need to minimise the emissions of air pollutants; ■ The need to safeguard and improve air quality, including through addressing areas with poor air quality; ■ The need to monitor air quality impacts as a result of water infrastructure development to understand the potential impacts on human health and the environment; ■ The need to ensure that development aims to minimize or mitigate impacts on air quality where possible; ■ The need to protect, enhance and restore peatlands; ■ The need to ensure that the built environment and infrastructure is resilient and adaptable to the effects of climate change, taking account of area specific needs across Scotland; ■ The need to ensure that ecosystems and the natural environment are protected and enhanced during infrastructure development; ■ The need to mitigate the effects of climate change through the decarbonisation of Scottish Water’s operations; and, ■ The need to review and address levels of carbon emissions as a result of the operation of Scottish Water’s assets, including treatment works, operational vehicle fleets and employee commuting needs.
Physical Environmental	Biodiversity, Flora & Fauna, Soil, Water, Cultural Heritage, Landscape	<ul style="list-style-type: none"> ■ The need to conserve, protect and enhance biodiversity including important species and sites designated for reasons of biodiversity conservation or ecological or geological importance. This extends to the protection of designated sites throughout Scotland which have the potential to be affected by Scottish Water’s transformative actions and operational activities; ■ The need to safeguard and enhance the marine environment and to maintain and enhance connections between designated sites and habitats; ■ The need to protect and enhance ecosystem resilience in response to key environmental pressures and work towards the achievement of defined conservation objectives; ■ The need to encourage and/or facilitate development on previously developed brownfield land; ■ The need to maximize the efficient use of available land and prioritise the redevelopment of brownfield land; ■ The need to safeguard geodiversity and to remediate areas of known contamination; ■ The need to minimise soil erosion and the loss of soils to non-permeable surfaces;

Environmental Report
 Scottish Water Plan for Transformation

Theme	SEA Environmental Aspects	Key Issues
		<ul style="list-style-type: none"> ■ The need to protect, enhance and restore important soil resources, including peatlands., particularly in response to climate change impacts; ■ The need to protect and enhance the quality of water resources and the water environment, including the protection of Scotland's waterbodies, wetlands and marine environments; ■ The need to eliminate contamination sources which harm the water environment and regulate pollution discharges from new developments into receiving watercourses; ■ The need to ensure the maintenance, development and enhancement of drainage infrastructure; ■ The need to mitigate flood risk during the development process; ■ The need to provide new infrastructure development in areas identified by national, regional and local policy at increased risk of flooding and coastal erosion; ■ The need to prepare, protect and mitigate against the impacts of climate change including coastal erosion and coastal, river and surface water flooding events across Scotland; ■ The need to preserve, protect and enhance cultural heritage assets and their settings during the development or enhancement of water infrastructure. This includes assets within the natural environment which have been shaped by land management practices; and, ■ The need to protect and enhance landscape character, townscape character, key views and visual amenity during the development or enhancement of water infrastructure.
Socioeconomics	Population (Including Relevant Socio-Economic Issues), Health, Material Assets	<ul style="list-style-type: none"> ■ The need to deliver a sufficient good quality and well-located water infrastructure to meet a range of identified needs in Scotland; ■ The need to deliver a sustainable programme of infrastructure improvements in line with projected population growth, particularly in areas projected to have the largest increase in population and associated requirements for housing development; ■ The need to monitor and address employment sectors in line with population growth and water abstraction requirements (e.g. agriculture, industry and energy production); ■ The need to enhance all aspects of the health and wellbeing of the population, particularly with regard to quality of public drinking water supply; ■ The need to address infrastructure requirements in areas of deprivation with regard to appropriate water infrastructure to support the provision of new housing and employment opportunities;

Environmental Report
 Scottish Water Plan for Transformation

Theme	SEA Environmental Aspects	Key Issues
		<ul style="list-style-type: none"> ■ The need to create healthy and liveable urban environments, including wastewater treatment and drainage infrastructure, particularly for health infrastructure; ■ The need to ensure sufficient infrastructure capacity to meet existing and future needs of Scotland’s population; ■ The need to maximise the efficient use of land, natural resources and existing infrastructure. This includes the need to prioritise the redevelopment of brownfield land, the re-use and recycling of materials, and the minimisation of waste sent to landfill; ■ The need to develop a programme for new or enhanced infrastructure to address existing capacity constraints and take account of relevant environmental issues; ■ The need to adapt Scottish Water’s infrastructure to the impacts of climate change, achieve operational net zero emissions, support increased renewable energy generation and utilise land resources to sequester carbon; and, ■ The need to make provisions for water infrastructure requirements for planned transport, housing and employment development over the plan period.

3.4 Relationship with Other Relevant Plans

3.4.1 In accordance with statutory requirements, a review of the relationship between the Plan for Transformation and other relevant plans and programmes (including legislation, policies and strategies at all spatial scales) has been carried out, as detailed fully within **Appendix B**. This review has identified the key requirements, objectives and priorities of relevant plans and their implications for both the Plan for Transformation itself and for this SEA. From this review it is clear the Plan for Transformation should:

- Align with relevant existing and emerging policies and proposals within relevant national, regional and local plans and strategies:
 - At a national level, the emerging Plan for Transformation must support the delivery of Scottish Government's Infrastructure Investment Plan (2021), Climate Change Plan 2018 – 2032 (updated 2020) and emerging National Planning Framework 4 (NPF4). The Draft NPF4 was published in November 2021 and will be taken account of in the final Plan for Transformation post-consultation; and,
 - At regional and local levels, the emerging Plan for Transformation must also support the implementation of adopted and emerging spatial plans including Local Development Plans and future Regional Spatial Strategies.
- Ensure the ability of existing assets to adapt to the impacts of climate change, particularly with regard to predicted increases in sea-level, surface water flooding and temperature;
- Ensure the avoidance of likely significant adverse effects from the implementation of the plan on sites designated at international and national levels for reasons of biodiversity conservation or ecological and geological importance;
- Minimise and appropriately mitigate likely adverse effects on sites designated at the local level for their ecological importance;
- Minimise the environmental impacts of water supply provision and infrastructure, including in terms of reducing carbon and greenhouse gas emissions and using natural resources sustainably;
- Avoid adverse impact on the natural environment from asset development, particularly with regard to the inputs of nutrients into the water environment;
- Reduce air quality impacts from existing assets, minimising the environmental impacts of the construction and operation of drinking and waste water infrastructure, including but not limited to impacts on air quality;
- Underpin the development of a safe, secure, efficient, reliable and integrated water infrastructure system across Scotland; and
- Ensure the ongoing monitoring and reduction of carbon emissions from Scottish Water activity, and that of those within their supply chains and from activities hosted by private companies on Scottish Water's land.

3.5 Summary

3.5.1 An important role of this SEA is to assess the Draft Plan for Transformation as published to ensure that, where relevant, it appropriately addresses the identified environmental challenges (**Section 3.2**), key environmental issues (**Table 3.1**) and key policy issues listed above.

4 The SEA Process

4.1 Introduction

- 4.1.1 This section provides an overview of the SEA process which has been undertaken to date to assess the Draft Plan for Transformation and prepare this SEA ER.

4.2 SEA Purpose and Objectives

- 4.2.1 In accordance with the 2005 Act, the purpose of SEA is to identify, assess and evaluate the likely significant environmental effects of a qualifying plan, programme or strategy. A key objective of SEA is to enhance the environmental and wider sustainability performance of a plan or programme. This is achieved through identifying any likely significant effects from implementation of the plan or programme as drafted, proposing mitigation measures to address any identified significant adverse environmental effects, and identifying enhancement measures to improve the overall performance of the plan or programme. As such, SEA is an integral part of good policy development and should not be viewed as a separate or retrospective activity. Importantly, SEA should be undertaken sufficiently early in the development of a plan to enable the process to improve plan quality and to influence how a plan will be implemented, even where full details regarding proposed components (in this case thematic transformation initiatives under the longer-term Transformation Programme) are yet to be developed.

4.3 Addressing Statutory Requirements

- 4.3.1 The approach to addressing relevant requirements in this ER is summarised in **Table 4.1** below.

Environmental Report
 Scottish Water Plan for Transformation

Table 4.1: Requirements of the 2005 Act and How They are Met Through this SEA ER

SEA Requirements	Section Reference
a) An outline of the contents, main objectives of the plan or programme and relationships with other relevant plans and programmes.	Section 2
b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Section 3 and Appendix A
c) The environmental characteristics of areas likely to be significantly affected.	
d) Any existing environmental problems which are relevant to the plan or programme	
e) The environmental protection objectives, established at international, community or national level which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Section 3
f) The likely significant effects on the environment.	Section 6 and Appendix C
g) The measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse effects on the environment of implementing the plan or programme.	Section 5 and 7 and Appendix C
h) An outline of the reasons for selecting the alternatives dealt with and a description of how the assessment was undertaken, including any difficulties encountered in compiling the required information.	Section 4
i) A description of measures envisaged concerning monitoring.	Section 8
j) A non-technical summary of the information provided under the above headings.	Refer to separate Non-Technical Summary SEA Report
k) Taking the environmental report and the results of the consultations into account in decision-making.	Sections 1, 4, 5 and 7

4.4 Approach to SEA

SEA Project Team

- 4.4.1 The SEA of the Plan for Transformation is being undertaken independently by m² on behalf of Scottish Water. The consultant team which carried out the SEA is therefore independent of the Scottish Water team which prepared the Draft Plan for Transformation, which helps to ensure the objectivity of the SEA.
- 4.4.2 M² has provided drafting and technical support to Scottish Water as required to support the preparation of the Draft Plan for Transformation and regular discussions have been held with senior employees within Scottish Water throughout the process of preparing the Draft Plan for Transformation. This has allowed informal and early feedback of key issues and amendments to take place to strengthen the Plan for Transformation as it develops. Further details of how the SEA process has informed the preparation of the Draft Plan for Transformation are provided in **Section 5**.

Previous SEA Reporting and Responses

- 4.4.3 The only previous stage of SEA undertaken in respect of the emerging Plan for Transformation was the preparation and consultation on an SEA Scoping Report. This was prepared by m² on behalf of Scottish Water and submitted to the Scottish Government's SEA Gateway in April 2021. The SEA Consultation Responses to the Scoping Report were duly received in May 2021.
- 4.4.4 The main purpose of the SEA Scoping Report was to confirm the need to undertake an SEA and identify a proposed SEA Framework to assess in a systematic way the likely environmental effects from all components of the emerging Plan for Transformation. This Framework comprises a series of sustainability objectives and guide questions regarding identified socio-economic and environmental issues of relevance to Scotland which may affect (or be affected by) the emerging Plan for Transformation together with other relevant plans and programmes.
- 4.4.5 The approach taken by Scottish Water and the SEA assessment team to respond to points raised through SEA Scoping are summarised in **Tables 4.2** and **4.3** below respectively.

Environmental Report
 Scottish Water Plan for Transformation

Table 4.2: Summary of SEA Scoping Comments Regarding Plan Development

SEA Consultation Body	Comment	Response
NatureScot	<p>Welcomes and agrees with the content of the Scoping Report, noting it makes good and effective links to important policy drivers for NatureScot including the Scottish Biodiversity Strategy and the climate emergency. Further assessments (such as Habitat Regulation Appraisals) will be needed of individual plans and projects when they are being implemented. NatureScot looks forward to helping advise on those appraisals where we are consulted.</p>	<p>Noted and willingness to engage welcomed. No further implications for this SEA.</p>
	<p>Section 2.3.5 - suggests substituting mention of biodiversity net gain with 'securing positive effects for biodiversity' in accordance with emerging NPF4.</p>	<p>Wording amended.</p>
	<p>Agrees there is potential for Scottish Water Landholdings to be used for carbon sequestration and biodiversity improvements, offering the potential to address the interlinked climate and biodiversity emergencies. Scottish Water's landholdings offer great potential to contribute to the efforts of the emerging Scottish Biodiversity Strategy. NatureScot are keen to build on the joint successes to date with Scottish Water of undertaking peatland restoration. NatureScot also recognise collaborative opportunities both within and outside Scottish Water's landholdings to further improve carbon sequestration, biodiversity gains water quality and sustained supply for public water abstractions.</p>	<p>The emerging Plan for Transformation supports the continued implementation of Scottish Water's Net Zero Emissions Routemap (2020) rather than setting out a new emissions reduction strategy.</p>
	<p>Scottish Water projects should seek to maximise the environmental and social benefits through positive design and management of SUDS including opportunities to access nature. Notes Scottish Water's 2018 consultation which suggested between a 90%-135% increase in water volume entering sewers as a result of climate change. Recognises legal, technical and financial factors affecting delivery and notes commitment to work with Scottish Water and other stakeholders to ensure benefits of SUDS are maximised.</p>	<p>The proposal within the Draft Plan for Transformation to develop a new Customer & Community Centricity strategy and enhance investment decision making provides suitable opportunities to secure enhanced environmental and social benefits from Scottish Water infrastructure projects.</p>
	<p>Section 3.2.8 on climate adaption - NatureScot notes that there are considerable opportunities for Scottish Water to improve biodiversity and contribute to the emerging Scottish Biodiversity Strategy through infrastructure development and upgrades. Suggests using tools such as NatureScot's 'Dynamic Coast' project for coastal infrastructure planning, increasing use of green infrastructure, placemaking opportunities and completion and implementation of drought management plans which take account of and prioritise ecologically sensitive locations.</p>	<p>The emerging Plan for Transformation provides an opportunity to maximise biodiversity benefits through collaboration with key stakeholders such as NatureScot. Scottish Water's relationship with key environmental stakeholders including NatureScot (as well as SEPA and Scotland's planning system) has been reviewed through this SEA, with key findings and recommendations to enhance the relationship presented in Appendix C.</p>

Environmental Report
 Scottish Water Plan for Transformation

SEA Consultation Body	Comment	Response
	Noted a desire to continue and expand partnerships between NatureScot and Scottish Water to improve and develop green infrastructure.	Under Part 1 of the SEA Assessment Phase the relationship between Scottish Water and key stakeholders including NatureScot has been reviewed to identify opportunities for enhanced partnership working. Refer to Appendix C .
	Suggests the Transformation Plan should examine how to address long-term water resource availability and demand pressures in the context of climate change and population growth. Water recycling, considering water use in design of built environments and reducing use of water in domestic appliances are highlighted as opportunities to enhance the sustainability of water supply.	Suggestion noted. Analysis to support the emerging TP should identify long-term water resource availability and demand pressures in the context of climate change and population growth, together with high level proposals for how Scottish Water will respond to these challenges.
	Welcomes commitment to pursue transformative initiatives in Section 3.2.16 and in Strategic Plan to address the concerns listed in the State of Nature Report. NatureScot supports initiatives that both achieve benefits for biodiversity while reducing need for treatment or abstraction. NatureScot welcomes explicit inclusion of Peatland Action Fund within the scoping document and welcomes the opportunity to work further with Scottish Water on catchment and land restoration partnerships which improve biodiversity.	In accordance with Scottish Water's Strategic Plan, specific initiatives concerning peatland restoration, biodiversity enhancement across Scottish Water's estate and stakeholder partnerships will be developed within or in tandem with Scottish Water's long-term Transformation Programme. The high level and cross-cutting nature of the Plan for Transformation precludes the development of individual thematic actions within the plan at this early stage.
	Amend the treatment of internationally designated sites to align with the Habitats Regulation Appraisal (HRA) requirement of avoiding adverse effects on site integrity and extend the level of ambition to positively contribute to the conservation objectives of designated sites where appropriate.	An SEA is being undertaken rather than an HRA and the SEA considers both national as well as European designations. It is therefore appropriate to retain the key environmental issue and assessment criteria of ensuring the avoidance of likely significant environmental effects. However, the HRA requirement to avoid adverse effects on European Sites and the aim of enhancing designated sites have been clarified in this SEA reporting.
Historic Environment Scotland (HES)	Notes that the historic environment has been scoped into the assessment and is satisfied with the scope and level of detail required for assessment subject to the following comments.	None required.
	With regards to baseline, HES suggested the expansion of the baseline to include Inventory Gardens and Designed Landscapes, Inventory Battlefields, and non-designated historic environment assets, including marine assets. Spatial data on these can be found at Historic Environment Scotland's data Portal and Pastmap, and via local authority Historic Environment Records. Scotland's Environment Web provides a very helpful introduction to historic environment baseline, key issues affecting the historic environment, and relevant data sources, policies and strategies.	SEA baseline used to inform the emerging Plan for Transformation and this SEA will be expanded to include Inventory Gardens and Designed Landscapes, Inventory Battlefields, and non-designated historic environment assets, including marine assets.

Environmental Report
 Scottish Water Plan for Transformation

SEA Consultation Body	Comment	Response
	Regarding the policy review, recommendation replace reference to The Historic Environment Scotland Policy Statement 2016 with Historic Environment Policy for Scotland (2019) (HEPS). The preparation of all plans in Scotland should be considered in line with HEPS, particularly HEP3.	Reference updated,
Scottish Environment Protection Agency (SEPA)	In accordance with Section 15(2) of the 2005 Act, SEPA confirm they are satisfied with the scope and level of detail proposed for inclusion in the Environmental Report. The response defers to SEPA's SEA topic guidance notes for technical advice to inform this SEA.	Noted and welcomed. The SEA Scoping Report was prepared in accordance with SEPA's SEA topic guidance notes, which have also been applied in the undertaking the SEA Assessment Phase.

Environmental Report
 Scottish Water Plan for Transformation

Table 4.3: Summary of SEA Scoping Consultation Responses - Assessment Issues

SEA Consultation Body	Comment	Response
NatureScot	<p>Seeks clarification that letter coding in the final column of Table 4.1 refers to the aspects listed in Section 6(a) of the SEA Act Sch 3. Agrees with the proposed suite of SEA Objectives but notes the increasing importance of the relationship between human wellbeing/health and the status of and access to the natural environment.</p> <p>Suggests human health should be included as an environmental topic that is relevant to the physical environment (notes access to nature is included as a guide question within Table 4.2).</p>	<p>This is correct – Section 4.3 of the Scoping Report confirmed that health is included as an environmental topic in this SEA. The proposed SEA Framework includes a dedicated health objective and associated assessment criteria (no. 8). Letter coding for the aspects listed in Section 6(a) of the SEA Act Sch 3 have been clarified in SEA reporting.</p>
	<p>Notes lack of definition of the key performance themes listed in section 5.1.2 and Table 5.1 such as ‘purposeful prioritisation’ and ‘vibrant partner ecosystem’ and therefore are unable to comment on these at this time. Request for full explanation within future SEA reporting.</p>	<p>Section 2 of this SEA ER has explained how thematic content has evolved over Sprints 1 – 4 to reach final proposals for inclusion within the Draft Plan for Transformation.</p>
	<p>Appendices - Suggests inclusion of non-statutory ‘wild-land’ areas within the SEA, stated as nationally important within NPF3.</p>	<p>Noted, although the high-level nature of the emerging Plan for Transformation means there are no specific implications for wild land areas at this time. Impacts on wild land will be considered where relevant within Scottish Water’s investment appraisals and through future implementation of the longer-term Transformation Programme.</p>
Historic Environment Scotland (HES)	<p>Consultation period- HES notes proposal of 5 week consultation period on emerging TP and its environmental report, noting that they would normally recommend a consultation period of 6 weeks.</p>	<p>At the time of preparing the SEA Scoping Report a 5-week consultation period was only proposed to minimise programme impacts and risks associated with adopting a shorter consultation period were identified. The programme has now been revised such that a standard 6 week consultation on the Draft TP and accompanying SEA ER will now take place. This aligns with the requests made by HES and SEPA.</p>
Scottish Environment Protection Agency (SEPA)	<p>Notes the 5 week consultation period proposed for the ER is shorter than the usual 6 week consultation period and questions whether a 5 week consultation period is adequate for the public and other stakeholders to effectively consider the ER.</p>	

Environmental Report
Scottish Water Plan for Transformation

- 4.4.6 Taking account of the changes outlined in **Table 4.2** and **4.3**, the finalised SEA Framework used to assess the likely significant environmental effects of the Draft Plan for Transformation is detailed in **Table 4.4**.

Environmental Report
 Scottish Water Plan for Transformation

Table 4.4 Scottish Water Plan for Transformation Final SEA Framework

Grouping of Environmental Aspects	SEA Objectives	Assessment Criteria – Relevant Themes & Initiatives	Assessment Criteria – Community Development & Environmental Management and Infrastructure Related Themes and Initiatives <i>Will the initiative...?</i>
Air and Climate	1. Climate Change: Respond to the climate emergency by decarbonising infrastructure, achieving net zero operational emissions by 2040, facilitating a low carbon economy and adapting to accommodate the effects of climate change.	Review and identify opportunities to enhance the coverage of relevant environmental issues, metrics and monitoring arrangements.	<ul style="list-style-type: none"> ■ Support the achievement of Scottish Government climate change mitigation targets?; ■ Appropriately contribute to the achievement of targets set out in Scottish Water’s Net Zero Emissions Routemap?; ■ Maximise potential reductions in greenhouse gas (GHG) emissions?; ■ Support the minimisation of energy use?; ■ Support the delivery of renewable and low carbon energy and reduce dependency on non-renewable sources?; ■ Facilitate investment in and promote the use of low carbon and sustainable infrastructure?; ■ Implement adaptation measures to address the likely effects of climate change, including increased flood risks?; ■ Promote sustainable design that minimises GHG emissions and is adaptable to the effects of climate change?; and, ■ Enhance resilience to adverse weather and the effects of climate change?
	2. Air Quality and Amenity: Tackle poor air quality, reduce concentrations of harmful atmospheric pollutants and minimise exposure to noise and vibration.		<ul style="list-style-type: none"> ■ Maintain or improve air quality?; ■ Reduce exposure to poor air quality?; ■ Prevent and reduce emissions of harmful pollutants?; and,

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Assessment Criteria – Relevant Themes & Initiatives	Assessment Criteria – Community Development & Environmental Management and Infrastructure Related Themes and Initiatives <i>Will the initiative...?</i>
			<ul style="list-style-type: none"> ▪ Impact on the management or environmental conditions of Air Quality Management Areas?
Physical Environment	<p>3. Biodiversity, Geodiversity and Soil: Conserve, protect and enhance biodiversity and geodiversity interests, including through safeguarding important sites, species and soil resources and by protecting green infrastructure.</p>	<p>Review and identify opportunities to enhance the coverage of relevant environmental issues, metrics and monitoring arrangements.</p>	<ul style="list-style-type: none"> ▪ Ensure appropriate safeguards for the integrity and conservation objectives of sites designated at international, national or local levels for reasons of biodiversity or geodiversity value or species protection?; ▪ Protect and enhance valued species and habitats?; ▪ Safeguard against habitat loss or fragmentation?; ▪ Protect or enhance protected trees or important woodland areas?; ▪ Improve access to nature?; ▪ Remediate known contamination of land and groundwater?; ▪ Safeguard best quality and locally important agricultural land?; ▪ Protect and enhance important soil resources?; ▪ Protect and enhance ecological connectivity and resilience?; ▪ Protect and improve multi-functional attributes of the green infrastructure network?; and, ▪ Support delivery of biodiversity net gain?

