



METALS  
SECTOR PLAN

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**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.**

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The mounting scientific evidence about climate change, plastics in our oceans, the pressure on our freshwater and more, show 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:

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

This sector plan outlines how we will do this in regulating the metals sector. It is a sector that has highly varied environmental performance. At one end, there are responsible operators who have a good track record of compliance and are seeking new business opportunities based on solving environmental challenges. At the other end, there are those who undertake activities illegally, 'outside the system', creating environmental risks and undermining legitimate operators.

In the plan, we set out the ways we will try to get these illegal operators into the system or out of the market. This is tough work. We will use a combination of approaches and work with other organisations to try to achieve this aim. We will also drive those legitimate operators with outstanding compliance issues to solve them. Importantly, 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 impact in ways that meet market needs.

This plan is ambitious. It spells out how we will use traditional environment 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



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3M Scotchlite  
Reflective Material

# 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.

So, we are moving instead to ground our regulation in working across whole sectors. In this way we can systematically identify the compliance issues that need to be tackled by the sector. 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.

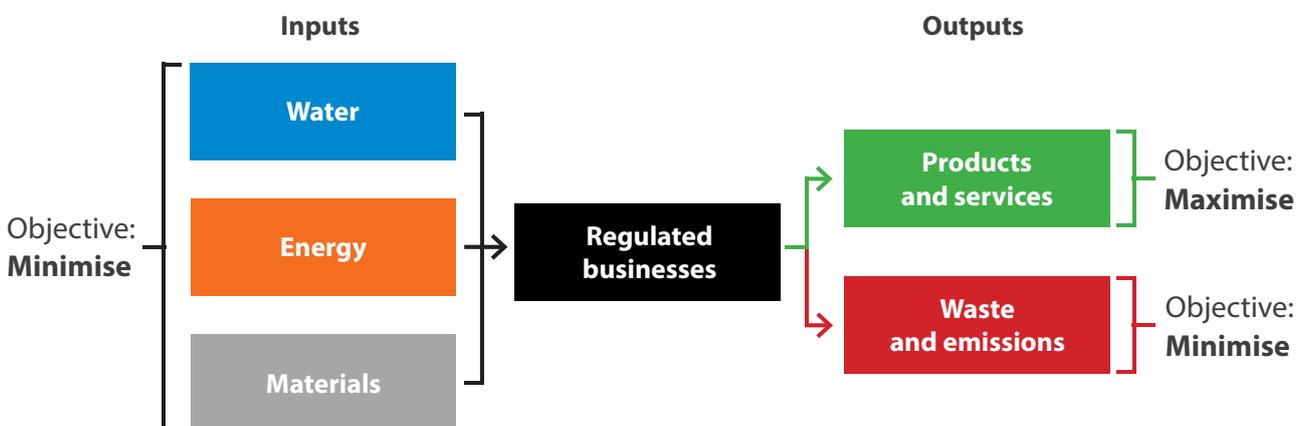
All businesses that we regulate in a sector use water, energy and raw materials to produce the products and services they sell. In doing so, they also create waste and emissions. We can think of these as environmental flows that need to be managed by the business (Figure 1).

We want to help as many businesses as possible to manage these flows effectively and reduce their use of natural resources and creation of waste in ways that 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 with SEPA 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 persistent, significant or chronic non-compliance can expect SEPA to use the most appropriate enforcement tools to bring them into compliance.

This is our sector plan for metals. It details how we will regulate the sector and work with it to protect and improve the environment. This plan covers all regulated activities that involve the production of metal from raw materials, the manufacture of metal products, and the reprocessing, recycling and recovery of metallic wastes. It explains how we will work directly with sites and ways we could work to use our shared influence to improve environmental performance throughout the industry supply chain.

## Environmental flows (Figure 1)





# 2. Our vision for the metals sector

**The production of metal and metal products and the management of waste metal does not cause environmental harm. Illegal activity is eradicated and responsible businesses operate on a level playing field.**

**The Scottish metals sector is an innovative and valued part of our emerging circular economy. The supply chain supports a range of industries to remanufacture used equipment and recycle materials into high value products. The industry is adaptable to changes in the use of, and demand for, metals.**

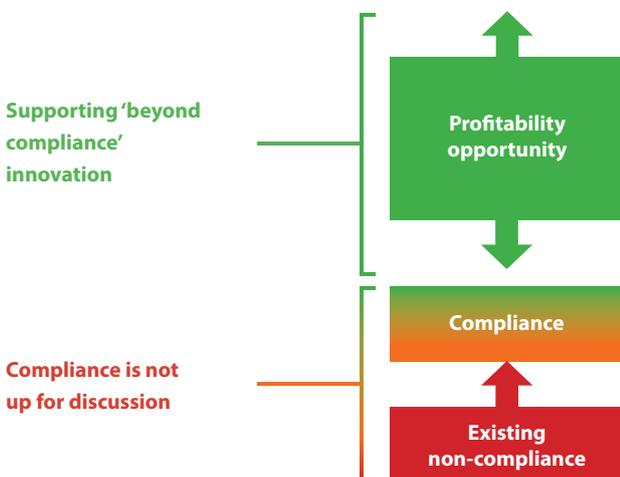
### Our objectives

The objectives of the Metals Sector Plan are to:

- ensure that every regulated business fully meets their compliance obligations;
- help as many regulated businesses as possible to go beyond the compliance standards.

