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Front cover image: Aerial of suburban homes in Scotland

Contents

Preface	5
1. Introduction	6
2. Our vision for the housing sector	11
3. Outcomes	15
4. The housing sector	17
5. Potential environmental impacts and how they are managed	21
6. Tackling non-compliance and taking opportunities to go beyond	30
7. Summary of actions and aspirations	43



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 carbon-based energy and create little waste. Prosperous societies will be comprised of these businesses. This can be Scotland.

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

- 1. ensure that all businesses fully meet their environmental compliance obligations;
- 2. help as many businesses as possible move beyond their environmental compliance obligations.

This sector plan outlines how we will do this in regulating the housing sector.

In the future, only those cities, towns and villages that provide for prosperous, thriving lives within the resources of the planet will be successful and resilient. How we build and improve homes and the places surrounding them is perhaps the most crucial part of this endeavour. Compared to most other sectors in which SEPA has a regulatory role, there are a wide range of organisations with differing interests involved in the housing sector. Furthermore, we are just one of many regulatory and other government agencies with a role to play. We are determined to further develop our relationships in the housing sector and base our involvement on strong partnerships.

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

SEPA's statutory purpose is to protect and improve the environment in ways that, as far as possible, create health and wellbeing benefits and sustainable economic growth.

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 different sets of rules 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 approach to regulation by working across whole sectors. In this way we can systematically identify the environmental compliance issues that need to be tackled by the sector. However, mere compliance with environmental obligations and small scale incremental change will not be enough. We want to help businesses and sectors 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 businesses to do more for the environment because it makes sense for them to grow in a sustainable manner.

In most sectors SEPA's regulatory activities focus on businesses, but in the housing sector there are other operators, including public sector organisations and householders, that are regulated by SEPA¹. Plan implementation will also require us to work with partners that we do not regulate directly such as trade bodies and public agencies.

Who is this plan for?

This plan aims to target a wide audience, including:

SEPA staff: it will shape how we work with the sector to tackle compliance issues and increasingly look to secure resource efficiencies to help the sector shift beyond compliance.

External stakeholders: who extend from individual householders to regulated businesses. This plan will help them understand our aspirations for the sector, how we can help them to become compliant and support them to do more for the environment.

Everyone who operates in the housing sector has environmental obligations with which they must comply. Duty of care obligations, for instance, extend from individual householders to waste carriers to housing developers and make it a legal requirement to take all reasonable steps to ensure waste is managed properly. The Controlled Activities Regulations make it an offence to carry out an activity that may cause pollution of the water environment without appropriate authorisation, equally relevant to a self-builder and a volume house builder.

^{1.} This includes small, medium and large homebuilders, self-builders, social housing, home owners, those who rent, and the entire supply chain, including waste hauliers, industrial operators, construction companies, subcontractors and product suppliers.

Many businesses and others in the housing sector are already moving beyond compliance by doing more than is required by these obligations. For example, implementing best practice to prevent waste, using secondary materials, and working with nature to manage water through the integration of green and blue infrastructure.

We will work with the sector to build on this foundation by helping to identify and support further beyond compliance opportunities. This is not a change to our regulatory remit but a plan to help regulated businesses and others in the sector operate successfully within the means of one planet.

Everyone that we regulate in the housing sector uses 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 housing sector, the environmental flows are often broader than those described in Figure 1.

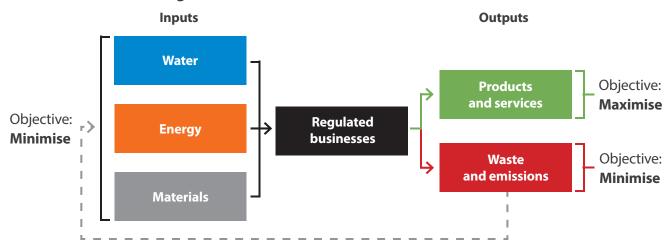
Compliance and beyond compliance in the housing sector

Compliance refers to compliance with environmental obligations for which SEPA has a regulatory remit or statutory influencing role (see Section 5).

Beyond compliance simply means voluntarily choosing to do more for the environment than is required by law. Many of those involved in the new build market already do this through good placemaking and because using our resources in an efficient way makes good economic sense. While those involved in upgrading existing homes are using innovative energy saving techonologies and reclaimed materials.

For example, the input category also includes land. Figure 2 illustrates how resources can be used most effectively with respect to housing. How Scotland commissions and uses these resources to create new and alter existing homes and shape places directly affects the future ability of businesses and communities to thrive within the resources of one planet.

Environmental flows (Figure 1)



We want to help as many of those we regulate as possible to manage these environmental 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 facilitate this, we are preparing sector plans for every sector and associated activities that we regulate.

Sector plans are at the heart of everything we do. Through them, those we regulate 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. Those that demonstrate behaviour that 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, their aims and aspirations will evolve over time and shape our work for the years ahead. Implementing the actions set out in this plan will be phased to ensure they are coordinated with our other sector plans, and where relevant, actions planned by partners.

Applying the environmental flows to the housing sector (Figure 2)

Inputs

Water - minimise:

- alterations to the water environment:
- unnecessary water demand, during construction, habitation and repurposing;
- water quality impacts;
- flood risk and loss of flood storage.

Energy – minimise:

- use of carbon energy/heat;
- carbon transport infrastructure.

Materials - minimise

- use of materials;
- embodied carbon;
- carbon intensive infrastructure.

Land - minimise

- use of productive land;
- impacts on soil;
- fragmentation and loss of habitat.

Outputs

Benefits – maximise:

- land restoration (including remediation of contamination and re-use);
- nature based solutions for managing water e.g. green and blue infrastructure²;
- habitat networks;
- low carbon heat and energy;
- connectivity through low carbon active travel and networks.

Waste and emissions - minimise:

- waste to landfill;
- disposal of water into piped drainage systems;
- diffuse and point source pollution to the water environment;
- poor air quality;
- land contamination and soil loss;
- transport-based emissions.

^{2. &}lt;u>Green infrastructure</u> as defined by the European Commission

Scope of the housing sector plan

This is our plan for the housing sector. It details how we are going to regulate the sector and work with it to protect and improve the environment and use our shared influence to improve environmental performance throughout the supply chain.

As shown in Figure 3, the plan focuses on the whole life cycle of homes and the places which surround them. It embraces all types of homes

and home providers – existing housing stock and associated home improvements, new build housing, plus creating and reshaping their surrounding places. We are seeking to support the transition to a circular economy by taking a whole-life approach to the environmental performance of homes and places. This will help to maximise the long-term environmental, social and economic benefits.

The lifecycle of homes and places (Figure 3)3



^{3.} The repurposing stage of the lifecyle covers reuse and demolition/disassembly for redevelopment.



2. Our vision for the housing sector

This vision describes how SEPA would like all components of the sector to look and operate in the future to achieve One Planet Prosperity⁴.

All homes and their surrounding places, make it possible, easy and affordable for people to live happy, healthy and fulfilling lives within the resources of one planet.

