

# STRATEGIC INFRASTRUCTURE (Transport and Utilities) SECTOR PLAN

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# Preface



**SEPA has a strong track record of regulating to improve the Scottish environment. We are proud of what we have achieved since we were set up just over two decades ago in 1996. We know we need to do more over the next two decades to build on this success. Much more.**

The mounting scientific evidence about climate change, plastics in our oceans, the pressure on our freshwater and more shows us that humanity must rise to tackle major environmental challenges. This scientific knowledge underpins SEPA's strategy for how we will regulate – One Planet Prosperity. If everyone in the world lived as we do in Scotland, we would need three planets. There is only one.

So, we will regulate to help Scotland prosper within the means of our one planet. A successful future will be one where we use low amounts of water, materials and energy and create little waste. Prosperous societies will be comprised of these organisations. This can be Scotland.

In every sector we regulate, this means we will have two simple aims. We will:

1. ensure that all those in the sector fully meet their environmental compliance obligations; and
2. help as many of those in the sector as possible move beyond their environmental compliance obligations.

This sector plan outlines how we will do this in regulating the strategic infrastructure (transport and utilities) sector.

The type of infrastructure a society chooses to build says a lot about the type of future it is choosing for itself. Does a society lock in a high-carbon and resource-wasteful future? Or does it build a future that is as low as possible in using natural resources in the construction and maintenance of infrastructure and in the lifestyles that this infrastructure supports? Does it build infrastructure that delivers connectivity at the expense of the landscape and local communities, or does it build infrastructure that delivers for communities and Scotland as a whole, offering climate-resilience and improved biodiversity?

At SEPA, we are determined to engage at all levels of the decision-making chain, from client to contractor, to help Scotland develop infrastructure that creates a very different future for Scotland – infrastructure that locks in low environmental impact and, therefore, better and more lasting social and economic success.

Our plan is ambitious. It spells out how we will use traditional environmental protection agency (EPA) regulatory tools, such as permits and enforcement, in clearer and more powerful ways. It sets out some completely new ways, such as novel partnerships, that we will develop and use to support innovation in this sector.

**Terry A'Hearn**  
SEPA Chief Executive Officer

# 1. Introduction

For SEPA to help create a prosperous Scotland that lives within the means of our one planet, we need to radically change the way we work. In the past, our approach to regulation has been grounded in the different sets of rules we manage to protect the environment. This has helped us to deliver, for example, improvements in water quality. However, it will not enable us to make the transformational changes needed to tackle today's problems.

We are moving instead to ground our regulation in working across whole sectors. In this way, we can systematically identify the compliance issues that need to be tackled by the sector. However, mere compliance and small scale incremental change will not be enough. We want to help businesses and sectors to implement successful innovation and support them in their ambitions to do more than they are required to by regulation. We call this **moving beyond compliance**: helping already high performing players in a sector to do more for the environment because it makes sense for them to grow in a sustainable manner. Many clients, designers and contractors in the strategic infrastructure sector are already moving beyond compliance, for example by implementing best practice to prevent waste and use secondary materials, and working with nature to manage water through the integration of blue/green infrastructure<sup>1</sup>. We can also identify where the biggest opportunities are for us to help the sector to go beyond compliance. In both ways, this will help regulated businesses operate successfully within the means of one planet.

SEPA understands that not all decision makers in the sector are 'businesses', and there are other public bodies, regulators and clients who have a leading role in enabling the environmental performance of the sector.

We will, therefore, engage and work collaboratively with partners at all levels of the decision chain around infrastructure.

## Environmental flows

All those that we regulate in a sector use water, energy and raw materials. In doing so, they also create waste and emissions. We can think of these as environmental flows that need to be managed (Figure 1). For the strategic infrastructure (transport and utilities) sector, the environmental flows are broader than those described in Figure 1, as the outputs comprise physical infrastructure assets with a long lifespan which are designed for mass public use, rather than a product or service for sale. This is especially true for inputs related to land use.

We want to help as many sectors as possible to manage these flows effectively. Reducing their use of natural resources and reducing the creation of waste will enable them to meet their legal obligations, drive further improvements and operate successfully. To do this, we are preparing sector plans for every sector that we regulate.

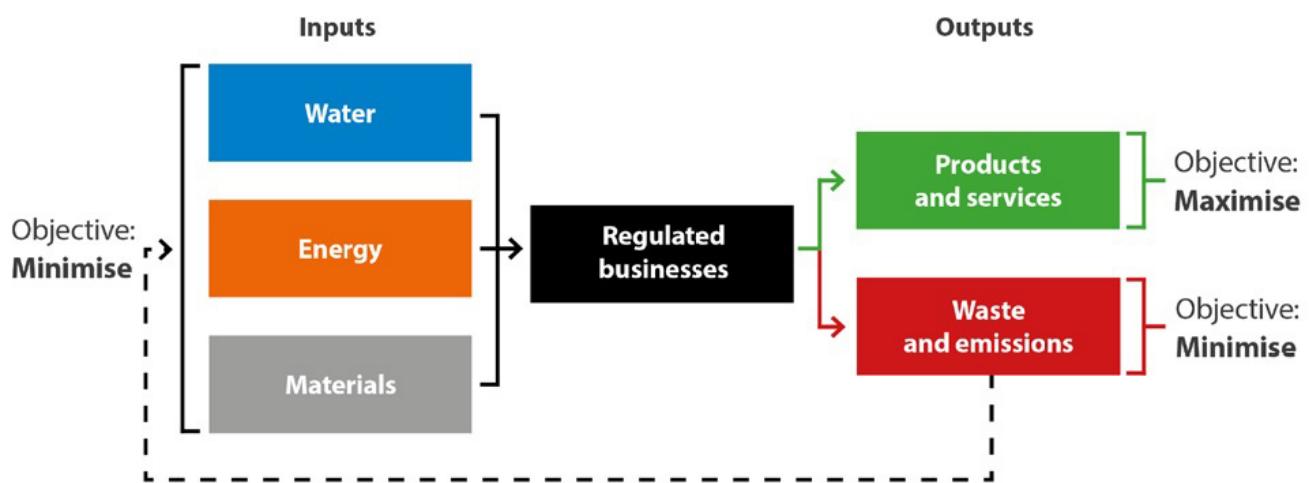
Sector plans are at the heart of everything we do, shaping the interactions with every sector and the businesses in them. Through them, operators will get the relationship that their attitude and performance earns. Those that demonstrate a commitment to good environmental performance and to delivering solid outcomes will receive powerful support through guidance and advice. Those that demonstrate behaviour which leads to significant or chronic non-compliance can expect SEPA to use the most appropriate enforcement tools to bring them into compliance.

Sector Plans are strategic documents, and their aims and aspirations will evolve over time.

<sup>1</sup> Blue-green infrastructure is defined as per the EU definition of a **strategically planned network of natural and semi-natural areas** with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity.

Implementation of the plans will take account of opportunities for example to work across different sectors, improve communications and develop partnerships. SEPA will also consider the relative corporate priority of different work areas.

## Environmental flows (Figure 1)



## Scope of the strategic infrastructure (transport and utilities) sector plan

This is our plan for the strategic infrastructure (transport and utilities) sector. It sets out how we are going to regulate the sector and work with it to protect and improve the environment. The plan explains how we will work directly with operators and sites, and includes ways that we will use our shared influence to improve environmental performance throughout the industry supply chain.

The plan focuses on:

- physical infrastructure associated with transport and utilities. Primarily assets with high capital costs designed for mass public use;
- opportunities across the whole lifecycle of new and existing infrastructure, from

project conception, site selection and design through to construction, operation, regeneration and legacy; and

- mitigation measures - for example installation of effective road drainage to reduce the discharge to rivers of heavy metals from vehicles.

This is not a change of regulatory remit, but a plan for SEPA to support full compliance and explore opportunities to provide wider influence and support to those other organisations which have a leading role (such as Scottish Government, Transport Scotland and private developers).

Vehicles, materials or processes that use infrastructure are not in scope. For example, the management of wastewater treatment is covered in our Water Supply and Waste Water sector plan<sup>2</sup>.

<sup>2</sup> Sector plans are available from [sectors.sepa.org.uk](http://sectors.sepa.org.uk)



## 2. Our vision for the strategic infrastructure (transport and utilities) sector

**In the context of a changing world, the industry succeeds in delivering One Planet Prosperity and helps give us a sustainable Scotland that is well-connected, resilient and successful.**

**We have a collaborative, mutually-beneficial approach to strategic infrastructure, involving early joint optioneering and decision-making, and ambitious environmental standards. A sector where the practice of sub-contracting means innovation and learning on large-scale projects can be disseminated to smaller scale, more local projects and operators working within other sectors such as housing.**

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### **Under this vision:**

- strategic infrastructure is designed for life, built and managed in a way that avoids flood risk, ensures minimal negative environmental and social impacts and delivers maximum social, economic and environmental benefits;
- strategic infrastructure is in place which:
  - is climate ready, adaptable and resilient to climate change;
  - enables a low carbon economy;
  - uses a circular economy approach to minimise the use of raw materials, keep materials in use for as long as possible, extract maximum value from them while in use, then recover products and materials at the end of their service life;
  - contributes to the betterment of Scotland's environment;
  - delivers long term, joined up, integrated solutions.

- all those in the sector, from client to contractor, place a high degree of value in the sustainability and impact of strategic infrastructure; and
- the sector engages with a wide range of stakeholders from the outset, maximising opportunities to improve places for communities.