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

### Sector roadmap (Figure 2)



This plan sets out how, in partnership with operators and other stakeholders, SEPA seeks to transform performance of the metals sector in Scotland to achieve the vision and objectives above.

SEPA's Waste to Resources Framework<sup>1</sup> sets out our approach to waste and resources. It has the following aims, all of which are also relevant to the metals sector:

- waste activities are compliant;
- waste crime is eradicated;
- businesses are realising the benefits of resource efficiency;
- maximum value is derived from resources circulating in the economy.

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 metals sector on a pathway to becoming a 'one planet' industry.

<sup>1</sup> <https://www.sepa.org.uk/media/219528/one-planet-prosperity-a-waste-to-resources-framework.pdf>



# 3. The metals sector

The sector is defined as all regulated activities which involve the production of metal from raw materials, the manufacture of metal products, and the reprocessing, recycling and recovery of metallic wastes.

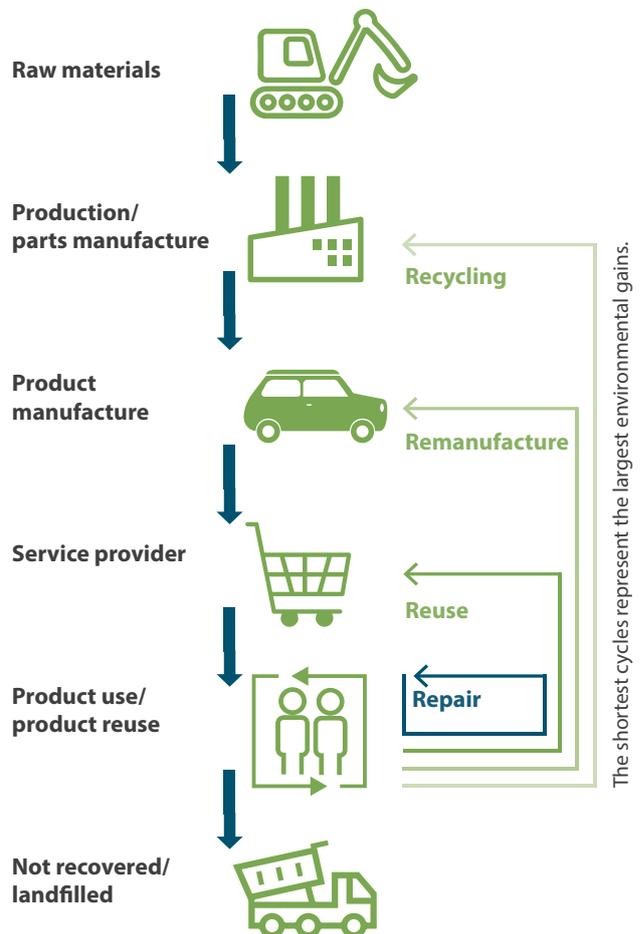
Export of metals and metal products, computer and electrical equipment, machinery and equipment, and transport equipment contributed £4,765m to the international exports from Scotland in 2016, approximately 31% of the total manufacturing exports<sup>2</sup>, supporting nearly 70,000 jobs<sup>3</sup>. A total of 540,000 tonnes of metal was reported as entering licensed waste management facilities in Scotland in 2015, with 99.5% of metal outputs from these sites reported as recycled or recovered.

The industry wants “metals and metal products at the heart of the new circular economy, recognising their innate potential for resource-efficient reuse, remanufacturing and recycling”<sup>4</sup>. These ambitions are echoed by the Scottish Government in A Manufacturing Future for Scotland (2016)<sup>5</sup>.

This circular economy is one of innovation, finding new ways to reduce use of natural resources and keeping metal materials flowing through the economy at as high a value as possible. It can also develop economic resilience through the recovery of strategically important and rare metals.

A remanufacturing study undertaken by Zero Waste Scotland<sup>6</sup> identified the scale of the market potential in a number of industries associated with the metals sector such as aerospace, automotive, rail, ICT and mobile electronics. These sectors provide a contribution to the Scottish economy of around £759m. The report also indicates that the potential growth in these areas is high.

