



OIL AND GAS
DECOMMISSIONING
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. Successful businesses in future will be those that 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 ensure that:

1. every regulated business fully meets their compliance obligations;
2. as many regulated businesses as possible will go beyond the compliance standards.

This sector plan outlines how we will do this in our regulation of the oil and gas decommissioning sector.

This is an important emerging sector for Scotland, one with huge potential to re-circulate valuable resources back into the economy in high value uses. We want to work with the sector to help it to put environmental protection and sustainable resource use at the heart of its development, managing decommissioned waste streams in ways that create economic and social success from environmental excellence. We will work with businesses in this sector as it develops to help them to be compliant with environmental laws and to help them innovate by looking for ways to go further. As the world faces shortages in metals and environmental constraints on their use, we will encourage the development of new technologies and business models that reduce resource use and environmental impacts in ways that meet market needs.

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

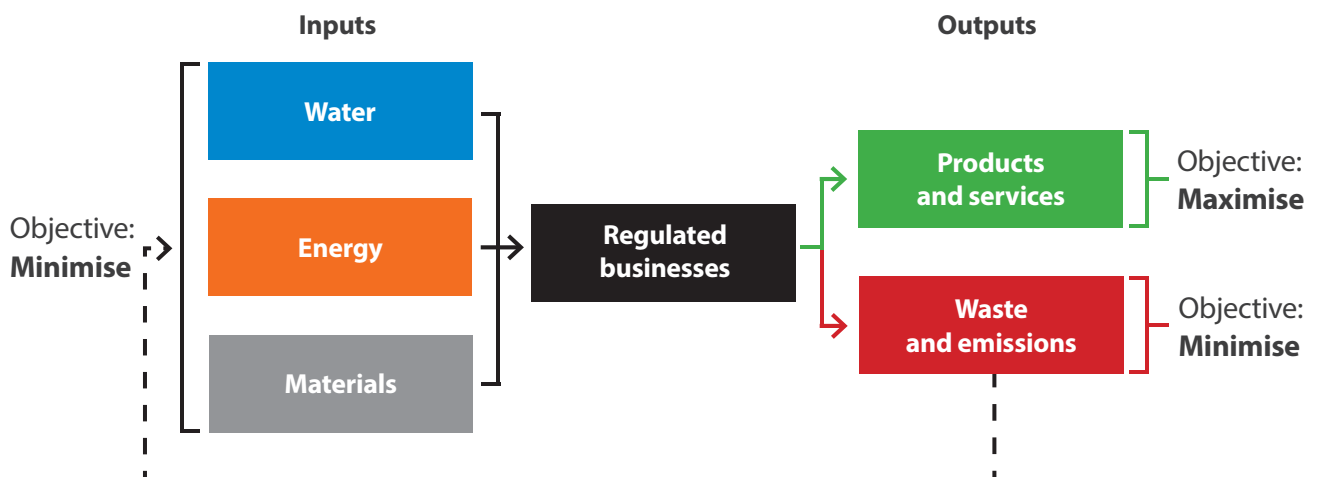
For SEPA to help create a prosperous Scotland that lives within the means of our one planet, we need to radically change the way we work. In the past, our approach to regulation has been grounded in the different set of rules we manage to protect the environment. This has helped us to deliver, for example, 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 approach to regulation by 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 businesses to do more for the environment because it makes sense for them to grow in a sustainable manner. 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.

All businesses that we regulate in a sector use water, energy and raw materials to produce the products and services they sell. In doing so, they also create waste and emissions. We can think of these as environmental flows that need to be managed by the business (Figure 1).

Environmental flows (Figure 1)



We want to help as many businesses as possible to manage these flows effectively. By reducing their use of natural resources and the creation of waste, we will enable them to meet their legal obligations, drive further improvements and operate their business 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 deliver solid outcomes will receive powerful support through guidance and advice. Those that demonstrate behaviour which leads to significant or chronic non-compliance can expect us to use the most appropriate enforcement tools to bring them into compliance.

This is our plan for the oil and gas decommissioning sector. It outlines how we are going to regulate the sector and work with it to protect and improve the environment. The plan focuses on how we will work directly with oil and gas operators, waste operators, port authorities and trade bodies. We will also work closely with other environment agencies, other regulators and government bodies to encourage a consistent approach to the sector. Working to bring people together and building relationships within the sector will be key to helping to achieve the objectives of the sector plan. It explains how we will work directly with operators and also includes ways that we will work with them to use our shared influence to improve environmental performance throughout the industry supply chain.



2. Our vision for the oil and gas decommissioning sector

Environmental protection and sustainable resource use are cornerstones of oil and gas decommissioning. Operators and regulators work together to ensure, whether within Scotland, the UK or abroad, that infrastructure is processed at well-equipped yards that offer a high degree of environmental protection.

Equipment from decommissioned installations is circulated for reuse and refurbishment, and metals and other materials are recycled for high value use.

Scotland is recognised worldwide for its responsible approach, high quality infrastructure and technical skills and experience. The sector is creative in problem solving and is highly innovative, with ideas, solutions and expertise that can be exported worldwide.

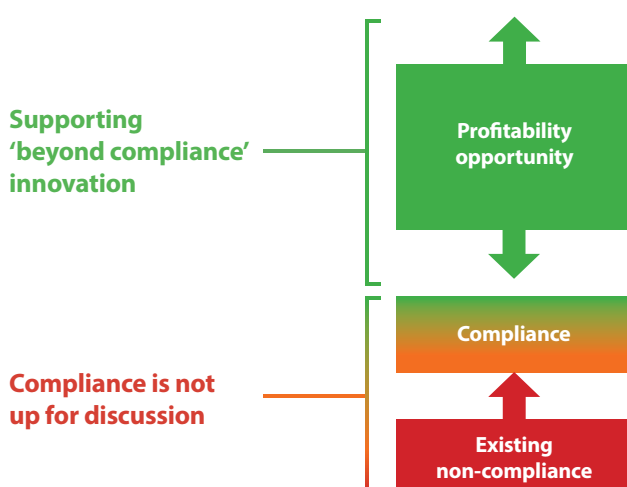
Our objectives

The objectives of the sector plan are to:

- ensure all operators in the sector reach and maintain full compliance with Scottish, UK and European environmental protection laws;
- help as many operators as possible in the sector to move beyond compliance.

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

Sector roadmap (Figure 2)



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

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, putting the oil and gas decommissioning sector on a pathway to becoming a 'one planet' sector.