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Assessment Criteria – Relevant Themes & Initiatives	Assessment Criteria – Community Development & Environmental Management and Infrastructure Related Themes and Initiatives <i>Will the initiative...?</i>
	4. Water, Flood Risk and Resilience: Conserve, protect and enhance water environments, water quality and water resources, whilst reducing flood risks.		<ul style="list-style-type: none"> ■ Improve the quality and WFD status (overall, chemical and ecological) of waterbodies?; ■ Affect the volume of surface water runoff into or abstraction from water bodies?; ■ Support improvements to water infrastructure (water supply and sewerage)?; ■ Enhance resilience to and minimise the risk of flooding from all sources of flooding to all people, property, infrastructure and environmental assets?; ■ Reduce flood risks to Scottish Water assets?; ■ Reduce flood risk resulting from Scottish Water assets to communities?; ■ Manage residual flood risks appropriately and avoid new flood risks?;and, ■ Promote the deployment of sustainable urban drainage systems?
	5. Cultural Heritage: Conserve, protect and enhance the historic environment and cultural assets.		<ul style="list-style-type: none"> ■ Protect and increase access to cultural, leisure and recreation opportunities?; ■ Conserve, protect and enhance historic environment assets of national, regional and local importance and their settings?; ■ Protect and enhance the qualities of areas of cultural significance, including where the natural environment has been shaped by land management practices?; ■ Promote sensitive re-use and regeneration of historic buildings and historic townscapes?;

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Assessment Criteria – Relevant Themes & Initiatives	Assessment Criteria – Community Development & Environmental Management and Infrastructure Related Themes and Initiatives <i>Will the initiative...?</i>
	6. Landscape: Protect and enhance landscape character, townscape character and visual amenity.		<ul style="list-style-type: none"> ▪ Protect and enhance landscape character?; ▪ Safeguard important landscape and townscape features?; and, ▪ Protect visual amenity and valued views?
Socio-economic	7. Inclusive Growth: Meet the needs of a growing population and improve social and economic prosperity for all, including through reducing societal inequalities.	Review and identify opportunities to enhance the coverage of relevant environmental and socio-economic issues, metrics and monitoring arrangements.	<ul style="list-style-type: none"> ▪ Promote a culture of equality, fairness and respect for people and the environment?; ▪ Tackle poverty and social exclusion?; ▪ Promote social cohesion and integration?; ▪ Promote equity between population groups?; ▪ Reduce fuel poverty?; ▪ Protect and enhance access to high quality community facilities, public services and key amenities?; ▪ Support better integration of land-use/spatial planning, transport planning and economic development decisions?; ▪ Support the delivery of existing and emerging spatial strategies at national, regional and local levels?; and, ▪ Address infrastructure needs resulting from existing and changing socio-economic characteristics?
	8. Health: Improve the health of the population (resident, workplace and visitor), including with respect to physical and mental health and social wellbeing.		<ul style="list-style-type: none"> ▪ Ensuring high-quality drinking water and adequate wastewater treatment for all?;

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Assessment Criteria – Relevant Themes & Initiatives	Assessment Criteria – Community Development & Environmental Management and Infrastructure Related Themes and Initiatives <i>Will the initiative...?</i>
			<ul style="list-style-type: none"> ▪ Reduce health inequalities and improve the physical and mental health and wellbeing of communities?; ▪ Facilitate or encourage active travel or physical recreation?; and, ▪ Enhance access to open spaces and nature?
	<p>9. Land, Infrastructure & Resources: Manage, maintain and where possible improve the efficient and effective use of natural resources, land and infrastructure to meet identified needs.</p>		<ul style="list-style-type: none"> ▪ Unlock the delivery of housing to meet identified needs?; ▪ Prioritise the re-development of previously developed land?; ▪ Support the provision of adequate water infrastructure and services to meet identified population needs and support economic growth?; ▪ Minimise the production of waste?; ▪ Promote the principles of circular economy?; and, ▪ Treat and process waste with minimal environmental impact?

4.5 SEA Assessment Phase

Part 1 – Testing & Refinement

- 4.5.1 The SEA process has informed the development of the Draft Plan for Transformation through:
- Workshops led by m² to review the implications of proposed longer-term transformation initiatives which, whilst not individually identified within the plan at this early stage, have the potential to generate environmental impacts. Outcomes from these workshops are summarised within the SEA focused review of key transformation workstreams and associated recommendations presented in **Appendix C**;
 - Weekly meetings between parties to review the SEA programme and discuss environmental issues and opportunities arising from development of the Plan for Transformation; and,
 - ‘Critical friend’ reviews of each iteration of the emerging Draft Plan for Transformation by the SEA project team to address uncertainties and weaknesses and to identify opportunities to enhance the clarity and effectiveness of the document. In consequence, the SEA reported in this ER concludes that the finalised version of the Draft Plan for Transformation is likely to generate multiple significant beneficial environmental effects, with no significant adverse effects considered likely at this stage. As the majority of pre-assessment mitigation recommendations made by the SEA project team have now been incorporated into the Draft Plan for Transformation, only a small number of further recommendations have been identified through the assessment phase as detailed in **Section 7**.
- 4.5.2 The ‘testing and refinement’ element of the SEA Assessment Phase therefore involved providing strategy advice and technical inputs to shape the emerging content of the Draft Plan for Transformation. This was programmed to align with Sprints 3 and 4, through which Scottish Water developed refined transformation themes and collated content for inclusion within the plan.

Part 2 – Preparation of SEA ER

- 4.5.3 The SEA has been undertaken in accordance with the approach and SEA Framework set out in the Plan for Transformation SEA Scoping Report (April 2021). However, since the publication of the SEA Scoping Report, the content of the Draft Plan for Transformation has naturally evolved to encapsulate a longer-term strategy for the transformation of Scottish Water’s activities and business. This means the SEA now focuses on testing the compatibility of the Draft Plan for Transformation with the SEA Objectives and on the coverage of key environmental issues, rather than seeking to identify individual likely significant effects.
- 4.5.4 The assessment methodology as set out in the SEA Scoping Report has therefore necessarily been revised and reduced in scale, with the assessment now taking the form of a qualitative narrative as set out in **Section 6**. This assessment of each thematic section within the Draft Plan for Transformation has been conducted with reference to three overarching questions linked to the SEA Framework (**Table 4.4**):
- i. Does the plan / theme set out clear and adequate links to environmental issues, i.e. a sound platform for action?;
 - ii. Is the scope of future transformative initiatives (to be implemented through a longer-term Transformation Programme) clearly defined and do these respond to key environmental challenges?; and,
 - iii. Are there any gaps in the coverage of environmental aspects within the narrative?
- 4.5.5 The assessment also includes a tabular analysis to demonstrate the compatibility of proposed transformation workstreams with the SEA Framework. However, as the Draft Plan for Transformation does not specify individual initiatives or projects, no individual substantive components could be identified which would be suitable for typical SEA matrix-based assessments. Instead, the SEA has focused on examining the coverage of key environmental issues within proposed transformation themes to ensure the Plan for Transformation provides

a strong basis for the development of appropriate thematic initiatives (e.g. enhanced investment appraisals and decision making processes, enhanced stakeholder relations and partnerships, etc) which, depending on their characteristics, have the potential to generate likely significant beneficial environmental effects.

Approach to Uncertainties, Assumptions and Mitigation

- 4.5.6 The identification of any assumptions and uncertainties is an important element of SEA, as such all Plan for Transformation Actions need to be unambiguous to ensure they can be implemented as intended. The reviews that have taken place as the emerging Plan for Transformation was drafted allowed ambiguities and other weaknesses to be identified and appropriate mitigation or enhancement recommendations to be devised by the SEA project team to address such issues at an early stage.
- 4.5.7 As detailed in **Section 5**, a limited set of recommendations to enhance the draft Plan for Transformation were provided by the SEA project team to Scottish Water throughout June - August 2021, taking the form of a series of technical notes and feedback from the SEA project team on earlier draft versions of the Plan. Following this, the majority of recommendations were addressed by Scottish Water and incorporated into the 'settled draft' version of the Plan for Transformation. This final ER includes updated assessment conclusions to take account of where changes (i.e. mitigation) has now been incorporated into the Draft Plan for Transformation, in effect meaning that a residual assessment is provided in this ER (**see Section 6**).

4.6 Approach to Reasonable Alternatives

- 4.6.1 The 2005 Act requires the likely significant effects of implementing both a plan or programme (i.e. the emerging Plan for Transformation) and reasonable alternatives to it to be examined, as well as the rationale for identifying reasonable alternatives to be described. The 2005 Act further states that to be considered as reasonable alternatives, options (e.g. alternative policy criteria or site allocations) must relate to the plan or programmes' corresponding objectives and geographical scope. To be eligible for consideration in this SEA process, reasonable alternatives must therefore be:
- **Realistic**, in that they are plausible alternatives which could be implemented instead of proposals within the emerging Plan for Transformation and are consistent with relevant national and other policy frameworks;
 - **Related to the objectives of the emerging Plan for Transformation** (i.e. they contribute to the implementation of long term transformation activities); and,
 - Within the **scope** of the emerging Plan for Transformation, i.e. any reasonable alternatives would need to relate to actions which could be undertaken within Scotland and within the 20 year lifetime of the Plan for Transformation.
- 4.6.2 At the time of preparing the SEA Scoping Report it was envisaged the Plan for Transformation would encapsulate a wide range of specific thematic initiatives to underpin the transformation of Scottish Water's operational and investment activities. Since the publication of the SEA Scoping Report, the content of the Draft Plan for Transformation has evolved to encapsulate a longer-term strategy for the transformation of Scottish Water's activities and business. This means the SEA now focuses on testing the compatibility of the Draft Plan for Transformation with the SEA Objectives and on the coverage of key environmental issues, rather than seeking to identify individual likely significant effects. For the purposes of this SEA, no reasonable alternatives to the high-level strategy outlined in the Draft Plan for Transformation could therefore be identified as requiring assessment within this ER.

5 How Has the SEA Informed the Draft Plan for Transformation?

5.1 Introduction

- 5.1.1 SEA is being used by Scottish Water as a planmaking tool in addition to demonstrating statutory compliance. This approach allows the environmental implications of all substantive plan components to be tested at the earliest opportunity and for any uncertainties, issues or mitigation requirements identified during the impact assessment to be addressed during the preparation of the Draft Plan for Transformation. This section details the ways in which the SEA process, to date, has informed and improved the emerging Plan for Transformation.
- 5.1.2 The identification of any assumptions and uncertainties is an important element of SEA, as all components of a development plan need to be unambiguous to ensure they can be implemented as intended. In addition, the 2005 Act requires consideration to be given to “the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme”. A key role of the SEA process is, therefore, to devise appropriate mitigation and enhancement recommendations in order to address identified uncertainties, resolve deficiencies and strengthen the sustainability performance of the plan being assessed.
- 5.1.3 There are several methods which can be used to mitigate potential adverse impacts and more widely enhance the contribution of specific components of an emerging plan to achieving sustainable development:
- Developing additional components to address key issues not fully addressed within the current version of the emerging plan or to mitigate specific predicted impacts;
 - Adjusting or expanding components to ensure they can be implemented as intended and effectively address relevant issues; or,
 - Setting requirements to show how future actions or proposals addresses key environmental and sustainability issues identified in the plan.
- 5.1.4 This Section sets out the activities undertaken by the SEA project team during the assessment phase of the SEA (June – August 2021), following the completion of the SEA Scoping phase.

5.2 SEA Recommendations

- 5.2.1 Following the completion of the SEA Scoping phase, the SEA project team provided ‘critical friend’ support during development of the Plan for Transformation. This firstly involved undertaking SEA focused reviews of four key workstreams linked to the Plan for Transformation which are being developed under Scottish Water’s longer-term Transformation Programme and at this early stage have the potential to generate likely significant environmental effects. As reported in Appendix C, the relevant workstreams and those elements included within the SEA focused review are:
- iv. Development of Customer & Community Centricity Vision and Strategy: review of Scottish Water’s key environmental stakeholder relationships with SEPA, NatureScot and Scotland’s planning system;
 - v. Development of replacement Environmental Quality System (EQS): review of existing EQS and replacement EQS specification;
 - vi. Enhancement of Sustainable Investment Decision Making capabilities: review of Investment Appraisal Guidance (Version 2) and Draft Benefits Framework; and,
 - vii. Beyond net zero emissions; review of emissions reduction strategy as set out within Scottish Water’s Net Zero Emissions Routemap (2020). The Plan for Transformation directly supports the continued implementation of this Routemap.

Environmental Report
 Scottish Water Plan for Transformation

5.2.2 The review findings summarised in **Appendix C** provide a series of recommendations across the four areas, including suggestions to:

- More directly incorporate environmental considerations into each stage of investment-based decision making, including likely adverse impacts and risks from different options as well as identifying how interventions/options align with positive environmental and social outcomes;
- Provide training and guidance for relevant employees to communicate the importance of considering environmental impacts in project design, development and decision making;
- In preparing a Customer and Community Centricity Vision and Strategy, acknowledge Scottish Water's key roles in addressing socio-economic and environmental issues facing communities;
- Embed SEA principles within investment decision making and refine Scottish Water's new investment appraisal process to ensure all reasonable alternative options to meet an identified Need and to help implement ministerial and Strategic Plan objectives are transparently and timeously evaluated, taking account of relevant environmental impacts;
- Confirm the proposed relationship between the Plan for Transformation and Scottish Water's Net Zero Emissions Routemap (NZER) (now confirmed within the plan);
- In future reviews and updates of the NZER, identify more specific timescales and delivery mechanisms for individual targets and actions to confirm how Scottish Water's existing and proposed accelerated emissions reduction targets can be achieved. The NZER should provide a clear strategy and policy direction for Scottish Water, under which individual directly linked projects can be developed and executed;
- View the development of a replacement Environmental Quality System (EQS) as an early part of transformational action. The replacement EQS should be and is being designed to maximise integration and efficiency benefits from all workflows driven within a single platform, including the recognition of environmental benefits and adaptive capabilities to respond to future environmental monitoring requirements; and,
- Training should be provided to relevant employees regarding efficient use of the replacement EQS, including detailed consideration of how environmental impacts are monitored through business processes and how environmental data is shared with regulators.

5.2.3 The settled version of the Draft Plan for Transformation (including Appendix) was then subject to review by the SEA project team who provided a limited set of recommendations for change. These recommendations, summarised in **Table 5.1** below, represent 'mitigation' proposals which have been developed through the SEA to improve the quality of the Draft Plan for Transformation.

Table 5.1 SEA Recommendations

SEA Project Team Feedback	Scottish Water Response
Alteration of wording throughout to reflect the long-term transformation programme and how the Plan for Transformation will underpin the long-term transformation programme which will reflect emerging and future challenges.	Plan amended to reflect planned longer term transformational activities.
Should state the need to recognise the principal importance of meeting the challenge of responding to climate change	Plan amended.
Amend wording to reflect the ongoing transformation with regard to engagement with stakeholders.	As this is outside the remit of the Plan for Transformation, this recommendation will be addressed in other activities outside of the Plan.

SEA Project Team Feedback	Scottish Water Response
Important to state how the net zero emissions routemap will be monitored and updated as the climate emergency continues to evolve. Amendment requested to direct the reader to read the net zero emissions routemap in tandem with the Plan for Transformation once finalised.	Plan amended.
There is a need to develop new approaches to embed environmental, social and economic impacts and benefits within decision making.	Again, this is outside the direct remit of the Plan for Transformation but will be reflected within the long-term Transformation Programme.

5.3 Summary

- 5.3.1 This section has demonstrated that, through reviewing emerging transformational initiatives and plan content, the SEA process has positively influenced the content of the Draft Plan for Transformation. As a result, the document is now considered to be more robust and effective in terms of addressing relevant environmental issues.
- 5.3.2 Once the SEA ER consultation has concluded and the finalised Plan for Transformation is approved by Scottish Water, a SEA Post Adoption Statement will be prepared in accordance with statutory requirements. This will set out how environmental considerations have been taken account of throughout the preparation of the Plan for Transformation and how likely significant environmental effects will be monitored.

6 SEA of the Plan for Transformation

6.1 Overview

- 6.1.1 This section provides the results of the SEA undertaken in respect of the substantive components of the Draft Plan for Transformation, namely the suite of performance themes to support the delivery of the long-term transformation in Scottish Water's operational and investment activities. Mitigation and enhancement recommendations were developed through the assessment to enhance the sustainability performance and clarity of the Plan for Transformation as detailed in **Section 7**.

6.2 SEA Key Findings

- 6.2.1 This section presents key findings from the SEA of the Draft Plan for Transformation, firstly providing a qualitative assessment of the main body of the Plan before reviewing each performance theme based on the three overarching questions outlined above. An analysis of the compatibility of the Draft Plan for Transformation with the SEA Framework is also set out.

Assessment Findings – Plan for Transformation Main Document

- 6.2.2 The Plan for Transformation sets out Scottish Water's ambitions to transform Scotland's water and waste services to enhance the life and wellbeing of communities, businesses and the environment across Scotland. The Plan aligns with the Strategic Plan (2020), seeking to implement the following objectives:
- **Service excellence:** adapting to a changing climate, dealing with our ageing assets and meeting our customers' evolving expectations;
 - **Beyond net zero emissions:** showing leadership in mitigating climate change and enhancing Scotland's natural environment; and,
 - **Great value and financial sustainability:** customers will receive great value, now and in the future, and we will be financially sustainable.
- 6.2.3 The main text of the Plan for Transformation sets out the ambitions, steps and timescales for delivery of Scottish Water's long-term transformation programme, identifying the benefits of intended transformation activities as:
- Service excellence;
 - Beyond net zero emissions;
 - Great value & financial stability;
 - People experience; and,
 - Stakeholder confidence.
- 6.2.4 To secure these benefits the Draft Plan for Transformation sets out a high-level strategy for Scottish Water to transform operational and investment activities in line with the Strategic Plan. Proposals are grouped around an overall strategic vision and set of nine themes which are being taken forward through specific workstreams. As discussed in **Section 2**, the first five of these are performance themes and incorporate aspects which are likely to generate direct and indirect environmental impacts:
- Customer & Community Centricity;
 - Sustainable Investment Decision Making;
 - Intelligent Asset Base;
 - Lean & Agile Solutions Delivery; and,
 - Partner Ecosystem.

Does the Plan Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for action?

- 6.2.5 The Draft Plan for Transformation and related longer term transformation programme at Scottish Water has extensive links to environmental considerations via a range of initiatives, including the Asset Management Transformation Routemap (AMTR) and Net Zero Emissions Routemap (NZER). The NZER sets out a range of commitments to reduce emissions across electricity, process emissions, gas & fuel oil, transport & travel, investment and storing carbon. The Plan for Transformation and the NZER will be implemented in tandem, demonstrating how Scottish Water will hold itself accountable on its journey towards achieving net zero emissions.
- 6.2.6 The Draft Plan for Transformation explicitly recognises the need to adapt to the evolving climate emergency and the key role that Scottish Water's infrastructure will play in the decarbonisation of the utilities infrastructure industry in Scotland. It also identifies a need to kickstart a long term asset management, renewal and replacement programme, and in doing so to deliver environmental benefits.
- 6.2.7 The plan sets out that, through implementing a long term transformation programme, Scottish Water are seeking to achieve an approximate 20% reduction in carbon intensity, a 15 - 20ktCO₂e reduction in operational emissions over the next ten years and enable a 50kt CO₂e reduction in the investment carbon footprint through partnership working, smart networks and lean processes. Additional carbon emission reductions will come from the implementation of workstreams set out within the NZER, which transformational activities will help to deliver more efficiently. Importantly, the Draft Plan for Transformation also identifies for the first time the possibility of reaching net zero emissions prior to the previous 2040 target established by the NZER.
- 6.2.8 Stakeholder engagement is also highlighted as a key area of transformation, including the development of new approaches to embed environmental, social and economic impacts and benefits within decision making. The Draft Plan for Transformation defines the key "sector stakeholders" for Scottish Water as being those individuals and bodies involved with setting and implementing Ministerial Objectives, WICS' Final Determination, Customer Forum Memorandum of Agreements and SEPA Sector Plans. However, the plan also identifies the need to build the confidence of wider external stakeholders and communities in Scottish Water.

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.9 The Draft Plan for Transformation sets out the three phases of transformation over a ten-year period which will continue to evolve based on the changing needs of communities, partners and stakeholders in Scotland. This includes actions to reach net zero emissions from the beginning of the programme and over the ten-year period. The flexibility of the long-term transformation programme provides opportunities for Scottish Water to address the challenges of climate change, ageing assets and how environmental benefits as a result of strategic investment can be recognised.

Are There any Gaps in the Coverage of Environmental Aspects Within the Narrative?

- 6.2.10 The SEA Scoping Report identified three key environmental challenges for the Plan for Transformation to respond to, namely:
- Responding to the climate emergency – decarbonisation and climate adaptation;
 - Developing, managing and replacing infrastructure assets; and,
 - Enhancing environmental quality.
- 6.2.11 The Draft Plan for Transformation outlines a high-level strategy regarding asset management and climate adaption. However, as drafted the enhancement of environmental quality narrative section simply outlines additional benefits beyond decarbonisation such as increased biodiversity, promotion of outdoor recreation and health benefits for local communities, without setting out implementation measures or explaining what projects could be undertaken to improve physical environmental quality. Further SEA recommendations to address this are detailed in **Section 7**.

Assessment Findings – Plan for Transformation Appendix

- 6.2.12 The second stage of the assessment reviewed the SEA implications of the five ‘performance’ themes detailed within the Plan for Transformation Appendix, each of which incorporate aspects which are likely to generate direct and indirect environmental impacts. Each theme is introduced below before being assessed under the same three subheadings.

Purpose, Customer & Community Centricity

- 6.2.13 This theme is focused on how to embed customer & community centricity into all Scottish Water activities and transition to prioritise customers and communities.

Does the Theme Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for Action?

- 6.2.14 While the wording of the theme does not have direct environmental considerations, it recognises the need to have wider engagement with communities and stakeholders. This in turn will have wider socioeconomic benefits for communities by delivering the services they need to adapt as we feel the effects of climate change in Scotland.

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.15 The theme identifies proactive targets across the next three years. The nature of this theme (and the need for continuous engagement with stakeholders and communities) indicates a long term and evolving engagement programme which is flexible enough to meet existing and future needs.

Are There any Gaps in the Coverage of Environmental Aspects Within the Theme Narrative?

- 6.2.16 The theme provides high level objectives for the transition of Scottish Water’s practises to be more focused towards customers, community and wider stakeholders. Recognising the key driver of enhancing environmental quality identified at Scoping stage, this theme could include specific initiatives focused on providing a better quality of life for communities with regards to improving appearance of assets or potentially providing or enhancing recreational access to Scottish Water owned land where appropriate.

Sustainable Investment Decision Making

- 6.2.17 This theme seeks to maximise the benefits of investment to customers, communities and the environment throughout the entirety of Scottish Water activities.

Does the Theme Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for Action?

- 6.2.18 At the time of preparing the Strategic Plan (2019 – 2020) it was envisaged that a six capitals approach may be adopted to strengthen investment planning, prioritisation and delivery. Significant further work has now been undertaken to update and refine Scottish Water’s investment decision making processes and capabilities. This identified key limitations of pursuing the six capitals approach, not least being able to consistently apply six high level reporting categories across a wide range of situations in a way which meaningfully informs decisions rather than simply ‘aggregating up’ to report outcomes. Under the Sustainable Investment Decision Making theme, the approach to decision making has, therefore, intentionally shifted away from a six capitals approach to instead adopt a more detailed structure framed around the Scottish Government’s National Performance Framework. This provides greater transparency in linking individual investment decisions to the Ministerial Objectives and to fulfilling Scottish Water’s range of statutory duties.

- 6.2.19 To implement a more robust approach to investment decision making and prioritisation, work is currently being progressed under this theme by Scottish Water, including recent development of a draft ‘Benefits Framework’ and updated project investment appraisal guidance (as reviewed in **Appendix C**). For the avoidance of doubt, the term ‘benefits’ has been defined by Scottish Water in accordance with standard economic practice to include both positive benefits and

negative disbenefits. The draft Benefits Framework therefore provides a consistent mechanism for likely impacts (positive and negative) of projects, options and interventions to be captured within decision making.