Metal product circular economy diagram (Figure 3)



2 <http://www.gov.scot/Topics/Statistics/Browse/Economy/Exports/ESSPublication/ESSExcel>

3 [https://pure.strath.ac.uk/portal/files/70630513/FAI\\_2017\\_Brexit\\_and\\_the\\_sectors\\_of\\_the\\_Scottish\\_economy\\_a\\_report\\_for\\_GMB\\_Scotland.pdf](https://pure.strath.ac.uk/portal/files/70630513/FAI_2017_Brexit_and_the_sectors_of_the_Scottish_economy_a_report_for_GMB_Scotland.pdf)

4 Vision 2013: The UK Metals Industry's New Strategic Approach

5 <https://beta.gov.scot/policies/manufacturing/>

6 Circular Economy Evidence Building Programme, Remanufacturing Study, March 2015

Certain metals are globally scarce and may present a risk to future Scottish manufacturing as they become difficult to source and increasingly expensive. These include:

<b>Material</b>	<b>Use</b>
Cobalt	Used in a number of important electronic components and products including batteries and pigments.
Copper	Found in electrical cables, transformers and other electronic components.
Lead	Used in the construction industry and in specialist applications such as batteries. Specialist battery applications are becoming increasingly important for electric vehicles and are expected to become more important.
Lithium	An important component of electric vehicle and renewable energy manufacturing.
Rare earth elements	Used in small quantities in specialist metals and electronics applications.
Tin	Widely used in the food and drink sector for packaging but also has important applications in electronics.

Many of these materials can be recovered and recycled from end-of-life products reducing the need for extraction of raw material and energy.



## Production of metal and metallic products

Metals are used in a wide range of applications that underpin modern life. Turnover from the manufacturing of metals, motor vehicles and other transport equipment, along with computer, electronic and electrical equipment, contributes around a third of the total manufacturing output of the Scottish economy<sup>7</sup>.

The number of sites producing metal and metal products in Scotland has declined significantly. There are 20 specialised metal foundry and casting sites regulated by SEPA, producing high specification components for manufacturing, building or infrastructure projects. These include:

- The Dalzell steel plant in Motherwell, operated by Liberty Steel and part of the GFG Alliance, imports slab ingots, made from ore, for heating in their cast furnaces prior to rolling plate to customer specification.
- The GFG Alliance smelter near Fort William, which produces about 40,000 tonnes of aluminium each year, is powered by a SIMEC owned hydroelectric scheme, which is also part of the GFG Alliance, utilising rainwater from Ben Nevis and surrounding hills.
- Progress Rail, a Caterpillar company, located in South Queensferry, is one of the largest suppliers of railroad and transit system products and services worldwide. They recycle metal into new product and extend the life of viable components.

## Reprocessing and recycling

While recycling metal is highly regulated, other activities such as repair and some aspects of reuse are not. The source of waste metal determines the complexity of collection and treatment process required. For example:

- **Off cuts from metal manufacturers.** These tend to be of homogenous quality and retain value with a short supply chain prior to re-melt.
- **Structural steel from demolition.** This is treated principally at sites with a waste management licence (WML) or under an exemption from WML.
- **Metal packaging.** Metal cans largely from household and commercial sources and increasingly source separated by waste producers and extracted through material recycling facilities (MRFs).