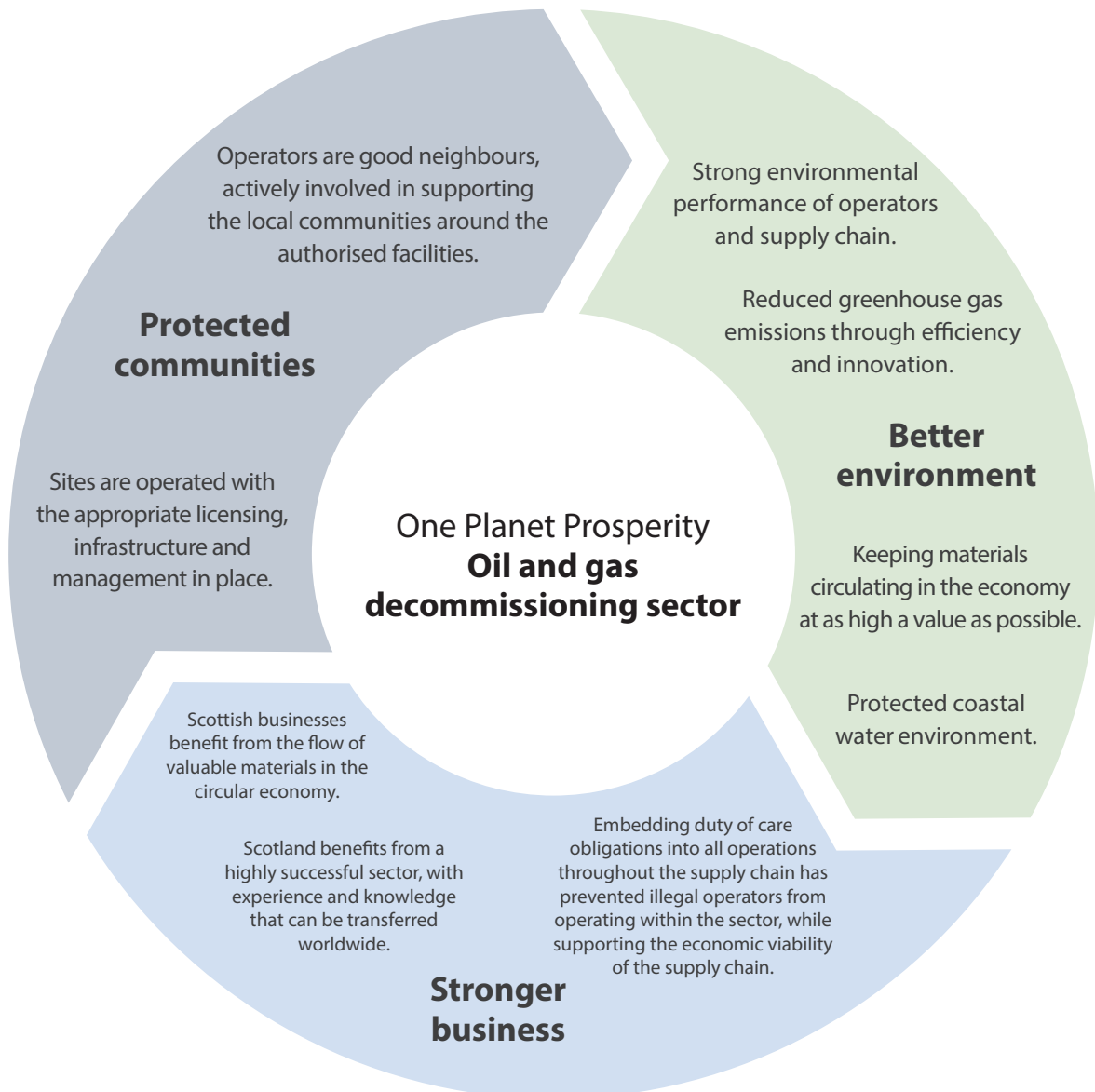
3. Outcomes

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;
- enable businesses to operate effectively and successfully in their markets.

The figure below shows the outcomes we would like to achieve for the oil and gas decommissioning sector. These are linked to actions that we will take, as outlined in Section 7 of the plan.

Outcomes (Figure 3)





4. The oil and gas decommissioning sector

Oil and gas installations¹ in the North Sea are reaching the end of their economic life, and a large programme of decommissioning is underway.

Between 2016 and 2030 at least 60% of the platforms in the Northern and Central North Sea will be decommissioned. The Oil and Gas Authority (OGA) role is to regulate, influence and promote the UK oil and gas industry in order to maximise the economic recovery of the UK's oil and gas resources. The OGA set up a Decommissioning Task Force, and is committed to ensuring that decommissioning is executed in a safe, environmentally sound and cost effective manner. The OGA has stated that the current forecasted decommissioning cost is £59.7 billion², and have set a target of less than £39 billion (35% cost reduction as set by OGA).

There is a potential for at least 950,000 tonnes of topsides to be decommissioned across the whole North Sea, with Scotland competing for a share of the decommissioning market.

Who is the sector?

The sector is diverse in nature and consists of many operators.

In the context of this plan, 'operators' means a number of different companies, including oil and gas operators, supply chain companies, waste contractors and heavy lift vessel specialists. The sector includes:

- large global oil and gas production companies – installation owners;
- offshore decommissioning specialists/ removal contractors – work on behalf of production companies who arrange or remove and transport the installations to shore for decommissioning;
- onshore decommissioning operators – dismantle installations for reuse, recycling and disposal;
- secondary waste operators – for example metal recyclers, hazardous waste disposal operators.

¹ SEPA definition of an installation: all fixed floating platforms, oil exploration rigs, floating production storage and offloading (FPSO) vessels, including sub sea structures (e.g. pipelines).

² <https://www.ogauthority.co.uk/decommissioning/cost-estimate/>

Facts and figures for the oil and gas decommissioning sector (Figure 4)



< £39 billion

Estimated target cost of decommissioning³



1,465

Oil wells decommissioned in UK Continental Shelf (UKCS) 2018-2027



203

Oil fields on UK CS with decommissioning activity 2018-2027



419

Dutch wells to be decommissioned



363

Norwegian wells to be decommissioned



132

Danish wells to be decommissioned

Across the four regions of North Sea 2017-2025



74

Platforms for removal



71

Substructures for removal



5,724km

Pipelines slated for decommissioning by 2027



950,000

Tonnes of topsides slated for removal across the North Sea



12

Number of Decommissioning Programmes under consideration in 2018⁴

Source: Oil & Gas UK Decommissioning Insight 2018

³ Oil and Gas Authority <https://www.ogauthority.co.uk/media/4999/decommissioning-a5-2018-pdf-version.pdf>

⁴ Oil and Gas UK <https://www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines>

The UK and Scottish Government's priority is to work with the oil and gas industry to maximise economic recovery from the remaining North Sea oil reserves.