A shared understanding of place, and a willingness to take a more collaborative approach to the delivery of services and assets, drives the creation of 'one planet homes' and 'one planet places'. With all elements in the supply chain delivering high environmental performance and using resources efficiently to effect lower demands on water, energy and materials, and utilising low or zero carbon energy.

As a consequence, Scotland is prospering socially, environmentally and economically and is increasingly recognised as a world-leading country in which people choose to invest and proactively design, upgrade and repurpose homes and places in innovative ways that:

- enable the transition to a low carbon society:
- both conserve and restore natural resources;
- make it easier for the sector and supply chain to maintain, disassemble and reuse materials:
- facilitate access to a high-quality natural environment that is equally well connected for wildlife:
- are climate resilient;
- are responsive to changing household needs;
- generate community cohesion;
- reduce social and health inequalities.

Our vision is aligned with the Scottish Government's vision for how our homes and communities should look and feel in the future⁵, as well as wider plans and programmes like the National Planning Framework, Energy Efficient Scotland route map and Scotland's Climate Change Plan.

We will work to achieve this vision through a collaborative place-based approach as advocated in the Place Principle⁶. This means taking a

more joined-up and participative approach to services, land and buildings within a place, to support inclusive growth, more successful places and increased opportunities for people and communities to shape their own lives. We will work with partners to maximise the impact of our shared purpose recognising that every place is unique and may have different place objectives. We will apply this approach to the parts of the housing sector where we have direct regulatory control or a statutory influencing role.

- 4. One Planet Prospertity Our Regulatory Strategy
- s. Housing Beyond 2021 A Discussion Paper on the Future of Housing in Scotland, Scottish Government, 2018
- The Place Principle was developed collaboratively with a range of organisations to provide a shared context for place-based work. It was signed off by Scottish Government in February 2018.

Page 10 image: Artist impression of Dunbeg development, Oban. Copyright Elder & Cannon Architects.

What do we mean by one planet homes and places?

Our vision is centred on the concept of one planet homes and one planet places. By this we mean homes and places that act as the building blocks to help communities and businesses prosper within the resources of one planet.



One planet homes

Homes that are built, repaired and repurposed to effect lower demands on water, energy, heat and materials across the sector and its supply chain; that are resilient to current and future climate; that help Scottish households live low-carbon, low-emission lifestyles with affordable home running costs; that can be easily adapted in response to changing household needs; that are sited in the right location, helping Scottish society fully benefit from living in great, one planet places.

One planet places

Inspiring, distinctive and socially inclusive places that enhance and build upon existing natural and built heritage; where health and well-being is maximised and inequality minimised; where people are safe from flooding and resilient to extreme weather events; where the water environment is functional, accessible, and integral to urban design; where high quality greenspaces connect people and nature, make it enjoyable for people to be outdoors, and provide space to grow food; where land is used productively, including bringing vacant and derelict land back into positive use; where multi-model transport networks make it easy for people to move around, and people interact on these journeys building cohesion and integration.

Our objectives

The objectives of the housing sector plan are to:

- ensure that all businesses fully meet their environmental compliance obligations;
- help as many businesses as possible move beyond their environmental compliance obligations.

This is illustrated by the sector roadmap (Figure 4).

Sector roadmap (Figure 4)



We are Scotland's main environmental regulator. We regulate certain environmental impacts from the housing sector, including impacts on land, air, water and waste. We also have a number of statutory duties that directly affect the housing sector. These include our flood risk and flood warning advisory role, our role to lead and

co-ordinate river basin planning in Scotland, and wider duties in land use planning, and land contamination. In all of these areas we want to see compliance. However, we also want to help the sector recognise that voluntarily going beyond compliance may give them a competitive advantage or improve their long term viability.

This sector plan sets out how we will work with the housing sector. For our vision, objectives and outcomes to be achieved we will work with partners and facilitate liaison between them and the housing sector to create opportunities that link business success with environmental success.

As well as helping the sector to reduce their impacts on the environment, our sector plans will deliver the ambitions set out in Scottish Government policy and SEPA frameworks and strategies including for example, the river basin management plans⁷, the Waste to Resources Framework⁸, the Energy Framework⁹, and the Climate Change Commitment Statement¹⁰ and the flood risk management strategies¹¹.

We want to bring together skilled, experienced and innovative people from across the sector to understand key challenges and opportunities 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, helping to put the sector on a pathway to becoming a 'one planet' sector.

^{7.} River basin management plans

^{8.} Waste to Resources Framework

^{9. &}lt;u>SEPA's Energy Framework</u>

^{10. &}lt;u>Climate Change Commitment Statement</u>

^{11.} Flood risk management strategies



3. Outcomes

The outcomes in Figure 5 are designed to deliver our vision for the sector and are linked to the actions we will take in Section 7 of the plan.

They align with the four key national housing outcomes set by Scottish Government¹². These are a well-functioning housing system, high quality sustainable homes, homes that meet people's needs, and sustainable communities. These outcomes are understood and widely accepted by the sector and will ensure our work contributes to the attainment of the higher level national outcomes in Scotland's National Performance Framework and United Nations (UN) Sustainable Development Goals.

Outcomes (Figure 5)

Sustainable places and communities

People and nature benefit from a well-connected high quality natural environment

Land is used productively with homes located in the right places

Everyone in the sector works together and benefits from the creation of one planet homes and places

A well-functioning housing system that meets people's needs

Strong environmental performance throughout the sector and supply chain

One Planet Prosperity

Housing sector

Low and zero carbon enabling infrastructure is designed in from the start and provided early on

Homes are climate resilient and responsive to changing household needs

Energy and heat demand is minimised and supplied by a zero/low carbon source

High quality, sustainable homes

Maximum value is derived from materials across the supply chain and throughout the lifecycle of homes

Water is used efficiently and returned to the environment in a clean state

^{12. &}lt;u>Scottish Government: Housing and Regeneration Outcomes Framework</u>



4. The housing sector

There were 2.6 million homes in Scotland in 2017. This number has risen by 154,000 over the last 10 years¹³. While the vast majority of Scotland's population live in our seven city regions, many live in rural and island towns and villages. Geographical differences across the sector are significant - the demographic, affordability and economic challenges of island communities and Scotland's city regions are quite distinct. The level of household growth is projected to be highest in the areas of Edinburgh, Perth and Kinross, Aberdeen, East Lothian and Aberdeenshire¹⁴.

Nearly two thirds of Scotland's population own their own homes, roughly one fifth live in social rented housing and just under one sixth live in private rented homes¹⁵. Nearly a fifth of Scotland's housing is pre-1919 – that's 467,000 homes. In 2017, 28% of homes had some instances of urgent disrepair, 5% had some extensive disrepair and 7% or 174,000 households were living in extreme fuel poverty¹⁶.

The home building industry plays a central role in the physical, economic and social fabric of Scotland. In 2014, the sector is estimated to have directly contributed £1.6 billon and over 30,000 jobs to the Scottish economy¹⁷.