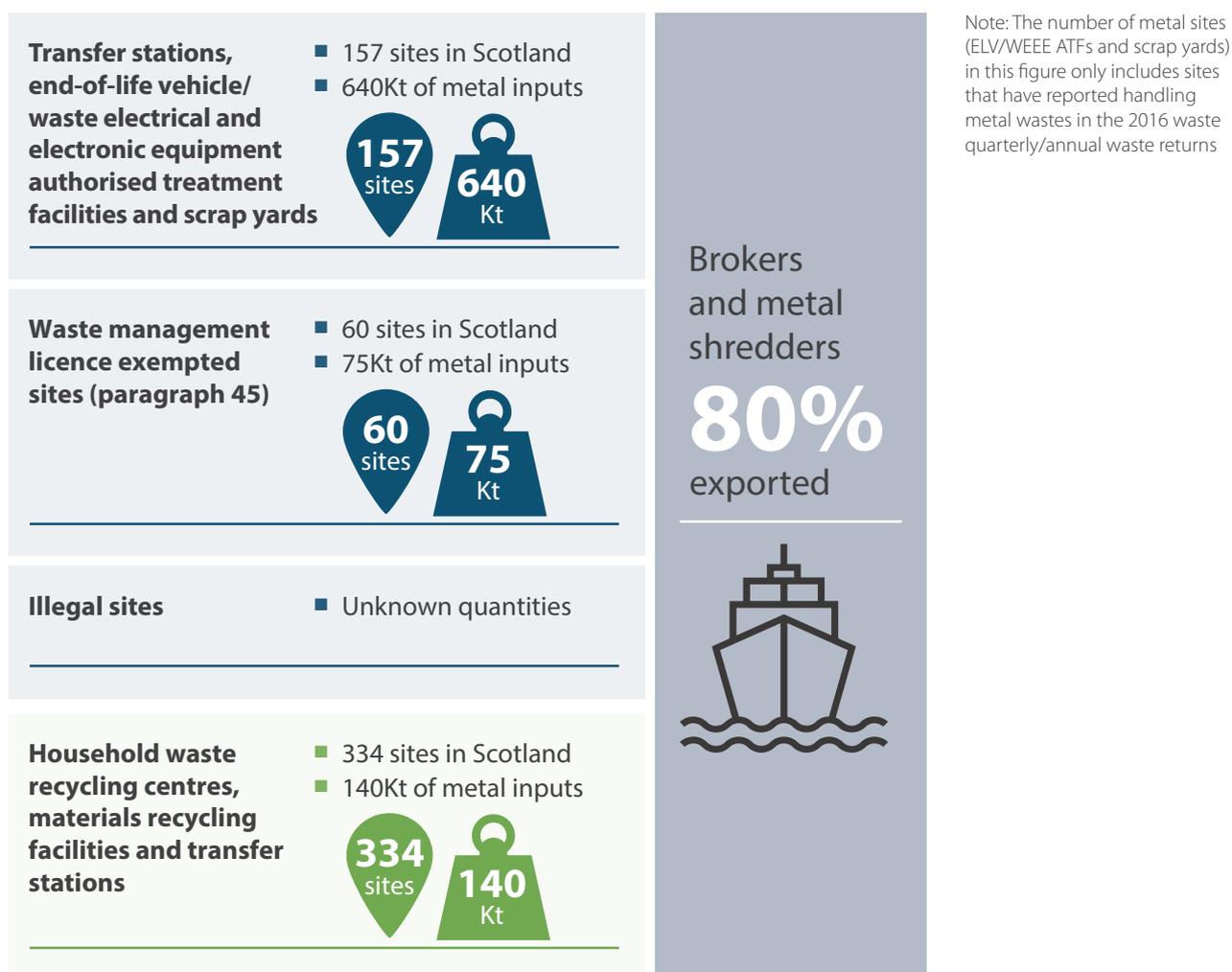
- **Waste electrical and electronic equipment (WEEE).** These contain many metal types, including rare earth and precious metals. There are 29 WEEE authorised treatment facilities and nine approved exporters of WEEE in Scotland. Retailers and other distributors who sell electrical and electronic equipment are subject to take-back obligations.
- **End-of-life vehicles (ELVs).** These contain ferrous, aluminium, lead and copper as well as non-metal contaminants that are classed as hazardous waste. Producer responsibility obligations require the free take-back of ELVs and places a requirement for vehicle manufacturers to achieve a 95% recycling and recovery target. Authorised treatment facilities depollute ELVs before issuing a Certificate of Destruction from the Driver and Vehicle Licensing Agency (DVLA). Waste tyres are a problem waste stream and a specific plan for waste tyres is being developed.
- **Oil and gas decommissioning.** This could bring 0.5million tonnes of waste onshore by 2025, much of it metal that will require authorised sites that have the capacity to handle such large infrastructure. A sector plan for the North Sea oil and gas decommissioning industry is being developed.

Waste metals are collected at a range of sites (Figure 5), including ELV and WEEE authorised treatment facilities (ATFs). Some treating and storing activities are exempt from WML, although they are still subject to statutory controls to prevent environmental pollution and harm to human health. A paragraph 45 exemption allows the recovery of scrap metal and dismantling of depolluted ELVs and is used extensively across Scotland for the collection of waste metal.

Household waste recycling centres (HWRCs), material recycling facilities (MRFs) and local authority transfer stations are important in the collection of waste metal from householders. Waste metal is also collected from some landfills, composting or anaerobic digestion (AD) facilities and recovered from incinerator bottom ash.

Orphaned radioactive sources can occasionally occur in a batch of metal bound for recycling. Simple steps, such as ensuring the waste is properly characterised and installing radioactive gate monitors can avoid contamination issues.