The Scottish Government also wants Scottish businesses to win contracts for the decommissioning work, and their Decommissioning Challenge Fund⁵ is supporting infrastructure upgrades at ports and harbours, as well as helping firms build business cases for private investment. Scottish Enterprise⁶, Highlands and Islands Enterprise⁷ and Zero Waste Scotland⁸ also work to promote decommissioning opportunities for Scottish businesses.

Decom North Sea and Oil and Gas UK (OGUK) are decommissioning trade bodies, working to enhance knowledge transfer and facilitate a collaborative approach. Supporting the sector are many academic/research institutions, technology centres and consultancies.

Decommissioning is regulated by the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), by virtue of the Petroleum Act 1998. The Health and Safety Executive (HSE) also regulates all offshore and onshore decommissioning and dismantling work activities. It is worth noting that offshore work activities are regulated via the safety case regime, a permissioning regime, which means work cannot progress until HSE has assessed and accepted proposed work.

Operators are required to submit their Decommissioning Programme (DP) to OPRED for approval to start the decommissioning process. All programmes require to set out decommissioning safety and environmental considerations, including offshore well abandonment.

Decommissioning of installations can commence up to five years before cessation of production (CoP), with OPRED and other agencies consulted throughout the process. SEPA is consulted prior to and throughout the life of the DP. There are five key stages in the decommissioning process, starting before CoP and continuing through the early identification of options, to detailed assessment and drafting of a DP, followed by execution and then post completion activity.

Figure 5 illustrates the Decommissioning Programme development phases as set out by OPRED. The Decommissioning Work Breakdown Structure (Figure 6) illustrates the various phases of decommissioning on a typical project, as well as the current proportion of the total estimated costs operators expect to commit to each stage over the next 10 year⁹.

Decommissioning has been taking place for a number of years, with installations being decommissioned in the UK with some exported for recovery. There are currently a limited number of facilities throughout Scotland to support decommissioning.

5 <http://www.gov.scot/Topics/Business-Industry/Energy/Energy-sources/traditional-fuels/oilandgas/DCF>

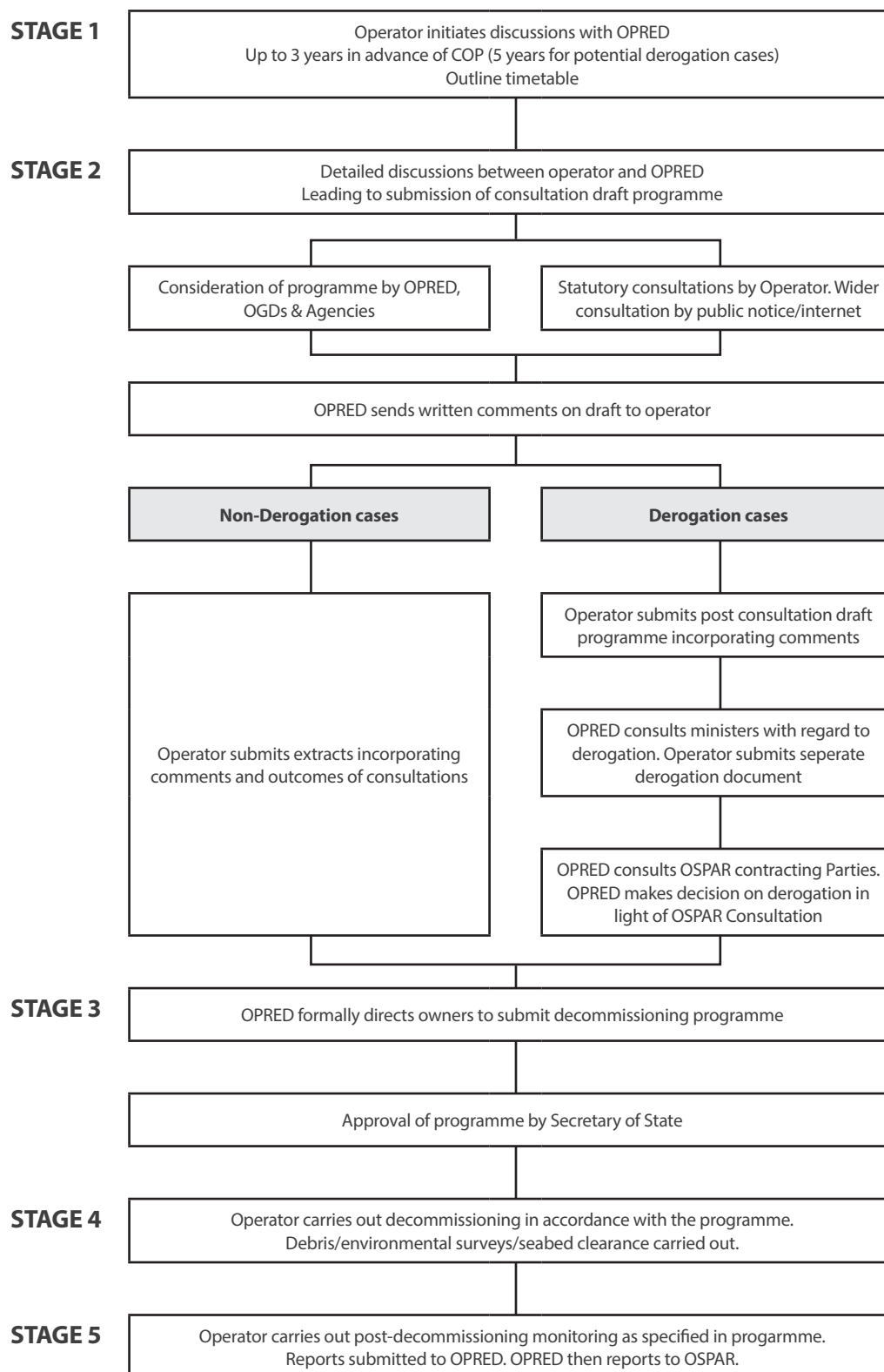
6 Scottish Enterprise <https://www.scottish-enterprise.com/knowledge-hub/articles/publication/oil-gas-decommissioning-action-plan>

7 HIE reference <http://www.hie.co.uk/growth-sectors/energy/oil-and-gas.html>

8 ZWS reference <https://www.zerowastescotland.org.uk/content/north-sea-oil-and-gas-rig-decommissioning-re-use-opportunity-report-0>

9 Oil and Gas UK – Decommissioning Insight 2018





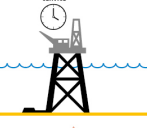



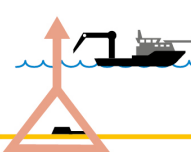
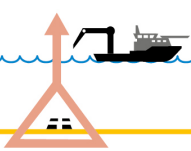
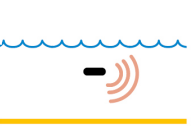
Staged process for Decommissioning Programme (Figure 5)¹⁰