- 6.2.20 For the purposes of this SEA it is assumed that updates to Scottish Water’s investment appraisal guidance and development of the Benefits Framework falls within the 11 interconnected improvement areas which are indirectly mentioned as forming part of this theme. However, as drafted the plan does not specify what the improvement areas are and therefore also whether these relate to environmental issues. Recommendations to maximise social, environmental and economic benefits from more robust investment decision making at project and programme levels have been identified through the SEA review of Scottish Water’s investment appraisal guidance and draft Benefits Framework presented in **Appendix C**.

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.21 This theme aligns with Scottish Water’s Asset Management Transformation Routemap over the next two years but identifies a need for additional resourcing requirements to prioritise two initial spotlight initiatives; Dynamic Strategic Investment Planning and Near-Term Capital Allocation. However, the Draft Plan for Transformation does not provide details of specific transformation activities beyond the initial two years of theme development.

Are There any Gaps in the Coverage of Environmental Aspects Within the Theme Narrative?

- 6.2.22 As drafted, no detail is provided regarding the 11 interconnected improvement areas which the plan states are included in this theme. Notwithstanding the potential development of relevant and beneficial initiatives through the longer-term Transformation Programme, as drafted SEA project team are therefore unable to fully confirm the potential coverage of environmental elements within this theme.

Intelligent Asset Base

- 6.2.23 This theme aims to incorporate high quality data and analytics driven decisions into current practice in combination with ‘best in class’ knowledge management to operate, monitor, maintain, automate and remote-control assets to support Scottish Water’s strategic objectives and wellbeing.

Does the Theme Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for Action?

- 6.2.24 As drafted, this theme relates to data and knowledge management in general and therefore does not address specific environmental considerations, e.g. how environmental information could be or should be factored into enhanced data analytics capabilities to be delivered through the Intelligent Asset Base (IAB) workstream. It is however assumed that data recording environmental impacts/benefits will be factored into decision making regarding the renewal or replacement of assets and that the IAB will provide enhanced abilities to analyse environmental data.

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.25 The theme identified four IAB pilot schemes which will commence from October 2021 into October 2022. Pending successful completion, these pilots will be scaled up. As drafted, there are no indications of how IAB is expected to evolve past 2022.

Are There any Gaps in the Coverage of Environmental Aspects Within the Theme Narrative?

- 6.2.26 As drafted, no details are provided regarding any environment data proposals which may be developed through the longer-term Plan for Transformation for inclusion within the Intelligent Asset Base. As detailed further below, the findings of the SEA review undertaken of the emerging Replacement Environmental Quality System (EQS) should be considered when

identifying how environmental information and data of relevance to asset management may be factored into the IAB.

Lean & Agile Solutions Delivery

- 6.2.27 The objectives of this theme are to streamline customer journeys, processes and governance, facilitate a mindset shift to continual improvement, productivity focus, and exemplar quality across Scottish Water and to create cross functional and agile teams in key business areas to enhance autonomous working. Of note, this theme focuses on business practices and employees so only has an indirect relationship with environmental issues.

Does the Theme Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for Action?

- 6.2.28 As drafted, there are presently no indications within the plan of how environmental issues will be measured across the relevant teams within Scottish Water. However, the theme refers to a prioritised programme of work to test out new approaches. This should ensure any changes in processes are not to the detriment of environmental monitoring or potential for improvements to environmental quality in decision making within and between technical teams.

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.29 The theme provides a five-year timescale, including a range of testing initiatives within the first wave which commenced in July 2021. On successful completion of the first wave, positive outcomes will be scaled up and expanded to all areas of the business within a five-year period.

Are There any Gaps in the Coverage of Environmental Aspects Within the Theme Narrative?

- 6.2.30 As drafted, this thematic section of the Draft Plan for Transformation does not reference Scottish Water's emerging Replacement EQS or other potential proposals which may be developed in future under the Lean & Agile Solutions Delivery theme to respond to environmental challenges. The SEA focused review of the Replacement EQS provided in Appendix C indicates that the Replacement EQS is an early example of transformational activity and links directly to environmental issues. To be effective, the Replacement EQS should be designed to maximise the integration and efficiency benefits from all workflows being driven from a single platform. This will allow all parts of the EQS to be used by all employees across Scottish Water and should enable more efficient information sharing between teams and with stakeholders. The replacement EQS should be designed to underpin a holistic approach to environmental monitoring and management, rather than individual indicators being tracked separately.

Partner Ecosystem

- 6.2.31 This theme seeks to define, deliver and embed a partnership approach to deliver Scottish Water's strategic ambitions and objectives.

Does the Theme Set Out Clear and Adequate Links to Environmental Issues, I.e. a Sound Platform for Action?

- 6.2.32 The Partner Ecosystem thematic section sets out a collaborative approach which Scottish Water will adopt to foster collaboration and innovation between partners in support of achieving their strategic ambitions. As drafted, the theme notes that the partner ecosystem way of working will help achieve Scottish Water's beyond net zero emissions target as set out within the NZER, but the role of partnership working to address other environmental challenges is not addressed. The thematic section also does not specify either the general types of organisations or specific stakeholders who will be identified as 'partners'. As such it is not fully clear whether this includes environmental stakeholders (e.g. building upon Scottish Water's existing Sustainable Growth Agreement with SEPA).

Is the Scope of Future Transformative Initiatives Clearly Defined and do These Respond to Key Environmental Challenges?

- 6.2.33 Initially, this theme will work to set the foundations of collaborative working within a six-month period, including the establishment of a collaboration framework aligned with the broader partner ecosystem, after which a set of initiatives will commence. It is not currently clear which actions will follow after this six-month period, suggesting the programme is still flexible at this early stage in its development.

Are There any Gaps in the Coverage of Environmental Aspects Eithin the Theme Narrative?

- 6.2.34 As drafted, the Partner Ecosystem thematic section does not specifically identify or address environmental stakeholder relationships, including how such relationships should be improved through partnering and other structural or governance enhancements. The high-level nature of the text means that no clear links to environmental issues are presently set out.

6.3 Compatibility of Draft Plan for Transformation with SEA Framework

- 6.3.1 Drawing together the assessment findings discussed above, a high-level assessment of the compatibility of the Draft Plan for Transformation with the SEA Objectives defined within the SEA Framework (**Table 4.4**) is presented in **Table 6.1** below. As discussed in Section 4.4, this focuses on the coverage of key environmental issues and whether the plan has the potential to support future action to address environmental challenges, rather than seeking to identify individual likely significant effects at this stage.

Table 6.1: Compatibility of Draft Plan for Transformation with SEA Objectives

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
Air and Climate	1. Climate Change: Respond to the climate emergency by decarbonising infrastructure, achieving net zero operational emissions by 2040, facilitating a low carbon economy and adapting to accommodate the effects of climate change.	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Recognition of need for organisational, governance and structural changes to achieve beyond net zero target – business as usual projects and systems will not be sufficient; ■ Recognition of need to develop partnerships to respond to the climate emergency and adapt to the effects of climate change, and of the need to avoid silo working; and, ■ Identifies the need for transformational initiatives to support the continued implementation of Scottish Water’s Net Zero Emissions Routemap. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners for climate action, land management and peatland restoration. This should be reflected within the Customer & Community Centricity Strategy; ■ Alignment of all transformation initiatives with continued delivery of the NZER. All initiatives should be designed to support climate mitigation and adaptation action (directly or indirectly); ■ Clear definition and consistent application of climate benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels; and, ■ Implementation of a climate risk and vulnerability⁹ assessment to assess climate risks to the future delivery of services and assets. The findings

⁹ The effects of climate change (climate risk) are not experienced equally as the probability of a climate related event occurring (such as flooding or temperature rise) is dependent on several factors. The impact of an event occurring is also affected by vulnerability (the degree to which assets, buildings or communities will be affected by hazards due to their exposure, sensitivity, and adaptive capacity). The probability of specific hazards occurring, and the level of vulnerability (as well as capacity to act) are important factors when considering the risks which climate change poses to Scottish Water, including specifically risks to the future delivery of the services and asset management.

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<p>should inform future transformation initiatives as well as asset management and replacement programmes.</p>
	<p>2. Air Quality and Amenity: Tackle poor air quality, reduce concentrations of harmful atmospheric pollutants and minimise exposure to noise and vibration.</p>	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ▪ Recognition of the need to protect and enhance community wellbeing ▪ Development and implementation of pro-active management approaches to resolve operational problems before they impact on communities and the environment; and, ▪ Development of Customer & Community Centricity Strategy and Insight Engine to place communities at the heart of Scottish Water's operations and plans. This would indirectly include avoiding or reducing adverse amenity impacts. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ▪ Stakeholder mapping to define specific partners to address local environmental and amenity issues. This should be reflected within the Customer & Community Centricity Strategy.
Physical Environment	<p>3. Biodiversity, Geodiversity and Soil: Conserve, protect and enhance biodiversity and geodiversity interests, including through safeguarding important sites, species and soil resources and by protecting green infrastructure.</p>	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ▪ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture ecological benefits and disbenefits in decision making. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p>

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to address biodiversity and peatland restoration issues. This should be reflected within the Customer & Community Centricity Strategy; ■ Strengthening of relationships with key environmental stakeholders including (but not limited to) NatureScot, SEPA and Scotland’s planning authorities at leadership and operational levels; ■ Inclusion of environmental data within Intelligent Asset Base, including in relation to the environmental condition, sensitivities and value of Scottish Water assets and land (e.g. monitoring and management of reservoirs in proximity to designated sites); and, ■ Clear definition and consistent application of ecological benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels.
	<p>4. Water, Flood Risk and Resilience: Conserve, protect and enhance water environments, water quality and water resources, whilst reducing flood risks.</p>	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Fundamentally, the transformation strategy outlined within the plan seeks to enable Scottish Water to manage the water environment and water resources in a sustainable manner; ■ Development of Intelligent Asset Base and replacement EQS (if delivered under the Lean Delivery theme) would enhance Scottish Water’s ability to manage water and wastewater systems efficiently. This would be expected to generate benefits including enhanced resilience and reduced flood risks; and, ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture flooding, water quality and WFD status benefits and disbenefits in decision making. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p>

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to address water environment issues. This should be reflected within the Customer & Community Centricity Strategy; ■ Strengthening of relationships with key water environmental stakeholders including (but not limited to) SEPA, Flood Risk Management Plan Partnerships and local authorities at leadership and operational levels. This could include renewal of the existing Sustainable Growth Agreement between Scottish Water and SEPA; ■ Consideration of how transformational initiatives will interact with partnership and regulatory relationships with SEPA, including in terms of the potential renewal of the existing Sustainable Growth Agreement; ■ Clear definition and consistent application of water environment benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels; and, ■ The climate risk and vulnerability assessment recommended in relation to SEA Objective 1 should include a particular focus on changes to water resources, supply networks, storage and flood risks due to climate change. This would enable Scottish Water to 'climate-proof' future investment strategies and programmes.
	5. Cultural Heritage: Conserve, protect and enhance the historic environment and cultural assets.	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to address heritage issues. This should be reflected within the Customer & Community Centricity Strategy; and,

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<ul style="list-style-type: none"> ■ Clear definition and consistent application of benefits and disbenefits (i.e. impacts) related to the historic environment through the Benefits Framework in investment decision making at programme and project levels. In particular, the new approach to investment appraisals and decision making should recognise the intrinsic and amenity values of heritage assets within Scottish Water's estate.
	6. Landscape: Protect and enhance landscape character, townscape character and visual amenity.	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture landscape and visual benefits and disbenefits in decision making; and, ■ Development of Customer & Community Centricity Strategy and Insight Engine to place communities at the heart of Scottish Water's operations and plans. This would indirectly include avoiding or reducing adverse landscape and visual impacts. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to protect and enhance landscapes, e.g. through land management practices. This should be reflected within the Customer & Community Centricity Strategy; ■ Clear definition and consistent application of landscape and visual benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels; and, ■ Strengthening of relationships with key environmental stakeholders including (but not limited to) NatureScot and Scotland's planning authorities at leadership and operational levels.
Socio-economic	7. Inclusive Growth: Meet the needs of a growing population and improve social and	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p>

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
	<p>economic prosperity for all, including through reducing societal inequalities</p>		<ul style="list-style-type: none"> ■ Recognition of the need to protect and enhance community wellbeing; ■ Recognition of need to develop partnerships and of the need to avoid silo working. Depending on the partners involved, this could include collaborative projects to improve water environment and social conditions in tandem; ■ Development and implementation of pro-active management approaches to resolve operational problems before they impact on communities and customers, including households and businesses; ■ Development of Customer & Community Centricity Strategy and Insight Engine to place communities at the heart of Scottish Water's operations and plans. This would indirectly include avoiding or reducing adverse impacts on communities and customers (inc. households and businesses); and, ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture social and economic benefits and disbenefits to customers and communities in decision making. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to address specific social and economic challenges of relevance to Scottish Water. This should be reflected within the Customer & Community Centricity Strategy; ■ Clear definition and consistent application of social and economic benefits and disbenefits (i.e. impacts) to customers and communities through the Benefits Framework in investment decision making at programme and project levels; ■ Strengthening of relationships with key stakeholders including (but not limited to) local authorities and economic development agencies at leadership and operational levels. This should enhance Scottish Water's

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<p>role in the delivery of existing and emerging spatial and economic strategies at national, regional and local levels;</p> <ul style="list-style-type: none"> ■ Inclusion of relevant socio-economic data within the Intelligent Asset Base, including dependencies between Scottish Water assets and community facilities, public services and key amenities; and, ■ Clear definition and consistent application of social and economic benefits and disbenefits (i.e. impacts) to customers and communities through the Benefits Framework in investment decision making at programme and project levels.
	<p>8. Health: Improve the health of the population (resident, workplace and visitor), including with respect to physical and mental health and social wellbeing.</p>	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Recognition of the need to protect and enhance community wellbeing; ■ Development and implementation of pro-active management approaches to resolve operational problems before they impact on communities and the environment; and, ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture health benefits and disbenefits in decision making. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p> <ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to improve health outcomes. This should be reflected within the Customer & Community Centricity Strategy; and, ■ Clear definition and consistent application of health benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels.

Environmental Report
Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
	<p>9. Land, Infrastructure & Resources: Manage, maintain and where possible improve the efficient and effective use of natural resources, land and infrastructure to meet identified needs</p>	+	<p>Relevant plan components which contribute to the achievement of this SEA Objective include:</p> <ul style="list-style-type: none"> ■ Recognition of the need to drive a strategic shift in how Scottish Water operate, monitor, maintain, automate and remote control assets; ■ Adopt a systems-thinking approach to asset management and investment prioritisation, rather than the asset-by-asset approach deployed historically; ■ Commitment to deliver an ongoing multi-year programme of asset management improvements laid out in Year 2 of Scottish Water’s Asset Management Transformation Routemap (AMTR); ■ Recognition of need to develop partnerships and of the need to avoid silo working. Following from commitments made within the Strategic Plan, this could include the development of land management and drainage partnerships; ■ Development and implementation of pro-active management approaches to resolve operational problems before they impact on communities and customers; ■ Development of Customer & Community Centricity Strategy and Insight Engine to place communities at the heart of Scottish Water’s operations and plans. This would help to optimise the use of Scottish Water’s infrastructure assets; and, ■ Recognition of the need to maximise the benefits of investment to customers, communities and the environment, by following a new approach to be implemented through initiatives being developed under the Sustainable Investment Decision Making theme. In particular, the Benefits Framework includes relevant categories to capture social and economic benefits and disbenefits to customers and communities in decision making. <p>To ensure the Plan for Transformation and associated longer-term Transformation Programme contribute effectively to this SEA Objective, the development and implementation of thematic initiatives should include:</p>

Environmental Report
 Scottish Water Plan for Transformation

Grouping of Environmental Aspects	SEA Objectives	Compatible? + / -	Commentary
			<ul style="list-style-type: none"> ■ Stakeholder mapping to define specific partners to address specific infrastructure and land management challenges of relevance to Scottish Water. This should be reflected within the Customer & Community Centricity Strategy; ■ Clear definition and consistent application of land, network resilience and other infrastructure related benefits and disbenefits (i.e. impacts) through the Benefits Framework in investment decision making at programme and project levels; ■ Inclusion of environmental data within Intelligent Asset Base, including in relation to the environmental condition, sensitivities and value of Scottish Water infrastructure assets and land (e.g. monitoring and management of reservoirs in proximity to designated sites); ■ Strengthening of relationships with key stakeholders including (but not limited to) planning authorities at leadership and operational levels. This should enhance Scottish Water's role in the delivery of existing and emerging spatial and economic strategies at national, regional and local levels; and, ■ Capitalise on ongoing planning reforms as a timely opportunity to transform Scottish Water's relationship with Scotland's planning authorities (and the wider development sector). This should include proposals to enhance: <ul style="list-style-type: none"> - Integration between investment strategy, environmental assessment, design, consenting and appraisal processes for water and wastewater infrastructure; - Co-ordination; - Consistency; - Holistic environmental management; and, - Pro-active involvement by Scottish Water in development planning and infrastructure delivery.

- 6.3.2 The high-level assessment provided in **Table 6.1** demonstrates that, in general, the Draft Plan for Transformation provides an appropriate high-level platform from which to develop specific transformational initiatives through the longer-term Transformation Programme in a way which can positively address key environmental challenges. Further consideration should however be given to ensuring the scope of individual thematic initiatives is sufficiently broad to encompass all relevant environmental considerations, even where initiatives primarily relate to general organisational or information flow processes, and that implementation mechanisms include collaborative working with all relevant environmental stakeholders. This will help Scottish Water to appropriately respond to the climate emergency, manage and replace assets in a sustainable manner, and enhance the quality of Scotland's physical environment.

7 Further Enhancement and Mitigation Measures

7.1 Introduction

7.1.1 This section details any outstanding further mitigation or enhancement recommendations which have been developed through the assessment but not yet incorporated within the Draft Plan for Transformation. The recommendations seek to address identified uncertainties and to further improve the clarity and environmental performance of the Plan for Transformation. These recommendations should be considered alongside any consultation responses and any implications of relevant policy developments in the interim when finalising the Plan for Transformation.

7.2 Further SEA Mitigation and Enhancement Recommendations

7.2.1 The findings detailed in **Section 6** indicate that a number of further clarifications and additional elements could usefully be added to the Plan for Transformation (main document and appendix) to enhance its clarity, coverage of key environmental issues and alignment with the SEA Framework:

- i. Clearer identification of the pathways (or types of projects) envisaged to deliver improvements in physical environmental quality and how these will be supported by transformational initiatives. Expanded narrative should extend beyond outlining the net zero emissions strategy to explain, for example, *how* improvements to biodiversity, opportunities for safe recreational access for communities in close proximity to Scottish Water land, mitigation of flooding impacts and other ecological improvements are envisaged to be unlocked;
- ii. Inclusion of a description regarding the development of a Benefits Framework to capture external benefits and disbenefits (i.e. including adverse environmental impacts) within investment decision making. It is understood Scottish Water will implement investment planning commitments set out within the Strategic Plan and in doing so the Benefits Framework will evolve to consistently take account of external impacts and risks (alongside positive benefits). This should include some detail regarding how environmental improvements and adverse impacts likely to result from an investment choice are identified and then evaluated or otherwise considered within decision making as a 'benefit';
- iii. Clearer introduction of the 9 workstreams within the Plan for Transformation – main document. This would provide clear hooks for the future development of specific initiatives under the long-term Transformation Programme;
- iv. Include details of the replacement Environmental Quality System (EQS) which is already under development as part of the Lean & Agile Solutions theme. The replacement EQS aims to support a transition to a more holistic and efficient approach to environmental monitoring and management. This will enable reliable, robust and efficient environmental reporting to evidence how Scottish Water is addressing key challenges, demonstrate regulatory compliance and support enhanced stakeholder engagement, whilst incorporating flexibility to adapt to future monitoring needs;
- v. Confirm arrangements for employee training to enable environmental benefits and impacts (disbenefits) to be properly account for in investment appraisals and decision making at project and programme levels;
- vi. Identify candidate or target organisations for Scottish Water to partner with and provide further details regarding the types of partnership working which are presently envisaged; and,

7.2.2 Implementation of detailed recommendations identified in **Appendix C** when implementing each workstream or initiative as part of the longer-term Transformation Programme.

8 Conclusion

8.1 Summary of Environmental Report

- 8.1.1 This Environmental Report (ER) has documented the findings of the SEA carried out in respect of the Draft Plan for Transformation developed by Scottish Water.
- 8.1.2 This ER has:
- Provided an overview of the Draft Plan for Transformation;
 - Identified the purpose and legal requirements of undertaking SEA;
 - Described the approach to undertaking the SEA of the Draft Plan for Transformation;
 - Detailed the findings of the SEA carried out in respect of the Draft Plan for Transformation; and,
 - Proposed mitigation and enhancement measures to improve the effectiveness and environmental performance of the emerging Plan for Transformation.
- 8.1.3 **Section 3** (supported by Appendices A & B) has outlined key information and issues which have informed the SEA process undertaken to date and which should be taken account of in the emerging Plan for Transformation itself. **Section 5** has demonstrated that through resolving uncertainties and inconsistencies, and by identifying opportunities to improve the clarity and sustainability performance of the emerging Plan for Transformation, the SA process has positively influenced the content of the document. As a result, the consultation version of the Draft Plan for Transformation is considered to be more robust and effective in terms of addressing relevant environmental issues.
- 8.1.4 The SEA project team reviewed the consultation version of the Draft Plan at the time of preparing this SA Report (August 2021) and considers that all SEA recommendations summarised in **Section 5** have been appropriately addressed, with additional provisions now incorporated within the Draft Plan for Transformation. This has made the SEA reporting process more efficient and improved the environmental performance of the Plan for Transformation.

8.2 How to Comment on this Environmental Report

- 8.2.1 This ER in respect of the Draft Plan for Transformation is being consulted on for a period of 6 weeks. Details of how to participate in the consultation are provided on Scottish Water's website and, in accordance with statutory requirements, will be published in a local newspaper.

8.3 Next Stages of Draft Plan for Transformation Preparation and SEA

- 8.3.1 All comments received during the six-week consultation period will be analysed by Scottish Water and taken account of when preparing the finalised Plan for Transformation. Any need for updates to the plan to address any relevant policy changes or other factors which may have changed in the interim will also be considered. The assessment team will then determine whether:
- Major modifications need to be made to the Draft Plan for Transformation, potentially resulting in the need to re-consult on substantive actions and an associated SEA ER (in the context of this high level Plan for Transformation this eventuality is considered unlikely but cannot be ruled out pre-consultation); or,
 - Only minor modifications need to be made to the Draft Plan for Transformation prior to approval (i.e. no further consultation necessary).
- 8.3.2 Once any post-consultation modifications have been incorporated into the Plan for Transformation and the document has been finalised, it will be published on Scottish Water's website. At this time, in line with statutory requirements a SEA Post Adoption Statement will be prepared to explain how the SEA process has closely informed the development of the Plan for Transformation and to provide an appropriate SEA monitoring framework.

8.4 Monitoring

- 8.4.1 The 2005 Act requires SEA Environmental Reports to provide a “description of the measures envisaged concerning monitoring” after the adoption of a plan or programme which is subject to SEA.