This is SEPA's long-term, aspirational vision for the sector as a whole - but this sector plan is not intended to deliver this in isolation. SEPA recognises the leading role other public and private sector organisations have, the need for this plan to work alongside other regulatory regimes, and the good work already happening in the sector to deliver this vision.

We are clear that this plan supports Scottish Government strategies in relation to infrastructure investment and prioritisation, and seeks to find opportunities to facilitate approaches that deliver environmental improvements in what is

a complex policy and regulatory landscape.

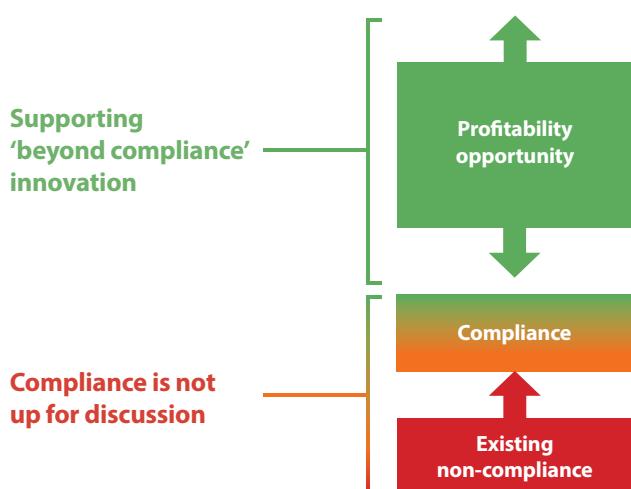
## Our objectives

The objectives of the strategic infrastructure (transport and utilities) sector plan are to:

- ensure all those in the sector fully meet their environmental compliance obligations, and
- help as many of those in the sector as possible move beyond their environmental compliance obligations.

This is illustrated by the sector roadmap (Figure 2):

### Sector roadmap (Figure 2)



This sector plan sets out how we will work with the strategic infrastructure (transport and utilities) sector. For our vision and objectives to be achieved, our staff will work with partners and facilitate liaison between them and the sector to create opportunities that link business success with environmental success.

As well as helping those in the sector to reduce their impacts on the environment, SEPA's sector plans will deliver the ambitions set out in many SEPA and Scottish Government policy frameworks and strategies including, for example, the River Basin Management Plan<sup>3</sup>, the Waste to Resources Framework<sup>4</sup>, the Energy Framework<sup>5</sup>, the Climate Change Commitment Statement<sup>6</sup> and the Flood Risk Management Strategies<sup>7</sup>. We want to bring together skilled, experienced and innovative people from across the sector to understand key challenges and opportunities, and to create innovative solutions. If we get this right, it will mean that the environment is not seen as a constraint, but a platform on which economic and social success can be built, putting the strategic infrastructure (transport and utilities) sector on a pathway to becoming a one planet sector.

3 <https://www.sepa.org.uk/environment/water/river-basin-management-planning/the-current-plans/>

4 <https://www.sepa.org.uk/media/219528/one-planet-prosperity-a-waste-to-resources-framework.pdf>

5 [https://www.sepa.org.uk/media/383806/sepa\\_energy\\_framework.pdf](https://www.sepa.org.uk/media/383806/sepa_energy_framework.pdf)

6 <https://www.sepa.org.uk/media/369292/climate-change-commitment-statement.pdf>

7 <http://apps.sepa.org.uk/FRMStrategies/>

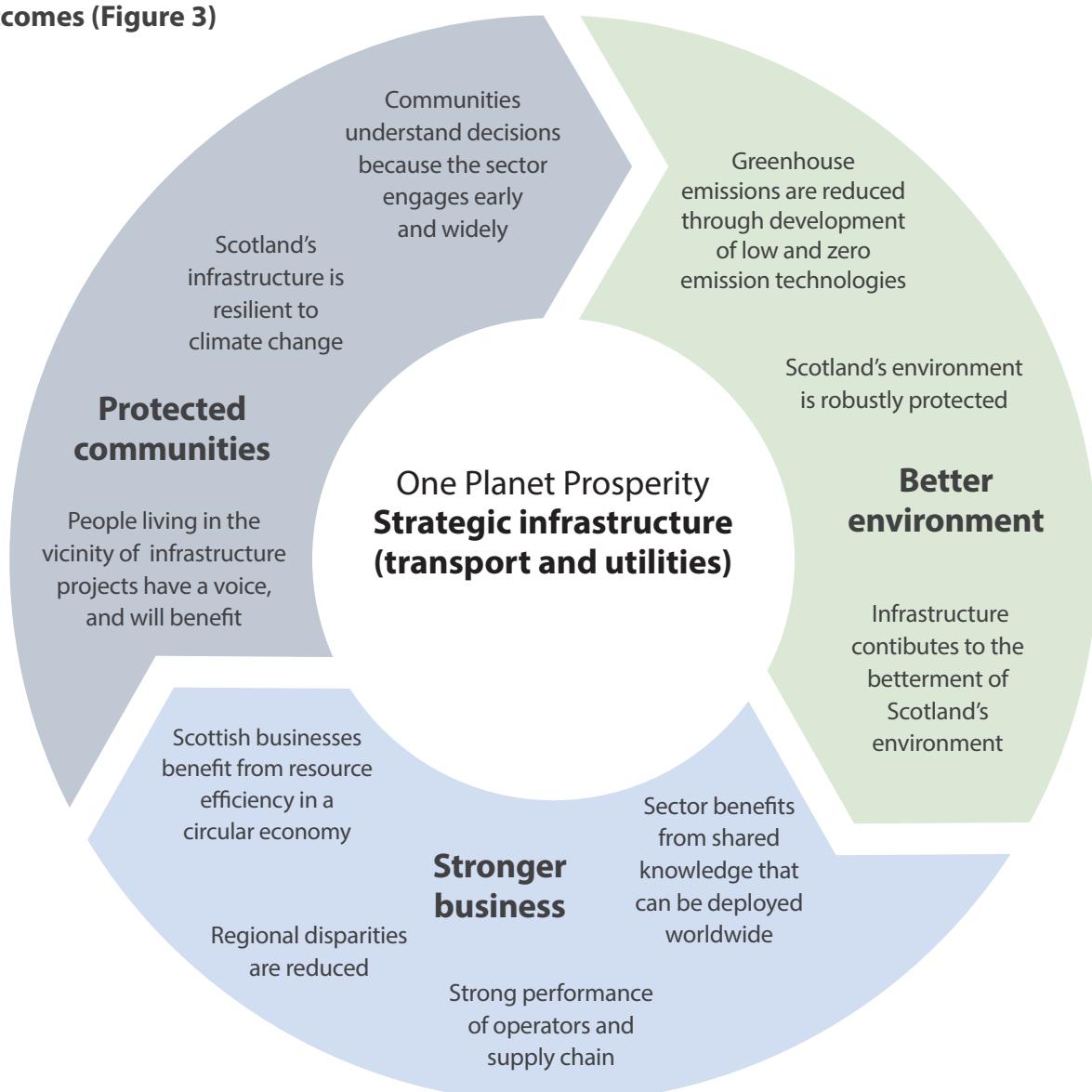
# 3. Outcomes

If we achieve the vision we have set out in this plan, we expect that we will help to:

- protect and improve the environment;
- protect communities; and
- enable businesses to operate effectively and successfully in their markets.

The figure below shows the outcomes we would like to help the strategic infrastructure (transport and utilities) sector to achieve. These are linked to actions that we will take as outlined in Section 6 of the plan, and all contribute towards achieving United Nations (UN) Sustainable Development Goals and targets set in the Scottish National Performance Framework<sup>8</sup>.

**Outcomes (Figure 3)**



<sup>8</sup> <https://nationalperformance.gov.scot/>

# 4. The strategic infrastructure (transport and utilities) sector

Infrastructure contributes to Scotland's economic, social and environmental wellbeing. The Scottish Government's rationale for investing in infrastructure<sup>9</sup> includes reducing regional disparities, reducing emissions, and improving environmental quality, in turn improving health and well-being. Infrastructure transports water, materials and energy to and from our homes and businesses. It underpins economic resilience and the provision of lifeline services.

Infrastructure<sup>10</sup> has been a strong driver of growth in Scotland in recent years with construction output<sup>11</sup> peaking in 2015, accounting for 26% of all construction in that year – double that of the rest of the UK<sup>12</sup>. This can be attributed to a number of large infrastructure projects, such as the Queensferry Crossing, Aberdeen Western Peripheral Route ("AWPR") and the Beauly-Denny power line. There are other sizeable infrastructure projects forthcoming, which will drive further activity. In 2015 the Scottish Government published its latest Infrastructure Investment Plan ("IIP"), which provides information on projects with a value of over £20m where the Scottish Government has a lead role in procurement or funding<sup>13</sup>. The Scottish Government's new National Infrastructure Mission aims to increase annual infrastructure investment by 1% of current GDP, or £1.56 billion, by the end of the next

Parliament in 2025-26, primarily to support faster broadband, improved transport and low-carbon energy infrastructure<sup>14</sup>. This, together with City Deal funding<sup>15</sup>, is a significant commitment to a long-term level of infrastructure spend, which will provide major social, environmental and economic opportunities.

Extending the life of existing assets and developing new infrastructure underpins sustainable economic growth. Improvements to infrastructure provide an opportunity to reduce emissions and deliver more efficient energy, water and material use. To achieve this, we need to take a more joined-up, collaborative and participative approach to strategic infrastructure and its role in improving the lives of people, supporting inclusive growth and creating more successful places, as advocated in The Place Principle<sup>16</sup>.