¹⁰ Courtesy of OPRED

Decommissioning work breakdown structure (Figure 6)¹¹

Oil & Gas UK Decommissioning Work Breakdown Structure

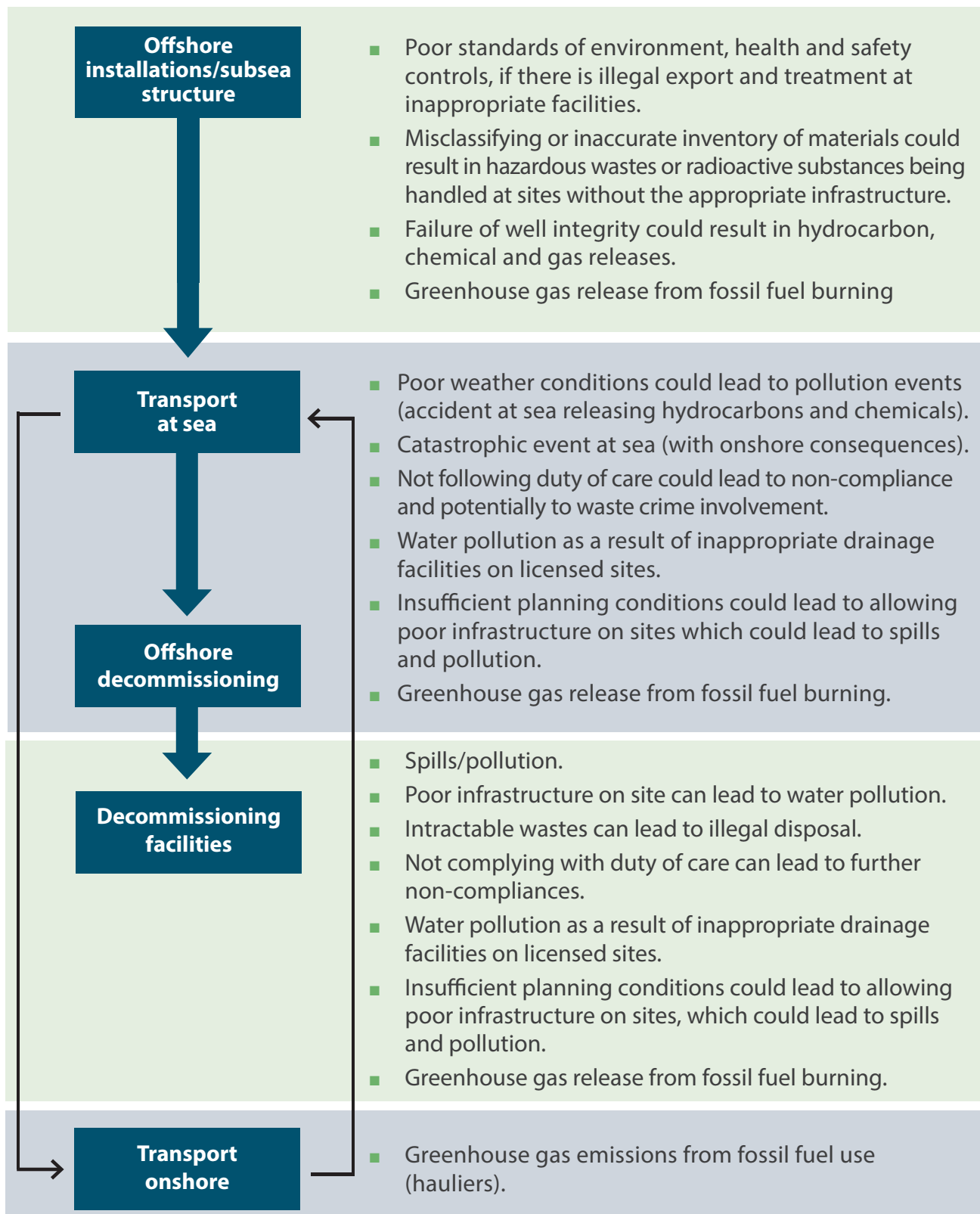
	Operator Project Management	<p>Project management core team (excl. mgmt. allocated elsewhere) Decommissioning Programme preparation Studies to support Decommissioning Programme and scope definition method development Decommissioning Programme reporting / close out</p>
	Post-CoP Running Costs	<p>Operations team Deck crew Integrity management, inspection and maintenance Baseload platform utility (including power, water, air) Project management /logistics / accommodation associated with activities above</p>
	Well Decommissioning	<p>Studies to support well programmes Well decommissioning (spread rate / time) Wells project management Operations support for P&A Specialist services e.g. wireline Conductor recovery Rig upgrades / refurbishment Cleaning and recycling of tubulars Vessel (e.g. rigs/LWIV/DSV/PSV) Recycling and waste management associated with above activities (fluids, conductors, etc.) Project management /logistics / accommodation associated with activities above</p>
	Facilities / Pipeline De-Energising	<p>Process, flowline and pipeline drain, flush purge and vent Engineering down — physical isolation, de-energise, vent and drain Engineering down — cleaning Pipeline pigging Recycling and waste management Project management /logistics / accommodation associated with activities above</p>
	Topsides Preparation	<p>Module, process and utilities separation Upgraded platform facilities Project management /logistics /accommodation associated with activities above</p>
	Topsides Removal	<p>Preparation for removal e.g. reinforcements, lift point (re)instatement Structural separation for topside removal activities Vessel activities (e.g. HLV, DSV) Topside removal activities Sea fastening and transportation Load into quayside Project management /logistics / accommodation associated with activities above</p>
	Substructure Removal	<p>Preparation for removal e.g. reinforcements, lift point (re)instatement Cutting / separation Vessel activities (e.g. HLV, DSV) Substructure removal activities Sea fastening and transportation Load into quayside Project management /logistics /accommodation associated with activities above</p>
	Topsides and Substructure Onshore Recycling	<p>Cleaning and handling of hazardous waste Dismantling Re-use, recycle, disposal Recycling and associated waste management Cost to incorporate impact of eventual resale / disposal of materials Transportation to point of safe disposal Project management /logistics / accommodation associated with activities above</p>
	Subsea Infrastructure	<p>Vessel (preparation for subsea end-state e.g. remove, trench, rock dump) Sea-fastening transportation, and load in quayside Specialist subsea services Recycling and associated waste management Pipeline removal Subsea structure removal Mattress removal Project management /logistics / accommodation associated with activities above</p>
	Site Remediation	<p>Oil field debris clearance – 500 metre zone around structure Over-trawl surveys Oil field debris clearance – 100 metre corridor around pipelines Recycling and associated waste management Project management /logistics / accommodation associated with activities above</p>
	Post- Decommissioning Monitoring	<p>Monitoring required for residual infrastructure / material Navigation aids (incl. maintenance) Project management /logistics / accommodation associated with activities above</p>



5. Potential environmental impacts and how we manage them

Potential environmental impacts throughout the supply chain

The flow diagram below highlights some of the potential environmental issues at the various stages of the supply chain of the oil and gas decommissioning sector.