SEA Monitoring Framework

- 8.4.2 In accordance with statutory requirements a monitoring framework will be prepared as part of the SEA process to provide a mechanism to confirm the effectiveness of delivering individual actions and to identify associated environmental effects. The monitoring framework will also further specify delivery mechanisms associated with individual actions and to review the overall implementation of the Plan for Transformation.
- 8.4.3 For a successful monitoring framework, selected monitoring indicators must be specific, manageable and targeted towards measuring the implementation of the Plan for Transformation.
- 8.4.4 To allow the development of a monitoring framework to take account of all comments received regarding the scope and delivery of proposed themes as set out in the Plan for Transformation, the monitoring framework will be prepared following consultation. The SEA Framework (**Table 4.4**) will be used as the basis of developing a proportionate monitoring framework and the suite of metrics and mechanisms identified to monitor any likely significant effects on the environment of implementing the Plan for Transformation and the longer-term Transformation Programme will be confirmed within an SEA Post Adoption Statement.

Appendix A Baseline Review

Introduction

- A.1.1 This Appendix supports **Section 3** of the SEA Environmental Report by providing a review of current environmental and socio-economic conditions within the area likely to be affected by the emerging Plan for Transformation, in particular from planned water infrastructure investment across Scotland. In doing so this review:
- Identifies relevant aspects and characteristics of the environment, including those likely to be significantly affected by the implementation of the Scottish Water Plan for Transformation. This includes the identification of sites designated at international or national levels for reasons of biodiversity conservation, geological importance, heritage or landscape value which have the potential to be affected by the emerging Plan for Transformation;
 - Identifies relevant socio-economic trends and baseline conditions, again focusing on matters likely to be significantly affected by the outcome of the emerging Plan for Transformation; and,
 - Outlines how the identified environmental and socio-economic characteristics and baseline conditions should be addressed within the emerging Plan for Transformation and considered within this SEA. The terms “*must*” and “*should*” are used to differentiate between statutory requirements to consider particular issues and non-statutory considerations, for example evidence from the baseline analysis which indicates a need to improve environmental quality.
- A.1.2 In addition to fulfilling statutory information requirements, this evidence is used to:
- Outline the expected evolution of baseline environmental conditions in the absence of the emerging Plan for Transformation, as detailed in **Appendix A.3**; and;
 - Define a suite of evidence-based key environmental issues for the Plan for Transformation and this SEA process. This list of key environmental issues is presented in **Section 3** of this Environmental Report.
- A.1.3 To remain proportionate, a high-level environmental baseline is presented below in relation to three distinct categories and all constituent environmental aspects prescribed within the SEA Act:
- **Air and Climate:** Air & Climatic Factors;
 - **Physical Environment:** Biodiversity, Flora & Fauna, Soil, Water, Cultural Heritage & Landscape; and
 - **Socioeconomics:** Population, Human Health & Material Assets

Environmental and Socioeconomic Baseline Conditions

- A.1.4 The following section outlines the current environmental conditions (including with respect to population, health and infrastructure) within the area likely to be affected by the emerging Plan for Transformation, namely the whole of Scotland. This review also identifies associated existing environmental problems and issues of relevance to this SEA and which the Plan for Transformation and associated longer-term Transformation Programme should address.

Air and Climate

Air and Noise

- A.1.5 Air quality is directly impacted by natural pollutants and human activities such as industry, agriculture and transport. Air pollution can result in adverse impacts on human health, quality of life and the wider environment (e.g. acidification of water bodies and soils).
- A.1.6 Air quality pollutants include:
- Carbon Dioxide (CO₂);
 - Nitrogen oxides (NO_x);

- Particulate matter (PM_x)
- Sulphur dioxide (SO₂);
- Ammonia (NH₃);
- Benzene;
- 1,3-Butadiene;
- Toxic organic micro pollutants;
- Lead and heavy metals,
- Carbon monoxide;
- Nitric Oxide;
- Volatile organic compounds (VOCs); and
- Ozone (O₃).

A.1.7 Section 83(1) of the Environmental Act 1995 sets out a requirement that where air quality objectives are not being met or are unlikely to be met within the relevant period, Local Authorities must designate an Air Quality Management Area (AQMA). In Scotland, there are currently 38 AQMAs, with 15 of Scotland's 32 Local Authorities having declared at least one. The majority of these are in urban areas as a result of NO_x alone or in combination with PM₁₀ levels, and primarily as a result of traffic emissions.

A.1.8 The areas with the highest concentration of pollutants are Aberdeen, Dundee, Edinburgh, Glasgow and Perth.

Climatic Factors

A.1.9 Globally, the climate is changing at an unprecedented rate. Human activities, primarily the use of carbon-based fuels have been attributed as the main cause of increases of global temperatures and GHG¹⁰. Many human activities that contribute to climate change (e.g. transport and energy generation) are often also responsible for generating air pollution.

A.1.10 In 2017, Scotland's greenhouse gas emissions were measured as 40.5 MtCO_{2e}, down 46.8% from 1990 and a 3.3% reduction from 2016¹¹. If you look at adjusted emissions (used to measure progress against the targets set in the Climate Change (Scotland) Act 2009), Scotland missed the target of 43.946 MtCO_{2e}, generating a total of 46.410 MtCO_{2e}. This is an increase of 3.7% from 2016.

A.1.11 The Act also contains a 2050 target for at least an 80 per cent reduction from baseline levels and an interim 2020 target for at least a 42 per cent reduction. Although this 2020 target was exceeded in the years 2014 and 2015, the increase in adjusted emissions in the most recent year means that it was missed in 2016 and 2017 (2019)¹². The Act was later amended by the passing of the Climate Change (Emissions Reductions Targets (Scotland) Bill in September 2019 by the Scottish Government, making a commitment to achieve net zero emissions by 2045¹³.

A.1.12 The Scottish Government's Climate Change Plan (2018)¹⁴ identifies actions to address and mitigate the impacts of climate change, recognising the strategic importance of renewable energy which makes uses of natural resources such as wind and water.

A.1.13 Renewable energy generation in Scotland reached record levels in the first quarter of 2019 at 8,877 GWh. This is enough to power 88% of households in Scotland for a year and an increase of 17% on Q1 2018¹⁵.

¹⁰ [Scotland's Environment \(undated\) Climate change](#)

¹¹ [Scottish Greenhouse Gas Emissions 2017, Scottish Government \(2019\)](#)

¹² [Scottish Greenhouse Gas Emissions 2017, Scottish Government \(2019\)](#)

¹³ [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Bill \(2019\)](#)

¹⁴ [Climate Change Plan: third report on proposals and policies 2018-2032 \(RPP3\) Scottish Government](#)

¹⁵ [Renewable energy at record levels, Scotland's Economy \(2019\) Scottish Government](#)

- A.1.14 Renewable energy generation also results in a number of economic benefits, supporting 49,000 jobs and £11 billion generated by the Scottish low carbon and renewable energy sectors¹⁶.
- A.1.15 The UK water industry is a large emitter of carbon and consumer of energy. Much of this is associated with the energy used to treat waste and freshwater for drinking water, but the water industry also makes significant direct emissions¹⁷. In 2015, the water industries operational emissions were estimated to directly contribute around 0.7%¹⁸ of the UKs GHG emissions. Since 2006/7, Scottish Water's annual emissions have fallen by 41%. Scottish Water's operational carbon footprint for 2018/19 was 372,000 tonnes of carbon dioxide equivalent (tCO₂e)¹⁹.

Climate Change Impacts

- A.1.16 There are a number of key long-term climate change trends for Scotland, including:
- Variations in weather; increasing in unpredictability;
 - Hotter and drier summers including increases in summer heat waves, extreme temperatures and drought;
 - Milder and wetter winters including increased frequency and intensity of extreme precipitation events;
 - Rises in sea levels; and,
 - Reduced occurrences of frost and snowfall.
- A.1.17 Climate change research predicts an increase in the severity and frequency of rainfall events. Flooding from rivers, sewers and surface water is therefore likely to increase throughout Scotland in the future. Parts of Scotland are also expected to become increasingly vulnerable to tidal flooding and coastal erosion as sea levels rise.
- A.1.18 Rising temperatures are also expected as a result of climate change including projected increase in mean annual temperature by the 2080s between 1.6 °C and 4.5 °C for Scottish regions, with central estimates between 2.6 °C and 3.0 °C²⁰.
- A.1.19 Climate change will also have economic impacts across Scotland. For example, the annual economic cost of climate change in Glasgow City Region is estimated to be £400 million each year by the 2050s²¹; around 1% of current GVA. These impacts will fall disproportionately on disadvantaged and vulnerable groups. Climate change may also lead to economic benefits for the city region from reduced demands for winter heating and winter-related mortality and morbidity.

Physical Environment

Biodiversity, Flora & Fauna

- A.1.20 Designated sites – management, conservation status and ecological condition may be affected directly or indirectly by Scottish Water operations and projects. There is a need to safeguard relevant qualifying features from adverse effects, protect the integrity of designated sites and work towards the achievement of defined conservation objectives.
- A.1.21 At the international level, Scotland has 412 sites designated at the European level for reasons of ecological importance (SPA, SAC and/or Ramsar Sites). At the national level there are c.1,400 SSSIs, 43 NNRs and 2 national parks. Other statutory ecological/biodiversity designations include:

¹⁶ [Climate Change Plan: third report on proposals and policies 2018-2032 \(RPP3\)](#)

¹⁷ [A blueprint for carbon emissions reduction, CIWEM \(2013\)](#)

¹⁸ [Ofwat, Playing our part- reducing greenhouse gas emissions in the water and sewerage sectors- Supporting Information \(2015\)](#)

¹⁹ [Operational Carbon Footprint, Scottish Water \(2018/19\)](#)

²⁰ [Climate Ready Scotland Scotland's Climate Change Adaptation Programme 2019-2024 \(2019\) Scottish Government](#)

²¹ [Climate Ready Clyde Risk and Opportunity Assessment \(2018\)](#)

Environmental Report

Scottish Water Plan for Transformation

- Marine Protected Areas;
- National Scenic Areas;
- Biogenetic Reserves;
- Biosphere Reserves; and,
- Seal Conservation Areas.

A.1.22 There are also a range of non-statutory ecological sites designated at regional and local levels, including:

- Country Parks;
- Gardens and Designated Landscapes;
- Local Nature Conservation Sites;
- Regional Parks;
- Local landscape Areas;
- Local Nature Reserves;
- Inventory Gardens and Designed Landscapes;
- Inventory Battlefields; and,
- Other non-designated historic environment assets, including marine assets.

A.1.23 Scotland's State of the Environment Report publishes the results of an assessment of Scotland's Environment and how it is changing²². Overall, Scotland's environment is of good quality, but some habitats and species are under threat. Scotland's land is used for a variety of purposes across urban and rural areas. By 2013, woodland cover increased to 18% from 4.5% at the beginning of the 20th century.

A.1.24 There is a wide range of habitats for wildlife in Scotland, including mountains and uplands, woodlands and forests and marine habitats. Scotland's Freshwaters and seas are generally in good condition, with significant reductions in pollution over the last 25 years. However, there are still problems resulting from the loss of habitat and wildlife from water pollution. Flooding events have also impacted Scotland's wildlife.

A.1.25 The State of Nature Report (2019)²³ published by a collaboration of over 70 wildlife organisations in Scotland provides information on species trends across Scotland. The report identifies the key pressures on Scotland's environment, including agricultural management, climate change, hydrological change, urbanisation, woodland management, pollution, invasive non-native species (INNS), upland management, marine climate change and fisheries.

A.1.26 The results show an overall decline in the abundance and distribution of Scotland's species, including:

- 49% of species have decreased in abundance;
- 62% of species show strong changes (either increasing or decreasing in abundance);
- 11% of species are threatened and classified as facing extinction;
- 24% decline in average species abundance;
- 14% decline in average species distribution; and
- 38% decline in Scottish breeding seabird indicator between 1986 and 2016.

A.1.27 A number of key findings for Marine wildlife were also identified, including:

- Changes in plankton type in response to environmental changes;

²² [State of the Environment Report \(2014\) Scottish Government](#)

²³ [State of Nature Report \(2019\) Scottish Government](#)

- The average number of 12 species of breeding seabirds in Scotland has declined by 38%;
- Surface feeding seabirds (e.g. Kittiwake or dependent species such as Arctic Skua) have been negatively affected with declines of 72% and 77% respectively;
- Small changes in seal abundance, with reductions on North and East coasts and increases in the West of Scotland;
- An increase in the percentage of fish stocks deemed to be at sustainable levels from 46% in 2015 to 54% in 2017; and,
- Variable levels of abundance in species in both the Celtic and Greater North Seas.

Soil

- A.1.28 Soil is a non-renewable resource and is considered to be one of Scotland's most fundamental assets²⁴. It supports natural processes and underpins our natural environment, helping to provide a wide range of environmental, economic and societal benefits.
- A.1.29 According to the State of Scotland's Soil report (2011)²⁵, Scotland's soil quality is classed as 'good'. Ensuring that soils are in good quality is critical to delivering environmental, economic and social functions while ensuring the sustainability of the environment.
- A.1.30 Scotland's soils are estimated to contain around 3,000 million²⁶ tonnes of carbon, much of this contained in peatlands. Soil plays a nationally important role in storing carbon and helps to regulate greenhouse gas emissions. If Scotland lost just 1% of its soil carbon as carbon dioxide, current estimates predict that Scotland's annual greenhouse gas emissions would triple²⁷.
- A.1.31 Peatlands play an important role in mitigating the impacts of climate change by trapping carbon and sequestering carbon in peat forming vegetation. Peatlands are found mostly in the north and west areas of Scotland in areas with gentle slopes and poor drainage and are also found in large areas of the Scottish uplands.
- A.1.32 The State of Scotland's Soil Report (2011) identifies the main threats to soil quality as a loss of organic matter, changes in soil biodiversity, erosion and covering soils with waterproof materials (soil sealing). It identifies the main challenges in the future to be improving policy integration, tackling the lack of systematic soil data and understanding soil management.
- A.1.33 There are also number of pressures on Scotland's soils such as the threat of climate change and loss of organic matter which could impact soil function. In addition, changes in land use or land management puts soils at risk of a decline in soil function.

Water

- A.1.34 Scotland's water provides a wide range of resources for our health and prosperity including its use in agriculture and industry and in the provision of drinking water. There are 457 coastal waterbodies and 50 transitional waterbodies in Scotland²⁸. Scotland has more than 125,000km of rivers and streams. It is estimated that there are over 25,500 lochs in Scotland, with the Western isles and Sutherland having the highest concentration of lochs²⁹. In addition, there is also a 220km canal network in Scotland³⁰.
- A.1.35 Scotland's wetlands provide important environmental functions such as carbon storage, flood reduction and clean water supply. They support a wide range of plants and animals, with their condition considered to be 'poor' and the trend is 'stable/declining', although most wetlands within protected sites are in favourable condition, with the exception of lowland raised bogs which are in unfavourable condition.

²⁴ [Scottish Government \(2006\) Scotland's Soil Resource Current State and Threats](#)

²⁵ [The State of Scotland's Soil \(2011\) Natural Scotland](#)

²⁶ [Scotland's Soils \(2019\)](#)

²⁷ [Scotland's Soils \(2019\)](#)

²⁸ [Marine Scotland, Scottish Government \(2017\)](#)

²⁹ [Scotland's Freshwater, Scotland's Environment](#)

³⁰ [Scotland's Freshwater, Scotland's Environment](#)

Environmental Report

Scottish Water Plan for Transformation

- A.1.36 The water resources in Scotland support a range of species and habitats, tourism and recreation and provides opportunities for sustainable growth of the economy. The freshwaters and seas are considered to be in a generally good condition, helped by a significant reduction in pollution over the last 25 years. Despite this, there are still impacts on habitats and wildlife (both current and historical) from excessive amounts of nutrients entering the water environment.
- A.1.37 Impacts from flooding can have a long-lasting effect on people and the natural and built environment. Climate change research predicts an increase in the severity and frequency of rainfall events. Flooding from rivers, sewers and surface water is therefore likely to increase throughout Scotland in the future. Parts of Scotland are also expected to become increasingly vulnerable to tidal flooding as sea levels rise.
- A.1.38 Flood Risk Management Strategies³¹ set out the national direction for flood risk management, identifying actions to tackle flooding in Scotland and help to target investment and coordinate action across public bodies. Flood maps have also been produced which help to show where areas are likely to be at risk of flooding from rivers, seas and surface water³².
- A.1.39 A report by Climate Ready Clyde highlights the increased risk of flooding and coastal erosion in the Glasgow region, particularly coastal erosion risks to railway infrastructure, storm risk to the Erskine bridge and more frequent incidences of flooding along the Clyde³³.
- A.1.40 Many of Scotland's water bodies are designated, including areas for:
- Drinking water quality;
 - Nutrient sensitive areas;
 - Protection of aquatic species (Economically important);
 - Recreational purposes including bathing waters, of which there are 86 in Scotland; and,
 - Protection of habitats and species where relevant.
- A.1.41 There are 920 Drinking Water Protected Areas (DWPA) in Scotland. Of these, 88% are found within the Scotland River Basin District.
- A.1.42 With regard to coastal areas, almost 20% of Scotland's coastline is at risk of erosion³⁴. Climate change is estimated to have a significant impact on coastal areas due to sea level rise and increased extent and rate of coastal erosion. Levels of coastal erosion have increased above historic levels and are expected to broaden and quicken further in the coming decades. Potential impacts on built development and infrastructure as a result of erosion of natural coastal features are also predicted³⁵.

Landscape

- A.1.43 Scotland's landscapes are internationally renowned and play a key role in attracting tourism, providing key opportunities for business and setting for outdoor recreation. They are constantly evolving in response to natural processes and human intervention.
- A.1.44 There are a number of landscape designations in Scotland aiming to protect landscape fabric, character and capacity, including:
- Natural Scenic Areas of which there are 40 across Scotland;
 - National Parks (Cairngorms and Loch Lomond & The Trossachs);
 - Regional Scenic Areas; and,
 - Local landscape areas.

³¹ [SEPA \(undated\) Flood Risk Management Strategies](#)

³² [SEPA \(undated\) Flood maps](#)

³³ [Towards a climate ready Clyde: climate risks and opportunities for Glasgow City Region \(2018\)](#)

³⁴ [Scotland's coastline at risk, Scottish Government \(2017\)](#)

³⁵ [Planning ahead for coastal change, Scottish Natural Heritage \(2019\)](#)

- A.1.45 The development of property or infrastructure can impact landscape character in a number of ways including fabric, setting and visual amenity.

Cultural Heritage

- A.1.46 Scotland's cultural heritage assets are protected through a process of designations. These include World Heritage Sites, listed buildings, scheduled monuments, conservation areas and Historic Marine Protected Areas (MPA's). Scotland's cultural heritage assets are recognised as nationally important, supporting Scotland's tourism industry, contributing more than £2.3 billion (2.6%) of Scotland's national gross value added (GVA)³⁶.
- A.1.47 Approximately 2.5% of Scotland's total employment can be attributed to the historic environment directly supporting 41,000 FTEs. The state of the environment report assesses the historic environment as 'moderate' and the trend as 'stable' recognising the historic environments contribution to Scotland's quality of life, cultural identity, education and economy.

Socioeconomics

Population

- A.1.48 **Governance and Statistical Geographical Units:** There are 32 Local Authority areas in Scotland. Based on 2019 estimates, those with the largest population are Glasgow City (c.633,100), City of Edinburgh (c.524,900) and Fife (373,600)³⁷. Approximately 70% of Scotland's population lives in urban areas accounting for 2% of Scotland's land surface³⁸. The Central Belt and East Coast account for large proportions of Scotland's population and industry, particularly in the four city regions (Aberdeen, Dundee, Edinburgh & Glasgow). In terms of statistical units, there are 6,976 Data Zones in Scotland (2011 Census output areas which have populations of around 500 to 1,000 residents).
- A.1.49 **Demographics:** The estimated population of Scotland in 2019 was 5,463,300³⁹, an increase of 25,200 people (0.4%) over the last year. Since 1998, Scotland's population has increased by 7.7%. In the year to mid-2018, the population density for Scotland is 70 people per sq. km but varies significantly across areas within Scotland. Glasgow City is the most populated council area by density (3,600 people per sq.km). Conversely, Na h-Eileanan Siar and Highland Council is the lowest populated council area by density (10 people per sq.km)⁴⁰.
- A.1.50 The population of Scotland is projected to increase to 5.54 million in 2029⁴¹ and to 5.57 million by 2043. This is a 2% increase between 2019-2043. Scotland's elderly population is projected to be the fastest growing age group in Scotland, with people aged 75 or over projected to increase by 70.5% in 2043⁴². Every other age group with the exception of those aged 65-74 are projected to decrease slightly in the same period to 2043. To 2043, Midlothian (+31%), East Lothian (15.1%) and East Renfrewshire (13.5%) council areas are projected to have the largest population increase of the local authorities in Scotland. The areas with the largest predicted decreases in population are Inverclyde (-16.2%), Na h Eileanan Siar (-16%), and Argyll and Bute (-14.8%)⁴³. Scotland's cities are also showing evidence of recovery from decline. Between 1998 and 2019, the population of the Glasgow City local authority area has increased by 6.7%⁴⁴.
- A.1.51 **Housing:** Housing requirements are closely linked to population growth and associated housing needs across Scotland. There is now c.2.5m households in Scotland, an increase of 16% since 1998⁴⁵. Further household growth is expected in Scotland with households projected to rise to

³⁶ [State of the Environment Report \(2014\) Scottish Government](#)

³⁷ [National Records for Scotland Population Estimates, Scotland \(2019\)](#)

³⁸ [State of the Environment Report, Scottish Government \(2014\)](#)

³⁹ [National Records for Scotland Population Estimates, Scotland \(2019\)](#)

⁴⁰ [National Records for Scotland Mid-Year Population Estimates Scotland, Mid-2018.](#)

⁴¹ [National Records for Scotland Projected Population of Scotland \(2018-based\)](#)

⁴² [National Records for Scotland Population Estimates, Scotland \(2019\)](#)

⁴³ [Population Projections for Scottish Areas Chart \(2018-based\)](#)

⁴⁴ [National Records for Scotland Population Estimates \(2019\)](#)

⁴⁵ [Scotland's Changing Housing Landscape, Scottish Government \(2019\)](#)

Environmental Report

Scottish Water Plan for Transformation

2.71million by 2043⁴⁶ This is equivalent to an additional 12,000 households in Scotland per year. One person households are projected to have the largest increase to 2028 (+8%), mostly due to the growth in the number of older people, while households with two or more adults are projected to increase by 5% in the same period. From 2018-2028, the local authorities with the largest projected increases in households are in the Edinburgh and Lothians area, with Midlothian projected to have the highest (16%) percentage increase. Across Scotland, household numbers are projected to fall in four Council areas: Argyll and Bute, Inverclyde, Na h-Eileanan Siar and North Ayrshire⁴⁷. Population growth and additional housing to meet the needs of the ageing population result in additional pressures on water infrastructure capacity to serve households across Scotland.