The repurposing and development of infrastructure should support the delivery of Scotland's Energy Strategy and Climate Change Plan, including:

- the equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources by 2030<sup>17</sup>; and
- to phase out the need for new petrol and diesel cars and vans by 2032<sup>18</sup>.

9 Infrastructure investment: evidence summary, Scottish Government, 2018.

10 'Infrastructure' in this context includes local, as well as strategic-level transport and utilities infrastructure (e.g. local roads as well as trunk roads), but does not include housing, schools, hospitals etc.

11 'Output' = total value of all goods and services produced in an economy.

12 Industry Insights, Construction Skills Network Forecasts 2018-2022, Construction Industry Training Board, 2018.

13 Infrastructure Investment Plan 2015, Scottish Government, 2015. 'Infrastructure' in the context of the IIP covers transport, digital, energy, water, health, education, housing, schools, justice and culture.

14 Delivering for today, investing for tomorrow: the Government's programme for Scotland 2018-2019, Scottish Government, 2018.

15 City Region Deals are agreements between the Scottish Government, the UK Government and local government designed to bring about long-term strategic approaches to improving regional economies. They are implemented by regional partners and overseen by the Scottish City Region Deal Delivery Board.

16 The Place Principle - <http://www.improvementservice.org.uk/documents/planning/planning-for-place/place-principle.pdf>

17 Scottish Energy Strategy: The future of energy in Scotland, Scottish Government, 2017.

18 Delivering for today, investing for tomorrow: the Government's programme for Scotland 2018-2019, Scottish Government, 2018.

Changing demographics, technologies and responding to the demands of climate change will influence the way infrastructure in Scotland is built, maintained and repurposed. It is predicted that Scotland's population will rise from 5·40 million in 2016 to 5·69 million in 2041<sup>19</sup>. Delivering infrastructure to meet these needs and ensure resilience to flooding and the growing risks from heat, water scarcity and severe weather<sup>20</sup> will pose significant challenges to the sector. It will also provide significant opportunities. The Place Principle provides a useful context within which all these issues can be considered to ensure strategic infrastructure improves the lives of people, supports inclusive growth and creates more successful places.

Future strategic infrastructure investments will be guided by advice from the Infrastructure Commission for Scotland set up in December 2018. The Commission will provide independent assessment of the long term strategy for infrastructure and will advise on key investments to deliver Scotland's low carbon objectives and achievement of our climate change targets.

It is intended that this sector plan will also support the development of the new National Transport Strategy ("NTS")<sup>21</sup>, which defines Scotland's strategic transport objectives; and a new Strategic Transport Projects Review

("STPR")<sup>22</sup>, which sets priorities for future investment. Together these will deliver targets for the decarbonisation of transport, accessibility and elimination of poverty. The STPR will be aligned with the next National Planning Framework<sup>23</sup> ("NPF"). The NPF is the spatial expression of the Scottish Government's economic strategy and brings together a range of plans and strategies to set out a vision for Scotland's development over 25-30 years. It has a critical role to play in bringing together national policies and programmes to provide a coherent, long term plan for Scotland as a place, consolidating strategic infrastructure investment, health and climate change objectives into a single plan. NPF identifies national developments and other strategically important development opportunities in Scotland and is intended to provide certainty, consistency and efficiency to secure investment in major infrastructure projects. A review of NPF will begin in 2019.

19 Projected Population of Scotland (2016-based), National Records of Scotland, 2017.

20 UK Climate Change Risk Assessment 2017: Evidence Report Summary for Scotland, Committee on Climate Change, 2017.

21 [www.transport.gov.scot/our-approach/strategy/national-transport-strategy/#](http://www.transport.gov.scot/our-approach/strategy/national-transport-strategy/#)

22 [www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review/#](http://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review/#)

23 Scotland's Third National Planning Framework, Scottish Government, 2014.

## Facts and figures (Figure 4)<sup>24</sup>

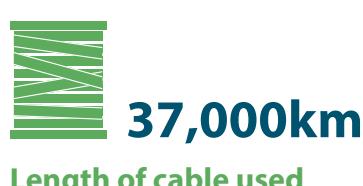
### National Flood Risk Assessment 2018

At risk of flooding (1 in 200 year event).



### Queensferry Crossing

Suspended bridge from three towers with a 2.7km span over the Firth of Forth and connecting roads. It is the tallest bridge in the UK.



### Beaulieu-Denny Power Line

Longest transmission line to be built anywhere in the UK. Operates at up to 400 kilovolts. It can provide enough energy to supply a city one and a half times the size of Glasgow.



<sup>24</sup> Sources

SEPA 2018 National Flood Risk Assessment.

[www.transport.gov.scot/projects/forth-replacement-crossing/project-details/#](http://www.transport.gov.scot/projects/forth-replacement-crossing/project-details/#)

[www.sSEN-transmission.co.uk/projects/beaulieu-denny/](http://www.sSEN-transmission.co.uk/projects/beaulieu-denny/)

[www.sSEN-transmission.co.uk/news-views/articles/2016/5/scottish-hydro-electric-transmissions-1-billion-investment-in-the-north-of-scotland/](http://www.sSEN-transmission.co.uk/news-views/articles/2016/5/scottish-hydro-electric-transmissions-1-billion-investment-in-the-north-of-scotland/)

Decision-making surrounding strategic infrastructure in Scotland is varied, with a mixture of statutory processes, powers and ownership models, as well as several funding and finance sources (Figure 5). There are usually long-running frameworks or control periods in place which set out maintenance and construction programmes. It is therefore vital that early engagement with public

and private projects happens when programmes are in the very early stages of development.

Strategic infrastructure currently being built was planned and financed years ago; this sector plan therefore aims its higher ambitions at those programmes currently being planned for, and which may not start construction until 2021 or later.

### **Scottish transport and utilities infrastructure – policy decision making, ownership, delivery and funding (Figure 5)<sup>25, 26</sup>**

Type	Powers	Ownership	Delivery bodies	Funding	Financing
Road	Devolved powers	Public	Transport Scotland (trunk roads)/local authorities (non-trunk roads)	Tax	Scottish Government/PPP
Rail	Scottish Government (internal services) UK Government (cross-border services)	Public	Transport Scotland/ Network Rail and Abellio ScotRail Limited	User charges/ tax	Public budgets/ regulated asset base
Major airports	Devolved powers, with some minor exceptions	Private (Glasgow/ Edinburgh/ Aberdeen/ Prestwick) Public (Highland and Islands)	Private (Glasgow/ Edinburgh/ Aberdeen/ Prestwick) Local authority (Highland and Islands)	User charges	Private corporate
Rural airports, Local authority ports	Devolved responsibility	Public	Local authorities	Tickets/ tax/user charges	Scottish Government
Major ports	Devolved powers, with some minor exceptions	Private	CMAL/ Port Authorities	User charges	Private corporate
Energy, Communications	Reserved powers	Private	Private developers	User charges	Private/part regulated
Water/Waste water/Surface water (canals, road drainage, culverts etc.)	Devolved powers	Public	Scottish Water/ Scottish Canals/ Transport Scotland/Local authorities	User charges/ tax	Scottish Government

25 The State of the Nation Scotland 2018: Infrastructure Investment, Institution of Civil Engineers Scotland, 2018.

26 While energy policy is reserved, certain aspects such as energy efficiency and planning powers for granting/refusing permissions for generation are devolved. The Scottish Government is also committed to setting up a publicly owned energy company.



# 5. Potential environmental impacts and how they are managed

## Potential environmental impacts throughout the infrastructure lifecycle

At many stages in the lifecycle of infrastructure there is not just potential for negative consequences, but also opportunity to make environmental improvements. Opportunities for environmental betterment could include reduction/avoidance of flood risk, upgrading surface water treatment during regeneration, controlling Invasive Non-Native Species ("INNS") through ongoing management and maintenance, and replacing existing infrastructure with assets that enable a low-carbon economy at their end of life. Strategic infrastructure can also support modal shifts, for example through installation of low energy or intelligent streetlights and electric vehicle charging capacity.

### Case study

Risk assessment of storms and extreme rainfall on the Scottish rural road network

Lower road density in Scotland means there is less redundancy in the network. This project<sup>27</sup>, carried out by the Natural Environment Research Council ("NERC") in partnership with Transport Scotland, aimed to understand the risk to coastal and rural roads from coastal flooding to enable the infrastructure owner to make informed decisions about adaptation. Projected sea level rise for low, medium, and high emission scenarios was estimated for a section of the A78, and the cost of repair and clean-up, as well as traffic flow data, was used to calculate the direct consequential costs of flood events. This type of project informs potential adaptation actions, helping create a more resilient society by protecting the infrastructure from coastal flooding.