Current housing completions are down 30% on 2007 levels¹⁸ as the industry continues to recover from the economic downturn. With a shortfall of around 80,000 new homes amassed over the last decade¹⁹, the Commission on Housing

and Wellbeing²⁰ estimates that around 23,000 homes must be delivered each year, meaning an increase in current building rates of around 23%. The number of small home building companies has fallen too - by almost 40% since 2007–2008 - accounting for the loss of around 1,800 units each year, approximately 10% of current output¹⁵. For the last 40 years housing in Scotland has been dominated by a small number of volume housebuilders²¹.

Demographic change is contributing to Scotland's unmet housing demand – an ageing and growing population and smaller household size are all contributing factors.

The Scottish Government is working to increase the number of homes across Scotland so that everyone has a good quality home that they can afford and that meets their needs. That means delivering more of the right homes in the right places to create a lasting legacy - not just new homes but making the best of existing buildings too. The scale of the challenge to meet Scotland's growing housing need and demand is significant, and the sector must work together to ensure that the people of Scotland have somewhere to call home.

Everyone involved in housing across the public, private and not-for-profit sectors has a role to play to deliver plan-led housing supply and housing services which support the Scottish Government's National Performance Framework.

- 13. Estimates of Households and Dwellings in Scotland, National Records of Scotland, 2017
- 14. Scotland's Third National Planning Framework, The Scottish Government, 2014
- 15. The state of Scotland's housing market in four charts, BBC Scotland, Jan 2019
- 16. Scottish House Condition Survey: 2017 Key Findings, The Scottish Government, Dec 2018
- 17. The Economic and Social Benefits of Home Building in Scotland, Nathaniel Lichfield & Partners, 2016
- 18. Delivering More Homes for Scotland: barriers and solutions, Homes for Scotland, 2018
- 19. Focus on attitudes and support for growth to plug 80,000 homes shortfall, Homes for Scotland, Feb 2019
- 20. A blueprint for Scotland's future, Commission on Housing and Wellbeing, 2015
- 21. Scotland's Housing More than just numbers, Gaia Group, 2019

Page 16 image: Housing in Pollock, Glasgow

Delivering more homes is reliant on many complex factors that include: the availability of housing land where people want to live, effective infrastructure planning and funding, a well performing planning system, the best science and engineering, and access to the right skills. A collaborative place-based approach can help those who provide services and look after assets work and plan with local communities to improve lives and support vibrant, successful places.

Pathway to net zero homes

Since October 2015, Scottish construction has taken a signficiant step closer to zero carbon building. Domestic building standards in 2015 incorporate a 21% improvement in building thermal performance against 2011 standards²². This signposts a postive pathway for future net zero homes and the eradication of fuel poverty.



^{22. &}lt;u>Kingspan Insulation UK, 1 October 2015</u>. Above image: Heartlands housing development, Edinburgh

Key facts and figures for the Scottish housing sector (Figure 6)²³

General



Number of households with an average of 2.25 people per home 1



60%

Over 60% of homes are owner occupied. over 20% are social rented and 15% are private rented



Projected total number of households in 2041, an increase of 12,700 per year ²



The amount of current housing stock expected to be in use in 20503

Economic



17,757

The number of homes completed in 2017 - 21084



Direct, indirect and induced Gross Value Added to the Scottish economy in 2014⁵



Invested through Section 75 Planning Agreements⁵



Number of people in direct, indirect and induced employment⁵

Environmental



16.4%

Scottish greenhouse gas emissions from residential sector 6



Of energy used for heating homes comes from low-carbon sources 7



Homes at risk of flooding, with 1 in 8 homes predicted to be at risk in future due to climate change 8



The equivalent of waste from unused materials that is generated through the construction of 10 houses9

Social



Every 18 minutes

a household becomes homeless

1 in 4 households

in fuel poverty 10

1 in 10 households

affected by dampness, condensation or both



The amount of homes that have some degree of disrepair, with 28% having some urgent disrepair 11

1. <u>Scottish Household Survey 2017 Annual Report</u>

2. Household Projections for Scotland (2016 based), published 2018

3. Housing Beyond 2021: Discussion Paper, The Scottish Government, September 2018

4. Housing Statistics for Scotland, The Scottish Government, March 2019

5. The Economic and Social Benefits of Home Building in Scotland, Nathaniel Lichfield & Partners, 2016

6. Scottish Greenhouse Gas Emissions, 2016

7. Net Zero the UKs contribution to stopping global warming, Committee on Climate Change, May 2019

8. National Flood Risk Assessment, SEPA 2018

9. Developing a Strategic Approach to Construction Waste, BRE Group

10. Shelter Scotland

11. Scottish House Condition Survey: 2017 Key Findings, The Scottish Government, December 2018



5. Potential environmental impacts and how they are managed

Potential environmental impacts throughout the housing life cycle and supply chain

The environmental impacts of the housing sector are strongly influenced by the site selection and design and construction phases of the housing lifecycle. Figure 7 summarises the main environmental impacts that can be readily avoided or reduced at key points early on in the lifecycle. It focuses on the impacts that we can influence through our regulatory remit, but also includes impacts that are controlled by others.

Potential environmental impacts (Figure 7)

		Key stages in the lifecycle of homes where these potential impacts can be best considered				
Potential environmental impacts of homebuilding activity, household repairs, renovations and extensions	Site selection	Design	Construction	Habitation	Repurposing	
WATER						
Impacts on flooding and water quantity						
Development at risk from flooding, or which would increase probability of flooding elsewhere e.g. through loss of floodplain storage						
Water demand across the homebuilding supply chain and from households						
Increased surface water run-off from development						
Impacts on groundwater from de-watering during construction						
Impacts on water quality						
Disposal of polluted water into piped drainage systems						
Diffuse pollution e.g. from silt run-off						
Point source pollution e.g. from cross connections, ageing infrastructure, malfunctioning private waste water treatment systems, surface water drainage systems and disposing of waste liquids down drains						
Impacts of new development on existing private water supplies e.g. where water supply is either cut off/flow rate is reduced, or is polluted by construction						
Impacts on groundwater e.g. from contaminated soil						

Alterations to the water environment e.g. diversion/canalisation of rivers, culverting, modifications to embankments, impoundments			
Building coastal and flood defences			
mpacts on water-dependent habitats and species			
Disturbance, fragmentation and loss of habitats and species			
Potential spread of invasive non-native species			
ENERGY (AND EMISSIONS TO AIR)			
Energy associated with the extraction/manufacturing/reprocessing of materials for homebuilding and household repairs, renovations and extensions			
Energy supply, demand and consumption across the homebuilding supply chain, including household energy demand			
Co-location issues - homes proposed in the vicinity of existing regulated activities (e.g. waste or energy infrastructure) could limit the ability of this infrastructure to be expanded to meet future demand or may complicate the ability of the regulated operator to comply with air and odour conditions			
Particulate matter from energy production and domestic heating			
Emissions from on-site crushing activities			
MATERIALS			
Embodied carbon emissions in homebuilding materials (and similarly in materials used for household repairs, renovations and extensions)			
Mineral extraction for homebuilding			
Poor management and illegal disposal of commercial and demolition waste e.g. blending to mask waste as inert, burning, poor duty of care			
llegal disposal of household waste, including littering, fly tipping of waste and spread of invasive non-native species through garden waste			
Vater and energy impacts from materials reprocessing			
_AND			
mpacts on soil – sealing, compaction, erosion, reduced infiltration rates			
Greenhouse gas emissions caused by disturbing carbon rich soils			
oss of prime agricultural land, green belt and open space			
and contamination – impact of historical legacy and introduction of new contaminants			



There are many examples of the housing sector taking practical actions to avoid, reduce and mitigate the potential environmental impacts on water, energy and materials. Figure 8 illustrates what good practice in the sector looks like.