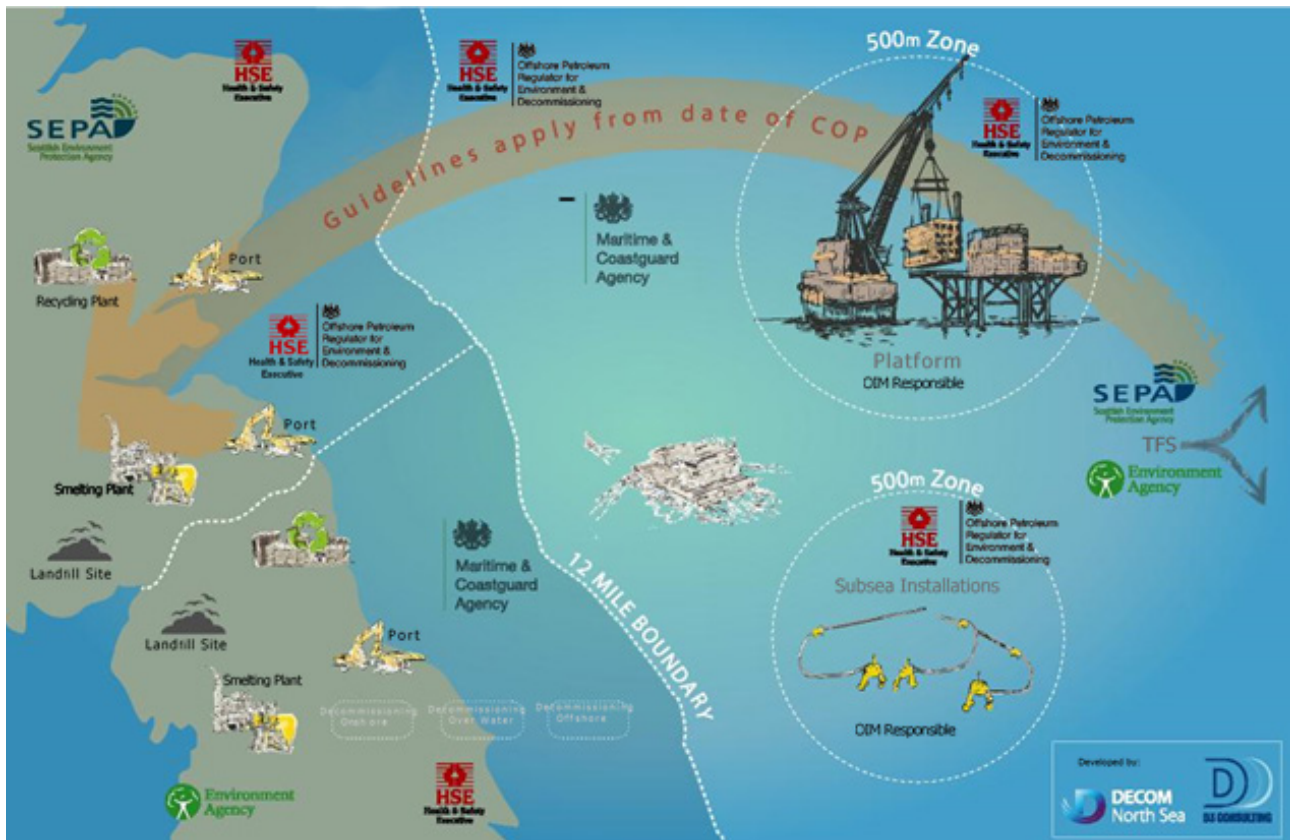
Environmental regulation of the oil and gas decommissioning sector

The decommissioning of offshore oil and gas installations and pipelines on the UKCS is controlled through the Petroleum Act 1998. The responsibility for ensuring that the requirements of this act are complied with rests with OPRED. HSE also plays an important part in the regulation of the offshore environment, working jointly with OPRED as a Competent Authority enforcing The Offshore Installations (Offshore Safety Directive)(Safety Case etc.) Regulations 2015, with the primary objective of preventing offshore major accidents including major environmental incidents.

The Oil and Gas Authority works with OPRED to assess decommissioning programmes on the basis of cost, future alternative use and collaboration. OPRED assesses and approves all decommissioning plans submitted by the operators through their Decommissioning Programmes (DP). SEPA is consulted prior to and throughout the life of the DP. There are other agencies involved in the regulation of decommissioning and these, along with their areas of jurisdiction are shown in Figure 7.

The OSPAR Convention requires installations to be removed from the seabed. However following an assessment, OPRED may give permission for derogation in appropriate circumstances to leave parts of the substructures, or whole installations in place (commonly known as 'rigs to reef').

Illustration of regulatory agencies jurisdiction (Figure 7)¹²



¹² Map courtesy of Decom North Sea

The OSPAR Convention requires installations to be removed from the seabed. However following an assessment, OPRED may give permission for derogation in appropriate circumstances to leave parts of the substructures, or whole installations in place (commonly known as 'rigs to reef').

What is SEPA's regulatory role?

SEPA is responsible for environmental protection in a number of key areas. These are:

- Transfrontier Shipment of Waste Regulations 2007 (TFS);
- Duty of care obligations;
- Pollution Prevention and Control (Scotland) Regulations 2012;
- Waste management licensing;
- Radioactive Substances Act 1993 (RSA 93);
- Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- The Ship Recycling Facilities Regulations 2015;
- The Control of Mercury Regulations 2017;
- Special Waste Regulations 1996.

TFS 2007 is particularly important for this sector. We use these regulations to ensure that where installations are being transported for breaking abroad, it is only to the right countries with the right facilities. A key objective is that installations from the UKCS are not exported illegally to places where the environment and human lives are put at risk. The Basel Convention established notification requirements to restrict transboundary movements of hazardous wastes to protect human health and the environment against their adverse effects. Notification controls apply to all allowed imports and exports of hazardous waste for recovery operations and some non-hazardous waste for recovery operations to non-OECD countries. The UK Plan on waste shipments generally prevents exports of waste for disposal, except in very limited circumstances. SEPA is required to object to notifications that are contrary to the UK Plan.