- A.1.52 As of December 2020, the average price of a property in Scotland was £162,983, an increase of 8.4% (£150,287) from 2019⁴⁸. House prices increased in 29 out of 32 local authority areas from 2019-2020. The biggest price increase was in East Ayrshire where prices increased by 17.9% in the year to December 2020 to £111,000. The biggest fall for year ending December 2020 was recorded in City of Aberdeen where average prices fell over the year by 2.1% to £143,000⁴⁹.
- A.1.53 **Employment:** Approximately 3,497,800 (64%) of Scotland's population are between the ages of 16 and 64 (2019)⁵⁰. Of this figure, 77.2% are economically active, with 73.7% in employment, 4.5% unemployed and 22.8% economically inactive.
- A.1.54 The onset of the Covid19 impact⁵¹ in early 2020 has had significant impacts on employment rates in Scotland, with 4.6% unemployed near the start of the pandemic in June 2020 compared to 3.3% in Q4 2019. The highest unemployment rate in Scotland is Ayrshire at 4.7%. Employment rates for those aged 16-24 was disproportionately impacted, with 13.1% unemployed in June 2020, up from 6.1% in Q4 2019. As of June 2020, approximately 628,200 jobs in Scotland have been furloughed, with 65% of businesses still trading in Scotland reporting a decline in turnover. The Covid impacts stated above are likely to change as we progress through the Pandemic, with Scotland still in Lockdown at the time of writing.
- A.1.55 With regard to industry split in Scotland, the largest industry sector is human health and social work, employing approximately 14.2% of Scotland's workforce. This is closely followed by wholesale and retail (12.8%) and professional, scientific and technical activities (8.4%).
- A.1.56 In 2020, median gross weekly earnings in Scotland were £595, an increase of 2.8% from the previous year. Median gross weekly earnings for men in 2020 are approximately £626.30 while for women it is £562.50.
- A.1.57 **Inequality, Social Exclusion and Deprivation:** The Scottish Index of Multiple Deprivation 2020 (SIMD) identifies concentrated areas of deprivation and the specific challenges which areas face. These areas are organised by data zones and analyse data to provide a rank from a number of indicators including geographic access, income, employment, health, education/skills, housing and crime. Areas where over two-thirds of datazones have been consistently within the 5% most deprived since SIMD 2004 are found in Glasgow City, with others in Inverclyde, Renfrewshire, North Lanarkshire, North Ayrshire and Highland⁵². Council areas with the largest decrease in deprivation are Glasgow City, Renfrewshire and City of Edinburgh, while the Council areas with the largest increase in deprivation are Aberdeen City, North Lanarkshire, Moray, East Lothian, Highland and North Ayrshire. The number of workless households in Scotland has declined since 2009 from 20.3% to 17.7% in 2019⁵³.

⁴⁶ [National Records for Scotland, Household Projections Scotland \(2018 based\)](#)

⁴⁷ [National Records for Scotland, Household Projections Scotland \(2018 based\)](#)

⁴⁸ [UK House Price Index- Scotland \(December 2020\)](#)

⁴⁹ [UK House Price Index- Scotland \(December 2020\)](#)

⁵⁰ [NOMIS Labour Market Profile- Scotland \(2019\)](#)

⁵¹ [COVID-19 Labour Market Insights: Scotland's Businesses, Skills Development Scotland](#)

⁵² [SIMD 2020 Key Findings](#)

⁵³ [NOMIS annual population survey - households by combined economic activity status \(2019\)](#)

Human Health

- A.1.58 **Life expectancy**⁵⁴: Life expectancy in Scotland in 2017-2019 at birth was 77.1 years for males and 81.1 years for females, representing a small increase of around 0.1 years for both males and females since the 2016-2018 figures were published in 2019.
- A.1.59 Life expectancy varies significantly across council areas within Scotland. Female life expectancy at birth was highest in East Renfrewshire (84.0 years) and lowest in Glasgow City (78.5 years). Male life expectancy at birth was highest in East Dunbartonshire (80.5 years) and lowest in Glasgow City (73.6 years).
- A.1.60 For those born between 2017-2019, healthy life expectancy for males in Scotland was 61.7 years and 61.9 years for females⁵⁵. For males, healthy life expectancy at birth was highest in East Dunbartonshire (69.8 years) and lowest in Glasgow City (54.6 years). For females, healthy life expectancy at birth was highest in Orkney (75.1 years) and lowest in North Ayrshire (56.3 years). The gap in healthy life expectancy at birth between the most and least deprived areas was 25.1 years for males and 21.5 years for females.
- A.1.61 A recent study highlighted the importance of the continual improvement of water quality with regard to negative impacts with regard to population health and food security⁵⁶. To achieve this goal, investment in wastewater infrastructure must be effective, accompanied by incentive structures which monitor performance, penalise profligacy and reward success.
- A.1.62 **Health Infrastructure**: NHS Scotland consists of 14 regional health boards, 7 special NHS Boards and 1 public health body supporting the regional health boards by providing a range of important specialist and national services. In January 2021, there were 925 registered General Practices in Scotland⁵⁷. As of the 30th September 2017, 92.5% of the Scottish population of 5.4 million are registered with an NHS Dentist in Scotland⁵⁸.
- A.1.63 The construction of new healthcare infrastructure to meet population growth and the needs of the ageing population will result in additional water infrastructure needs.

Material Assets

- A.1.64 **Land Use**⁵⁹: Scottish Water operates a business model serving Scottish households and business customers in addition to providing non-regulated services to customers and clients outside of Scotland. In 2019-2020, Scottish Water operated 237 water treatment works and 1,826 wastewater treatment works treating approx. 983m litres of wastewater. This is supported by 33,655 miles of sewer pipes and 30,400 miles of water pipes. Overall, Scottish Water delivered 1.44 billion litres of drinking water and removed 983m litres of wastewater .
- A.1.65 In 2019-2020, Scottish Water served 2.56m households and 152,806 business premises. Between 2015-2021, Scottish Water committed to a £3.9 billion in managing and improving assets and in 2019/20 Scottish Water invested £673m. Scottish Water has a diverse portfolio of assets⁶⁰ including 38 hydro turbines, 18 small-scale wind turbine sites, 44 solar schemes, four CHP Plants and three biomass boilers. Over 70 of the water and wastewater treatment works are either partly or fully self-sufficient in their power requirements, contributing to lower levels of consumption.
- A.1.66 Scottish Water also host private investment in renewables on their land, hosting 830GWh of wind generation from private renewables. In 2019-20, the income from Scottish Water hosted windfarms was £3.4m, exceeding the target by £1.2m. In addition, 18 small scale wind schemes at treatment works have been installed. Between 2019-2020, Scottish Water generated 39.6GWh of electricity from renewable sources. Scottish Water are exploring further opportunities to host renewables on their land and approaches to extract value from waste.

⁵⁴ [National Records for Scotland, Life Expectancy in Scotland 2017-2019](#)

⁵⁵ [National Records for Scotland, Healthy Life Expectancy in Scotland 2017-2019](#)

⁵⁶ Quality Unknown: The Invisible Water Crisis (2019)

⁵⁷ [ISD Scotland \(2021\) GP Workforce & Practice Populations](#)

⁵⁸ [IDS Scotland \(2018\) Dental Registrations in Scotland](#)

⁵⁹ [Scottish Water Annual Report 2019-2020](#)

⁶⁰ [Scottish Water Annual Report 2018-2019](#)

A.1.67 Scottish Water has also implemented a number of initiatives to tackle climate change:

- A reduction in consumption including the installation of 4,000 smart meters;
- An increase in self-generation capacity (63GWh/annum);
- Purchasing of low-cost green energy from privately owned and community owned renewable assets;
- **Natural resources:** Natural resources are considered to be material assets, both in their natural state and in their contribution to infrastructure development across Scotland. Mineral resources & aggregates used for construction (sand, gravel and rock) and fuel (e.g. coal) are finite assets used to facilitate the development and operation of man-made assets; and,
- On average, 44 % of total water abstraction in Europe is used for agriculture, 40 % for industry and energy production (cooling in power plants), and 15 % for public water supply (2018)⁶¹.

Evolution of Baseline Conditions in the Absence of the Emerging Plan for Transformation

A.1.68 In accordance with the SEA Act, this ER which accompanies the Consultation Draft Plan for Transformation, considers the likely evolution of the environmental baseline scenario, as described above, in the absence of the emerging Plan for Transformation.

A.1.69 In relation to the environmental topics prescribed in Schedule 2 of the SEA Act, it should be noted that environmental impacts from individual water infrastructure projects would depend on their locational, design and operational characteristics, as would be assessed through the consenting of each project rather than through the emerging Plan for Transformation. However, although the emerging Plan for Transformation will not directly inform planning decision making, it will influence Scottish Water in terms of selecting, designing and influencing future capital investment projects.

A.1.70 At this initial stage, based on the high-level baseline information provided above and the key environmental challenges discussed in **Section 3.2**, it is considered that in the absence of the emerging Plan for Transformation, in overall terms existing water infrastructure would not be capable of achieving net zero operational emissions, would struggle to cope with the impacts of climate change and would fail to support the delivery of inclusive and sustainable economic growth in full. In the absence of the emerging Plan for Transformation and if the resident population of Scotland increase in line with projections:

- **Population:** Demand for water and wastewater treatment would increase in line with projected population growth, overwhelming existing infrastructure. This will impede the delivery of inclusive growth and stifle economic productivity, as well as resulting in physical environmental and health impacts (see below). It could also lead to a requirement for new water infrastructure to upgrade inefficient assets to cope with increased demand, which if not co-ordinated could itself result in a range of environmental impacts;
- **Health:** Demand for and use of water infrastructure would increase in line with population growth. Additionally, if ageing assets are not improved and new infrastructure not completed to meet local needs, this could contribute to poor health outcomes for urban and rural communities. Ill-health is therefore likely to deteriorate and could result in life expectancy stagnating or even reducing;
- **Biodiversity, Flora & Fauna:** If not carefully co-ordinated (i.e. through the emerging Plan for Transformation), the need for new water infrastructure to cope with increased demands could put pressure on biodiversity, including the loss and fragmentation of habitats. Unchecked increases in traffic and noise during construction and operation of supply and treatment works could also result in habitat degradation and species disturbance;

⁶¹ [European Environment Agency](#)

- **Soil:** If not carefully co-ordinated, the need for new major water infrastructure to cope with increased demands could lead to the loss of important soil resources, soil erosion and land contamination;
- **Water:** If not carefully co-ordinated, the need for new major water infrastructure to cope with increased demands could result in increased flood risks and the pollution of the water environment;
- **Air Quality & Climatic Factors:** In the absence of a major shift towards low-carbon water infrastructure in Scotland, the provision of water and wastewater treatment will continue to contribute to carbon emissions and impede Scottish Water's ability to reach net-zero emissions by 2040 and impact upon the achievability of the Scottish Governments target of net-zero emissions by 2045. This would lead to worsening air quality and act against wider policy efforts to decarbonise key economic sectors to mitigate climate change;
- **Material Assets:** Ageing assets would struggle to cope with changing supply demands whilst opportunities to transition more quickly to low-carbon infrastructure would be lost. The absence of the emerging Plan for Transformation could result in the failure of Scottish Water and constituent local authorities to attract the substantial public and private sector funding needed to adequately maintain existing water infrastructure, and to deliver the new or upgraded infrastructure required to meet the needs of a rising population. This would jeopardise the ability of Scottish Water, as the statutory water provider to support the delivery of sustainable and inclusive economic growth;
- **Cultural Heritage:** If not carefully co-ordinated, the need for new major water infrastructure to cope with increased demands could increase development pressures in areas of historical or archaeological interest and could undermine the integrity and setting of sensitive heritage assets; and,
- **Landscape:** If not carefully co-ordinated, the need for new major water infrastructure to cope with increased demands could adversely impact on the landscape character of and key landscape features within Scotland, as well as adversely affecting visual amenity.

Appendix B Review of Plans and Programmes

B.1 Overview

- B.1.1 This Appendix supports **Section 3** of the SEA ER by setting out a review of relevant qualifying plans and programmes (including legislation and strategies) of relevance to the emerging Plan for Transformation. The main purpose of this review is to identify relevant environmental protection objectives and policy requirements within the identified policy documents which should be taken account of within or otherwise inform the emerging Plan for Transformation and this associated SEA.
- B.1.2 As with the baseline review presented in **Appendix A**, this policy review was undertaken at SEA Scoping stage to inform the identification of key issues and policy drivers requiring further consideration through this SEA. This policy review has since been updated as required throughout the preparation of the emerging Plan for Transformation to take account of policy developments and has therefore been appended to this Environment Report (ER) which will accompany the Consultation Draft Plan for Transformation.
- B.1.3 An important element of this SEA was to iteratively assess and enhance the effectiveness of the emerging Plan for Transformation, as the main implementation plan for the Strategic Plan (2020), in addressing key challenges, issues and drivers of change facing Scottish Water. The Environmental Report (ER) accompanying the Consultation Draft Plan for Transformation will therefore seek to demonstrate how the SEA process has informed the emerging Plan for Transformation and how it appropriately responds to relevant policy drivers.
- B.1.4 Adopting the same thematic groupings as used in **Appendix A** (with the addition of Interrelated Effects⁶²), **Table B.1** below lists relevant plans, programmes and strategies which have been reviewed to inform the preparation of this SEA Scoping Report.

⁶² Interrelated Effects refers to policies with wide relevance to all objectives where relevant.

Table B.1 Relevant Policy Documents

SEA Environmental Aspects	Relevant Plans, Programmes and Strategies
International⁶³	
Air and Climate: Air & Climatic Factors	<p>World Health Organization (1999) Guidelines for Community Noise, WHO Air Quality Guidelines, United Nations (1979) Geneva Convention on Long Range Transboundary Air Pollution, The United Nations Framework Convention on Climate Change (UNFCCC) (1992), Kyoto Protocol to the UN Convention on Climate Change (2005), United Nations (2009) The Copenhagen Accord, United Nations (2010) Cancun Adaptation Framework, United Nations (2016) Paris Agreement.</p> <p>European / EU legislation and plans now of indirect relevance include: Ambient Air Quality Directive 2008/50/EC and Air Quality Framework Fourth Daughter Directive 2004/107/EC, Environmental Noise Directive 2002/49/EC, Renewable Energy Directive 2009/28/EC</p>
Physical Environment: Biodiversity, Flora & Fauna, Soil, Water, Cultural Heritage & Landscape	<p>The Ramsar Convention on Wetlands (1971), United Nations (1992) Convention on Biological Diversity (CBD), EU Convention on the Agreement on the Conservation of African – Eurasian Migratory Waterbirds (2006) (The Bonn Convention), United Nations (1992) The Rio Convention on Biodiversity, Strategic Plan for Biodiversity 2011 - 2020 + Aichi Biodiversity targets, UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage, The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983).</p> <p>European / EU legislation and plans now of indirect relevance include: Convention on the Conservation of European Wildlife and Natural Habitats - The Bern Convention (1981), Birds Directive 2009/147/EC/, Habitats Directive 92/43/EEC as amended by 97/62/EC, Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), European Landscape Convention (The Florence Convention).</p>
Socioeconomics: Population, Human Health & Material Assets	<p>United Nations (2016) Habitat III (Quinto), United Nations Economic Commission for Europe (1998) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (The Aarhus Convention).</p>
Interrelated Effects	<p>Johannesburg Declaration on Sustainable Development, Communication COM (2005) 666: Taking Sustainable use of resources forward.</p> <p>European / EU legislation and plans now of indirect relevance include: Strategic Environmental Assessment (SEA) Directive 2001/42/EC European Spatial Development Perspective (ESDP) (97/150/EC), Environmental Impact Assessment Directive 2014/52/EU amending Directive 2011/92/EU.</p>

⁶³ Some European Union (EU) legislation remains of indirect relevance.

SEA Environmental Aspects	Relevant Plans, Programmes and Strategies
National (UK)	
Air and Climate: Air & Climatic Factors	The Environment Act 1995, The Air Quality Standards Regulations (2010) as amended, Air Quality Strategy for England, Scotland, Wales and Northern Ireland, UK's Air Quality Action Plan (Defra, revised January 2016), Defra (2011) Air Quality Plans for the Achievement of EU Air Quality Limit Values for Nitrogen Dioxide (NO ₂) in the UK: List of UK and National Measures, Climate Change Act 2008, DECC (2011) UK Renewable Energy Roadmap, DECC (2014) UK National Energy Efficiency Action Plan, HM Government (2017) UK Climate Change Risk Assessment 2017.
Physical Environment: Biodiversity, Flora & Fauna, Soil, Water, Cultural Heritage & Landscape	Wildlife and Countryside Act 1981, Environmental Protection Act 1990, The Protection of Badgers Act 1992, Conservation of Habitats & Species Regulations 2010 (as amended), UK National Ecosystem Assessment (2011) UK National Ecosystem Assessment: Understanding Nature's Value to Society, The Conservation of Habitats and Species Regulations 2010 as amended, JNCC (2012) The UK Post 2010 Biodiversity Framework, Natural Environment and Rural Communities Act 2006, HM Government (2018) 25 Year Environment Plan, Environmental Protection Act 1990 Part SEA, Good Environmental Status, DECC (2010) Department for Transport (2011) National Policy Statement for Ports, The Marine and Coastal Access Act (2009), Department for Environment, Food & Rural Affairs (2011) UK Marine Policy Statement, The Ancient Monuments and Archaeological Areas Act (1979) National Parks and Access to the Countryside Act (1949), Forestry Act (1967).
Socioeconomics: Population, Human Health & Material Assets	The Enterprise and Regulatory Reform Act (2013), Equality Act (2010), Health Effects of Climate Change in the UK 2008 - An update of the Department of Health Report 2001/2002, Health Protection Agency (2009) Health Strategy for the United Kingdom 2, Health and Safety Executive (2009) The Health and Safety of Great Britain: Be Part of the Solution, Sustainable Development Commission (2010) Sustainable Development: The Key to Tackling Health Inequalities, HM Treasury (2014) National Infrastructure Plan, HM Government (2009) The UK Renewable Energy Strategy.
Interrelated Effects	HM Government (2005) The UK Sustainable Development Strategy, Defra (2011) Mainstreaming Sustainable Development, Department for Transport (2008) Delivering a Sustainable Transport System, HM Government (2005) One Future – Different Paths. Shared Framework for Sustainable Development.
National (Scotland) - All Legislative and Policy Frameworks are Informed by Relevant Higher-Level UK, European and International Frameworks	
Air and Climate: Air & Climatic Factors	Air Quality (Scotland) Regulations (amended) 2016, Cleaner Air for Scotland - the road to a healthier future, The Environment Act 1995 & Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance, The Environmental Noise (Scotland) Regulations 2006, Transportation Noise Action Plan, Planning Advice Note 1/2011: Planning and Noise, The Scottish Energy Strategy 2017, Climate Change (Scotland) Act 2009 and Orders + New Climate Change Bill, The Scottish Government's Climate Change Plan, Third Report on Proposals and Policies 2018-2032, Switched On Scotland: A Roadmap to Widespread Adoption of Plug-in Vehicles 2013, 'Climate Ready Scotland'- Scotland's Climate Change Adaptation Programme, Transportation Noise Action Plan (2019-2023) Update to the Climate Change Plan 2018-2032, Scottish Government.
Physical Environment: Biodiversity, Flora & Fauna, Soil, Water, Cultural Heritage & Landscape	Nature Conservation (Scotland) Act 2004, Wildlife and Natural Environment (Scotland) Act 2011, Scottish Government: Scottish Forestry Strategy 2006 and Implementation Plan 2015 – 2018, It's in your Hands: Scotland's Biodiversity Strategy (2005), 2020 Challenge for Scotland's Biodiversity (2013), Scotland's Biodiversity, a Route Map to 2020 (6 Big Steps for Nature), Scotland's Biodiversity List, Scottish Biodiversity Strategy indicators, Scottish Government and its Key Agencies: The Scottish Soil Framework

Environmental Report
 Scottish Water Plan for Transformation

SEA Environmental Aspects	Relevant Plans, Programmes and Strategies
	<p>(2009), State of Scotland's Soils Report 2011, National Soil Map of Scotland, Soil Monitoring Action Plan & Implementation Plan, Contaminated Land (Scotland) Regulations 2000 as amended, Scottish Government's Statutory Guidance: Edition 2 (2006), Getting the best from our land: A Land Use Strategy for Scotland 2016 – 2021, Water Environment and Water Services (Scotland) Act 2003, Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended (CAR), Groundwater Protection Policy for Scotland: Environmental Policy (SEPA, 2009), River Basin Management Plan for the Scotland River Basin 2015 – 2027, Flood Risk Management (Scotland) Act 2009, Scotland and Solway Tweed River Basin Management Plans; Scotland's Flood Risk Management Strategies and subsequent individual 14 Flood Risk Management Plans covering Scotland Scottish Canals, Asset Management Strategy 2019-30, Marine (Scotland) Act 2010, The Historic Environment Scotland Policy Statement 2019, Our Place in Time - The Historic Environment Strategy for Scotland 2014, Historic Environment Circular 1, The Town and Country Planning (Historic Environment Scotland) Amendment Regulations 2015 , The Historic Environment (Scotland) Act 2014, Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997, Ancient Monuments and Archaeological Areas Act 1979 (as amended, 2014), Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended, 2014), PAN71 Conservation Area Management 2004, Scotland's Scenic Heritage, SNH Landscape Policy Framework, Planning etc. (Scotland) Act 2006, Creating Places: The Scottish Government's policy statement on architecture and place, National Parks (Scotland) Act 2000, Scotland's Landscape Charter, Land Reform (Scotland) Act 2003.</p>
<p>Socioeconomics: Population, Human Health & Material Assets</p>	<p>General Registers of Scotland: National Population Projections, Equality Act 2010 (as amended specific to Scotland), Scottish Government: Fairer Scotland Action Plan, Going Further: Scotland's Accessible Travel Framework, National Bus Travel Concession Scheme for Older and Disabled Persons (2006 and amended), Scotland's Economic Strategy (2015), Town Centre Action Plan, Scottish Government: Let's Get Scotland Walking - A National Walking Strategy 2014, Cycling Action Plan for Scotland, A Healthier Scotland - Actions and Ambitions on Diet, Activity and Healthy Weight 2017, Mental Health Strategy 2017 – 2027, Good Mental Health for All, Scottish Government: Go Safe on Scotland's Roads It's Everyone's Responsibility: Scotland's Road Safety Framework to 2020, Audit Scotland (2011) Transport for Health and Social Care, Scottish Government: Short Life Working Group (2013) Healthcare Transport Recommendations, A connected Scotland - Tackling social isolation and loneliness and building stronger social connections, Going Further: Scotland's Accessible Travel Framework, Scottish Government: Good Places, Better Health. A New Approach to the Environment and Health in Scotland: Implementation Plan (2008), Creating Places (2013), Place Standard Tool (2016), Scottish Planning Policy (2014), National Planning Framework 3 (2014), Scottish Government: Equally Well (2008), First Equally Well Review (2010), Second Equally Well Review (2014), Equally Well Implementation Plan and Outcomes Frameworks (2008), Transport (Scotland) Act 2005, Scotland's Energy Strategy 2017, Switched On Scotland Roadmap 2013, Switched On Scotland Phase Two: An Action Plan for Growth, Strategic Transport Projects Review (2008), Infrastructure Investment Plan (2015), Scotland's National Transport Strategy (Refresh) 2016, Scotland's NTS2 (emerging), Scottish Planning Policy (2014).</p>
<p>Interrelated Effects</p>	<p>Scotland's Economic Strategy 2015, Infrastructure Investment Plan (2015), SPP (2014), NPF (2014), Place Principle (2019) Designing Streets (2010), Infrastructure Commission for Scotland Report, The National Planning Framework 3 and Scottish Planning Policy (2014), Scotland's 3rd Land Use Strategy.</p>

B.2 Key Policy Considerations

- B.2.1 As set out in **Table B.1**, an extensive policy review was carried out of relevant plans, programmes and strategies to be taken into account of in the emerging Plan for Transformation. The following subheading set out just some of the key policy targets which the emerging Plan for Transformation will be required to meet. These will be explored further in the emerging Plan for Transformation.