## Life cycle stages of infrastructure (Figure 6)

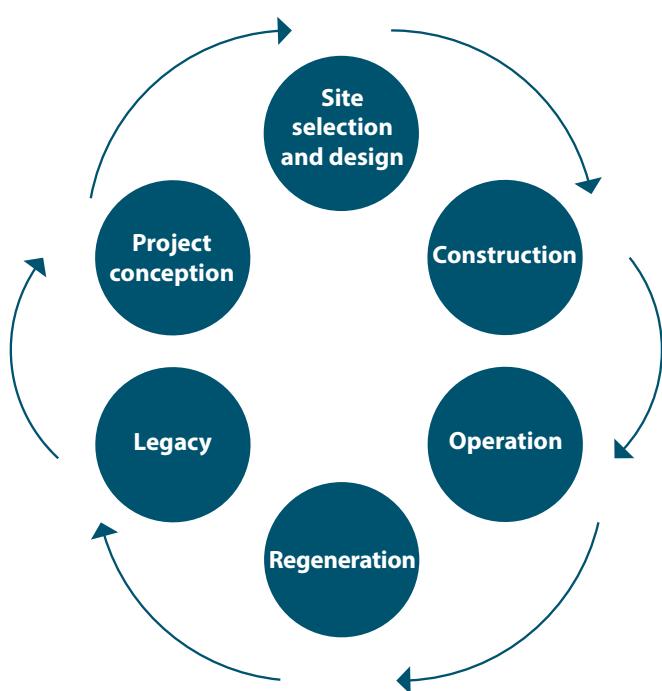


Figure 6 shows the lifecycle stages of infrastructure, while Figure 7 below summarises some of the potential impacts (blue) as well as the opportunities (green) at each stage.

27 [http://nerc.ciria.org/assets/pdf/36\\_Dawson%20-%20Risk%20road%20network.pdf](http://nerc.ciria.org/assets/pdf/36_Dawson%20-%20Risk%20road%20network.pdf)

## Environmental impacts (Figure 7)

The legend consists of four colored squares with diagonal patterns:

- Environmental impact present**: Dark blue square.
- Environmental opportunity present**: Light green square.
- Both present**: Dark blue square with a light green triangle pointing towards the top-left corner.
- None present**: Light green square with a dotted pattern.

Potential Environmental Impacts	Stage in Lifecycle						Potential Environmental Opportunities
	Project Conception	Site selection & design	Construction	Operation	Regeneration	Legacy	
<b>NATURAL CAPITAL &amp; HERITAGE</b>							
Habitat loss	Both present	Both present	Both present	Environmental opportunity present	None present	None present	Habitat creation/linkages. Refurbishment rather than new build.
Biodiversity reduction	Both present	Both present	Both present	Both present	None present	None present	Potential for habitat creation & historical regeneration
Protected species loss	Both present	Both present	Both present	Both present	None present	None present	Habitat creation
Invasive species introduction	None present	None present	None present	Environmental opportunity present	None present	Both present	Invasive species control
Scenery & tourism loss	Both present	Both present	Both present	Environmental opportunity present	None present	None present	Repurposing of existing infrastructure. Better connectedness.
Hydromorphology loss and constraints, increased flood risk	None present	None present	Both present	None present	None present	None present	Renaturalisation, reduced flood risk
Loss of peat & other carbon rich soils	None present	Both present	Both present	None present	None present	None present	New habitats/wetlands creation. Peat management maintaining carbon stores.
Light pollution increase	Both present	Both present	Both present	Both present	None present	None present	Use of lower energy technology
Archaeology & heritage loss	None present	Both present	Both present	Both present	None present	None present	Discovery of new heritage sites/recording of heritage information
Health impacts from loss of property/proximity to new infrastructure	Both present	Both present	Both present	Both present	None present	None present	Contribution to economy and connectedness
<b>EMISSIONS</b>							
Surface water contamination (including silt)	None present	None present	Both present	Both present	Both present	None present	Improve existing treatment provision
Air: dust	None present	None present	Both present	None present	Both present	None present	None present
Air: F-gases	None present	None present	Both present	Both present	None present	None present	None present
Air: carbon	Both present	None present	Both present	Both present	Both present	None present	Choice of infrastructure can support low-carbon economy. Repurposing.
Air: other gases	Both present	None present	Both present	Both present	Both present	None present	Choice of infrastructure can enable low emission technologies
Groundwater contamination	None present	None present	Both present	Both present	Both present	None present	Removal of legacy contamination
<b>USE OF MATERIALS &amp; RESOURCES</b>							
Raw materials: soils and minerals, cement manufacture, metals, plastics	Both present	Both present	Both present	None present	Both present	None present	Use of circular economy planning. Minimise waste. Refurbishment/repurposing.
Surface water: abstraction/dewatering	Both present	Both present	Both present	Both present	Both present	None present	Refurbishment/repurposing opportunities
Groundwater: abstraction/dewatering	Both present	Both present	Both present	Both present	Both present	None present	Refurbishment/repurposing opportunities
Fossil fuels	Both present	Both present	Both present	Both present	Both present	None present	Design for low-carbon economy

## **Environmental regulation of the strategic infrastructure (transport and utilities) sector**

SEPA fulfils its purpose through a number of methods, which can be summarised as follows:

Regulatory	Where SEPA's role is to enforce the legislation for which we are the designated regulatory body (e.g. Water Environment (Controlled Activities) (Scotland) Regulations 2011, Pollution Prevention and Control (Scotland) Regulations 2012, Waste Management Licensing (Scotland) Regulations 2011).
Statutory	Where SEPA's role is for collection and provision of information about the environment and regulated activities, or as a designated consultee for other regulators. For instance, Flood Risk Management (Scotland) Act 2009 and the Planning etc. (Scotland) Act 2006.
Working with partners	Where SEPA has relationships with other bodies, organisations and businesses, even where not required by law, which serve to further mutual success.

We regulate the strategic infrastructure sector through a variety of channels. Our direct regulatory role is usually where there is a licence or permit required for a construction activity, or where there has been a pollution incident and we are called to investigate, but we also have teams of specialists who get involved at other points in the strategic infrastructure lifecycle:

SEPA, along with Scottish Natural Heritage ("SNH") and Historic Environment Scotland ("HES"), is a designated statutory Consultation Authority for Strategic Environmental Assessment ("SEA") and a Consultation Body for Environmental Impact Assessment ("EIA"), and thus has an opportunity to make comments in the early stages of infrastructure programmes that are built using public funding. These roles are detailed under the Environmental Assessment (Scotland) Act 2005, and the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 respectively. In some circumstances, we also act as a consultation body under other relevant EIA Regulations.

SEPA has a statutory role in the land use planning process in Scotland, providing environmental advice to planning authorities, developers and the wider public under the Planning etc. (Scotland) Act 2006.

Through our work with planning authorities, we encourage the adoption of zero waste principles in line with our Waste to Resources Framework<sup>28</sup> and the Scottish Government's Zero Waste Plan and Circular Economy Strategy<sup>29</sup>.

Our direct regulation of infrastructure developments is concerned for the most part with the construction phase of a project, which may include engineering works impacting rivers, such as culverts, realignments or bank reinforcement, and/or mobile plant conducting crushing of stone or concrete. We also issue authorisations for discharges from the drainage serving some major roads and administer exemptions from waste management licensing (WML) for the recycling or recovery of material that has entered the waste stream. The following regulatory regimes currently apply, although this

28 One Planet Prosperity: A Waste to Resources Framework, SEPA, 2016.

29 Making Things Last: a circular economy strategy for Scotland, Scottish Government, 2016.

will change with the roll-out of the Integrated Authorisation Framework<sup>30</sup>, which will integrate, as far as possible, the authorisation, procedural and enforcement arrangements:

- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) ("CAR").
- The Pollution Prevention and Control (Scotland) Regulations 2012 (as amended) ("PPC").
- The Environmental Protection Act 1990 ("WML").
- The Special Waste (Scotland) Regulations 1996.
- The Waste Management Licensing (Scotland) Regulations 2011.
- The Environmental Protection (Duty of Care) (Scotland) Regulations 2014.

Construction can also give rise to nuisance, mainly in the form of dust and noise, which can affect communities and the environment. The local authority is the competent authority for the regulation of noise from vehicles or road works, however we can take action over excess dust and noise where these arise from activities where the authorisation includes conditions to control these impacts, such as plant authorised under PPC.

Where there have been particular pollution issues, SEPA has responded proportionally. For example, due to repeated issues with pollution caused from construction site run off, SEPA introduced a Construction Site Licence ("CSL") in January 2018, which applies to sites larger than 4 hectares. This has enabled SEPA to take a more active and flexible approach to controlling this type of pollution and will enable us to benchmark compliance in a way that we have previously been unable to do.

### Other regulators

SEPA is only a small part of the regulatory landscape in this sector, and the financing, design, building and operating of large scale infrastructure is regulated by a number of agencies other than SEPA. We have attempted to identify and map many of these regulators in Figures 8 and 9.

Regulation of the sector ensures that strategic infrastructure offers value for money, provides security of service, and delivers government programmes for Scotland. Some regulators are the same agencies who procure public-funded projects (known in the sector as 'clients' or 'owners') and include Transport Scotland, Scottish Water, local authorities, and the ScotRail Alliance.