Good practice in the housing sector (Figure 8)

Key practical actions that can be taken to avoid, reduce and mitigate potential environmental impacts

WATER

Protect and enhance the water environment by:

- reducing the risk and impacts of flooding;
- using water resources sustainably e.g. by cutting unnecessary water use and utilising nonpotable water;
- reducing water pollution e.g. by preventing unauthorised discharges to the water environment from housing development, and preventing construction site run-off;
- creating nature-based solutions to manage water e.g. green and blue infrastructure;
- improving the physical state of the water environment to at least good ecological status;
- providing suitably-sized buffer strips between a housing development and a water course;
- reducing the impact of invasive non-native species on the water environment, including practicing biosecurity.

ENERGY (AND EMISSIONS TO AIR)

Help decarbonise home energy production, transmission and use by:

- building energy efficient homes that embrace renewable energy, community energy generation and district heating, and improving the energy efficiency of existing homes;
- designing infrastructure for housing which helps further reduce energy demand e.g. blue/ green infrastructure that keeps surface water out of the sewer network.

Maintain or improve air quality, reduce emissions of key pollutants, and reduce levels of dust nuisance by:

- reducing the need to travel by car, designing-in opportunities for active travel, and including provision for electric vehicle charging and bicycle storage;
- providing suitable buffers or boundary treatments between housing and existing SEPA regulated sites like waste management facilities (e.g. transfer stations and treatment locations) and industrial facitilies (e.g. those that have emissions to air or odour), and ensuring the stack heights of local energy centres are high enough;
- implementing dust management plans and dust suspression measures during construction.

MATERIALS

Use sustainable materials and manage them wisely so that:

- homes, housebuilding materials, household materials and associated packaging are kept in high-value use for as long as possible. This includes innovative use of secondary materials (e.g. recycled aggregate) in place of primary materials, and reducing waste to landfill;
- construction and demolition waste which requires disposal is suitably handled;
- any hazardous waste identified during site investigation works is disposed of/treated appropriately.

Support the transition to modern methods of construction by:

- utilising off-site manufacturing, modular design, and innovative materials, which help to optimise materials use and prevent waste;
- designing for disassembly so materials can be easily recaptured to extend their useful life.

LAND

Use land productively by:

- minimising soil loss and degradation by taking a joined up approach to soil management throughout the development process;
- minimising the loss and disturbance of peat and other carbon rich soils through better site selection and design, and restoring degraded peat habitat;
- remediating land contamination and bringing vacant and derelict land back into positive

Environmental regulation of housing sector

Scotland's housing sector is not regulated as a distinct activity and we only regulate certain types of activities within it. Our role in managing environmental impacts, alongside the roles of others, is summarised below.

How SEPA regulates environmental impacts

We **directly** regulate:

- many industrial processes and activities. In accordance with the Pollution Prevention and Control (PPC) Regulations 2012 we regulate activities like materials manufacturing and processing for the construction sector, including cement works, aggregate extraction and mineral workings, and timber processing.
- activities that affect the water environment. In accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) we regulate activities like private waste water systems, surface water discharges, private water abstractions, and engineering activities like culverts, works to the bank of a river, and channel realignments.
- matters relating to radioactively contaminated land. In accordance with the Radioactive Contaminated Land (Scotland) Regulations 2007 we are responsible for investigating, identifying, characterising and regulating remediation of radioactively contaminated land. Under Part IIA of the Environmental Protection Act 1990 we also have an enforcement role in securing contaminated land remediation for designated special sites.

- anyone who produces or imports, keeps or stores, transports, treats or disposes of waste – whether household, commercial or industrial. We do this in accordance with various waste management regulations including:
 - Special Waste Regulations 1996 where waste with hazardous properties may be harmful to human health or the environment - like asbestos or contaminated soils and solids;
 - Environmental Protection Act 1990 under which the majority of waste management facilities, including mobile plants, need a Waste Management Licence or exemption. Handling construction and demolition waste falls into this category;
 - The Act also places a legal duty of care on waste producers and managers to take all reasonable steps to store waste securely, in a manner which promotes high quality recycling, transfer waste to an appropriately licenced facility, complete a waste transfer note, and use a registered waste carrier to transport their waste materials and prevent a contravention by others in the waste management chain.

We have **statutory influencing roles** in the following areas. Compliance in these areas is also essential:

- River basin management planning: we co-ordinate production of Scotland's river basin management plans, which are delivered by a number of responsible authorities, including SEPA. Responsible authorities are expected to deliver improvement objectives for water bodies planning authorities are expected to secure improvements to the water environment, for example, by tackling legacy engineering through developments, including housing developments.
- Land use planning: we are a key agency for the preparation of development plans, and a statutory consultee for certain types of planning applications, applications requiring Environmental Impact Assessment and plans, policies and programmes requiring Strategic Environmental Assessment. We provide advice on flood risk, protection and enhancement of the water environment, sustainable resource use, and potential consentability under environmental regulation.
- Flood risk: we are Scotland's national flood forecasting and flood warning authority and the strategic flood risk authority. We are responsible for producing flood risk management strategies and coordinating how others prepare local flood risk management plans. Under the Flood Risk Management (Scotland) Act, SEPA and responsible authorities have a duty to reduce overall flood risk and promote sustainable flood risk management.

- Local air quality: we are a statutory consultee under Part IV of the Environment Act 1995, and the appropriate authority for local air quality management. We have reserve powers to require local authorities to take action where they are failing to make sufficient progress in fulfilling their local air quality management duties.
- Building regulations: we are a statutory consultee for certain activities that fall within our regulatory remit.

EU Exit

Around 80% of environmental legislation in Scotland originates from the European Union. As the UK leaves the EU, environmental legislation is being corrected to make sure the law keeps working as it has been 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 work with all sectors that we regulate to tackle non-compliance and to work with as many businesses as possible to help them to go further will not diminish as a result of the UK leaving the EU.

How others regulate environmental impacts

Local authorities: have many statutory duties and powers that interface with the housing sector. For example, planning²⁴, building standards, housing standards, housing provision, waste management, noise, contaminated land, flood risk management, and air quality.