Shipments of wastes containing naturally occurring radioactive material (NORM) going outwith the UK require permission under RSA93 and TFS. The operator is required to apply to SEPA for a variation to the authorisation to allow NORM waste and NORM contaminated items to leave the UK. SEPA must give due regard to UK Government policy and the UK radioactive waste policy is based on self-sufficiency, so the operator must justify why the decommissioning of the installation cannot be carried out in the UK. In all cases the presumption is that any radioactive wastes will be returned to the UK, unless the waste does not add materially to the wastes needing to be disposed of in the country of destination. An exception to the UK Plan on waste shipments may be required in certain circumstances.

Scottish facilities undertaking decommissioning must be authorised to do so by SEPA. We will ensure facilities are appropriately authorised, operators are 'fit and proper' and the right conditions are in place to protect the environment and communities from pollution.

Decommissioning will result in a wide variety of waste materials such as metals, electrical and electronic equipment and asbestos. These wastes (other than steel) will move from the initial processing facility into the wider waste management industry for further treatment, recovery and disposal.

Duty of care provides for the safe management of waste throughout the supply chain. It is a set of legal obligations that apply to everyone who produces or manages waste.

Businesses are required to take reasonable steps to ensure their waste is managed correctly through its complete journey to disposal or recovery. This means storing it securely and separating out recycling when you produce waste. When you pass waste on to another business you must make sure that they are authorised to accept it. Businesses can find out more about their obligations, and get practical advice, by reading the Scottish Government's statutory guidance – *Duty of Care: A Code of Practice*.

Duty of care compliance is important as it promotes good environmental practice at all stages of the waste management chain. It ensures that waste goes to the right place, avoiding illegal disposal and environmental harm, and promotes high quality recycling. We will help businesses to understand their duty of care and make compliance as easy as possible. If businesses continue to disregard their duty of care, we will take enforcement action that could include civil penalties or prosecution.

OPRED's DP process provides operators with an opportunity to embed environmental protection and resource use objectives in their decommissioning plans. A materials inventory is key to ensuring management of materials through the process. SEPA is consulted on the materials inventory at stage one (as shown in Figure 5) to ensure that the waste hierarchy is considered and materials are used for maximum value and not deemed to be waste. At the end of the decommissioning process, the operator submits a close out report to OPRED, which details the fate of all materials in the inventory. SEPA is again consulted at this stage.

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.

SEPA's role in the development of the sector

There are a number of agencies involved in the regulation of the oil and gas sector, and consequently, it can be a complex and challenging area for industry to fully understand. SEPA is therefore bringing together at a strategic level, joint working with the Scottish Government, regulatory agencies, oil and gas industry, waste operators, removal contractors and trade associations to ensure there is a full understanding of the expectations of the industry by all the regulators. The most significant benefit of working together will be the opportunities for innovation, collaboration and best practices that will be identified and shared with the aim to ensure the process of decommissioning is efficient for all involved throughout the supply chain. Working together also means that unforeseen challenges can be readily identified and resolved effectively.

It is anticipated that SEPA's role in this sector will evolve as approval of decommissioning programmes accelerates. In the future, this collaborative way of working will develop knowledge and experience that will grow the industry into a successful, highly compliant and innovative sector. The result being that the Scottish framework for this way of working will be an exemplar to be used around the world.

Infrastructure for decommissioning may require planning consent from the local planning authority (to which SEPA is a statutory consultee). However, ports may have permitted development rights or the works can take place under an existing permission.

Decommissioning Regulatory Hub

In late 2018, we secured funding from Innovate UK, the UK's innovation agency, to help establish a Decommissioning Regulatory Hub (DecomRegHub). DecomRegHub will provide a safe, collaborative environment where industry can engage with regulators and together, explore the technical and regulatory requirements of decommissioning, and share/manage the associated risks. It will facilitate early engagement between industry, key stakeholders and regulators to explore collaboratively the technical, environmental and safety requirements of decommissioning, as well as identify opportunities to develop and test new techniques, products and regulatory tools that will help ensure the success of the global decommissioning market.

DecomRegHub will also provide a customer-focused digital hub bringing together data, advice, guidance, information, best practice and case studies across the entire regulatory landscape. This collaborative approach will enable knowledge sharing and access to robust evidence, drawn from multiple sources of information that, in turn, will inform policy and regulatory development, operational assessments and decisions. The digital hub will be designed with users to ensure it contains the right information in the right format, and is structured to make it easy for users to find and use what they are looking for as easily as possible.

The DecomRegHub is made up of UK regulators and will be supported by the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), the Health and Safety Executive (HSE), the Environment Agency, SEPA, Scottish Government and Zero Waste Scotland.

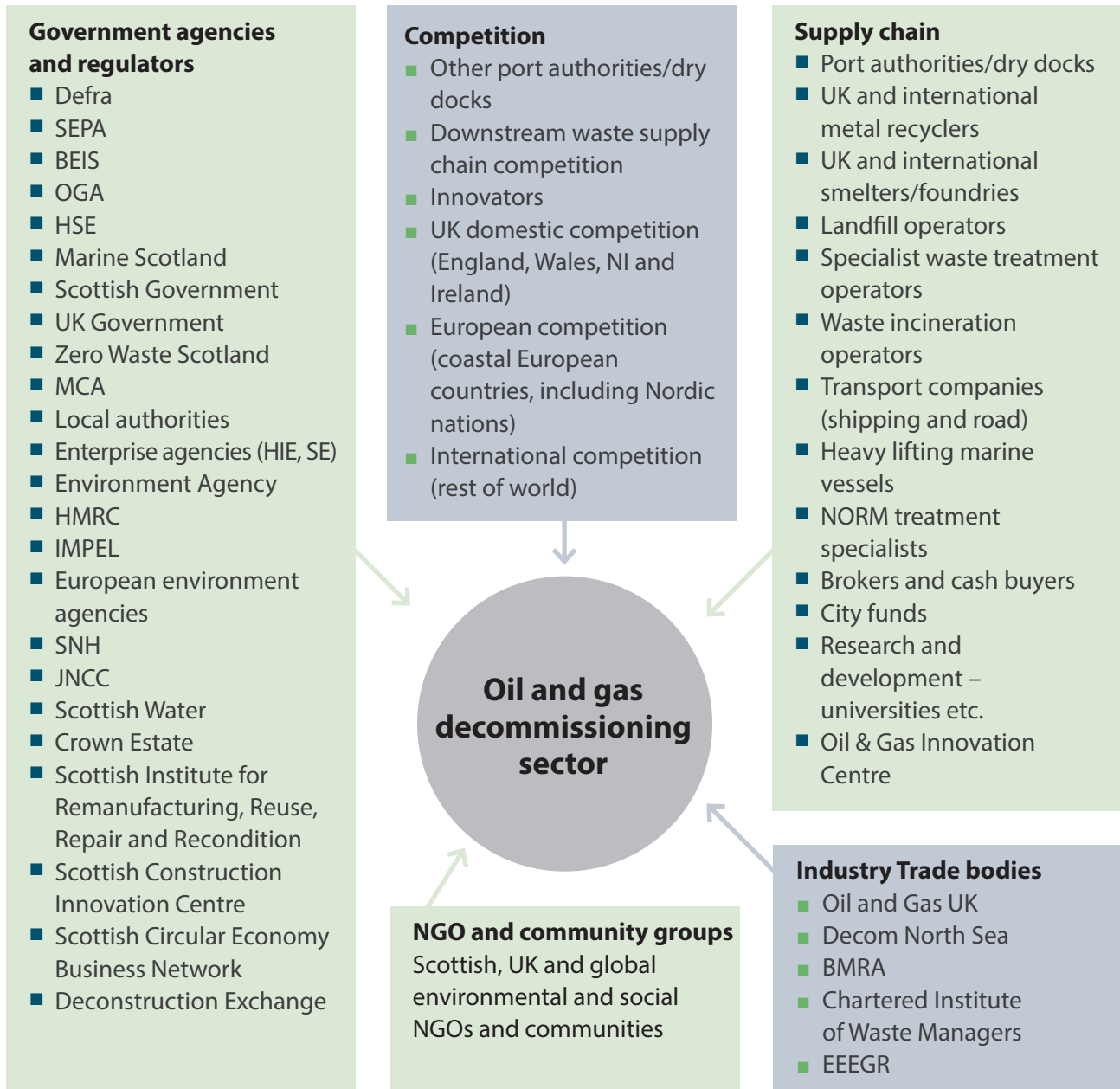
Wider influences on environmental performance of the sector