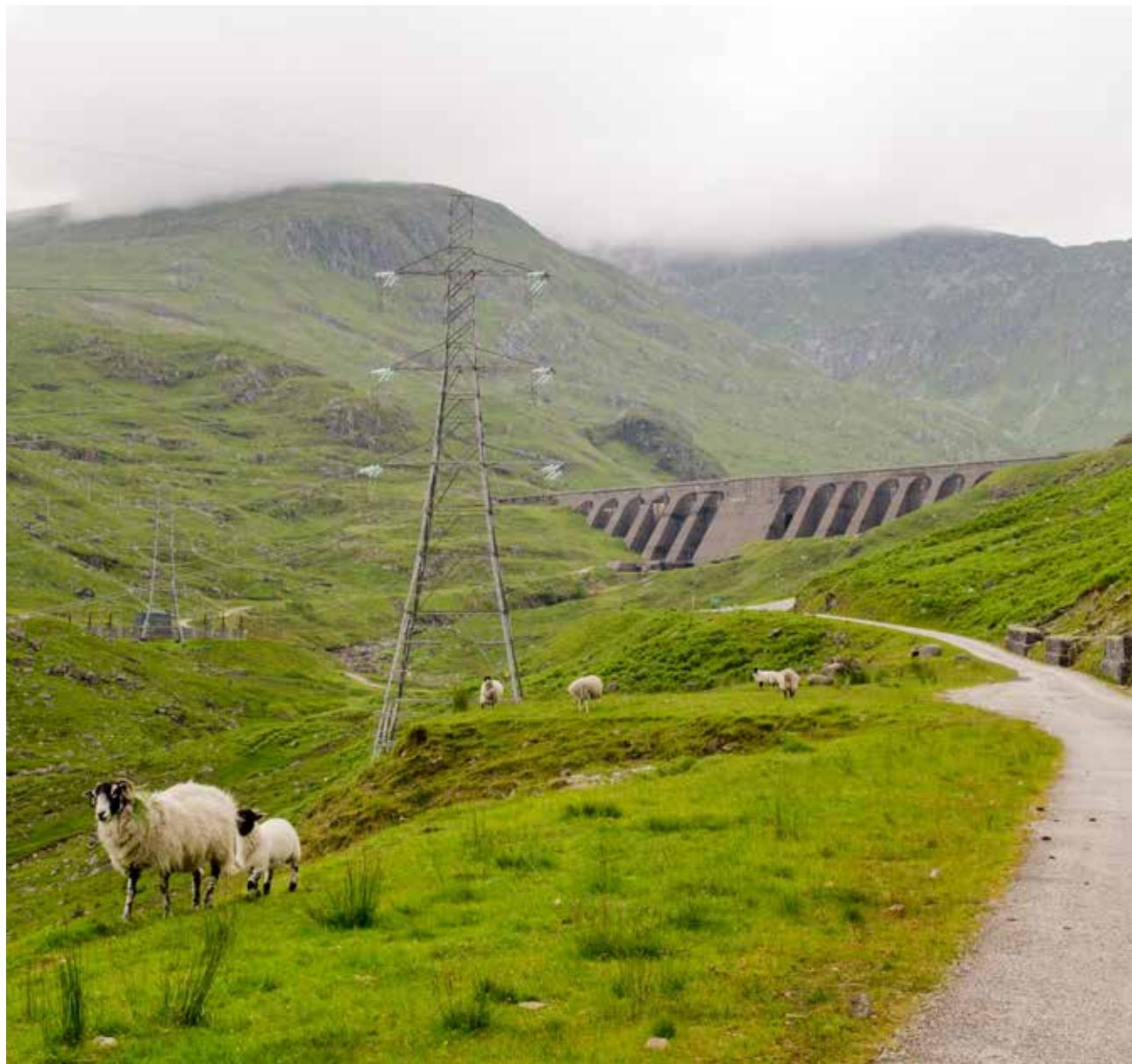
### EU exit

Around 80% of environmental legislation in Scotland originates from the European Union. As the UK leaves the EU, changes will, where necessary, be made to domestic legislation to ensure that the standards of environmental protection we enjoy today and the principles upon which they are based are maintained. Therefore, while some of the detail of the legislation we use to regulate may change, our work to protect Scotland's environment will not. Our commitment to tackling non-compliance with environmental laws and, where necessary, taking enforcement action will not diminish as a result of the UK leaving the EU.

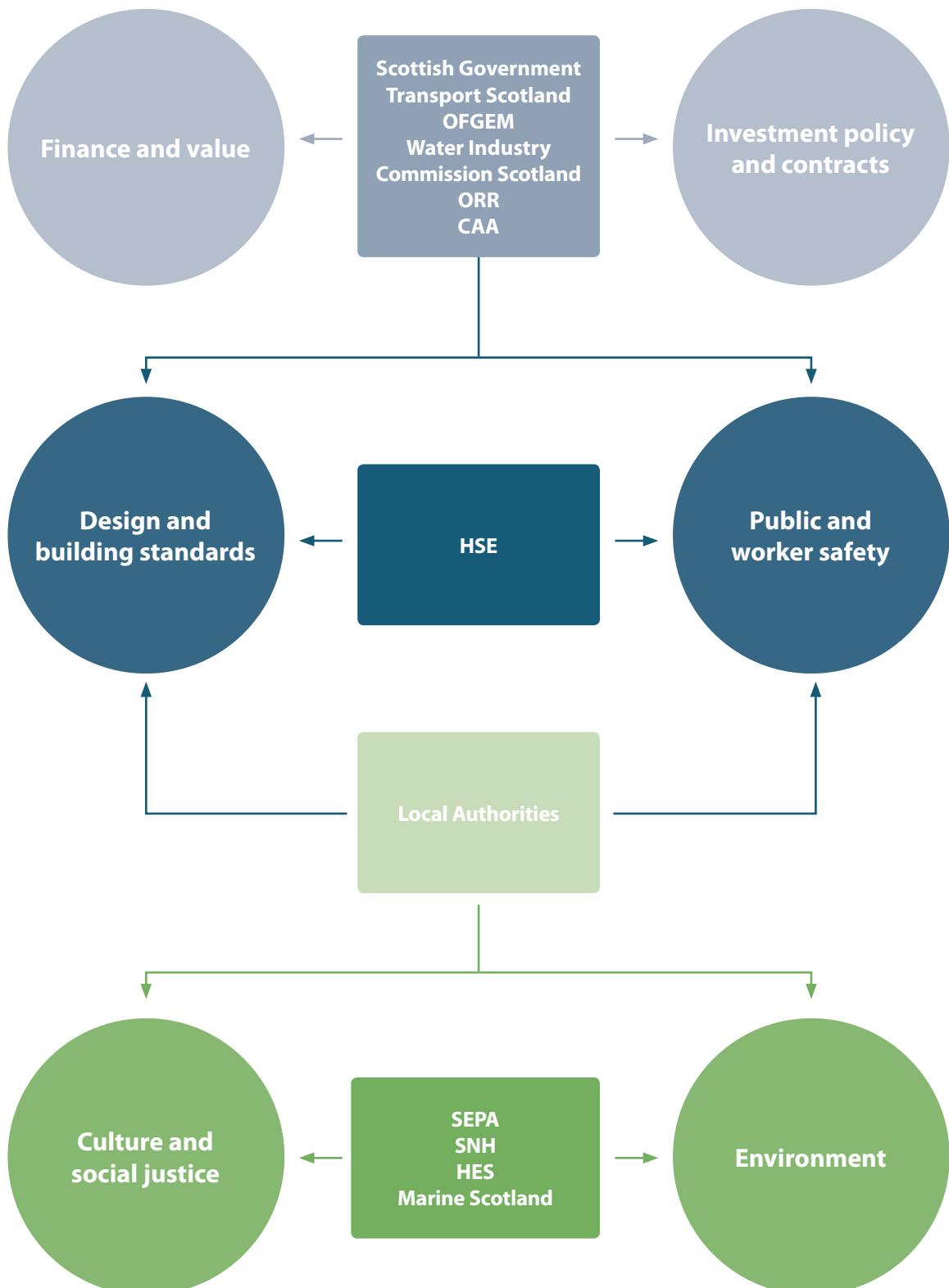
<sup>30</sup> <https://www.sepa.org.uk/regulations/how-we-regulate/environmental-authorisations-scotland-regulations-2018/>

It is for these agencies (and the appropriate planning authority) to determine whether or not a particular piece of infrastructure should be developed. Other regulators, such as SNH and HES, may be statutory consultees and will influence programmes in so far as it directly relates to their regulatory remit.

An overview of direct regulatory remit and reserved areas is given in Figure 8. This diagram identifies where there is a regulatory duty. For example, the Health & Safety Executive (HSE) carries direct responsibility for regulating the safety of people, while a client has a duty to its employees, as does a local authority when building or maintaining a road.



**Regulatory responsibilities of agencies involved in finance, design, building and operation of infrastructure for transport and utilities (Figure 8)**



## **Wider influences on environmental performance of the strategic infrastructure (transport and utilities) sector**

Full compliance with environmental regulations will not, by itself, deliver the transformational change required to secure our One Planet Prosperity objectives. The sector plan needs to further unlock the potential for those in the sector to gain strengths in resource efficiency and environmental innovation that will help them to succeed in their markets.

To secure full compliance and help as many of those in the sector as possible to move beyond compliance we will develop our relationships with partners and other stakeholders.

Figure 9 summarises the main organisations that influence and are influenced by operators in the strategic infrastructure (transport and utilities) sector. It also identifies those that we may work with in both the short and longer term. As we implement the plan we will consider the opportunities these relationships provide and how we would like them to develop.