- Planning Authorities have primary responsibility for delivering the planning service in Scotland, and therefore a key role in delivering housing and high quality places. They do this by enabling highquality development and making efficient use of land to deliver long-term benefits for the public while protecting and enhancing natural and cultural resources. In particular, the National Planning Framework aims to facilitate new housing and the wider planning system can help to address the challenges facing the housing sector by providing a positive and flexible approach to development.
- Local authorities apply the building standards set by Scottish Government for the design and construction of buildings to ensure they are safe, efficient and sustainable. This includes environmental standards for a range of elements such as surface and wastewater drainage, flooding and groundwater, dangerous and hazardous substances, contaminated land, combustion appliances, lighting, ventilation and water efficiency. Energy and sustainability standards enable regulation of carbon dioxide emissions, energy performance and resource efficiency.

Scottish Housing Regulator: the independent regulator of Registered Social Landlords and local authority housing services in Scotland. Responsible for monitoring social landlords' performance against outcomes in the Scottish Social Housing Charter. This includes compliance with the Scottish Housing Quality Standard - a demanding standard made up of five broad criteria, including energy efficiency and safety elements.

Wider influences on environmental performance of the housing sector

Full compliance with environmental obligations will not, by itself deliver the transformational change required to secure our One Planet Prosperity objectives. The housing sector plan needs to help further unlock the potential for businesses and others that we regulate and influence 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 businesses as possible to voluntarily 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 housing 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 potential relationships provide and how we would like them to develop.

Key influences on the housing sector (Figure 9)

Competition NGOs Trade industry bodies and Consumer demands industry standards Celebrity architects House building Bio-regional companies **BRE Scotland** Community **Energy Saving Trust** Planning Private housing British PreCast **Existing Homes Alliance** providers **Partnerships** British Ready Mixed **Homeless Charities** Corporate Self-builders Concrete Association National Trust for Scotland reputation Social housing Chartered Institute of **Ethical companies Architectural Technologists** providers The Royal Society for the Home building and Utility & Energy Chartered Institute of Protection of Birds (RSPB) renovation shows providers **Housing Scotland UK Green Building Council** Local communities CIWEM CIRIA **Construction Products** Mortgage providers Association **SUSTRANS** Construction Scotland **Housing** The Construction Scotland **Innovation Centre Sector Government and other** Federation of Master agencies Builders Architecture and Homes for Scotland Design Scotland Institution of Civil Engineers Cycling Scotland Landscape Institute Scotland Highlands and Mineral Products Association Construction companies Islands Enterprise NHBC Consultants and engineers **Keep Scotland** The Royal Incorporation of **Energy companies** Beautiful Architects in Scotland Local authorities Finance - investors, banks, Royal Institution of insurers NHS Public Health **Chartered Surveyors** Hauliers Scottish Enterprise Royal Town Planning institute Regulators House builders Scottish Futures Scottish Building Land owners and Trust Environment Federation landlords Scottish Scotland Scottish Federation of Materials manufacturers Government Local authorities **Housing Associations** and suppliers - concrete. Scottish Land Planning Scottish Property Federation glass, brick, steel, timber Commission authorities Structural Timber Association Packaging manufacturers Scottish Water SEPA and suppliers Supply Chain Sustainability **Transport Scotland** Scottish Housing School Quarries and raw material **UK Government** Regulator **ULI UK Residential Council** extraction Zero Waste Scottish Natural Waste management Universities Scotland Heritage companies

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

Compliance in the sector

Compliance with environmental law is non-negotiable and those with environmental obligations need to comply.

The key issues contributing to non-compliance in activities we directly regulate are associated with waste management, private sewage provision, surface water management and engineering in the water environment. The key issues contributing to non-compliance in areas where we have a statutory influencing role include failure to consider duties in relation to the water environment and flood risk. Examples of these issues are illustrated in Figure 10.

Examples of activities and issues that contribute to non-compliance throughout the lifecycle of homes (Figure 10)

Activities directly regulated by SEPA

Waste management

- Incorrect storage of construction and demolition waste and transfer to unauthorised collectors.
- Misclassification and/or characterisation of soils and other demolition wastes
- Illegal disposal.
- Misuse of waste management licence exemptions e.g. the uses are not genuine, the soil unsuitable or the quantity used is more than required.
- Inappropriate management of excavated soil and peat.

Sewage provision

- Inadequate maintenance of private waste water treatment systems e.g. septic tanks.
- Cumulative impact of discharges causes downgrades in water quality.

Surface water management

- Cross connection of sewage and storm water drains.
- Construction practices leading to run-off of sediments and other pollutants.
- Poor maintenance of sustainable drainage systems after construction.

Engineering activities

- Unauthorised engineering activities causing harm to the water environment.
- Breaches in licence conditions for authorised engineering activities.

Issues where SEPA has a statutory influencing role

River basin management planning

- Failing to leave space for the water environment, including lack of buffer strips.
- Failing to deliver improvements to the water environment.
- Mismanaging invasive non-native species during and after construction.

Flood risk

- Sites at medium-high risk of flooding being promoted for housing.
- Flood risk not being adequately considered at site selection, design and/or construction phases.
- Land raising on flood plains.

How are we going to address non-compliance?

We will help compliant businesses by making it significantly harder and more expensive for those who persistently fail to comply with environmental legislation to operate. We will achieve this by increasing scrutiny, influencing change, increasing fees and use the full range of enforcement measures including monetary penalties for those who fail to comply.

The sector plan provides an opportunity to be more strategic and co-ordinated in how we will tackle non-compliance consistently across Scotland. We set out what we will do below.

General actions

SEPA will:

- Improve our understanding about the extent of non-compliance across the sector.
- Work with the sector to understand the barriers to compliance, raise awareness of the compliance issues, alongside compliance success stories, and understand opportunities to incorporate environmental benefits across project lifetimes.
- Improve dialogue with housing developers, investigating the potential to allocate named relationship managers to some of the bigger housing developers.
- Explore opportunities to work with external partners to deliver training to the sector.

- Continue to engage with planning authorities at early stages to ensure that housing developments are designed to reduce environmental impacts throughout their lifecycle.
- Identify opportunities to improve the efficiency of SEPA permitting processes and update guidance documents.
- Better use all the enforcement measures available to us including fixed and variable monetary penalties to tackle noncompliances across the sector.

Water-related actions

SEPA will:

- Implement our Water supply and waste water sector plan²⁵ to tackle key issues with respect to private sewage, sewage network capacity and drinking water quality/ quantity.
- Continue to implement our fixed monetary penalty campaign to tackle engineering in or adjacent to the water environment that is either unauthorised or where the conditions specified in the authorisation have been breached. Develop and undertake a targeted programme of inspections to identify non-compliances.
- Ensure that housing developers obtain CAR construction site licences where required to manage surface water run off from sites and undertake a targeted programme of inspections to ensure compliance.
- Continue to work with local authorities and other partners to ensure they are clear about their responsibilities under the river basin management plans, particularly in relation to their key role in securing the delivery of physical condition improvements, remediation of contaminated land and groundwater.
- Develop clear guidance on what we want to achieve in developments with respect to space for the water environment, delivery of effective surface water management and pollution control, river basin planning objectives and wider multiple benefits.
- Work with the sector to develop and deliver water environment improvement projects, including the removal or easement of redundant fish barriers and the restoration of river channels in or near our towns and cities where wider social and economic benefits for local communities can be realised, utilising the Water Environment Fund where appropriate. This can include legacy impacts associated with river engineering.