## Waste metal collection sites in Scotland and estimate tonnages, 2016 (Figure 4)

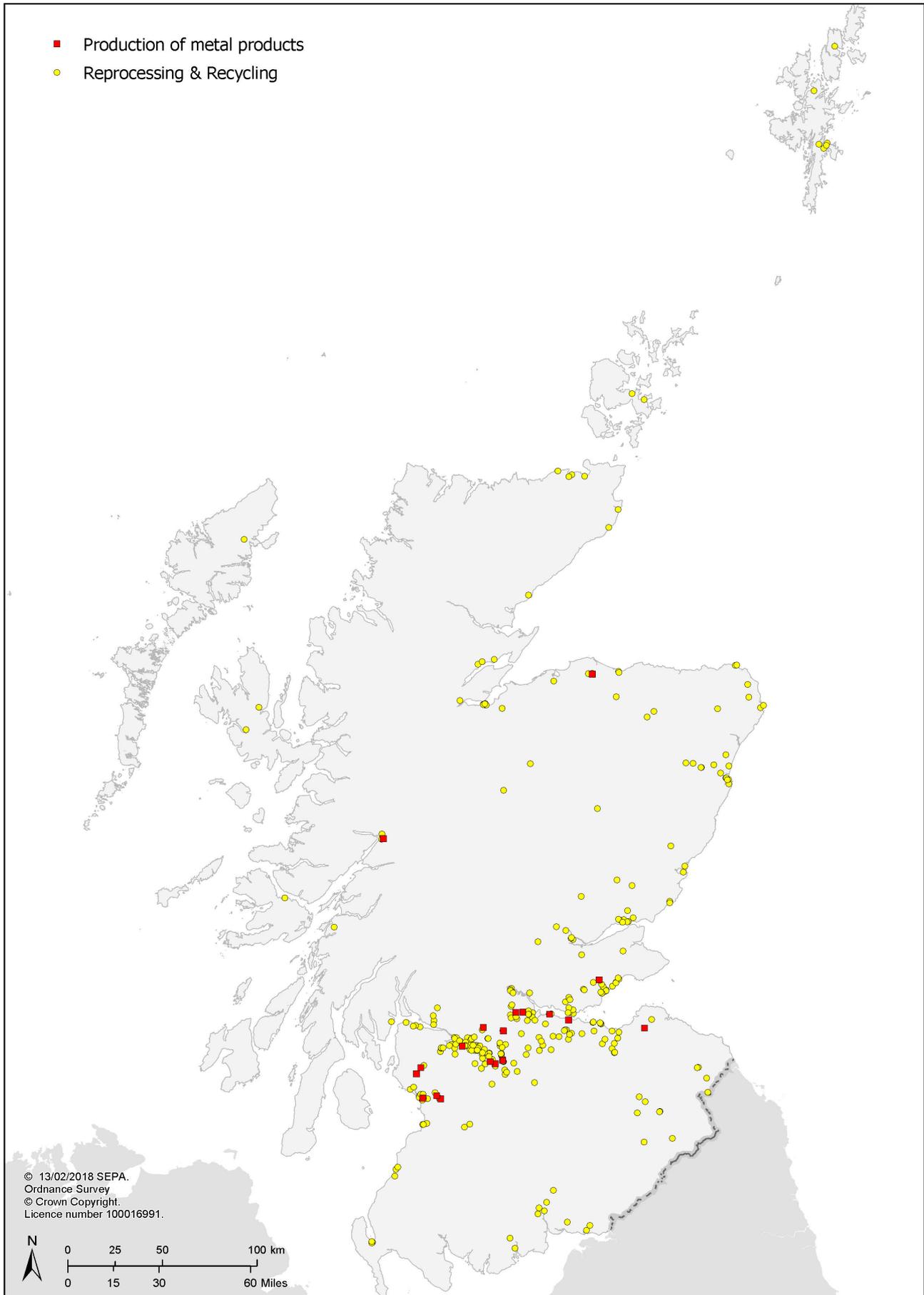


Depolluted ELVs and other waste metals are treated by shredders to reduce the size of the metal and separate the various materials. A large proportion (an estimated 80%) of collected metal is exported for recycling into new products. There are four metal shredder sites in Scotland.

Brokers are an integral part of the waste metal trade. They should be registered with the relevant environment agency and are subject to Transfrontier Shipment of Waste regulations when exporting material.

The geographical spread of authorised sites collecting waste metal in Scotland is presented in Figure 5. The majority of sites are located in the central belt or around the North East with gaps in the rural west and many island communities.

Location of metals sites (Figure 5)



## Illegal activity

Illegal activity<sup>8</sup> in the sector is significant and this is identified as the number one concern by trade associations and licensed operators, who report that it undermines their business viability and the ability to invest and innovate. We estimate that there are currently over 100 illegal ELV sites across Scotland. These range from small scale breaking of vehicles for reselling parts to industrial estates where multiple unlicensed ELV operations are taking place. Initial assessment suggests that some are involved in wider criminality and a few have links to serious and organised crime groups and are a known violence and aggression risk.

The export of WEEE, ELVs and vehicle parts are also susceptible to illegal activity, as demonstrated in 2017, when an operator was fined for the illegal shipment of WEEE to West Africa.

There is also concern that some operators are still paying cash for metal, which has been banned since 2016, or do not have a Scrap Metal Dealers licence from their local authority. The aim of these requirements was to raise standards within the industry and make it more difficult for metal thieves to convert the proceeds of crime into cash. A national register of scrap metal dealers would enable legitimate operators to be identified by traders.



<sup>8</sup> Operators who do not have any or the appropriate environmental authorisation for the activity





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# 4. Environmental impacts and how we manage them

## Environmental impacts and regulation

Figure 6 highlights the key environmental impacts of metals production, recycling and re-processing. It also highlights the impacts associated with illegal activity.

### Environmental impacts (Figure 6)

#### Metal production

- Raw material extraction
- Greenhouse gases from fossil fuel use
- Emissions to air from manufacture process
- Noise and odour
- Water abstraction for cooling
- Emissions to water from manufacture process
- Transport of raw materials and metal products to market
- Energy use

#### Recycling and re-processing

- Polluted run off from metals waste impacts surface and ground water and land
- Greenhouse gas emissions from fossil fuel use
- Accidental spills
- Noise, dust and vibration
- Storage and management of materials and pollutants
- Transport of recycled and reprocessed material

#### Illegal activity

- Uncontrolled and unmitigated pollution release
- Impacts on communities living nearby
- Risk of fire and accidents
- Undercuts legitimate operators who perform to high environmental standard