International

- B.2.2 Mitigating and adapting to climate change is a critical policy consideration at an international level with multiple agreements in place to address the climate emergency. The UNFCCC is the forum for international action on climate change with the aim of stabilising GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC focuses on mitigating (reducing) GHG emissions, adapting to climate change, reporting of national emissions, and financing of climate action in developing countries. Agreed at COP 21, the Paris Agreement commits signatories to reducing global greenhouse gas emissions with the long-term goal of withholding a temperature increase by no more than 2%. In addition, the Cancun Adaptation Framework recognises that adaptation required to given same priority as mitigation including reducing vulnerability and increasing resilience. Any major transport infrastructure development set out in the emerging Plan for Transformation should contribute to meeting the requirements and targets set out in international climate change policies and agreements.
- B.2.3 As the United Kingdom formally left the European Union (EU) in 2020, European legislation and associated policies are no longer of direct relevance to domestic policies or strategies such as the Plan for Transformation. However, EU legislation has historically developed policy frameworks to address environmental issues which have subsequently been implemented at UK and Scotland levels, and prior to leaving the EU, existing EU legislation was transposed and incorporated into UK and Scottish legislation. This means some EU legislation remains of indirect relevance to the emerging Plan for Transformation in terms of having established frameworks and requirements which the Plan for Transformation will still need to implement in accordance with UK and Scottish legislation.

National

Sustainable and Inclusive Economic Growth

- B.2.4 The Scottish Government measure progress towards achieving its Purpose via the National Performance Framework which sets out the Purpose and Values, National Outcomes, and National Indicators. The National Outcomes implement the UN Sustainable Development Goals. The activities of Scottish Water cut across the National Outcomes particularly the themes of Environment, Health, and Economy.
- B.2.5 The Scottish Governments Programme for Government (2020-2021) is guided by the National Performance Framework. This edition focuses on protecting and renewing Scotland, addressing the ongoing impact of Covid-19 on health, the economy and society. It reinforces Scottish Water's commitment to become a net zero carbon user of electricity by 2040 and identifies a suite of investment commitments towards the transitioning of the industrial, manufacturing and energy sectors to net-zero. Two key interrelated policy issues that the Plan for Transformation must respond to are encapsulated by this target: delivering sustainable economic growth through climate change adaptation, and enhanced infrastructure investment.
- B.2.6 The Scottish Government's Economic Strategy (2015) sets out an overarching framework on achieving sustainable and inclusive growth in Scotland which is built around 'two interdependent pillars: increasing competitiveness and tackling inequality'. It sets goals for sustainable economic growth and ambitions for investment in infrastructure. This includes to prioritise investment so that Scotland protects and nurtures its natural resources and captures the opportunities offered by the transition to a more resource efficient, lower carbon economy.

Climate Change

- B.2.7 In August 2020, Scottish Water published their Net Zero Emissions Routemap which sets out how services will adapt to the impacts of the ongoing climate emergency whilst also working towards the elimination of greenhouse gas emissions from the provision of these services in Scotland. It sets out a commitment to annually review the Routemap, sharing Scottish Water's progress towards net zero emissions in accordance with the Paris Agreement 2015 and the Scottish Governments declaration of the climate emergency in 2019. It outlines Scottish Water's strategic objectives and associated actions to meet net zero emissions:
- Become more energy efficient;
 - Use lower-carbon energy products;
 - Embrace low carbon construction; and
 - Store away emissions that cannot be avoided.
- B.2.8 It sets out the progress made to date, including a 45% reduction in operational emissions since 2007, the generation of 53GWh of renewable energy produced and used annually on Scottish Water sites and the generation of 831 GWh of third party renewable energy hosted on Scottish Water's land and exported to the grid. Further assessment of the implications of the Strategic Plan and Net Zero Emissions Routemap has been provided in Section 3.
- B.2.9 The Climate Change (Emissions Reductions Targets) (Scotland) Act 2019 sets targets to reduce Scotland's emission of greenhouse gases, requiring an interim 75% reduction in GHG (1990 baseline) by 2030 and 'net zero' by 2045, meaning any remaining emissions would have to be entirely offset with measures such as increased tree planting and carbon capture and storage technology.
- B.2.10 The Scottish Government's recent Update to the Climate Change Plan 2018-2032 (2020) outlines the Governments plans for the green recovery from the Covid-19 pandemic and the ongoing transition to net zero emissions. It sets out high-level sectoral strategies relevant to the water sector including improving agricultural practices for water quality, the circular economy's potential for the water sector, opportunities overseas for a world-leading water sector, and the growing idea of 'natural capital' and 'eco-system services'. It highlights the opportunities being developed in collaboration with Scottish Water for renewable energy generation and energy efficiency, with the delivery by Scottish Water of 19 GWh p.a. of energy efficiency in the last five years, with the target of a further 20% improvement.
- B.2.11 The Update to the Climate Change Plan follows on from the publication of Climate Ready Scotland Adaptation Programme in 2019 which sets out the current state of the climate in Scotland including average rainfall increases, temperature rises and changes in mean sea level around the UK. The Programme sets out low and high emission scenarios, predicts a high emissions prediction of a summer temperature increase of 2.6°C and a winter temperature increase of 2.2 °C by 2070 with associated changes in rainfall in the summer (14% drier) and in winter (18% wetter). Ongoing improvements to capacity and efficiency of Scottish Water's infrastructure will play a critical role in the low carbon transition of Scotland's infrastructure and to provide for the needs of Scotland's growing population.
- B.2.12 In 2017, the Scottish Government published the first Scottish Energy Strategy, setting out the Scottish Governments vision for the future energy system in Scotland to 2050. It maps out the transition plan for the next thirty years towards a more sustainable and low carbon energy future and outlines £8bn of capital investment to oil and gas production from beneath Scottish Water's in 2016/17. The Strategy recognises the key role that hydro schemes play in electricity generation from renewable sources, with just under 10% coming from hydro schemes in 2016.
- B.2.13 Scottish Water's Strategic Plan: A Sustainable Future Together sets out the strategic vision for essential water supply and sewerage provision over the next 25 years for homes and businesses across Scotland. It recognises three major challenges: reducing emissions, ageing assets and the impacts of climate change. The Plan recognises the Scottish Governments commitment to achieve Net Zero emissions by 2045 and commits Scottish Water to achieve net zero emissions by 2040.

Planning and Development

- B.2.14 The National Planning Framework 3 (2014) sets out Scottish Governments strategy for long term spatial development in Scotland, identifying National Developments which benefit from Scottish Government support in policy terms. The Framework recognises the value of Scotland's water resources and their contribution to the quality and distinctiveness of Scotland's environment, and for quality of life and success of the food and drink sector. It identifies the need for the sustainable management of the water environment as a global issue and understands that both innovation and investment will be required to develop Scotland's reputation as a Hydro Nation. NPF3 also states that water management and flooding issues will continue to be a key consideration for the Scottish Government in addressing the ongoing impacts of the climate emergency. NPF3 recognises the critical need to adapt Scotland's infrastructure to cope with increased flood risk, including greater importance on catchment-scale water and drainage infrastructure and management planning, and the need to factor in changing water supplies and water quality issues into planning decisions over the longer term. The National Planning Framework 4 is expected to be published shortly and will be taken account of in the final Plan for Transformation post-consultation.
- B.2.15 Scottish Planning Policy (2014) sets out national planning policies which reflect Scottish ministers' priorities for the planning system. It sets out support for sustainable development, particularly proposals or policies support the delivery of water infrastructure, climate change adaptation and mitigation and protecting, enhancing and promoting access to the natural environment.
- B.2.16 The role of green infrastructure in addressing the impacts of climate change is identified in the designation of the Central Scotland Green Network and Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) as National Developments, recognising the MGSDP as an exemplar of sustainable water management at catchment scale. Key environmental improvements in the central belt of Scotland have been implemented via the Central Scotland Green Network, aiming to protect and enhance the natural environment and provide equal access to natural open spaces for disadvantaged communities.
- B.2.17 The Planning (Scotland) Bill received Royal Assent in July 2019. Scottish Ministers are now commencing work on a new National Planning Framework 4; most recently publishing the Draft NPF4 in November 2021. The NPF4 will, for the first time, incorporate Scottish Planning Policy and will take on enhanced status as part of the statutory development plan. NPF 4 will have a longer time-horizon, fuller regional coverage and improved alignment with wider programmes and strategies, including on infrastructure and economic investment, particularly with regard to aiding in the recovery from the impact of the Covid-19 pandemic.
- B.2.18 The Scottish Government's Infrastructure Investment Plan 2021-22 to 2025-26 (2021) sets out priorities for public investment through a long-term strategy. With progress updated annually, it sets out why the Scottish Government invests, how it invests and what it intends to invest up to 2040 by sector. This Infrastructure Investment Plan focuses on the importance of infrastructure investment to aid in the recovery from the economic, health and social harm from Covid-19 and also to address the adjustments required following the UKs exit from the EU in December 2020. Since the last Infrastructure Investment Plan in 2015, Scottish Water have completed £3bn worth of key projects in the period to 2020. The Plan recognises that Scottish Water has agreed a £4.5 billion investment programme over a six-year period up to 2021-27 to maintain and improve services across Scotland, address the challenges of its aging asset base and progress towards Scottish Water's commitment of net zero emissions by 2040.

Environmental Quality

- B.2.19 The Environment Strategy for Scotland (2020) sets out the shared vision of Scotland's environment and climate change policies and their contribution to social wellbeing and inclusive, sustainable economic growth. The Strategy outlines the multi-sector collaborative approach to tackling climate change through several initiatives and highlights the key role that Scottish Water plays in contributing to the fight against climate change. Now generating >200% of its electricity needs from renewable sources, Scottish Water form a key part of the Hydro Nation Strategy which collaborates with other bodies such as Scottish Government, SEPA, Water Industry Commission for Scotland, Drinking Water Quality Regulator, Scottish Canals and Citizens

Environmental Report

Scottish Water Plan for Transformation

Advice Scotland. The Hydro Nation Strategy seeks to develop water resources which bring maximum benefit to the Scottish economy, embodying the benefits of collaboration across the water sector such as the SURICATES research project, Malawi-Scotland Regulatory Partnership and the Hydro Nation Water Innovation Service. The Environment Strategy itself is guided by the four EU environmental principles: Precautionary principle, Polluter pays; Prevention Principle and Rectification at source.

- B.2.20 Scotland's 3rd Land Use Strategy was published in March 2021, setting out the Scottish Government's vision for achieving sustainable land use in Scotland. The Strategy sets out a set of key considerations for climate change adaptation & mitigation, understanding the need for climate resilience and the improvement of flood management within our urban landscapes. The Strategy provides support for Scottish Water's increased use of blue and green infrastructure to manage surface water away from homes.

Appendix C SEA Review of Transformation Programme Key Workstreams

- C.1.1 As noted in **Section 1.4**, Part 1 of the SEA 'Assessment Phase' involved testing and refinement to:
- Advise regarding the environmental implications of emerging plan content and associated longer-term Transformation Programme initiatives to optimise coverage of key environmental issues and sustainability performance;
 - Identify and test any reasonable alternative options in relation to both emerging plan content and emerging initiatives being developed for inclusion within the longer-term Transformation Programme; and,
 - Inform refinement of relevant initiatives and development of any additional plan components needed to implement environmental commitments.
- C.1.2 This appendix supports the SEA Environmental Report by outlining a review of four key workstreams linked to the Plan for Transformation which are being developed under Scottish Water's longer-term Transformation Programme and at this early stage have the potential to generate likely significant environmental effects. The relevant workstreams and those elements included within this SEA focused review are:
- vii. Development of Customer & Community Centricity Vision and Strategy: review of Scottish Water's key environmental stakeholder relationships with SEPA, NatureScot and Scotland's planning system;
 - viii. Development of replacement Environmental Quality System (EQS): review of existing EQS and replacement EQS specification;
 - ix. Enhancement of Sustainable Investment Decision Making capabilities: review of Investment Appraisal Guidance (Version 2) and Draft Benefits Framework; and,
 - x. Beyond net zero emissions; review of emissions reduction strategy as set out within Scottish Water's Net Zero Emissions Routemap (2020). The Plan for Transformation directly supports the continued implementation of this Routemap.
- C.1.3 These workstreams have been reviewed as they are areas of transformation activity within Scottish Water which provide opportunities to enhance environmental outcomes. The specific workstreams are all in the early stages of development and are not therefore discussed in detail within the Draft Plan for Transformation itself, meaning that only limited substantive proposals can be formally assessed. The Plan is however intended to provide suitable 'hooks' to support the further development and implementation of these workstreams in due course.
- C.1.4 Each of the reviews undertaken within Part 1 of the SEA 'Assessment Phase' is summarised in the following suite of technical notes.

Job Name: Scottish Water Transformation Plan SEA

Prepared By: Aaron Doidge – Graduate Planner, Helen Turnbull – Planner, Duncan Smart – Associate Planner

Date: October 2021

Subject: **Review of Scottish Water’s Relationships with Key Environmental Stakeholders: SEPA, NatureScot & Planning Authorities – Interim Technical Note**

1. Background

A fully integrated Transformation Plan is being developed by Scottish Water to kickstart a long-term Transformation Programme, and in doing so, to implement the vision, outcomes and objectives set for the organisation within Scottish Water’s Strategic Plan (January 2020). The Transformation Plan is being developed through a series of intensive ‘sprints’ involving senior management within Scottish Water and external advisers. M² has been commissioned to undertake a Strategic Environmental Assessment (SEA) of the emerging Transformation Plan in accordance with relevant statutory requirements¹.

Following completion of SEA Scoping, the SEA ‘assessment phase’ comprises two linked parts:

1. Testing and refinement of relevant initiatives (as identified through SEA Scoping and review of Transformation Plan Sprint Outputs) and other components
 - a) Advise regarding environmental implications to optimise coverage of key environmental issues and sustainability performance;
 - b) Identify and test any reasonable alternative options; and,
 - c) Inform refinement of relevant initiatives and development of any additional components needed to implement environmental commitments.
2. Formal assessment reporting – preparation of SEA Environmental Report (ER) to accompany Consultation Draft Transformation Plan.

This interim technical note contributes to part one of the SEA assessment phase by providing a high-level review of Scottish Water’s relationships with three key environmental stakeholder groupings: Scottish Environment Protection Agency (SEPA), NatureScot (formerly Scottish Natural Heritage) and Scotland’s planning authorities.

2. Purpose

Scottish Water’s Strategic Plan (2020) set a strategic objective of *empowering customers and communities* and an associated commitment to transform the organisation’s relationships with communities and stakeholder to become more active, including in relation to investments, joint working, public engagement and education. In response, the emerging Transformation Plan and associated long-term Transformation Programme defines a suite of thematic initiatives to be carried out by Scottish Water. This includes development of a Customer and Community Centricity (C&CC) Vision and Strategy and supporting initiatives regarding community and stakeholder engagement, including:

- Developing and implementing catchment management, land restoration and peatland restoration partnerships;
- Developing mechanisms to identify and respond to socio-economic and environmental issues facing communities served by Scottish Water; and,
- Working collaboratively to understand the timing and scale of new developments and to deliver the new connections required to enable housing and business growth.

¹ M² is a joint venture comprising Stantec UK and Mott MacDonald appointed to provide technical consultancy support to Scottish Water.

To inform the Transformation Plan SEA, a high-level review of Scottish Water’s approach to engagement and partnering with three key environmental stakeholders (SEPA, NatureScot and Scotland’s planning authorities) is being carried out. The purpose of this review is to understand the effectiveness of Scottish Water’s main environmental stakeholder relationships and to identify potential enhancements which could be delivered through Transformation activities.

It is recognised that Scottish Water interacts with an extensive set of environmental and community stakeholders at local, regional and national levels and that different levels of engagement occur depending on the issues involved and the extent of interaction between Scottish Water and individual stakeholder interests. However, to remain proportionate and linked to emerging Transformation initiatives, at this stage the review is only examining relationships between Scottish Water and three of the most influential environmental stakeholders:

- Scottish Environmental Protection Agency (primarily as consultee – consideration of regulator role would require further review)
- NatureScot²; and,
- Planning authorities³.

For each of the three stakeholders / stakeholder groupings, the review seeks to consider:

- a) *What is the range of issues which Scottish Water and the stakeholder engage on? Are there differences between how specific issues are addressed?*
- b) *How well co-ordinated are the relationships and how many staff are involved?*
- c) *How often does engagement take place, what is the engagement approach and which departments are involved?*
- d) *Overall, how effective are existing relationships from Scottish Water’s perspective?*
- e) *How can Transformation help to enhance stakeholder relationships, engagement and partnering?*

The review involves a high-level review of relevant Scottish Water and external publications and discussions with key Scottish Water staff involved in managing relationships with these environmental stakeholders. At the time of writing (July 2021) it has only been possible to engage with some of the key staff involved and further discussions are planned with others. This technical note has therefore been prepared on an interim basis to inform Transformation Plan development and will be finalised following completion of the high-level review.

Interim review findings have informed the development of SEA recommendations to shape the emerging content of the Transformation Plan and Programme, with particular reference to the C&CC theme.

3. Baseline

Overview

SEPA

SEPA’s statutory purpose⁴ is to ensure that Scotland’s environment is protected and improving, including ensuring natural resources are managed in a sustainable way. In carrying out its functions, SEPA must contribute to improving the health and wellbeing of people in Scotland and to achieving sustainable economic growth.

SEPA’s main statutory functions include:

- Regulation of activities or processes that may pollute water, air or land;
- Regulation of waste storage, transport, treatment and disposal;
- Regulation of keeping and disposing of radioactive materials;
- Running Scotland’s flood warning systems;
- Acting as a key agency and statutory consultee in Scotland’s planning system.

² Formerly Scottish Natural Heritage (SNH).

³ To remain proportionate the review considered relationships with all of Scotland’s planning authorities in general terms rather than focusing on individual relationships.

⁴ As set out in the Regulatory Reform (Scotland) Act 2014

SEPA's other principal responsibilities include (not exhaustive):

- Monitoring, analysing and reporting on the state of Scotland's environment⁵;
- Helping implement the Zero Waste Strategy;
- Controlling the risk of major accidents at industrial sites; and,
- Providing policy and technical advice to the Scottish Government.

Interactions between Scottish Water and SEPA cover all of these responsibilities and therefore include (not exhaustive):

- As Scottish Water's environmental regulator, SEPA is responsible for ensuring compliance with statutory environmental protection and management requirements⁶. This includes applications for and the enforcement of permits for abstractions, discharges, waste management and emissions.
- As Scotland's strategic flood risk management authority, SEPA inputs to (alongside Scottish Water) and publishes Flood Risk Management Strategies in accordance with the Flood Risk Management (Scotland) Act 2009. This includes collaborative working between SEPA, Scottish Water and local authorities to identify and develop solutions to address flood risks at a local level.
- Co-ordination of River Basin Management planning. This includes adopting a whole systems approach to managing the environmental impact of Scotland's water supply and wastewater infrastructure, with a number of actions involving Scottish Water set out within the draft RBMP for Scotland 2021 – 2027.
- Providing environmental planning advice to planning authorities to support development planning and development management activities, including the determination of relevant planning applications submitted by Scottish Water.
- As a SEA Competent Authority, SEPA reviews SEA screening, scoping and assessment reports, including those prepared by Scottish Water in respect of emerging plans and programmes.

NatureScot

NatureScot, Scotland's nature agency, has four statutory purposes⁷:

1. To secure the conservation and enhancement of nature and landscapes;
2. To foster their understanding and facilitate their enjoyment;
3. To promote their sustainable use and management; and
4. To further the conservation, control and sustainable management of deer in Scotland.

NatureScot has a wide range of general environmental management and conservation related functions as well as specific duties inherited from preceding organisations. NatureScot's main statutory duties are set out within (not exhaustive):

- National Parks and Access to the Countryside Act 1949;
- Countryside (Scotland) Act 1967;
- Countryside Act 1968;
- Wildlife and Countryside Act 1981;
- Environmental Protection Act 1990;
- The Conservation (Natural Habitats, &c.) Regulations 1994;
- Nature Conservation (Scotland) Act 2004;
- Wildlife and Natural Environment (Scotland) Act 2011.

Functions of NatureScot which relate directly to Scottish Water's assets, operational activities and plans therefore include (not exhaustive):

- Designation, management and monitoring of Sites of Special Scientific Interest (SSSI). This includes determining applications for specified operations within SSSIs (i.e. SSSI consent), providing planning advice (development planning and development management) regarding plans and projects likely to affect SSSIs, and working with SSSI landowners (including Scottish Water) to implement sustainable land management and conservation projects.

⁵ Including but not limited to the condition of the water environment under the Water Environment and Water Services (Scotland) Act 2003 and associated regulations.

⁶ Principally through the Water Environment (Controlled Activities) (Scotland) Regulations 2011, the Pollution Prevention and Control (Scotland) Regulations 2012 (PPC 2012), together with other relevant legislation.

⁷ As set out in the Natural Heritage (Scotland) Act 1991.

- As Scotland's statutory nature conservation body (SNCB), NatureScot provides formal advice to competent authorities (i.e. decision makers) in respect of authorisations for plans or projects (including developments and operational activities) likely to affect designated European Sites⁸. Competent authorities include local authorities in regard to planning applications, SEPA for Controlled Activities Regulations (CAR) licences and the Scottish Ministers in respect of their decisions.
- Leading the Scottish Biodiversity and Peatland Action (restoration) Programmes, providing leadership to develop based solutions and leading net zero natural resource management; and,
- As a SEA Competent Authority, NatureScot reviews SEA screening, scoping and assessment reports, including those prepared by Scottish Water in respect of emerging plans and programmes.

Therefore, whilst SEPA is Scottish Water's environmental regulator, NatureScot also plays a key role in the regulation of Scottish Water's activities and is an important partner for environmental management.

Planning Authorities

Primary responsibility for Scotland's planning system lies with the 32 local authorities and the two national park authorities: Cairngorms and Loch Lomond & the Trossachs, each of whom are designated Local Planning Authorities (LPAs) with development planning and development management responsibilities. In addition, there are four Strategic Development Planning Authorities (SDPAs) and a network of Regional Spatial Strategy (RSS) partnerships (multiple LPAs) is emerging through implementation of the Planning (Scotland) Act 2019.

The Town and Country Planning (Scotland) Act 1997 (as amended) is the 'Principal Act' which regulates land use planning matters in Scotland. The determination of applications for planning permission, engagement of permitted development rights (PDR) and preparation of the National Planning Framework (NPF) and Local Development Plans (LDPs) must be undertaken in accordance with this Act and associated regulations.

Functions of planning authorities which relate directly to Scottish Water's assets, operational activities and plans therefore include (not exhaustive):

- Preparation of LDPs, including developing spatial strategies, assessment of candidate site allocations, final allocation of sites to meet identified needs (including housing and employment) and policy development (including flood risk management). As a statutory consultee, Scottish Water provides advice to planning authorities throughout all stages of LDP preparation.
- Determination of prior approval and planning applications:
 - For proposed Scottish Water infrastructure (new and upgraded). This includes undertaking statutory Environmental Impact Assessment (EIA) screening & scoping and acting as HRA competent authority where required.
 - For other proposed developments. As a statutory consultee, Scottish Water is consulted by planning authorities where development proposals are likely to affect or would require connections to water infrastructure.

Current Approach to Engagement & Partnering

SEPA

Scottish Water's relationship with SEPA is presently underpinned by a Sustainable Growth Agreement (SGA), a voluntary formal agreement which focuses on practical action to deliver environmentally positive outcomes. Signed in June 2018 and running for an initial four-year period, the SGA sets out an agreement to undertake collaborative working to move beyond minimum compliance with environmental regulations⁹. The SGA focuses on:

- Improving rainwater and waste water drainage to help protect the social, economic and environmental wellbeing in the context of climate change;
- Maximising resource recovery and growing the circular economy; and,
- Directing investment decisions to protect the water environment, minimise energy and resource use and maximise social and economic benefits.

⁸ Special Protection Areas (SPA) and Special Areas of Conservation (SAC), together with candidate/potential SPAs and SACs which are afforded the same status under Scottish Government policy.