- Continue to work with local authorities and Scottish Water to develop solutions that will allow a wider range of sustainable urban drainage systems to be adopted by Scottish Water, and develop clear accountability on maintenance.
- Investigate with Scottish Government the potential to include operational function of private sewage treatment systems within home reports to ensure compliance at point of sale. More generally, raise awareness of septic tanks and their maintenance requirements.

Flooding-related actions

SFPA will:

- Review how we undertake our flooding and planning work and identify opportunities to make improvements that will help deliver flood resilient homes and great places in perpetuity. This includes:
 - working with developers and consultants to improve the quality of flood risk assessments, promote good practice, and ensure the right information is submitted at the right time:
 - continue to align river basin management planning and flood risk management planning processes, and achieve joint objectives.
- Investigate options to update guidance on Paragraph 9 and 19 Waste Management Licensing Exemptions to ensure flood risk is taken into account.

Waste and contamination actions

SEPA will:

- Raise awareness of waste duty of care through day-to-day engagement with the sector, promoting our communications and learning materials, and by undertaking enforcement campaigns if necessary.
- Continue to work with partners to develop and deliver an electronic waste tracking system.
- Work with developers to ensure they develop and implement materials management plans to meet their waste duty of care requirements.
- Consult on proposals to improve the system of waste carrier registrations.
- Assess waste classification compliance at development sites.

- Develop and consult on proposals to appropriately regulate waste activities as part of implementation of the Integrated Authorisation Framework.
- Develop and implement a risk-based prioritised inspection programme for waste management exemptions and mobile plant licensing.
- Work with partners to raise awareness about control and disposal of invasive nonnative garden plant species.
- Continue to inspect recycled aggregate manufacturers to ensure compliance with our Recycled Aggregates guidance and maintain confidence in this market.

Where are the opportunities to go further?

In this section we describe opportunities and our aspirations to help the housing sector do more for the environment. This involves building upon current good practice and choosing to voluntarily 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 sector.

The Scottish Government has identified the transformation of the new build housing market as a priority²⁶. But with 80% of the housing stock that will be used in 2050 already built there are also significant opportunities to improve existing homes. Where, what and how we build and improve homes provides opportunities to reduce emissions, maximise energy efficiency and climate resilience, and deliver buildings that are flexible over the long term. The long term social, economic and environmental returns from investing in good quality homes and places make sense when compared to any short term investment.

Scotland's Sustainable Housing Strategy also identifies the need to work with industry to maximise the potential for Scottish-led innovative design and construction techniques, not

only to deliver more sustainable homes and neighbourhoods here, but to create export and other economic opportunities across the supply chain. We will strive to assist this transformation through our sector plan. This will help to meet the expected future demand for homes in a more sustainable way that supports the low carbon economy and helps prevent fuel poverty.

A place based approach to the housing sector

A place based approach for housing is one where collaboration and participation around services, land and buildings across the sector enables better outcomes for everyone, improves the lives of people, supports inclusive growth and creates successful one planet places.

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.

Working with natural processes is widely recognised as a cost-effective and energy efficient way to manage water, reduce flooding, and create spaces for people to enjoy. The growing inclusion of green and blue infrastructure is a good example of how the sector values water as an asset that contributes to creating unique sense of place. We will take a collaborative place based approach to help those in the sector work with the natural water cycle to increase climate resilience and create benefits for people and nature.

SEPA's aspirations are to:

- Work with partners to support the creation of high quality, multifunctional green/blue spaces. We want the sector to view green and blue infrastructure as importantly as buildings, roads and energy supply in providing the essential elements that go into making a place work effectively now, and in the future. We will encourage adoption of standards such the as Building with Nature Benchmark²⁷ to support the sector with the skills and knowledge to achieve this. This approach includes:
 - making space for water the entirety of the water environment, including areas for storing flood water;
 - enhancing, restoring and retrofitting natural and semi-natural features;
 - removing surface water from sewers in existing housing areas;
 - understanding how historic land uses may have impacted on the water environment and measures needed to prepare a site for redevelopment.

Green and blue infrastructure

This is defined by the EU²⁸ as "a strategically planned network of natural and seminatural 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." This includes our coasts, lochs, river

corridors, their flood plains and routes for rain and surface water. These natural and built networks need to be properly integrated urban and rural landscapes to provide benefits. For example, providing attractive places for people to live and work makes our communities happier, healthier, more prosperous and more resilient in times of extreme weather such as floods, droughts and heat. Such benefits are particularly important in a changing climate where extreme weather is expected to happen more frequently.

^{27.} Building with Nature

^{28. &}lt;u>Green infrastructure</u> as defined by the European Commission

- Work with government partners and stakeholders to identify opportunities and new approaches to significantly reduce the impacts of flooding. This includes:
 - ensuring that new homes are sited and designed to be safe and resilient to future flooding;
 - reducing the risk of flooding to existing homes by defending and adapting;
 - helping communities and emergency responders to prepare and protect themselves during flood events.
- Work with government partners and stakeholders to improve integration of the different water and land management

- policies, influences, regulatory controls and financial incentives to deliver nature based approaches for water management that will benefit communities, flooding and the environment.
- Help the sector reduce, recycle and reuse water throughout the supply chain and lifecycle of homes. We will align with our Water supply and waste water sector plan to help those operating in the sector:
 - reduce excessive use of water;
 - design homes to use less potable water and make use of non-potable water where appropriate.



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 Framework²⁹ 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 and households can be made by improving energy efficiency and making use of low carbon sources of energy.

More than 16% of Scotland's greenhouse gas emissions come from the housing sector and one in four households lives in fuel poverty. Taking action to improve the source, efficiency and energy intensity of heat and electricity for homes is at the heart of achieving Scotland's climate change targets and will provide clear social benefits. With heat for our homes and businesses³⁰ consuming 51% of our energy, and transport consuming 25%, we will work to support the decarbonisation of heat and transport across the housing supply chain, existing stock and new homes.

Housing stock in many parts of Scotland is old and profoundly wasteful in energy³³. Scottish Government programmes coupled with new building standards, have significantly improved home energy efficiency. Homes in the social rented sector are now some of the most energy efficient in Scotland, with over half in EPC band C or better (compared to two-fifths in the private rented sector)³⁴ with further progressive targets proposed³⁵. While there are significant challenges in addressing the energy efficiency of existing housing stock (particularly in buildings with multiple occupants such as tenements) there are also opportunities as refurbishments offer the potential to implement innovative solutions that deliver improvements not only in energy use but also in water and materials usage.

Energy Performance Certificates

Energy Performance Certificates (EPCs) provide information on how energy efficient a building is, and how it could be improved. Buildings are rated on a scale from A to G, with A being the most efficient and lowest energy cost. In 2016, 39% of Scottish homes had a good EPC rating (band C or above) up from 35% in 2014, but there were no EPC band A homes and only 2% were rated EPC band B³¹. By 2040, where technically and economically feasible, all properties will need to be in at least band C³².