## Wider Influences on environmental performance of the metals sector

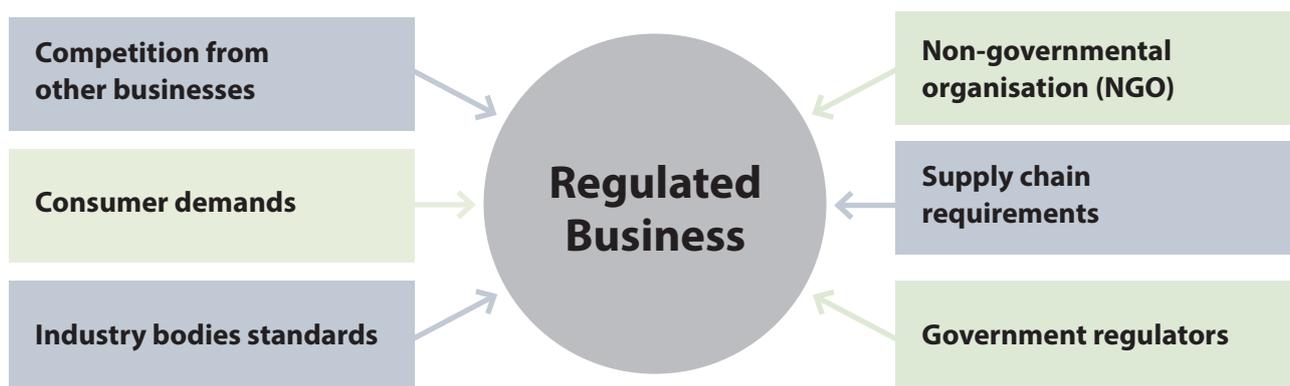
Full compliance with environmental regulations will not, by itself deliver the transformational change required to secure our One Planet Prosperity objectives. The Metals Sector Plan needs to unlock the potential for businesses to gain strengths in resource efficiency and environmental innovation that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

We 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 7 summarises the main organisations that influence and are influenced by operators in the metals sector and identifies 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.



## Key influences on metals sector (Figure 7)



During delivery of this plan we will continue to work with industry representatives and others to understand and use these influences to generate better environmental outcomes for the sector. An early action is to work with partners and map the flow of money and materials associated with ELV depollution and dismantling.

### Competition from other businesses

#### Illegal operators

Illegal operators undertaking reprocessing do not pay licence fees, or infrastructure costs and/or pay cash for scrap, undercutting legitimate operators.

#### Overseas metal production

Steel and other metals are cheaper to produce abroad for a variety of reasons. In recent years steel from China has significantly displaced steel produced in the EU.

#### Trade tariffs and import bans

Potential changes resulting from EU exit and other protective positions adopted by other countries.

### Consumer demands

#### Global commodity markets

Businesses buying or selling metal are at the ebb and flow of global commodity prices and find it difficult to invest or innovate when there is no security of supply or price. Loyalty between suppliers and customers can enable businesses to survive when commodity prices are challenging.

#### Changing technologies

Changing technologies and product development is altering demand for metals and the associated economics and techniques that need to be used in reprocessing products. Examples include electric vehicles, renewable electricity generation infrastructure, WEEE and construction materials.

### Industry body standards

#### UK specifications for metals recycling

Agreed by the British Metals Recycling Association, the Cast Metals Federation & UK Steel and effective from 1st March 2015.

### NGO programmes

#### Influence on policy and demand

Pressure from a range of NGOs about climate change and resource use in particular is influencing various stakeholders (e.g. policy makers, consumers, financial services) and subsequently the use and demand for metals.

### Supply chain requirements

#### Customer specifications

Customer specifications are increasingly high and can make it difficult/more costly to access certain markets, limiting the value of reprocessed metal waste even when it meets a standard.

#### Supply chain compliance

Compliance is not well embedded as a key criteria across the whole supply chain.

### Government regulators

#### Regulation - health and safety, fiscal and environmental

Businesses reflect that the cost of overall compliance is significant. This can add complexity and place additional administrative burdens on, often small, family owned businesses.

#### WEEE, ELV, batteries and packaging producer responsibility

Producer responsibility requirements for WEEE, batteries, metal packaging and ELVs provide regulatory drivers to recover material.



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

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.

To do this, every business must reach full compliance with environmental laws. But mere compliance and small scale incremental change will not be enough. At SEPA 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.

## Compliance in the sector

Compliance<sup>9</sup> with environmental law is non-negotiable and all regulated businesses in the sector need to comply. Those currently operating illegally will be required to secure the correct authorisation and infrastructure to be compliant otherwise our enforcement action will be focussed on bringing the illegal activity to an end.