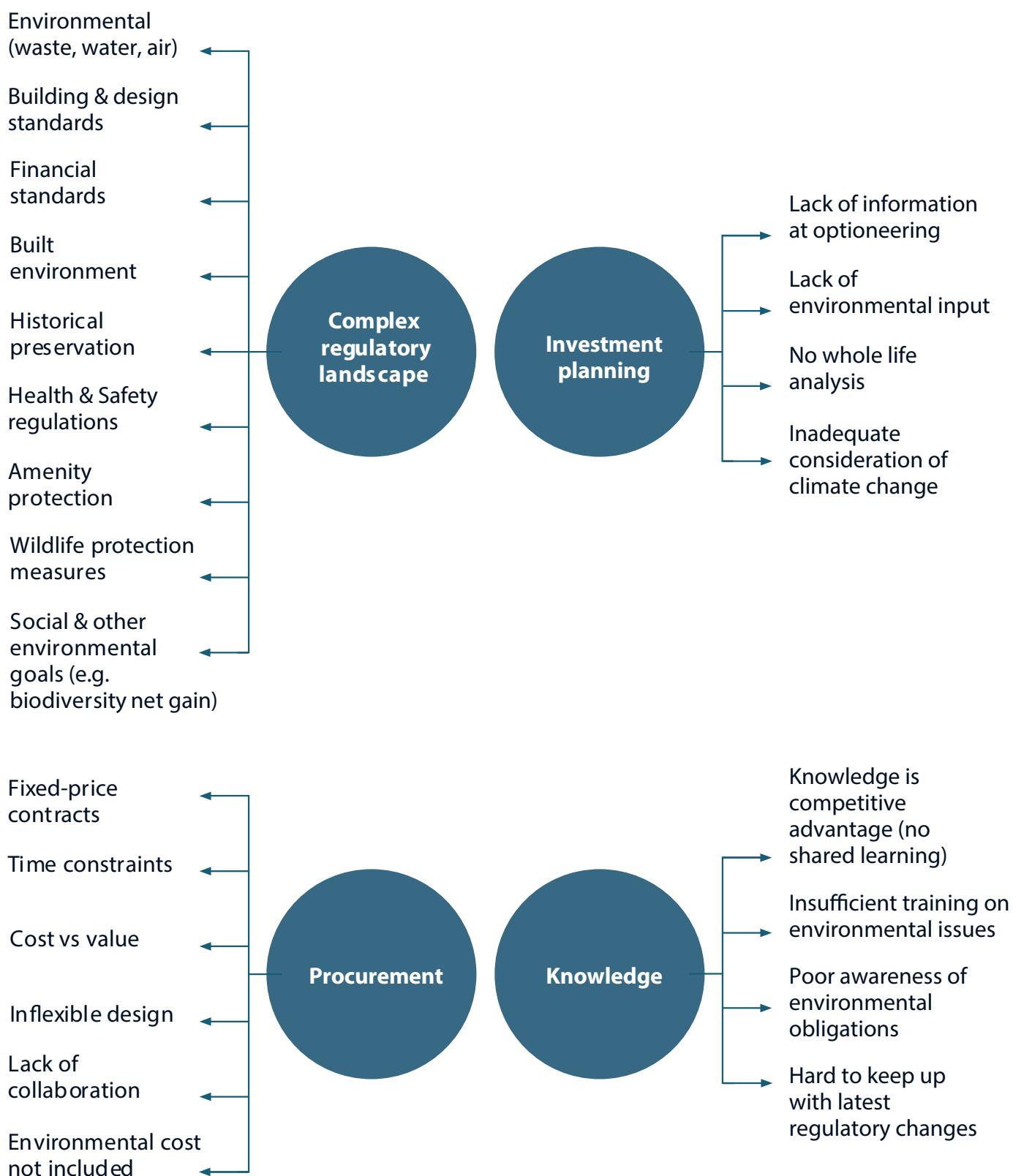
The sector is subject to a complex set of regulatory influences (Figure 10). Trying to balance the requirements of different regulators can prove challenging for the sector; for instance, where SEPA's priorities for road drainage are perceived to conflict with those of the local authority. This can be further complicated if not discovered and addressed early in the design phase, or if it pertains to particularly complex projects.

Other complications arise as a result of the information available for use in the earliest stages of optioneering. Better information on peat, for instance, would permit peat disturbance to be taken into account at the point of making decisions about what type of infrastructure would represent the best value investment. There are other perceived barriers too, such as the lack of suitable standards for reusing aggregates, or planning conditions cited as barriers to the expansion of clean energy projects. SEPA is aware of these issues and is working to address them.

## Key influences on the strategic infrastructure (transport and utilities) (Figure 9)



## Challenges to achieving environmental compliance and beyond compliance opportunities (as identified by sector operators) (Figure 10)





# 6. Tackling non-compliance and taking opportunities to go beyond

## Compliance in the sector

Compliance with environmental law is non-negotiable and regulated organisations in the sector need to comply.

Clients, designers and contractors within this sector rely a great deal on company reputation, and compliance with the various regulatory regimes that apply is very important to them. Where operators are already striving to achieve full compliance, SEPA will help them as far as we can, working with them to help them achieve exemplary environmental performance.

The legislation that regulates activities at construction sites does not currently enable a site to be treated as a single entity operating under a single licence. Rather, there are sets of rules and regulations governing particular activities on a construction site, such as river bank engineering or crushing of aggregate. Some activities are covered by General Binding Rules ("GBRs") or Waste Management Licensing Exemptions ("WMX") that do not require operators to notify SEPA. This makes assessment of compliance complicated.

Further complications arise because where activities need to be authorised they may not be identified as being part of a single project. This is particularly the case with use of waste on off-site projects (e.g. WMX paragraph 19) and mobile plant deployment (e.g. aggregate crushing).

As part of this plan, we are embedding actions that assess how to measure compliance and success within the various regulatory regimes covering the whole sector, and exploring how best to take this forward as we move into the Integrated Authorisation Framework.

The key issues contributing to non-compliance in activities we directly regulate are:

- mis-management of waste during construction, renewal and demolition phases;
- surface water management, both during construction/renewal/demolition and over the lifetime of the infrastructure; and
- engineering, including unauthorised works and authorised works where licence conditions have been breached, with negative environmental consequences.

In addition to the above non-compliance issues, there are also areas where good environmental practice could be adopted more consistently. For example: engineering works that are not designed with protection of the water environment as a priority, using hard engineering where green bank protection would provide sufficient protection; or failing to follow best practice for designs of culverts and outfalls.

Examples of non-compliance issues where SEPA has direct regulatory authority include:

<b>Discharges to water</b>	<ul style="list-style-type: none"><li>■ Inadequate surface water management resulting in pollution causing environmental harm.</li><li>■ Inadequate maintenance of permanent SUDS.</li><li>■ Poor SUDS design.</li><li>■ Poor outfall design.</li></ul>
<b>Waste management</b>	<ul style="list-style-type: none"><li>■ Mis-classification of waste.</li><li>■ Mis-use of waste management exemptions.</li><li>■ Borrow pits and peat disposal.</li></ul>
<b>Engineering</b>	<ul style="list-style-type: none"><li>■ Failure to obtain correct authorisations.</li><li>■ Failure to comply with conditions (e.g. design/substrate re-use).</li><li>■ Failure to provide appropriate design.</li></ul>
<b>Air emissions</b>	<ul style="list-style-type: none"><li>■ Failure to control dust from concrete batching/mobile crushers.</li></ul>

The key issues contributing to non-compliance in areas where SEPA has a statutory role but no direct regulatory role include:

<b>Water Framework Directive</b>	<ul style="list-style-type: none"><li>■ Failure to deliver water body improvement objective/causing deterioration of water body status.</li><li>■ Inadequate land take identified for environmental impact mitigation during construction phase.</li><li>■ Failure to manage invasive non-native species.</li></ul>
<b>Flood risk</b>	<ul style="list-style-type: none"><li>■ Failure to reduce flood risk.</li><li>■ Poor SUDS design.</li></ul>

We will continue to help responsible organisations who are non-compliant come into compliance. Our experience is that most of those whom we regulate respond to our advice and guidance, and work with us to remedy non-compliant issues. We consider that advice and guidance will continue to be our main route to securing compliance. For those who persistently fail to comply with environmental legislation, or 'dip in and out' of compliance, we will draw on a range of interventions ranging from advice and guidance, increasing scrutiny, prescription, fees and the use of enforcement and monetary penalties.

SEPA will work to ensure that those who refuse to adhere to the basic standards of compliance do not gain an unfair advantage over those who invest in excellent performance.

We want to encourage uptake of Continual Professional Development ("CPD") that includes training in what exemplary environmental performance looks like. This will lead not only to better environmental outcomes from Scotland's infrastructure, but an expert workforce that can take that expertise worldwide. We will work with partner organisations to identify where compliance is particularly challenging to achieve, and how we can make it less challenging.

To remedy any existing compliance issues and to assist responsible organisations to maintain compliance, SEPA will:

- investigate the best ways to record and assess environmental compliance, benchmark this compliance, and use this information to identify areas of opportunity for improved environmental success;
- continue to ensure our licensing of the sector remains effective, pragmatic and robust in the transition period until and through the roll-out of the Integrated Authorisation Framework;
- pilot a SEPA Infrastructure Working Group to take on the regulatory workload of all infrastructure projects, streamlining our regulatory process so that advice and guidance can be consistent, and we can continue to develop our expertise effectively in partnership with Clients, Designers and Operators;
- work with partners to identify more opportunities for information sharing on waste classification and duty of care obligations so that appropriate routes for recycling of waste can be identified easily;
- work with trade bodies such as the Civil Engineering Contractors Association Scotland ("CECA") to find ways both to enhance knowledge in the industry, and for SEPA to understand where we can improve our processes and procedures to make achieving compliance more straightforward;
- where appropriate, ensure that sustainable drainage schemes are included and designed to ensure no increase in flood risk, and to provide multiple benefits for water quality, habitat creation, and amenity value for health and wellbeing;
- explore options for informing more environmentally sensitive designs, greater focus on re-naturalisation of previously straightened watercourses, and the use of more ecologically appropriate bed materials; and
- work with partners to continue to explore options for plan shaping and early intervention, to ensure that environmental constraints including flood risk are considered at the earliest stage of proposals.