SEPA's aspirations are to:

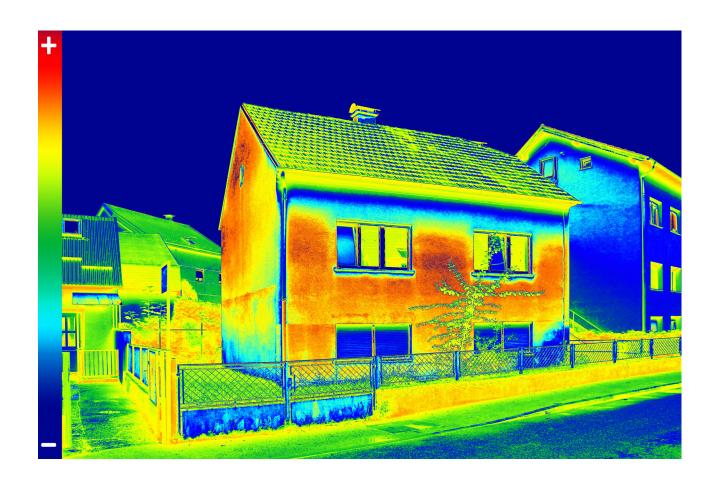
- Work in collaboration with the sector, its supply chain and partner organisations, to help ensure that new and retrofitted homes meet the energy performance standards that Building Regulations require.
- Showcase low carbon innovations in the housing sector, for example through VIBES awards and Sustainable Growth Agreements, to inspire businesses and promote best practice.
- Support and enable delivery of local heat, electricity, and energy storage technology solutions to meet local needs, linking local generation and use to help create vibrant local energy economies.

- 29. SEPA's Energy Framework
- 30. Scottish Energy Strategy: The Future of Energy in Scotland 2018
- 31. Scottish House Condition Survey 2016, The Scottish Government
- 32. Energy Efficient Scotland: route map, The Scottish Government, May 2018
- 33. Scottish Energy Strategy: The future of energy in Scotland, The Scottish Government, 2017
- 34. Scottish House Condition Survey 2016, The Scottish Government
- 35. A new Energy Efficiency Standard for Social Housing (EESSH2) is expected by summer 2019.

- Engage early with the Scottish Government on National Planning Framework 4 so that new heat-producing facilities can be sited in locations that contribute to household demands for heat.
- Engage with the Scottish Government on its review of Scottish Building Regulations and support a fabric-first approach to building design.

Energy House 36

A recent in-depth study by Salford University, Leeds Metropolitan University and construction product manufacturer Saint-Gobain Recherché, involved a typical 1919 terrace house being retrofitted with insulation. The study found that properly insulating a home on a retrofit reduced the property's heating demand by nearly two-thirds. This would reduce the annual heating cost of that type of property from £554 a year to £206.



Materials

The circular economy is a game-changing opportunity to manage resources within planetary limits. Our Waste to Resources Framework³⁷ recognises that by reducing the harms associated with waste management it 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.

Businesses operating in the housing 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 such as off-site construction, modular design and use of innovative materials will support transformation of the sector. This will help improve opportunities for repurposing buildings and recapturing materials to extend their useful life. We will work collaboratively to support the uptake of circular economy principles in design, build, refurbishment, reuse and disassembly.

SEPA's aspirations are to:

- Work with stakeholders to promote the benefits of resource efficiency across the supply chain.
- Work with industry and partners to help increase the use of secondary materials. For example, by supporting innovation that diverts waste from landfill and turns it into usable building products. This includes increasing the use of secondary aggregates, reclaimed glass, and reclaimed structural steel and aluminium in housing. To achieve this we will align with our Metals sector plan³⁸.
- Work with product suppliers, merchants and other partners to reduce packaging waste, and recover unused building materials.
- Work with partners to increase the sustainable use of Scottish timber in housing construction. Around 85% of all new homes in Scotland are built using wood but only one third of these use Scottish grown timber. Home-grown timber reduces transportation costs and emissions. The ability to manufacture mass timber or solid timber laminate systems in Scotland will support this transformation³⁹. To achieve this we will align with our Forestry, timber production and processing sector plan³⁸.

^{37.} One Planet Prosperity – A Waste to Resouces Framework

³⁸ Sector plans are available on our website

^{39.} As a collaborative demonstrator project on behalf of the American Hardwood Export Council (AHEC), the Construction Scotland Innovation Centre produced the UK's first hardwood cross laminated timber in 2018.

K-briq

Kenoteq⁴⁰ is working with Hamilton Waste and Recycling to get their first product, the innovative k-brig to market. The eco-brick is made from 90% recycled construction and demolition waste. The manufacture is low cost and low energy, requiring only one tenth of the energy required for manufacturing in comparison with traditional fired bricks. The design also reduces a building's running cost because they are breathable so prevent condensation build-up, and their high thermal mass keeps buildings cool in summer and warm in winter.

The Resource Efficient House, BRE Innovation Park, Ravenscraig 41

This demonstration house has been developed by Resource Efficient Scotland and Tigh Grian Ltd. It shows how the principles of resource efficiency and waste reduction can be applied in house building. In 2012, when it was built, an average three-bed home built in Scotland produced as much as 13 tonnes of construction waste. The Resource Efficient house produced less than five tonnes of construction waste, with less than one tonne going to landfill. As well as facilitating sustainable living for occupants, the design of the house ensures maximum recycling and reuse of construction products at the end-of-life.



- 40. <u>Kenoteg website</u>
- 41. BRE Homes for the Future: Resource Efficient House

Land

Land provides us with a range of economic and environmental services, including clean water, protection from flooding, carbon storage, the plants we use for fuel, building materials, space to grow food, green space which supports our health and wellbeing and habitat for all other species. With competing demands for land we need to ensure all needs are balanced and the right land is used for the right purpose.

Going forward, where we build and how we manage land will have a profound effect on how Scotland adapts to and mitigates the effects of climate change. The move to a low carbon economy will increasingly influence land use decisions, settlement patterns, the design of urban environments, and choices on transport infrastructure. As pressure on land grows, there is an increased need to balance competing land uses and ensure that multiple benefits are delivered. Livable towns and cities, where walking, cycling and public transport are prioritised as part of placemaking are internationally recognised as necessary to address climate change⁴².