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

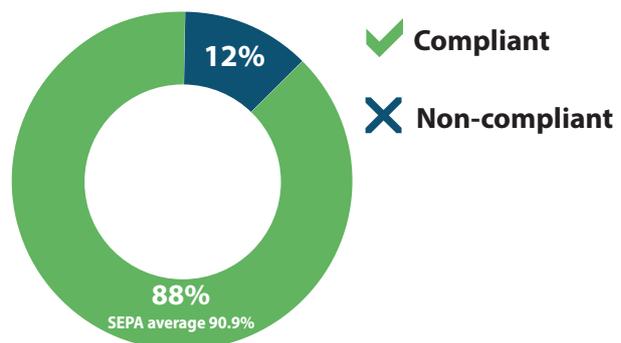
## Production of metal and metallic products

The majority of these operators have an excellent or good compliance rating, with only two failing compliance for 2017. These poor ratings were recorded for breaching discharge limits. SEPA are working with both operators to ensure the condition's are complied with in future.

## Reprocessing and recycling

This includes operators involved in the collection, treatment and storage of waste metal, principally scrap yards, ELV treatment facilities and metal shredders. WML exempted sites, which handle a significant tonnage of waste metal, are deemed low risk and are not subject to the same levels of scrutiny or compliance assessment as licenced or permitted sites. However, waste data return analysis and industry feedback has raised concern that some of these sites may be operating out with the conditions of their exemption and require review. For licensed and permitted recycling and reprocessing sites, compliance in 2017 was 88% compared to the national average of 90.9%. This means that the sector is currently underperforming and that there are a number of operators that consistently perform poorly.

## Reprocessing and recycling (Figure 8)



## Key Issues contributing to non-compliance

- Storage of polluted waste on permeable ground
- Non provision of impermeable surface
- Waste data reporting and administration
- Waste duty of care failings
- Failure to de-pollute ELVs

<sup>9</sup> Compliance with environmental authorisations is currently measured by our Compliance Assessment Scheme. This scheme is currently being reviewed.

The most common compliance failures for recycling and reprocessing operators are:

- A lack of impermeable surfaces and the storage of non-depolluted waste on permeable ground within the site or out with the licenced site boundary. This has the potential to pollute soils groundwater or nearby water courses with hydrocarbons and other pollutants.
- Failing to complete waste data reporting or basic duty of care waste transfer documentation, which can mask illegal activity.
- Failing to depollute ELVs. A non-depolluted ELV is classed as hazardous waste and requires a special waste consignment note when transferring to another processing facility. It may also cause the resultant non-metal elements of an ELV (e.g. plastic, seat fabric, glass), known as, automotive shredder residue (ASR), to be classified as hazardous waste prior to disposal to landfill.

Metal sites that pre-date environmental regulation and pollution control established since 1990 may have legacy issues to address prior to considering the surrender of any authorisation. At surrender, the condition of land must be unlikely to cause pollution or harm to human health.

### How will we work with the sector to fix these issues?

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.

### What actions are we going to take?

We will undertake the following actions to fix compliance issues in the sector and help businesses to take opportunities to go beyond compliance.

Compliance outcome sought	Action
Illegal/unauthorised activities are eradicated	<ol style="list-style-type: none"> <li>1. Characterise the scale and extent of illegal activity within the sector by interrogating SEPA data and cross referencing with partner agency information and intelligence to target action.</li> <li>2. Develop effective intervention strategies to disrupt and deter illegal activity in partnership with Police Scotland, local authorities, DVLA, industry trade bodies, other UK environment agencies and other relevant partners.</li> <li>3. Undertake a national audit of waste management exemptions relevant to the metal sector and ensure operators have the correct authorisation for the activities they are undertaking.</li> </ol>
Improve clarity and simplicity of regulatory requirements	<ol style="list-style-type: none"> <li>4. Make it easier for operators to understand their obligations through: <ul style="list-style-type: none"> <li>■ Permit simplification</li> <li>■ Working with sector representatives to provide improved guidance on environmental compliance.</li> <li>■ Clarify reporting requirements</li> <li>■ Develop and implement an enhanced compliance assessment scheme</li> </ul> </li> <li>5. Support operators to understand historic pollution impacts in order to prepare for the surrender of an authorisation.</li> </ol>
Recycling and reprocessing activities have infrastructure to prevent pollution	<ol style="list-style-type: none"> <li>6. Conduct a national audit to identify site infrastructure non-compliance. Sites will be required to deliver infrastructure in specified timeframes. Enforcement action will be taken against those that fail to deliver.</li> <li>7. Provide guidance to minimise the risk of radioactive contamination at metal recycling sites.</li> </ol>