## Case study

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The Aberdeen Western Peripheral Route (AWPR) was issued with the first Construction Site Licence in 2016. Since then, Construction Site Licences have become part of our regulatory regime. This new licensing regime offers us a more robust tool and greater flexibility in controlling pollution of the water environment. The AWPR also resulted in one of the first successful Enforcement Undertakings, after a series of pollution events impacting rivers across Aberdeenshire. This meant that in the region of £280,000 was spent voluntarily by the Construction Joint Venture on environmental and community projects to benefit places and people impacted by these incidents<sup>31</sup>.

## Where are the opportunities to go further?

We believe that those societies and economies that are low resource use, low energy use, low water use and low waste will be the most successful in the 21st century. Sectors that are the most innovative will best rise to the challenges of our time, such as over use of resources and climate change and create sustainable economic growth.

In this section we describe opportunities and our aspirations to help those in this sector do more for the environment by building upon current good practices and choosing to move beyond compliance; because it makes sense for them to grow in a sustainable manner. Many of these opportunities will also help to improve compliance in the strategic infrastructure (transport and utilities) sector.

The strategic infrastructure (transport and utilities) sector has already realised a number of beyond compliance opportunities.

## Case study

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On the A9 Dualling, Transport Scotland worked with SEPA, Scottish Natural Heritage, Cairngorms National Park Authority, Historic Environment Scotland, and Perth & Kinross and Highland Councils to develop an Environmental Steering Group ("ESG"). The group met monthly to provide a forum for Transport Scotland and their design consultants to present and discuss design development issues requiring the balancing of multiple interests. The ESG also undertook formal review of SEA, route options assessments and environmental statements in draft form before key decisions were made, helping all parties manage their programme risk.

31 See <https://www.sepa.org.uk/regulations/enforcement/penalties-imposed-and-undertakings-accepted/> for a current list of Enforcement Undertakings and penalties.

## Water

**Water in the right place, in the right amount and of the right quality underpins Scotland's society and economy. Our water environment provides us with vital supplies for drinking and food production; supports business, industry and tourism; maintains places that benefit the health and wellbeing of communities and sustains wildlife.**

**The sector plans aim to ensure we live and prosper within our environmental water limits: maximising the efficiency of its use; reducing the input of waste; creating better places for people to thrive; and protecting and restoring habitats for wildlife. By doing so, our plans will support and complement the ambitious targets set out in Scotland's River Basin Management Plans (RBMPs) and Flood Risk Management Plans (FRMPs).**

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SEPA is committed to reducing the impacts of flooding. We have a central role in identifying and promoting the most sustainable actions to help deliver a flood resilient Scotland. We are developing a Flood Strategy that describes how we will work with partners to manage flood risk now and in the future. SEPA will continue to promote avoidance of flood risk as the priority. If risk can't be avoided then adaptation and defence is key. Where it is not possible to completely avoid or eliminate the flood risk then SEPA will give communities and emergency responders advance notice of flooding to help them prepare and protect themselves. To understand areas at greatest flood risk SEPA will use the best available evidence. SEPA will continue to work with partners to improve Scotland's FRMPs. Early and strong links between this sector plan and flooding will strengthen opportunities and necessitate engagement and communication between key partners.

Over the longer lifespan of strategic infrastructure, the impacts to and from the water environment are likely to take the form of flooding, surface water run-off contaminated by vehicles and contribution to climate change.

A clean and natural environment, including land and water, is essential for communities. This includes our coasts, lochs, river corridors, their

floodplains, and routes for rain and surface water (blue and green infrastructure). These natural and built networks must be protected, restored where required, and properly integrated into the design of urban and rural landscapes to provide a range of benefits such as providing attractive places for people to live and work, making our communities happier, healthier and more prosperous; and making our communities more resilient in times of extreme weather such as floods, droughts and heat. This is important in a changing climate where extreme weather is expected to happen more frequently.

SEPA's aspirations are to:

- encourage innovation in the control of water pollution during construction, the operational lifetime of an asset, and the renewal phase, including an emphasis on blue-green infrastructure, characterisation of soil types, and facilitating shared learning across the sector;
- work with partner organisations to ensure the sector is resilient to climatic change, flood risk and water scarcity; and
- collaborate with partner organisations to develop ways of working that take account of river corridors and build infrastructure that recognises and adapts to landscape context.

## **Energy**

**Energy is an essential resource that enables social and economic development and is one of the most important aspects of the transition to a sustainable low carbon economy. However, electricity and heat production, transmission, storage and use can have significant environmental impacts. SEPA's Energy Framework recognises that how we use and manage our energy resources is central to our ability to live within the resources of our planet. Cost savings and other benefits for businesses can be made by improving energy efficiency and making use of low carbon sources of energy.**

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The Scottish Government has made the transition to a low carbon Scotland a core aspect of its Climate Change Plan and Energy Strategy commitments, with a particular focus on achieving net zero emissions by 2045. SEPA, a delivery agency for Scotland's Energy Strategy, can use our regulatory tools, experience, knowledge and partnerships to support the sector to design and deliver climate ready infrastructure.

Going beyond compliance is an opportunity to reduce non-regulated sources of emissions to air and to eliminate nuisance (such as dust and noise), to which transport and combustion are significant contributors. Transportation cuts across all activities carried out within the sector and is a significant source of emissions to the Scottish environment. Through collaboration, we will work with the sector to make choices that reduce the environmental impacts associated with energy and transportation, aligning with the Scottish Government's Cleaner Air for Scotland ("CAFS") strategy.

SEPA's aspirations are to:

- support the sector to identify and incorporate environmental opportunities at concept and design stage which can be carried through to delivery and legacy;
- promote best practice from within the sector for improving energy efficiency and supporting and encouraging the development and use of innovative low carbon energy solutions; and
- use voluntary initiatives such as Sustainable Growth Agreements and the VIBES – Scottish Environment Business Awards to specifically showcase and inspire low carbon energy innovation.

## Materials

**SEPA views the circular economy as a game-changing opportunity to manage resources within planetary limits. Our Waste to Resources Framework recognises that reducing the harms associated with waste management can create economic opportunities. We must dramatically cut waste production across the economy, recover more and dispose of only the very minimum. If waste is produced, we will encourage its productive use within a framework of strong environmental protection.**

**Resource efficiency can improve productivity and reduce costs for business. It can also bring environmental improvements and reduce our reliance on virgin raw materials.**

Many of those operating in the strategic infrastructure (transport and utilities) sector actively seek to maximise resource efficiency because it makes financial sense and benefits all those involved in the sector. This includes opportunities to use fewer materials, optimise the use of materials, prevent waste, and use materials that are reclaimed or have a higher recycled content. The growing adoption of modern methods of construction will support transformation of the sector.

We will work collaboratively to help these organisations and others in the sector embrace circular economy principles, and support the reduction of embodied carbon associated with the sector.

SEPA's aspirations are to:

- work with partners to identify opportunities for the beneficial use of waste and to promote the benefits of resource efficiency. This means designing out waste with carefully considered material choices, using raw materials more efficiently and sustainably, and designing in systems that make it easy to recapture materials at the end of useful life;
- support and encourage innovation that makes use of existing waste streams by diverting them from landfill and turning them into usable construction products. This includes:
  - use of secondary aggregates, which are identified as a priority material stream for Scotland<sup>32</sup>;
  - use of structural steel and aluminium. Both have high embodied carbon and are inherently durable for re-use. To achieve this we will align with our Metals Sector Plan<sup>33</sup>;
- facilitate actions that will align with our Forestry, Timber Production and Processing Sector Plan<sup>33</sup>;
- support sustainable solutions to traditional carbon-intensive cement and concrete production (for example, clinker substitution and novel cements).

32 Scottish Government: Making Things Last - a circular economy strategy for Scotland (2016).

33 Sector plans are available from [sectors.sepa.org.uk](http://sectors.sepa.org.uk)

## Land and habitat

**Land and habitat provides us with a range of economic and environmental services, including clean water, protection from flooding, carbon storage, building materials, space to grow food, and green space for the health of us all. With competing demands for land we need to try to ensure all needs are considered and the right land is used for the right purpose.**

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Infrastructure is a long-term, sometimes permanent alteration to Scotland's landscape. It is easy to see that all infrastructure must be carefully considered. Good landscape and habitat outcomes resulting from large infrastructure projects also support human wellbeing and are vital to Scotland's industries and economy.

While building any physical asset on the scale of strategic infrastructure will inevitably lead to environmental impacts in the short term, the sector could explore options that, overall, lead to betterment of Scotland's environment over the lifespan of the project.

Adoption of a natural capital approach can help integrate these projects into the landscape and ensure an understanding of the value of nature, and the impacts or dependencies on natural assets over the infrastructure's lifecycle. Strategic, whole-system approaches can go further and help deliver environmental betterment.

SEPA's aspirations are to:

- explore opportunities with partners to build natural capital assessment into their decision making processes and encourage this work to be shared with others;
- improve the resilience and performance of infrastructure by encouraging uptake of innovative engineering solutions to improve biosecurity and prevent the transfer of invasive non-native species;
- encourage projects to build innovative

connections across infrastructure that not only connect newly fragmented habitats but also recreate links between historically connected habitats to facilitate movements of populations of plants and animals;

- with partners, improve the way soils are used and managed on construction sites. This could be achieved by avoiding areas of high value soil, minimising disturbance and maximising on site reuse. When soil is moved off-site, it should be matched with projects nearby that can use it for another purpose best suited to its properties. To make it easier for those operating in the sector to do the right thing, we will explore opportunities to facilitate this type of approach;
- work with the Scottish Land Commission and other partners to bring vacant and derelict land back into use with economic, social and environmental benefits for the whole country;
- use our regulatory, planning and partnership work to help Scotland protect and enhance natural carbon sinks and keep carbon stored where it is. This includes:
  - working with the sector to minimise the loss and disturbance of peat and other carbon rich soils through better site selection, design and sensitive refurbishment or upgrades;
  - exploring opportunities to ensure there is no 'net loss' of soil carbon caused by new development or upgrades.