SEPA's aspirations are to:

- Work with partners, to ensure that land is used in the most efficient way, with greatest benefits to communities and the economy. This includes:
 - identifying opportunities to deliver environmental betterment as part of housing developments.
 - helping decision makers recognise the different roles and value of land. For example, house building should be avoided on land which is highly suitable for a primary use like crop production, flood management, water catchment management or carbon storage.
 - supporting the sector to develop innovative approaches and design solutions which improve environmental outcomes on challenging sites. For example, building on peaty soils.
- Work with partners to improve the way soils are used and managed on construction sites. To prevent soil degradation and the creation of waste, a more joined-up approach to soil management throughout the development process is needed. This could include avoiding areas of high value soil, minimising soil disturbance, maximising on site soil reuse, handling and

- storing soils appropriately, and minimising soil removal. If soil has to be moved off-site, it should be reused nearby for purposes 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.
- Use our regulatory, planning and partnership work to help Scotland protect and enhance natural carbon sinks. This includes:
 - working with the sector to minimise the loss and disturbance of peat and other carbon rich soils through better site selection and design;
 - exploring opportunities to ensure there is no 'net loss' of soil carbon caused by new developments.
- 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 all of the country. While only a small percentage of these sites may be suitable for housing, they could be used to improve local places for people and the environment.

^{42. &}lt;u>Land Use Futures: making the most of land in the 21st century</u>, The Government Office for Science, 2010

Cross-cutting opportunities

Several of our aspirations for the sector are cross-cutting and cannot be ascribed specifically to water, energy, materials or land. To avoid duplication, the aspirations listed here will deliver outcomes for multiple elements of the plan.

SEPA's aspirations are to:

- Use our influence in the housing, strategic infrastructure and water supply and waste water sectors to help drive Scotland's placemaking agenda, which will help communities and businesses see the environment as an opportunity for social and economic success. We will do this by:
 - repositioning our role in land use planning towards supporting the delivery of great places. This includes exploring opportunities for partnerships and pilots to engage in early place shaping;
 - continuing to work with other agencies to align our resources, evidence and knowledge to support housing delivery;
 - building on existing partnerships and initiatives that are already established to ensure they help deliver the outcomes identified in this plan. For example, existing and emerging Sustainable Growth Agreements.

- Explore opportunities to work at a more strategic level across the lifecycle of housing development and the supply chain to identify early interventions that will help avoid or reduce environmental impacts and deliver enhancements.
- Engage with the Scottish Government on the development of the vision and route map for Housing to 2040.
- Explore how we could use digital platforms and technology to harness data, streamline processes and improve communications to enhance the efficiency of decision making in the sector.
- Seek opportunities to engage with the Infrastructure Commission for Scotland and the Scottish Government's Infrastructure Delivery Group, which has been set up to promote and drive forward an infrastructure first approach to planning and development, with a particular focus on housing delivery. We will align this engagement with our Strategic infrastructure (transport and utilities) and Water supply and waste water sector plans⁴³.



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 and others in the sector 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 below combines actions to address compliance and to help achieve beyond compliance. This is to illustrate that the same action can often both improve compliance and help achieve beyond compliance, and vice versa.

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.

A number of the actions identified in the table will deliver for multiple outcomes or address compliance issues across multiple sectors. We will work across SEPA sectors to maximise opportunities for joint projects internally or with partner organisations.

High quality, sustainable homes				
Outcomes sought	Actions and aspirations			
Water is used efficiently and returned to the environment in a clean state	Implement our Water and Waste Water Sector Plan to tackle key issues with respect to private sewage, sewage network capacity, and drinking water quality/quantity.			
Energy and heat demand is minimised and supplied by a zero/low carbon source Maximum value is derived	Work with the sector, local authorities and other partners to ensure they understand their responsibilities under the river basin management plans, and develop clear guidance to help them provide benefits for the water environment.			
from materials across the supply chain and throughout the life cycle of homes	Work with the sector to develop and deliver water environment improvement projects.			
	Continue to work with local authorities and Scottish Water on the adoption of Sustainable Urban Drainage Systems.			
	Investigate with Scottish Government the potential to include operational function of private sewage treatment systems within home reports.			
	Help the sector reduce, recycle and reuse water throughout the supply chain and lifecycle of homes.			
	Work with stakeholders to promote the benefits of resource efficiency across the supply chain.			

High quality, sustainable homes					
Outcomes sought	Actions and aspirations				
Water is used efficiently and returned to the environment in a clean state	Support the sector to increase the use of secondary materials, keep materials in use for longer, and recover unused building and packaging materials.				
Energy and heat demand is minimised and supplied by a zero/low carbon source	Work with the sector to help identify opportunities to minimise energy requirements across the supply chain, support improvements to the energy performance of existing homes, and showcase low carbon innovation.				
Maximum value is derived from materials across the supply chain and throughout the life cycle of homes	Engage with the Scottish Government on its review of Scottish Building Regulations.				
Sustainable places and communities					
Outcomes sought	Actions and aspirations				
Land is used productively with homes located in the	Work with partners to support the creation of high quality, multifunctional green/blue spaces.				
right places People and nature benefit from a well-connected high quality natural environment	Work with government partners and stakeholders to improve integration of the different water and land management drivers to better deliver nature based approaches that benefit communities and the environment.				
Everyone in the sector works together and benefits from the creation of one planet homes and places	Work with partners, to ensure that land is used in the most efficient way, with greatest benefits to communities and the economy.				
	Work with partners to improve the way soils are used and managed on construction sites.				
	Use our regulatory, planning and partnership work to help the sector minimise the loss and disturbance of peat and carbon rich soils.				
	Work with the Scottish Land Commission and other partners to use vacant and derelict land to improve local places for people and the environment.				
	Use our influence in the housing, strategic infrastructure and water supply and waste water sectors to help drive Scotland's placemaking agenda.				
	Engage with Scottish Government on the development of the vision for Housing to 2040.				
	Explore how we could use digital platforms, data and technology to improve decision making in the sector.				

A well-functioning housing system that meets people's needs					
Outcomes sought	Actions and aspirations				
Strong environmental performance throughout the sector and supply chain Homes are climate resilient and responsive to changing household needs	Improve our understanding about the extent of non-compliance across the sector.				
	Work with housing developers and the supply chain to understand barriers to compliance, develop more effective engagement, and identify opportunities to incorporate environmental benefits across project lifetimes.				
Low and zero carbon enabling infrastructure is designed-in from the start and provided early on	Ensure our regulatory permits set both the sector and SEPA up for success to effectively tackle non-compliance.				
	Set ourselves up to use the full range of enforcement measures at our disposal to ensure proactive and reactive enforcement is delivered efficiently and effectively.				
	Review how we undertake our planning work to ensure that housing developments are designed to reduce environmental impacts throughout their lifecycle, including the delivery of flood resilient homes.				
	Work with the sector to ensure they understand the legal responsibilities they have to manage their waste without harming the environment and undertake inspections to monitor compliance.				
	Develop and consult on proposals to regulate waste activates through the Integrated Authorisation Framework.				
	Work with government partners and stakeholders to identify opportunities and new approaches to significantly reduce the impacts of flooding.				
	Work with Scottish Government and partners to support and enable local heat, electricity and energy storage solutions that link local generation with household demand.				
	Explore opportunities to work at a more strategic level across the lifecycle of housing development and the supply chain to identify early interventions that will help avoid or reduce environmental impacts and deliver enhancements.				
	Seek opportunities to engage with the Infrastructure Commission for Scotland and the Scottish Government's Infrastructure Delivery Group.				