⁹ All relevant regulatory requirements continue to remain in force and SEPA continues to act as Scottish Water's independent environmental regulator.

The SGA between SEPA and Scottish Water focuses on aspirations and thematic actions. Reflecting its strategic focus, the SGA does not address operational matters such as how engagement between different teams in each organisation should work, approaches to environmental monitoring or information sharing. The SGA is now in the process of being updated, with an interim update in January 2020 confirming a suite of actions in 2021 and the aim of a collective focus on place to understand the relationship between plan making, the principles of place, and the funding and financing commitments needed to bring forward coordinated delivery. As the published SGA (2018) pre-dates Scottish Water's Strategic Plan, it does not directly address the strategic objectives, commitments or Transformation activities now being progressed through Scottish Water's Strategic Plan, Transformation Plan and wider Transformation Programme.

NatureScot

Scottish Water does not currently have a strategic level agreement with NatureScot regarding how engagement between the organisations should work. Engagement takes place at individual programme and project level, including:

- Peatland ACTION – catchment surveys and development of peatland restoration schemes;
- Storm water management (e.g. St Leonards Park regeneration, also involving SEPA and Dundee City Council; and,
- NatureScot provides EIA and HRA advice to planning authorities, including in respect of planning applications for proposed Scottish Water infrastructure. This engagement occurs indirectly and is transactional in nature, with Scottish Water treated as an Applicant in the same way as any other developer.

Planning Authorities

Scottish Water engages with planning authorities most often as a designated Scottish Government Key Agency¹⁰ and through the Scottish Government's Key Agencies Group. Engagement as a statutory consultee in respect of providing advice to inform the preparation of LDPs and the determination of planning (and other consenting) applications is underpinned by planning legislation. This includes requirements for Scottish Water to provide comments in respect of candidate site allocations to inform development planning and to provide advice in respect of planning applications within specific timescales.

Evaluation of Current Engagement

Engagement Coverage

The following points have been raised to date through discussions with key staff:

- Scottish Water's engagement with planning authorities needs to consider all interactions between planning, development and water management and adopt a holistic approach. This should include but extend beyond flood risk and surface water management to encompass all issues associated with water as both a development constraint and opportunity, including at local and strategic levels.
- Flood risk management and surface water issues are already recognised as critical elements of the relationship between Scottish Water and SEPA in light of the need to respond to the climate emergency. Greater collaboration and partnership working will be required to address climate change impacts and issues.
- As evidenced through NatureScot's Transformation Plan SEA scoping response, the design and delivery of blue-green infrastructure is now viewed as an important area of work where greater and more intensive collaboration is required between Scottish Water and stakeholders. However, aside from where Drainage Partnerships have been developed, Scottish Water's existing stakeholder engagement approaches are not geared towards pro-active collaboration within the blue-green infrastructure space (guidance, planning, design and delivery).
- Effective engagement with environmental and social stakeholders should form part of Scottish Water's enhanced processes and investment decision making, including project-level appraisals. Scottish Water is already undergoing a transformation in how they can achieve greater coordination and engagement with stakeholders. Four regional leads covering Scotland have now been established to ensure consistent messaging to stakeholders, complementing several functional leads that are also now in place on a national level.

¹⁰ Under Regulation 28 of the Town and Country Planning (Development Planning) (Scotland) Regulations 2008 and associated statutory provisions.

- Achievement of Scottish Water's strategic objective of *transforming waste water services* will require partnership working and action by external stakeholders and communities as well as by Scottish Water. Acting alone, Scottish Water cannot implement this objective. This reflects the multi-lateral nature of the agreed Water Sector Vision for Scotland.

Co-ordination

The following points have been raised to date through discussions with key staff:

- Flood Risk Management (Scotland) Act 2009 provides a strong platform to develop relationships and undertake collaborative working between Scottish Water, SEPA and local authorities. Scottish Water has clear flood risk management responsibilities, which aids co-ordination, and weekly engagement takes place with SEPA's flood risk management team.
- Monthly engagement meetings between Scottish Water and planning authorities provide a mechanism for regular contact but this often focuses on short term priorities to complete each stage of the LDP preparation process rather than wider strategic issues. Engagement often tails off after LDP adoption.
- Scottish Water acts as a statutory consultee upon receipt of individual requests by planning authorities (in respect of development planning and development management). Consultation responses often focus on individual asset capacity and connection requirements (due to Scottish Water's statutory duties) rather than extending beyond this to address sustainable water management, which can lead to missed opportunities.
- Regular communication meetings involving SEPA, NatureScot and local authorities are facilitated by the Scottish Government. These often focus on diary management and short-term workloads rather than aligning strategies and longer-term campaigns.

Engagement Approach

The following points have been raised to date through discussions with key staff:

- Approaches to engagement with planning authorities depends upon individual relationships as Scottish Water does not currently have an organisational level procedure or policy to facilitate collaborative working with planning authorities.
- Engagement with SEPA benefits from the SGA being in place and is more positive where Drainage Partnerships have been established, as there is a shared understanding of environmental problems and opportunities.
- SEPA's role as Scottish Water's environmental regulator inevitably creates tensions and limits opportunities for direct collaboration. This is influenced by external pressures on Scottish Water and SEPA from customers and communities, who understandably have little tolerance of slow transformation due to perceptions around tackling climate change and flooding.
- Unless the 'Need' for an intervention is driven by regulatory compliance, SEPA is not usually involved in Scottish Water's project development and investment appraisal processes. NatureScot and planning authorities are also not presently involved in these processes.

Overall Effectiveness

The following points have been raised to date through discussions with key staff:

- Historically Scottish Water's approach to applying new policies (e.g. surface water management) in its role as a statutory consultee within the planning system has been slow. It is hoped the rate of change will increase through implementing Transformation activities.
 - Transformation provides an opportunity to implement SEPA's 'beyond compliance' regulatory approach and for Scottish Water to engage more pro-actively with environmental stakeholders.
 - Stakeholder engagement and partnering is limited by a lack of clarity regarding which stakeholders to contact, not only in terms of infrastructure delivery but also partnering to undertake environmental communications and campaigns.
 - Scottish Water does not currently maximise the use of data received through engagement with planning authorities.
 - Current engagement with NatureScot is limited and not reflective of the wide range of shared priorities between the organisations.
 - The SGA between Scottish Water and SEPA provides a good example of how formal arrangements can enhance engagement without leading to unnecessary processes and checklists.
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4. SEA Recommendations

This interim technical note provides a high-level review of Scottish Water's existing approach to engagement and partnering with three key environmental stakeholders: Scottish Environment Protection Agency (SEPA), NatureScot and Scotland's planning authorities. The purpose of this review is to understand the effectiveness of Scottish Water's main environmental stakeholder relationships and to identify potential enhancements which could be delivered through Transformation activities. This technical note has been prepared on an interim basis to inform Transformation Plan development and will be finalised following completion of the high-level review.

Having regard to the high level nature of the emerging Transformation Plan and work already underway to develop a C&CC Vision and Strategy, it is recognised that the Transformation Plan will only include limited content regarding environmental stakeholder engagement. Some issues identified within this review should therefore instead be considered through development and implementation of the long-term Transformation Programme, even if not explicitly referenced within the Transformation Plan.

The following recommendations are proposed to address the review's findings:

1. Amend the draft Transformation Plan (main body and appendix documents) to:
 - a. Explicitly acknowledge Scottish Water's varied roles in addressing socio-economic and environmental issues facing communities
 - b. Recognise the need to transform Scottish Water's relationships with environmental and social stakeholders as part of developing and implementing a new C&CC Vision and Strategy
 - c. Include a clear commitment to enhance Scottish Water's relationships with environmental regulators, consultees, advisors and organisations working to address shared environmental challenges.
 - d. Re-affirm relevant commitments made within the Strategic Plan and outline key parameters and delivery mechanisms to achieve them within the Transformation Plan appendix:
 - i. Developing and implementing catchment management, land restoration and peatland restoration partnerships; and,
 - ii. Developing approaches to identify and respond to socio-economic and environmental issues facing communities served by Scottish Water.
2. To inform C&CC Strategy development and implementation (a key Transformation initiative), Scottish Water should undertake or commission holistic stakeholder mapping and develop an associated priorities matrix to:
 - a. Develop and maintain a co-ordinated understanding of the functioning of Scottish Water's environmental stakeholder relationships at all levels (local, regional and national), including key touch points and relationship managers across Scottish Water and within each stakeholder.
 - b. Review stakeholder expectations and past experience of working with Scottish Water, focused on identifying best practice and areas of weakness.
 - c. Identify priorities and work areas of 'common mission'/alignment where alliances could be formed (informal collaboration or formal partnerships), and evaluate how more pro-active engagement could help Scottish Water achieve the organisation's Ministerial and strategic objectives.
 - d. Identify areas of potential tension and proposals to avoid, mitigate or resolve these.
3. Scottish Water should undertake or commission a review of potential models for enhanced environmental stakeholder engagement (i.e. those deployed by other organisations) to deliver effective partnership working and collaboration.
4. Based on the outcomes from implementing recommendations 2 and 3, the C&CC Strategy should include development of a high-level engagement structure and parameters for environmental stakeholder engagement to underpin a consistent approach to more pro-active and co-ordinated engagement & partnering.

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5. Develop parameters / terms of reference to underpin future delivery of a community partnerships framework (and subsequent partnerships at project level).
 6. Within the final (2021) annual review of the first SGA between SEPA and Scottish Water, identify any changes required to support the implementation of Scottish Water's Strategic Plan, Transformation Plan and wider Transformation Programme. Ensure such changes are incorporated into any new SGA reached between SEPA and Scottish Water.
 7. Explore the possibility of establishing formal engagement and partnering arrangements with NatureScot at an organisational level. This should include approaches to protect and manage designated sites as well as opportunities to deliver nature based solutions. To be effective, any organisational level arrangement should act to strengthen existing programme and project level partnerships (e.g. peatland ACTION).
 8. Capitalise on implementation of the Planning (Scotland) Act 2019 through ongoing planning reforms as a timely opportunity to transform Scottish Water's relationship with Scotland's planning authorities (and the wider development sector):
 - a. Without prejudice to discussions which would be needed with the Scottish Government and planning authorities to take forward recommendation 8, transforming Scottish Water's relationship with planning authorities should include proposals to enhance:
 - i. Co-ordination
 - ii. Consistency
 - iii. Holistic environmental management
 - iv. Pro-active involvement in development planning and infrastructure delivery – including consideration of how Scottish Water can best respond to planning reforms under the Planning (Scotland) Act 2019
 - v. Integration between investment strategy, environmental assessment, design, consenting and appraisal processes for water and waste water infrastructure (refer to similar recommendations set out in Sustainable Investment Decision Making Technical Note).
 - b. Transformation of engagement with planning authorities could be secured through developing and implementing the C&CC Strategy. In practical terms it could be achieved through developing a Memorandum of Understanding (MoU) and/or Service Level Agreement with planning authorities, through playing a more active role within the Scottish Government's Key Agencies Group and through extending the remit of Scottish Water's in-house planning service.
 - c. Consider implementing annual Planning Performance Framework Reporting (PPFR) in line with other Key Agencies and planning authorities to help identify best practice and areas for improvement. This would provide a mechanism to evaluate the effectiveness of Scottish Water's engagement with Scotland's planning system and could highlight opportunities to improve performance through implementing Transformation activities.
 - d. Transforming Scottish Water's relationship with Scotland's planning authorities could have significant resource implications and to be successful would require support across the highest levels of Scottish Water, planning authorities, the Scottish Government and the wider development sector. However, embarking on this path offers timely opportunities to both address weaknesses which limit Scottish Water's ability to influence spatial development and environmental management, as well as to contribute to the achievement of Scottish Water's strategic objectives and implementation of Scottish Water's Net Zero Routemap (2020).

This note summarises the finalised recommendations which have been issued to inform the final parameters of the Consultation Draft Transformation Plan and development of the wider Transformation Programme.

Job Name: Scottish Water Plan for Transformation SEA
Job No: 48972
Date: October 2021
Prepared By: Helen Turnbull
Reviewed By: Duncan Smart
Approved By: Duncan Smart
Note Title: Replacement Electronic Quality System (EQS) V3

1 Background

- 1.1 A fully integrated Transformation Plan is being developed by Scottish Water to kickstart a long-term Transformation Programme, and in doing so, to implement the vision, outcomes and objectives set for the organisation within Scottish Water's Strategic Plan (January 2020). The Transformation Plan is being developed through a series of intensive 'sprints' involving senior management within Scottish Water and external advisers. M² has been commissioned to undertake a Strategic Environmental Assessment (SEA) of the emerging Transformation Plan in accordance with relevant statutory requirements.
- 1.2 Following the completion of SEA Scoping, the SEA 'assessment phase' comprises two linked parts:
1. Testing and refinement of relevant initiatives (as identified through SEA Scoping and review of Transformation Plan Sprint Outputs) and other components:
 - a) Advise regarding environmental implications to optimise coverage of key environmental issues and sustainability performance;
 - b) Identify and test any reasonable alternative options; and,
 - c) Inform refinement of relevant initiatives and development of any additional components needed to implement environmental commitments.
 1. Formal assessment reporting – preparation of SEA Environmental Report (ER) to accompany Consultation Draft Transformation Plan.

2 Purpose

- 2.1 The emerging Transformation Plan and associated long-term Transformation Programme defines a suite of thematic initiatives to be carried out by Scottish Water, one of which is the implementation of a replacement Electronic Quality System (EQS) which will support the management and monitoring the organisation's environmental performance (including regulatory compliance). To inform the Transformation Plan SEA this technical note provides a high-level review of Scottish Water's existing EQS and considers how a replacement EQS should be developed and implemented to optimise the environmental performance of the system. The note therefore provides recommendations to inform the parameters of the Transformation Plan/Programme Replacement EQS initiative.

3 Baseline

- 3.1 Scottish Water's existing EQS is a software platform comprising automated workflows to manage data/information, reporting, compliance and assurance in accordance with

international standards. Scottish Water's existing EQS has been in use for between 20+ years, acting as a knowledge repository which holds thousands of business processes, each containing roles and responsibilities for their improvement and performance. The EQS also manages the business-wide internal audit plan associated with management systems including environmental and energy management systems. Generally, the EQS acts as the central software platform to both standardise workflows, demonstrate regulatory compliance and provide data to inform decision making.

4 Drivers for Change

4.1 Scottish Water has identified a need to modernise the organisation's EQS to improve functionality, useability, efficiency and reliability. The existing EQS is now inadequate to meet Scottish Water's requirements:

- **Efficiency:** To enable more efficient and comprehensive reporting there is a need for integration of all existing systems into a single business-wide management system. Scottish Water currently run systems across multiple platforms (including energy and environmental management systems). Integration will support business assurance and contribute towards enhanced monitoring of environmental performance.
- **Software:** Existing EQS is run on a dated software platform which is now out of support, which limits longevity and adaptability to report against emerging and new requirements/standards.
- **Collaboration:** Existing EQS is not user friendly and has been reported as being difficult to use efficiently. This limits the ability of the EQS to encourage best practice in environmental reporting, monitoring and management.
- **Improvements:** Existing EQS monitors performance against multiple regulatory compliance requirements, which are audited in accordance with external and internal requirements. A new EQS is needed to allow multiple workflows and associated auditing process to be held within the same system to improve accountability and coordination. This will support enhanced engagement with and reporting to regulatory stakeholders.
- **Flexibility:** The existing EQS is a fixed system which is nearing the end of its useability and has only limited ability to monitor Scottish Water's transition to net zero emissions.

4.2 There is a clear need for Scottish Water to implement a replacement EQS as part of the organisation's Transformation Plan and longer-term Transformation Programme. The replacement EQS should enable reliable, robust and efficient environmental reporting to evidence how Scottish Water is addressing key environmental challenges and to demonstrate regulatory compliance, whilst incorporating flexibility to adapt to future monitoring needs. The replacement EQS should allow for end to end management of existing and new processes.

4.3 A core SEA requirement is that likely significant effects of implementing both a plan or programme and any identified 'reasonable alternatives' to it to be examined, as well as the rationale for identifying reasonable alternatives to be described. To be considered as reasonable alternatives, options must relate to the plan or programmes' corresponding objectives and must be realistic, relevant and within the scope of the emerging plan. As the need for a replacement EQS has been established and the existing EQS cannot sufficiently be upgraded, no reasonable alternative to the implementation of a replacement EQS can be identified.

5 Transformation Plan SEA Recommendations

5.1 To optimise its environmental performance, the inclusion of the replacement EQS initiative within the emerging Transformation Plan and Programme should address the following parameters:

-
- Replacement EQS must be designed to maximise the integration and efficiency benefits from all workflows being driven from a single platform. This will allow all parts of the EQS to be used by all staff across Scottish Water and should enable more efficient information sharing between teams. The replacement EQS should be designed to underpin a holistic approach to environmental monitoring and management, rather than individual indicators being tracked separately.
 - Training should be provided to all staff regarding efficient use the replacement EQS. This should include consideration of how environmental impacts and opportunities are monitored through business processes.
 - Replacement EQS must be capable of adaptation to meet emerging and future environmental monitoring requirements, including but not limited to tracking progress towards and beyond net zero emissions.
 - Replacement EQS should enable more efficient, responsive and effective stakeholder engagement, including with environmental regulators.
- 5.2 These parameters should be secured through the emerging Transformation Plan to optimise the environmental performance (efficiency and effectiveness) of the resulting replacement EQS

Job Name: Scottish Water Plan for Transformation SEA

Prepared By: Helen Turnbull – Planner, Duncan Smart – Associate Planner

Date: October 2021

Subject: **Review of Investment Appraisal Guidance (Version 2) & Draft Benefits Framework**

1. Background

A fully integrated Plan for Transformation is being developed by Scottish Water to kickstart a long-term Transformation Programme, and in doing so, to implement the vision, outcomes and objectives set for the organisation within Scottish Water's Strategic Plan (January 2020). The Plan for Transformation is being developed through a series of intensive 'sprints' involving senior management within Scottish Water and external advisers. M² has been commissioned to undertake a Strategic Environmental Assessment (SEA) of the emerging Plan for Transformation in accordance with relevant statutory requirements¹.

Following the completion of SEA Scoping, the SEA 'assessment phase' comprises two linked parts:

1. Testing and refinement of relevant emerging Transformation initiatives (as identified through SEA Scoping and review of Plan for Transformation Sprint Outputs) and other components
 - a) Advise regarding environmental implications to optimise coverage of key environmental issues and sustainability performance;
 - b) Identify and test any reasonable alternative options; and,
 - c) Inform refinement of relevant initiatives and development of any additional components needed to implement environmental commitments.
2. Formal assessment reporting – preparation of SEA Environmental Report (ER) to accompany Consultation Draft Plan for Transformation.

2. Purpose

Scottish Water's Strategic Plan (2020) set out a number of commitments related to investment decision making, exploring how investment decision making can be transformed to encompass 'Six Capitals' approaches to ensure environmental and social impacts are afforded adequate consideration. In response, the emerging Plan for Transformation and associated long-term Transformation Programme defines a suite of thematic initiatives to be carried out by Scottish Water. This includes development of a new Investment Strategy and initiatives to develop, refine and embed proportionate processes and techniques to appraise and prioritise portfolio, programme and project investment decisions.

At the time of preparing the Strategic Plan (2019 – 2020) it was envisaged that a six capitals approach may be adopted to strengthen investment planning, prioritisation and delivery. Significant further work has now been undertaken to update and refine Scottish Water's investment decision making processes and capabilities. This identified key limitations of pursuing the six capitals approach, not least being able to consistently apply six high level reporting categories across a wide range of situations in a way which meaningfully informs decisions rather than simply 'aggregating up' to report outcomes. Under the Sustainable Investment Decision Making theme, the approach to decision making has, therefore, intentionally shifted away from a six capitals approach to instead adopt a more detailed structure framed around the Scottish Government's National Performance Framework. This provides greater transparency in linking individual investment decisions to the Ministerial Objectives and to fulfilling Scottish Water's range of statutory duties.

To implement a more robust approach to investment decision making and prioritisation, work is currently being progressed under this theme by Scottish Water, including recent development of a draft 'Benefits Framework' and updated project investment appraisal guidance. Types of benefit will be recognised by a list of thirty benefit categories covering four factors; Direct, Enabling, Securing and Empowering which are described further later in Section 3 of this technical note. For the avoidance of doubt, the term 'benefits' has been defined by Scottish Water in accordance with standard economic practice to include both positive benefits and negative disbenefits. The draft Benefits Framework therefore provides a consistent mechanism

¹ M² is a joint venture comprising Stantec UK and Mott MacDonald appointed to provide technical consultancy support to Scottish Water.

for likely impacts (positive and negative) of projects, options and interventions to be captured within decision making.

To inform the Plan for Transformation SEA, this technical note provides a high-level review of Scottish Water's existing Project Investment Appraisal Users Guide (V2 – 2021), which sets out principles to underpin the organisation's investment appraisal process and ensure robust decision making at a project level. As discussed above, this review focuses only on the Project Investment Appraisal Guidance and draft Benefits Framework as the wider appraisal pyramid is still under development.

The purpose of this review is to understand the extent to which the investment appraisal process embeds environmental and social considerations (benefits, risks and impacts). The review has therefore examined how environmental and social considerations are captured within the Project Investment Appraisal Users Guide to identify potential enhancements which could be delivered through Transformation activities.

As part of this review, a series of workshops have been held with key staff at Scottish Water to review the developing approach to investment appraisals. Review findings have informed the development of a series of SEA recommendations to shape the emerging development and delivery of the Sustainable Investment Decision Making theme. Review findings and interim recommendations were discussed with relevant Scottish Water staff and m² technical advisers through a Sustainable Investment Decision Making workshop, resulting in finalised recommendations which informed the parameters of the Consultation Draft Plan for Transformation and future wider Programme.

3. Baseline

Context

The Project Investment Appraisal Users Guide (Version 2) was published in April 2021, setting out a refreshed approach to investment appraisals. Previously, each regulatory period had a defined investment programme which aimed to minimise capital investment expenditure whilst meeting identified needs and subsequently would select least-cost infrastructure solutions. The need to respond to the climate emergency, renew ageing assets and address demographic changes (including projected population increases) resulted in the development of a refreshed Users Guide to underpin Scottish Water's investment decision-making process.

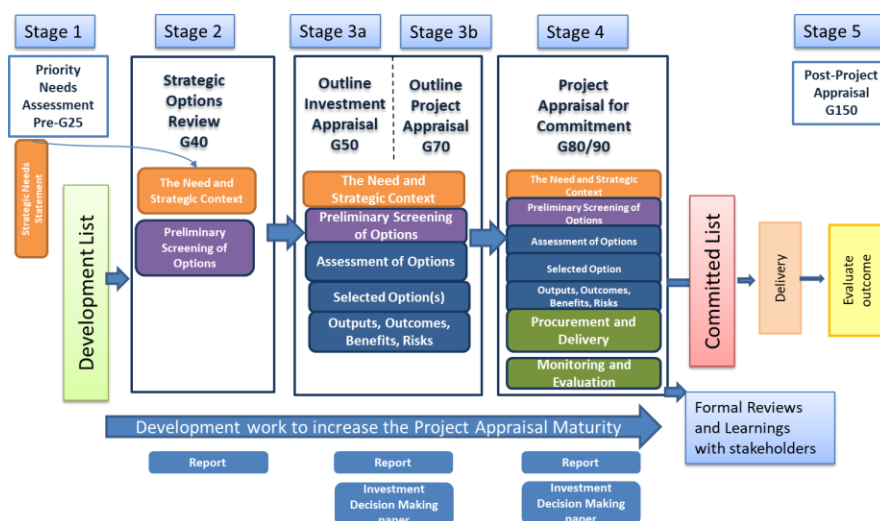
In responding to these challenges, the Project Investment Appraisal Users Guide (Version 2) provides a methodology to consistently and transparently plan, prioritise and report investment decisions at a project level. This enables a more effective approach to engaging with stakeholders, communities and customers by taking account of long-term investment requirements and seeks to consider both immediate project needs and the wider longer-term benefits. The Project Investment Appraisal Users Guide seeks to provide consistency in decision making across Scottish Water and is aimed primarily at Strategic Planners, Intervention Managers, Project Managers and similar roles who regularly complete investment appraisals. However, in doing so the approach should also inform other staff and contractors involved in developing and implementing projects, including in relation to environmental management and infrastructure development.