## **Collaborative Decision Making**

The environmental aspects of infrastructure have often largely been focused on mitigation: that is, minimising the impact as much as is practicable. For Scotland to achieve One Planet Prosperity, infrastructure will have to deliver ***environmental betterment***, and that will only be possible by working together to develop information resources and sharing processes to facilitate collaborative decisions.

While there is a direct statutory obligation to take the environment into account at the Strategic Environmental Assessment and Environmental Impact Assessment stages, when it comes to construction and operation, some clients include responsibility for environmental compliance in the terms of the contract, and this can sometimes prove challenging for the contractors to deliver in the manner which the client may have intended. In fostering a more collaborative approach, with better information sharing, these challenges could be reduced or overcome to open up beyond compliance opportunities.

SEPA's aspirations are to:

- explore the potential for a regulatory hub, so that parties involved in the planning, procurement, design, building, and regulation of strategic infrastructure have opportunities to discuss implementation policies that are mutually consistent, considered, robust, and contribute to future economic and environmental success;
- seek to have involvement with the new Scottish Infrastructure Commission;
- explore information opportunities for both SEPA staff and external stakeholders, so that all of Scotland's strategic infrastructure is procured, designed, built, maintained and renewed by informed, competent, knowledgeable teams; and
- explore the potential within Scotland's Digital Transformation process for a digital resource that will enable decision-makers to access the information they need at the earliest stage of optioneering to ensure environmentally successful solutions.

# 7. Summary of actions and aspirations

The following table summarises the actions that we have described in previous sections to address non-compliance in the sector, and aspirations to help businesses take opportunities to go beyond compliance. These are described according to the key outcomes introduced in Section 3 that we would like to achieve for this sector.

The table on p38-39 combines actions and aspirations to address compliance and to help achieve beyond compliance. This is because the same action can often both improve compliance and help a business to move beyond compliance. Similarly, actions that businesses choose to take to move beyond compliance can improve their compliance with environmental regulations.

We will prioritise them alongside those in other sector plans and progress powerful actions that contribute towards achieving our one planet prosperity goal for Scotland.

<b>Better environment</b>	
<b>Outcome sought</b>	<b>Actions and aspirations</b>
<p>Greenhouse emissions are reduced through development of low and zero emission technologies.</p> <p>Scotland's environment is robustly protected.</p> <p>Infrastructure contributes to the betterment of Scotland's environment.</p>	<ul style="list-style-type: none"> <li>■ Improve the recording and assessment of environmental compliance and use this to identify opportunities for improved environmental success.</li> <li>■ Continue to ensure our licensing of the sector remains effective, pragmatic and robust in the transition period until, and through the roll-out of the Integrated Authorisation Framework.</li> <li>■ Work with partners to identify more opportunities for information sharing on waste classification and duty of care obligations so routes for recycling of waste can be identified easily.</li> <li>■ Explore options for informing more environmentally sensitive designs, greater focus on re-naturalisation of previously straightened watercourses, and the use of more ecologically appropriate materials.</li> <li>■ Support the sector to identify and incorporate environmental opportunities at concept and design stage.</li> <li>■ Promote best practice from within the sector, encouraging the development and use of innovative low carbon energy solutions.</li> <li>■ Encourage innovation in the control of water pollution during construction, the operational lifetime of an asset, and the renewal phase.</li> <li>■ Collaborate with partner organisations to develop ways of working that take account of river corridors and build infrastructure that recognises and adapts to landscape context.</li> <li>■ Work with partners to identify opportunities for the beneficial use of waste and to promote the benefits of resource efficiency.</li> <li>■ Support and encourage innovation that makes use of existing waste streams by diverting them from landfill and turning them into usable construction projects.</li> <li>■ Facilitate actions that align with the Forestry, Timber Production and Processing Sector Plan.</li> <li>■ Support sustainable solutions to traditional carbon-intensive cement and concrete production.</li> <li>■ Explore opportunities with partners to build natural capital assessment concepts into their decision making processes.</li> <li>■ Help Scotland protect and enhance natural carbon sinks and keep carbon stored where it is.</li> <li>■ Work with the Scottish Land Commission and other partners to bring vacant and derelict land back into use with economic, social and environmental benefits for the whole country.</li> <li>■ Ensure that sustainable drainage schemes are included and designed to provide multiple benefits for environment, health and wellbeing</li> </ul>

<b>Stronger business</b>	
<b>Outcome sought</b>	<b>Actions and aspirations</b>
<p>Scottish businesses benefit from a circular economy.</p> <p>Strong performance of operators and supply chain.</p> <p>Sector benefits from shared knowledge that can be deployed worldwide.</p> <p>Regional disparities are reduced.</p>	<ul style="list-style-type: none"> <li>■ Pilot a SEPA Infrastructure Working Group to streamline our regulatory process and continue to develop expertise in partnership with Clients, Designers and Operators.</li> <li>■ Explore the potential for a regulatory hub, so that parties involved in the planning, procurement, design, building, and regulation of strategic infrastructure have opportunities to discuss implementation policies that are mutually consistent, considered, robust, and contribute to future economic and environmental success.</li> <li>■ Seek to have involvement with the new Scottish Infrastructure Commission.</li> <li>■ Work with trade bodies to find ways to enhance knowledge in the industry and for SEPA to understand where we can improve our processes to make it easier to comply.</li> <li>■ Explore information opportunities for both SEPA staff and external stakeholders, so that all of Scotland's strategic infrastructure is procured, designed, built, maintained and renewed by informed, competent, knowledgeable teams.</li> <li>■ Use voluntary initiatives to showcase and inspire low carbon energy innovation.</li> <li>■ Develop a suite of work with partners to improve the way valuable construction soils are used and managed.</li> <li>■ Explore the potential within Scotland's Digital Transformation process for a digital resource that will enable decision-makers to access the information they need at the earliest stage of optioneering.</li> </ul>
<b>Protected Communities</b>	
<b>Outcome sought</b>	<b>Actions and aspirations</b>
<p>Communities understand decisions because the sector engages early and widely.</p> <p>People living in the vicinity of infrastructure projects have a voice, and will benefit.</p> <p>Scotland's infrastructure is resilient to climate change.</p>	<ul style="list-style-type: none"> <li>■ Work with partners to explore options for plan shaping and early intervention, to ensure that flood risk and water scarcity are considered at the earliest stage of proposals.</li> <li>■ Work with partner organisations to ensure the sector is resilient to climatic change, flood risk and water scarcity.</li> <li>■ Improve the resilience and performance of infrastructure by encouraging uptake of innovative engineering solutions to improve biosecurity and reduce flood risk.</li> <li>■ Encourage projects to build innovative connections across infrastructure connecting fragmented habitats both old and new.</li> </ul>

# 8. Glossary of terms

AWPR	Aberdeen Western Peripheral Route	GBRs	General Binding Rules
AEECoW	Association of Environmental & Ecological Clerks of Works	GWDTE	Ground Water Dependent Terrestrial Ecosystems
BRE Scotland	Building Research Establishment Scotland	HES	Historic Environment Scotland
CAA	Civil Aviation Authority	HSE	Health and Safety Executive
CAR	SSI 2011 No. 209 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (known as the CAR Regs)	H&S	Health and Safety
CAS	SEPA's Compliance Assessment Scheme	ICE	Institution of Civil Engineers
CAFS	Cleaner Air for Scotland	IEMA	Institute of Environmental Management and Assessment
CECA	Civil Engineering Contractors Association	IIP	Infrastructure Investment Plan
CIEEM	Chartered Institute of Ecology and Environmental Management	INNS	Invasive Non-Native Species
CIHT	Chartered Institution of Highways and Transportation	NERC	Natural Environment Research Council
CITB	Construction Industry Training Board	NGO	Non-Governmental Organisation
CIWEM	Chartered Institution of Water and Environmental Management	NPF	National Planning Framework
CIRIA	Construction Industry Research and Information Association	NTS	National Transport Strategy
CPD	Continual Professional Development	OFGEM	Office for Gas and Electricity Markets
CSL	Construction Site Licence	ORR	Office of Road and Rail
EECoWs	Environmental and Ecological Clerks of Works	PfG	Programme for Government
EIA	Environmental Impact Assessment	PFI	Private Finance Initiative
ENA	Energy Networks Association	PPC	Pollution Prevention and Control
ESG	Environmental Steering Group	PPP	Public Private Partnership
FRMPs	Flood Risk Management Plans	RBMPs	River Basin Management Plans
		RES	Renewable Energy Systems
		RSPB	Royal Society for the Protection of Birds
		RTPI	Royal Town Planning Institute
		SEA	Strategic Environmental Assessment
		SEPA	Scottish Environment Protection Agency

SNH	Scottish Natural Heritage
SSE	Scottish and Southern Energy
STPR	Strategic Transport Projects Review
SUDS	Sustainable Urban Drainage Systems
Sustrans	UK Sustainable Transport charity
VIBES	Scottish Environment Business Awards
WFD	Water Framework Directive
WML	Waste Management Licencing
WMX	Waste Management Licensing Exemptions
WWF	World Wide Fund for Nature

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