Full compliance with environmental legislation will not, by itself, deliver the change required to secure our One Planet Prosperity objectives¹³. The oil and gas decommissioning sector plan needs to unlock the potential for businesses to gain strengths in resource efficiency and environmental innovation that will help them to succeed in their markets. SEPA need to combine the actions that we can take to influence the behaviour of a business through our regulatory role with all the other influences. Doing this will be the most effective way to secure full compliance and to help as many businesses as possible to move beyond compliance.

Working with the sector, we will place this more sophisticated way of operating at the heart of our work. Figure 8 summarises the main organisations that influence and are influenced by operators in the sector and those that we are likely to 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.

¹³ <https://www.sepa.org.uk/media/219427/one-planet-prosperity-our-regulatory-strategy.pdf>

Key influences within the sector (Figure 8)







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

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

Compliance in the sector

Oil and gas decommissioning is a developing sector in Scotland, particularly for the waste supply chain. Decommissioning in the past has been on a relatively small scale. As a result, there is limited compliance history for this new phase of large scale decommissioning at dedicated licensed sites. New sites, once licensed, will be assessed using our Compliance Assessment Scheme (CAS).

Approval by SEPA of transfrontier shipments of waste (TFS) from the UKCS by the sector has however, been ongoing for some years, but this is not captured in the CAS scheme – as CAS covers site licences only.

Under the TFS Regulations the compliance picture across the sector is mixed for waste shipments. Some companies engage with SEPA at an early stage of the decommissioning process to ensure they are compliant with waste shipment controls. However, we are aware that this is not always the case. There have been significant instances of non-compliance within the sector, including the beaching of floating production storage and offloading (FPSOs) units in India and Bangladesh. Illegal shipments have also taken place from the UKCS to other European countries.

What are we doing about non-compliance?

We advise companies on TFS controls to ensure compliance, and prevent illegal shipments where possible, including the use of 'stop' notices. We will also take strong enforcement action, in line with our enforcement policy and supporting other national and international regulatory authorities in their action.

We will also engage with:

- asset managers to prevent the sale of installations to cash buyers who go on to arrange their illegal disposal in developing countries;
- government and government agencies on decommissioning to identify any legal loopholes and work to close them to ensure the environment and human health are safeguarded.

We will help responsible compliant businesses to operate by making it significantly harder and more expensive for those who persistently fail to comply with environmental regulation to operate. We will achieve this by increasing scrutiny, prescription, fees, and the use of enforcement and monetary penalties for those who fail to comply.

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. Businesses 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 businesses move beyond compliance; helping already high performing businesses do more for the environment because it makes sense for them to grow in a sustainable manner. Many of these opportunities will also help to improve compliance by businesses in the oil and gas decommissioning sector.

Water

Water in the right place, in the right amount and of the right quality underpins our society and economy. We need water to maintain the benefits we all receive from a healthy functioning natural environment. Scotland's water resources vary and exploitation of water can affect its availability for other uses. All risks to our water resources may be increased as our climate changes. It is important that sector plans take account of risks from and to water resources.

The oil and gas decommissioning sector is not a significant water user but has the potential to impact the water environment through poor site management.

As most of the large scale facilities will be located in or around the coast, protecting coastal waters is important, therefore careful management of surface water is required.

SEPA's aspirations are to:

- bring together experts to share best practice and innovation for contaminated surface water treatment at decommissioning sites, which can be shared across sectors;
- encourage the sector to investigate methods that minimise water use for the removal of marine growth from metal surfaces;
- establish a baseline for water use at decommissioning facilities to identify opportunities for water efficiency, with the aim of identifying best practice across the sector.

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. So 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.

Due to the emerging nature of the sector, energy use at decommissioning facilities at this stage is unknown. Transportation of material flow through the facilities is also an unknown.

In order to initiate innovation around energy use, we need to understand where the highest impact of energy uses are.

SEPA's aspirations are to:

- benchmark energy use at new Scottish decommissioning facilities to identify opportunities for innovation and energy efficiency practices;
- gather overseas energy performance information to inform innovation and drive best practice within the sector;
- explore opportunities for fuel efficiency hauliers;
- work with research establishments to investigate the potential for the productive use of marine growth;
- encourage secondary materials recovery to displace the production of virgin materials in order to reduce energy use.

Materials

SEPA views the circular economy as a game-changing opportunity to manage resources within planetary limits. By reducing the harms associated with waste management it creates 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.

A circular economy aims to use resources more efficiently, keep resources in use for as long a time as possible and to minimise waste. Keeping materials circulating in the economy at as high a value as possible creates environmental and economic gains. This is particularly relevant to the decommissioning sector where most of the materials (upwards of 98%) will be recycled. While this is excellent, more could be done to drive reuse and remanufacturing. The potential value inherent in reuse of equipment has been shown to be significantly higher than recycling.

Key to sustainable resource management is developing detailed material inventories and that the downstream supply chain is prepared to process, reuse and recycle as much of the materials as possible. Improving the quality and reducing contamination from waste materials increases the opportunity for higher value uses.