Consideration of Environmental and Social Impacts in Appraisal Methodology

Scottish Water uses four levels of investment appraisal, of which levels 1 and 2 relate to the most strategic investment decisions and requires the most detailed analysis:

- *Level 1 relates to the early identification of placemaking and external partnership involvement;*
- *Level 2 relates to substantive system, programme and project investments;*
- *Level 3 relates to less substantive system, programme and project investments; and,*
- *Level 4 will be guided by a Sub-Programme Management Approach which lays out the investment trigger policies and rulesets.*

The approach outlined in the Project Investment Appraisal Users Guide requires appraisals at all levels to proceed through a 5 stage process:



The extent to which environmental and social considerations are (or can be) factored into decision making at each stage of the appraisal process in a consistent and robust manner is considered below.

Stage 1 - Priority Needs Assessment (pre-Gate 25)

Overview

This stage determines the rationale for a proposed intervention, project or programme through selecting a pre-determined ‘Need’ (set with reference to Ministerial and Strategic Plan Objectives) which requires to be progressed through a new project or intervention. The stage defines the scope and high level requirements of a project before any options are considered, which creates a robust platform to objectively develop a strategic case for a project and generate a decision making audit trail. Stage 1 is reported through completion of a Priority Needs Assessment (PNA) Checklist and supporting documentation.

As set out in the Strategic Plan, one of Scottish Water’s priorities is to transform relationships with customers and communities, undertaking a more extensive and interactive engagement process. This includes factoring community input into investment decision making and adopting a more collaborative approach to decision making. The need for early stakeholder engagement and/or ministerial approval is decided on a project-by-project basis in Stage 1 based on the following criteria:

- Something meaningful / substantive to influence - i.e. a choice for customers and communities
- Legacy issues within the community (e.g. regarding flooding or asset management)
- Proximity to properties
- Experience of similar projects / communities elsewhere
- Profile and demographics of a community
- Risks from not engaging at the outset
- Community and stakeholder expectations.

Environmental and Social Considerations

The Project Investment Appraisal Users Guide makes clear that all relevant Needs should be identified, extending beyond the directly relevant Need and associated Strategic Plan Strategic Objective which trigger the appraisal to also identify other Needs and Strategic Objectives which could be impacted (directly or indirectly). This allows an objectives-led approach to options development and appraisal to be adopted, focusing on the achievement of outcomes rather than adopting a narrower scope based on initially identified potential solutions.

The high-level and relatively fixed scope of pre-defined Needs and Strategic Objectives may benefit from the introduction of environmental and socio-economic evaluation criteria. This would help to provide specificity and flexibility in subsequent options development and appraisal.

The criteria listed above to identify early stakeholder engagement and ministerial approval requirements include only limited consideration of socio-economic factors (e.g., impacts on homes, community profiles,

demographics) and do not currently include criteria to consider the wider environmental factors such as those listed in the SEA guidance. However, those Stage 1 criteria that identify risks from not engaging, proximity to property and stakeholder expectations are likely to include some indirect consideration of pertinent environmental issues.

Stage 2 - Strategic Options Review (Gate 40)

Overview

The main elements of this stage are to:

- Review the identified Need, including supporting evidence.
- Identify all relevant benefit categories and assign beneficiaries – using Scottish Water’s Benefits Framework which lists types of benefits (which accrue to customers, communities and the environment through addressing the identified Need) and associated metrics/indicators:
 - Direct benefits - direct impacts from Scottish Water’s operations.
 - Water and wastewater specific benefits, benefits common to both subsectors.
 - Enabled benefits – where actions by Scottish Water facilitate action by other stakeholder or communities to achieved desired outcomes.
 - Progress towards implementing Scotland’s National Performance Framework (NPF) Outcomes – with reference to relevant National Indicators
 - Securing benefits- which seek to enhance and protect expected outcomes through de-risking and greater capabilities
 - Organisational, information based and solution-based benefits in Scottish Waters practises.
 - Empowering benefits- focused on improving stakeholder, customer and community interactions with Scottish Water.
 - Improved experience and engagement with Scottish Water, namely with regard to accessibility, transparency, consistency and capability.
- Generate a long list of potential strategic intervention options to meet the identified Need and objectives, with assumptions and uncertainties clearly articulated.
- Develop a set of Critical Success Factors (CSF) to undertake and report a preliminary screening of options, with secondary screening criteria also developed and applied where needed. The objective of screening is to reduce the long list to a shortlist of only those which address the identified Need, are technically feasible and align with Scottish Water’s investment policies.
- Undertake high level assessments of costing and carbon intensity.

Environmental and Social Considerations

The selection of benefit categories from a common framework, acts as a strong methodology to capture likely beneficial (i.e. positive) environmental, social and economic impacts from addressing an identified Need early in the appraisal option. Development of specific CSFs also provides a safeguard to ensure all potential options are at least capable of effectively achieving the Need. However:

- Only conceptual benefits are identified rather than also potential adverse impacts and risks, including potential environmental and community risks. Whilst some adverse impacts and risks will be associated with specific options, other impact types may occur regardless of which option is selected to address an identified Need (e.g. progressing any Need associated with infrastructure provision or performance is likely to result in the generation physical environmental impacts, regardless of the specific option ultimately selected through the appraisal process).
- Whilst measuring carbon intensity provides an initial view on emissions it does not itself confirm whether potential options are fundamentally compatible or incompatible with achieving, or would have a material effect on the achievement of, Scottish Water’s net zero targets and proposed trajectories as set out within Scottish Water’s Net Zero Routemap (2020).
- The Project Investment Appraisal Users Guide indicates stakeholder views should inform options screening, including in terms of environmental acceptability (e.g. of proposed abstractions and

discharges). However, depending on the nature of the Need which an appraisal is seeking to address, it is not clear whether environmental and social acceptability would always be included within CSFs at Stage 2 or what additional stakeholder acceptability criteria would be applied (through secondary screening) to enable this and whether this would be undertaken on a consistent basis.

Caselaw has established that the consideration of reasonable alternatives in accordance with SEA principles functions as an important evidence base to justify a proposed plan, strategy or programme, and the non-inclusion of possible other content or options, in terms of:

- Demonstrating that components/options are themselves 'reasonable' (i.e. evidence based and contributing effectively to the implementation of higher-level objectives). This should take account of likely impacts and risks alongside benefits from seeking to address an identified Need; and,
- Determining whether there are any other 'reasonable alternatives' which could achieve the same objectives (i.e. addressing a Need and strategic objective as identified in Stage 1). If reasonable alternatives can be identified, these should be subject to an equal level of assessment to identify any likely significant effects rather than being discounted prematurely. This process should transparently demonstrate that the eventually selected option(s) perform better in overall terms than other identified reasonable alternatives.

The issues identified above may limit the ability of the appraisal process to consistently identify and then appraise all reasonable alternative options in respect of addressing an identified Need.

Stage 3a – Outline Investment Appraisal (Gate 50)

Overview

Stage 3a comprises a detailed appraisal of the costs, benefits and risks of the options shortlisted at Stage 2 to identify a preferred option(s). A complete cost assessment is undertaken using a Net Present Cost and Carbon Calculator (NPCC), which ensures that carbon emissions associated with any option are factored into decision making in a consistent manner. Qualitative assessment of project options against all relevant (external) benefit categories identified through Stages 1-2 is also undertaken. Scottish Water's Benefits Framework requires this to include consideration of how the natural environment (air, land water) and the ecology/habitat that it supports might be impacted in terms of receptor sensitivity and duration, scale and severity of impact.

Environmental and Social Considerations

Following directly from Stage 2, the assessment of options against benefit categories provides a clear mechanism to consider beneficial environmental and social impacts within decision making but not necessarily all relevant risks and adverse impacts (unless they are reported as disbenefits, i.e. converse outcomes to those encompassed within benefit categories). Adopting a qualitative approach allows potentially different impacts or benefits between options to be reviewed (e.g. at appropriate spatial and temporal scales).

However, as qualitative benefits (or impacts and risks) need to be factored into decision making alongside costs which can be easily ranked and compared with available budgets, the absence of weightings or scoring for qualitative benefits (or impacts) may preclude the ability to take decisions based primarily on these. Unless natural and social capital values are factored into project appraisals alongside cost analysis, it will potentially limit the ability to demonstrate that decision making and associated reporting has taken account of all relevant social and environmental considerations.

The Project Investment Appraisal Users Guide does not confirm whether the appraisal process should be timed such that outline design, environmental assessment or consenting information would be available to inform Stage 3a (or any other stage). If available, this information would likely help to identify additional benefits, impacts and risks (or to better define those identified in Stage 2) which should be taken account of in optioneering.

Stage 3b – Outline Project Appraisal (Gate 70)

Overview

Stage 3b involves reviewing the information used in Stage 3a to select the preferred option and refining the understanding of the risk, costs and supply chain requirements before detailed design development begins. The stage therefore provides an opportunity to confirm the preferred option and review any new information which may impact on option appraisal rankings.

Environmental and Social Considerations

The Project Investment Appraisal Users Guide does not highlight specific environmental considerations at Stage 3b, although the guidance does emphasise the need to consider relevant risks at this point. It is expected that any environmental or social benefits, impacts or risks identified in Stage 3a would be reviewed, with refinements made to the preferred option if feasible (in technical, commercial and all other respects) to mitigate identified risks.

Stage 4 – Project Appraisal for Commitment (Gate 80/90)

Overview

Stage 4 is regarded as the key decision-making point in the appraisal process whereby Scottish Water reaches an agreed target cost (ATC) and moves the project (i.e. the option selected as preferred following multi-stage appraisal) to the Committed list. At this stage, all outcomes, outputs and benefits will be accompanied by a monitoring and evaluation plan agreed with the delivery partner.

Environmental and Social Considerations

As noted in relation to Stage 3a, the Project Investment Appraisal Users Guide does not confirm how the investment appraisal process should interact with outline design, environmental assessment or consenting processes (for appraisals related to infrastructure provision or performance). These are likely to generate monitoring and mitigation requirements (e.g. construction environmental mitigation measures, planning conditions, licence/permit requirements, etc) which should be included within monitoring and evaluation plans.

Stage 5 – Post Project Appraisal (G120)

Overview

This stage confirms whether or not the outcomes, outputs, costs and benefits were delivered and captures any learning points for future projects. Stage 5 appraisal guidance is currently under development and could not be reviewed to determine environmental impacts at this time.

4. SEA Recommendations

This technical note has provided a high-level review of Scottish Water's existing Project Investment Appraisal Users Guide (V2 – 2021) to understand the extent to which the investment appraisal process embeds environmental and social considerations (benefits, risks and impacts). The review has therefore examined how environmental and social considerations are captured within the Project Investment Appraisal Users Guide to identify potential enhancements which could be delivered through Transformation activities.

Having regard to the high-level nature of the emerging Plan for Transformation and the approach already adopted by Scottish Water to refine the project investment appraisal process (and associated guidance) on an iterative and regular basis, it is recognised that the Plan for Transformation will only include limited content regarding the investment appraisal process. Some issues identified within this review should therefore instead be considered through future refinements of Scottish Water's Project Investment Appraisal Users Guide and the long-term Transformation Programme, even if not referenced within the Plan for Transformation.

The following recommendations are proposed to address the review findings:

1. Investment appraisal process should be refined to more clearly embed social and environmental considerations in reporting and developing new mechanisms to ensure all relevant social, environmental and economic impacts are adequately taken account of in decision making. Planned monetisation of some external benefits where appropriate will assist with this.
2. Investment appraisal process should be refined to more consistently and directly account for adverse impacts and risks (alongside benefits).
3. Emerging Plan for Transformation should confirm that the new investment appraisal process enables all reasonable alternative options to meet an identified Need are given due consideration throughout the PIA process and are transparently and timeously evaluated against social and environmental criteria (see recommendation 1 above).
4. Within the next iteration of Scottish Water's Project Investment Appraisal Users Guide and Benefits Framework:
 - a. Include a section to explicitly confirm how social and environmental considerations are captured within the appraisal process;

- b. Introduce and address SEA and EIA reasonable alternatives requirements; and,
 - c. Explain how the appraisal process should align with and utilise information generated through outline design, project environmental assessment and consenting processes (where relevant).
5. Extend Stage 2 to include identification of conceptual / high level adverse impacts and risk types alongside benefits (thereby ensuring relevant impacts and risks are factored into screening and carried forward to options appraisal stages).
 6. Extend Scottish Water's Benefits Framework to explicitly cover adverse impacts and risks, or alternatively develop a separate risk framework. Identification of impacts and risks (at both Need and option levels) should be with reference to regulatory, consenting and environmental assessment requirements and thresholds.

These finalised recommendations have been discussed with relevant Scottish Water staff and m² technical advisers through a Sustainable Investment Decision Making workshop and were used to inform the final parameters of the Consultation Draft Plan for Transformation and development of the wider Transformation Programme.

Job Name: Scottish Water Transformation Plan SEA
Prepared By: Helen Turnbull – Planner, Duncan Smart – Associate Planner
Date: October 2021
Subject: **Review of Scottish Water Net Zero Emissions Routemap**

1. Background

A fully integrated Plan for Transformation is being developed by Scottish Water to kickstart a long-term Transformation Programme, and in doing so, to implement the vision, outcomes and objectives set for the organisation within Scottish Water's Strategic Plan (January 2020). The Plan for Transformation is being developed through a series of intensive 'sprints' involving senior management within Scottish Water and external advisers. M² has been commissioned to undertake a Strategic Environmental Assessment (SEA) of the emerging Plan for Transformation in accordance with relevant statutory requirements¹.

Following completion of SEA Scoping, the SEA 'assessment phase' comprises two linked parts:

1. Testing and refinement of relevant initiatives (as identified through SEA Scoping and review of Transformation Plan Sprint Outputs) and other components
 - a) Advise regarding environmental implications to optimise coverage of key environmental issues and sustainability performance;
 - b) Identify and test any reasonable alternative options; and,
 - c) Inform refinement of relevant initiatives and development of any additional components needed to implement environmental commitments.
2. Formal assessment reporting – preparation of SEA Environmental Report (ER) to accompany Consultation Draft Transformation Plan.

This technical note contributes to part one of the SEA assessment phase by providing a high-level review of the strategy set out within Scottish Water's existing Net Zero Emissions Routemap (2020) and considering how transformation activities can best support the achievement of Scottish Water's beyond net zero ambitions.

2. Purpose

Scottish Water's Strategic Plan (January 2020) set out a commitment to achieving net zero emissions by 2040 and going beyond that thereafter. The Plan noted this would be an immense challenge and identified a need for transformation across the organisation to achieve the ambition, as is now being taken forward through the emerging Plan for Transformation and longer-term Transformation Programme. The Strategic Plan also committed to publishing a route map to set out a strategy to achieve net zero, which was implemented through the publication of Scottish Water's Net Zero Emissions Routemap (hereafter 'the Routemap') in September 2020. The emerging Plan for Transformation links to the Routemap and identifies processes and workstreams within Scottish Water which need to enhance to support implementation of the Routemap whilst delivering wider improvements across the organisation.

Scottish Water's strategy for the achievement of beyond net zero emissions is set out within the Routemap (2020), which the emerging Plan for Transformation supports and aligns with but does not seek to replace. Rather, the Routemap will remain in place and will be subject to regular monitoring, reporting and potential updates if required. As the emerging Plan for Transformation relies upon the Routemap (2020), which was not previously subject to SEA, to set out Scottish Water's net zero emissions strategy, a high-level review of that strategy (not detailed examination of all content) within the Routemap has been carried out to inform this SEA of the emerging Plan for Transformation and the associated Transformation Programme.

¹ M² is a joint venture comprising Stantec UK and Mott MacDonald appointed to provide technical consultancy support to Scottish Water.

The purpose of the review reported in this note is therefore to confirm the scope of the Routemap, understand interactions with the emerging Plan for Transformation (and longer-term Transformation Programme), and to establish that the strategy set out within the Routemap is achievable, reasonable and effective such that the emerging Plan for Transformation can rely upon it.

3. Overview of Net Zero Emissions Routemap

The Routemap sets out a series of principles that Scottish Water have adopted to achieve their net-zero ambition by 2040 such as:

- Become More Energy Efficient
- Use Lower Carbon Energy Products
- Embrace Low Carbon Construction
- Store Away Emissions That Cannot Be Avoided

Recognising itself as an emission-intensive business, the source of these emissions is listed as either operational from the delivery of vital services or investment driven emissions caused by Scottish Water's investment programme to maintain and improve services in accordance with statutory duties. The Routemap is the centre piece of an ongoing commitment to reduce Scottish Water's carbon footprint, having already cut emissions by 45% since 2007 using solar, hydro and wind power, more efficient equipment and reducing leaks. With regard to operational emissions, the Routemap (2020) identifies this at over 254,000 tonnes carbon dioxide equivalent per annum, comparative to up to 40,000 car journeys around the world.

Investment emissions are generated by activities relating to raw material extraction, materials production and other emissions associated with construction, transport and fuel onsite. To monitor and reduce investment emissions, the Routemap confirms that a Carbon Accounting Tool has been developed to plan, measure and report emissions generated by supply chain activity. The purpose of the tool is to enable green decision making and make informed investment decisions based on emissions levels for proposed investments. This is informed by a carbon intensity of investment metric which currently measures investment emissions at 200-300 tCO₂e/£m of investment. This metric will provide a key understanding of the sources of emissions within the supply chain and facilitate the transition towards net-zero emissions.

Three key milestones are set out within the Routemap, namely:

- Short Term (2025) - *We will reduce our operational emissions by at least 60%². We will progress reducing our investment emissions, growing our understanding, and will set a reduction goal for 2030.*
- Medium Term (2030) - *We will reduce our operational emissions by at least 75%* in line with Scottish Government targets.*
- Long Term (2040) - *We will achieve net zero emissions and will be supporting Scotland to achieve its goal of net zero emissions.*

These milestones are informed by a series of thematic goals, addressed in turn below. Each goal has several activities listed and is accompanied by a summary of status and overall implementation programme. To monitor implementation of the Routemap Scottish Water has subsequently developed a detailed data tracker.

Electricity

The Routemap (2020) notes that in delivering vital water and wastewater services for Scotland, Scottish Water currently requires 576GWh of electricity per annum, resulting in 160ktCO₂e per annum. Scottish Water generate and consume 53 GWh of renewable electricity per annum on site using SW assets, reducing the requirement of grid electricity. Scottish Water also host renewable generation of 831 GWh per annum for other organisations on owned land which is then exported to the National Grid. As set out in the Routemap, goals associated with electricity to 2040 are:

- Reducing our consumption of electricity - 20% reduction;
- Maximising energy recovery from bioresource;

² From 2007 baseline.

- Generating or hosting all energy consumed - 100% of energy used generated by Scottish Water's own or hosted renewables.

Process Emissions

The Routemap (2020) notes that process emissions generate approximately 43kt CO₂e per annum via the treatment of 983 megalitres of wastewater per day. This is in the form of either nitrous oxide or methane. Overall, the Routemap aims to reduce emissions production while maximising the energy recovered from bioresources. As set out in the Routemap, the goal associated with process emissions to 2040 is:

- Reducing production of process emissions - 20% reduction.

Gas & Fuel Oil

Gas & fuel oil usage comprises 199 GWh per year, the majority of which is used in thermal drying and processing of wastewater sludge. Fuel oil is used for standby generation of power for power outage purposes while any remaining gas is being used for heating SW buildings. In terms of emissions, this results in 38ktCO₂e per annum. As set out in the route map, the goals associated with gas and fuel oil to 2040 are:

- Eliminating consumption of gas and fuel oil - 100% reduction in gas and fuel oil consumption.
- Maximising energy recovery from bioresource; and,

Transport & Travel

Scottish Water vehicles travel a total of approximately 19 million miles per annum, with business travel also contributing to a total of 16ktCO₂e of emissions per annum. As set out in the Routemap, the goal associated with transport and travel to 2040 are:

- Reducing fleet mileage and business travel - 50% reduction in distance travelled: and,
- Transitioning vehicle fleet to zero emissions vehicles - 100% zero emissions fleet.

Investment

To maintain and improve services Scottish Water currently invests approximately £700m per annum, with the carbon intensity of this investment calculated as 200-300 tCO₂e/£m. The top contributor to investment emissions is civil engineering (60%), followed by infrastructure (20%), mechanical and electrical (15%), site temporary works (<5%) and demolition (<5%). As set out in the route map, the goals associated with gas and fuel oil to 2040 are:

- We enable zero emission construction; 75% reduction in carbon intensity of investment; and,
- Delivering zero emission investment with supply chain; 75% reduction in carbon intensity.

Storing Carbon

Scottish Water owns over 22,500 hectares of land across Scotland. The total amount of CO₂ stored within this land will be determined as a result of a collaborative partnership with the James Hutton Institute. As set out in the route map, the goals associated with storing carbon to 2040 are:

- Capture and store more carbon dioxide than produced; and,
- Improve carbon dioxide storage on land to support net zero emissions.

Scope and Progress of Net Zero Routemap

The Routemap identifies several goals and sets of associated actions for each of the six target areas to achieve net zero emissions; Electricity, Process Emissions, Gas & Fuel Oil, Transport & Travel, Investment and Storing Carbon. Progress against these goals is measured by an internal tracker which measures

progress against Routemap and other pathway documents which are being considered by the Scottish Water Net Zero Expert Panel. The Routemap itself will be updated periodically as emissions data is reviewed on an ongoing basis.

With regard to timescales, the Routemap identifies three phases of transformation to net zero; to 2025, to 2030 and to 2040. In tandem with development of the Plan for Transformation further work has been undertaken to examine the potential to accelerate the 2040 net zero emissions target, which would require the emissions reduction trajectories set out within the Routemap to be accelerated.

Overall, the Routemap sets out a clear high-level strategy to achieve and progress beyond net zero emissions by 2040 and no alternative strategies have been identified. The Routemap provides detailed coverage of relevant issues to facilitate net zero emissions. However, some areas for improvement include:

- **Goals and Associated Actions:** The wording of each action could incorporate more specific targets. For example, 'Progress development of low and zero emission construction materials'. This target could be amended to include how progress will be measured and reported, including a specific percentage target of materials to be low or zero emission materials by 2030, i.e. use of SMART goals.
- **Environmental Improvements:** Inclusion of small environmental improvements to contribute to the goals within 'Investment'. Specifically, this may include specific targets for tree planting or other carbon saving methods as part of programmes or projects around investment.
- **Targeting Each Action:** Inclusion of end dates for specific targets to identify opportunities to be maximised faster than the timing of each phase, rather than overall 'up to' timescales.

4. Recommendations

The following recommendations are proposed to address the review's findings:

- Plan for Transformation should include clear cross-references to the Net Zero Routemap and confirm that all relevant transformation activities will be designed to support the delivery of beyond net zero ambitions across Scottish Water; and,
 - In future reviews and updates of the Routemap, identify more specific timescales and delivery mechanisms for individual targets and actions in order to confirm whether these are all reasonable and effect and whether actions can be achieved faster than previously envisaged.
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