SEPA's aspirations are to:

- work with OPRED to ensure that both oil and gas operators and waste operators at decommissioning facilities maintain a Materials Management Plan throughout the life of the decommissioning project through the whole waste supply chain from recovery to disposal. This forms the basis of a duty of care approach without which the operators cannot identify the destination of the materials;
- work with Marine Alliance for Science and Technology Scotland (MASTS) and The Scottish Association for Marine Science (SAMS) to identify opportunities to reuse concrete mattresses due to the large volumes that will be removed from the seabed as the decommissioning process progresses;
- work with research establishments to identify uses and treatment processes for marine growth;
- promote the efficient recovery of high value metals that can be difficult to extract from other materials;
- encourage the reuse of domestic materials by charities for social benefit, for example, the reuse of gym equipment, beds and electrical goods;
- work with partners to help to establish a forum for opportunities to trade materials from decommissioning activities for suitable remanufacturing, reuse and recycling;
- encourage secondary materials recovery in place of virgin materials production;
- work with waste supply chain contractors to identify novel uses and treatments to allow reuse or recycling of decommissioned materials;
- work with oil and gas companies at the earliest opportunity, and before the submission of Decommissioning Programmes, to ensure the circular economy principles are embedded into decommissioning contracts and consideration is given to innovation and creativity in materials reuse and energy use.



7. Summary of actions and aspirations

The following table summarises the actions that we have described in previous sections to fix compliance in the sector and our 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 this sector plan to achieve.

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

Better environmental regulation	
Outcome sought	Actions and aspirations
There will be no harm to the environment or human health caused by illegal exports or disposal of decommissioning waste originating in Scotland. This will ensure that the integrity of the sector is ensured as legitimate business is not undercut and will succeed.	<p>We will undertake a targeted campaign to ensure that the producers of waste and their waste management chains are clear on their obligations to meet duty of care and TFS requirements. We will highlight to the sector that non-compliance in this respect will not be tolerated.</p> <p>We will ensure that waste supply chain operators have the correct authorisations with supporting guidance and inspections. Our aspiration is that these operators need to make sure they meet the authorisation conditions, to continually monitor and, wherever possible, improve their own performance.</p>
The processing of decommissioned infrastructure at Scottish facilities does not cause environmental harm.	<p>We will ensure our guidance provides clarity on the options for licensing within the sector and proactively promote the guidance through a series of external workshops and existing forums. We will initiate early engagement with the operators to ensure they are fully aware of their environmental requirements and beyond compliance opportunities are identified at the development stage.</p> <p>We will continue to work with UK and other environment agencies, OGA and OPRED to enhance strategic partnerships to ensure waste is correctly disposed of. SEPA will also work at boardroom level with operators and brokers to ensure TFS obligations are fully complied with.</p>

<p>Ensure that no waste is sent for illegal recovery and disposal outside the UKCS.</p>	<p>Work with the OGA to develop a live register of information regarding decommissioning activities ongoing in the UKCS, to ensure that we can take a proactive approach in ensuring that all operators understand their obligations with respect to the Transfrontier Shipment of Waste Regulations: that waste is not sent out with the UKCS illegally.</p> <p>Our Chief Executive (CEO) will meet with the directors of brokers and waste contractors to ensure top level commitment to compliance.</p> <p>Work with OPRED and other regulatory agencies (e.g. Environment Agency and Health and Safety Executive) to ensure a level playing field for the decommissioning activities within the UK. Guidance, Active Waste Management Plans, duty of care obligations, radioactive substances, licenses and permits must be applied consistently throughout the UK.</p> <p>Our CEO will engage with other relevant CEOs, to ensure a commitment to cooperation between the agencies and legislative consistency.</p>
<p>Stronger business</p>	
<p>Outcome sought</p>	<p>Actions and aspirations</p>
<p>Maximum value is derived from the equipment, materials and wastes brought ashore.</p>	<p>We will encourage and support best practice within the sector to share knowledge and experience of using innovative solutions for reusing, remanufacturing and recycling waste.</p> <p>Work with OPRED and others to develop, improve and ensure Active Waste Management Plans are being completed by the relevant operators. This will help the operators and waste contractors throughout the supply chain to create innovation in the supply chain (waste treatment options) and effective means of pushing waste higher up in the waste hierarchy to achieve maximum value and reuse.</p> <p>Work with partner agencies, such as Zero Waste Scotland, Scottish Enterprise and Highland and Islands Enterprise (HIE), and universities to develop innovation in the supply chain, identify opportunities for research and development to improve reuse, recycling, and recovery within the supply chain.</p>
<p>Protected communities</p>	
<p>Outcome sought</p>	<p>Actions and aspirations</p>
<p>The processing of decommissioned infrastructure at Scottish facilities does not cause environmental harm.</p>	<p>We will continue to work with the relevant agencies, the industry and trade bodies to take a proactive approach to the challenges faced by the industry. We will continue to run workshops, attend conferences and meetings with industry and regulatory partners to share knowledge, aspirations for the sector, and best practice.</p>
<p>Waste crime within the sector is prevented.</p>	<p>We will collect and develop intelligence to identify the potential involvement of serious crime and the opportunities for criminality within the sector. We will work alongside partner agencies to further our intelligence and take an active part in supporting operations aimed at targeting crime if identified within the sector.</p>

8. Glossary of terms

BEIS	Department for Business, Energy and Industrial Strategy
BMRA	British Metals Recycling Association
CAS	Compliance Assessment Scheme
CoP	Cessation of production
Defra	Department for Environment, Food & Rural Affairs
DNS	Decom North Sea
DP	Decommissioning Plan
EA	Environment Agency
EEEGR	East of England Energy Group
HIE	Highlands and Islands Enterprise
HMRC	Her Majesty's Revenue & Customs
HSE	Health and Safety Executive
IMPEL	European Network for the Implementation and Enforcement of Environmental Law
Installations	All fixed and floating platforms, oil exploration rigs, floating production storage and offloading (FPSO) vessels, including subsea structures (e.g. pipelines)
JNCC	Joint Nature Conservation Committee (provision of advice on nature conservation issues offshore)
Marine growth	Organic matter (alive or dead) that is attached to any part of the installation or associated infrastructure
MASTS	Marine Alliance for Science and Technology for Scotland
MCA	Maritime and Coastguard Agency
MER	Maximum Economic Recovery
NORM	Naturally occurring radioactive materials
OECD	Organisation for Economic Cooperation and Development
OGA	Oil and Gas Authority
OGUK	Oil and Gas UK
OIM	Offshore Installation Manager which is the most senior manager of an offshore platform operating on the UKCS
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo and Paris Conventions
R&D	Research and Development
RSA	Radioactive Substances Act 1993
SAMS	Scottish Association of Marine Science
SE	Scottish Enterprise
SNH	Scottish Natural Heritage
TFS	Transfrontier shipment of waste
UKCS	United Kingdom Continental Shelf