<b>Compliance outcome sought</b>	<b>Action</b>
End-of-life vehicles are depolluted	<p>8. Improve our ability to audit depollution activities and undertake a programme of sampling depolluted wastes to check for compliance.</p> <p>9. Work with vehicle manufacturers, local authorities, the Scottish Government and UK Government to deliver an authorised ELV collection network for island and remote, rural communities.</p> <p>10. Work with the automotive industry, UK regulators and the reprocessing industry to identify any adjustments to the economics of producer responsibility so that compliant authorised operators receive sufficient revenue to cover all costs of de-pollution.</p>
Duty of care requirements are understood and being met	<p>11. Clarify duty of care requirements for metal wastes and utilise data returns to allow focussed campaigns to ensure these duties are being met.</p> <p>12. Increase scrutiny of duty of care compliance as part of routine site checks.</p>
Supply chain requirements incentivise compliance	<p>13. Work with the supply chain so that waste metal is only available to authorised operators that have the appropriate infrastructure to manage the material in compliance with environmental regulation.</p>
Risk of fire at shredder sites is reduced	<p>14. Work with the industry to exclude liquefied petroleum gas (LPG) bottles, LPG fuel tanks, non-lead acid batteries and other problem items from ELVs destined for shredding.</p>
Overall compliance is maintained, non-compliance is detected and operators know they are likely to get caught	<p>15. Undertake a programme of inspection and sampling to assess compliance. This programme will use the principles in the Regulatory Evidence Strategy and will increase scrutiny on those with a record of non-compliance.</p>
Metallic waste (inc. WEEE) sent for export complies with transfrontier shipment requirements	<p>16. Undertake monitoring of operators and brokers that export metal wastes to check compliance with transfrontier shipment of waste requirements.</p> <p>17. Provide clear information so operators and brokers understand transfrontier shipment of waste requirements.</p>
WEEE facilities are compliant with exemption requirements	<p>18. Undertake a programme of inspection at WEEE facilities including intelligence led audits.</p>
Review producer responsibility regimes	<p>19. Identify what elements of the relevant (e.g. WEEE, ELV) producer responsibilities are working well and what may require review.</p>
Enable legitimate operators to be easily identified by traders	<p>20. Work with the Scottish Government to establish a national register of scrap metal dealers.</p>



## Where are the opportunities to go further

### Materials

**Keeping metal materials flowing through the economy at as high a value as possible creates environmental and economic gains. The biggest environmental gains are realised when products can be directly reused or repaired for reuse, while circular economy business models like remanufacture and product leasing can become a growing part of Scotland's economy. The Scottish Institute for Remanufacture, based at Strathclyde University, supports businesses to increase reuse, repair and remanufacture in their operations.**

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Improving the quality and reducing contaminant levels of waste metals increases the opportunity for higher value uses and the potential to be supplied as feedstock to electric arc furnaces with lower carbon emissions than the use of ore in blast furnaces. Collecting alloys of the same type enables this material to retain the properties of the original alloy and reduces the carbon intensity of the material when compared to alloys created from virgin ore and metal.

A University of Cambridge report<sup>10</sup> states that the current quality of recycled steel is low, due to poor control of its composition. It is generally down-cycled to intermediate products such as plates, bars and coils of strip with low margins. Much more value

is added to steel by businesses that convert these 'intermediate products into tailored components wanted by final customers. The report suggests that new integrated business models could connect liquid steel production to UK architecture, construction, aerospace and automotive industries to find new value and innovation.

Materials separated from metals at reprocessing facilities such as plastics and automotive shredder residue are currently disposed of as waste. There is a significant volume of these materials and operators elsewhere in the UK are investing in processes to extract value from these materials and divert them from landfill.

### Energy

**The production of metal is significantly more energy intensive than reprocessing and recycling. Re-melting scrap metal uses around 30% less energy and emits only 25% of the carbon dioxide emissions of compared to production from primary sources<sup>11</sup>. Recycling aluminium uses up to 95% less energy than primary aluminium production.**

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Energy use is still a significant cost to the sector and there may be opportunities to maximise efficiently and utilise low carbon energy sources. Additional scope for resource efficiency is by extending the longevity of products and encouraging design for reuse.

Losses from the waste metal cycle should be minimised, and there should be a focus on the production of quality recycled waste streams which can be effectively utilised in re-melting.

### Water

**The metal industry in Scotland is not a significant water user but has the potential to impact the water environment through poor site management. The broad range of sites covered by this sector all have specific water use requirements, from the more water intense smelters and foundries to a WEEE approved authorised treatment facility (AATF) that has minimal water needs.**

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Moving beyond compliance, there will be a focus on identifying potential water efficiency opportunities. There is an estimated 40% reduction in water use

when steel is manufactured from recycled metal compared with raw materials<sup>12</sup> so an emphasis on circularity is critical.

<sup>10</sup> [www.uselessgroup.org/publications/reports/bright-future-uk-steel](http://www.uselessgroup.org/publications/reports/bright-future-uk-steel)

<sup>11</sup> <http://www.uselessgroup.org/files/wellmet2050-conserving-our-metal-energy-sept-2010-web.pdf>

<sup>12</sup> British Metals Recycling Association website: <https://www.recyclemetals.org/>

### Case study

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John Lawrie (Aberdeen) Ltd processes redundant tubulars (steel pipes) from the offshore oil and gas industry into a reusable product in the construction piling market as an alternative to concrete and saving around 30% compared to using virgin materials. The company won the 2017 VIBES Circular Economy Award.

### Case study

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Mackie Transmission Services in the east end of Glasgow remanufacture torque converters which they guarantee for the lifetime of the vehicle. The parts are stripped and cleaned and any worn parts replaced to a good-as new standard.

### Case study

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Handheld EDXRF scanners are a new technology that improves recycling by distinguishing between thousands of alloys in seconds.





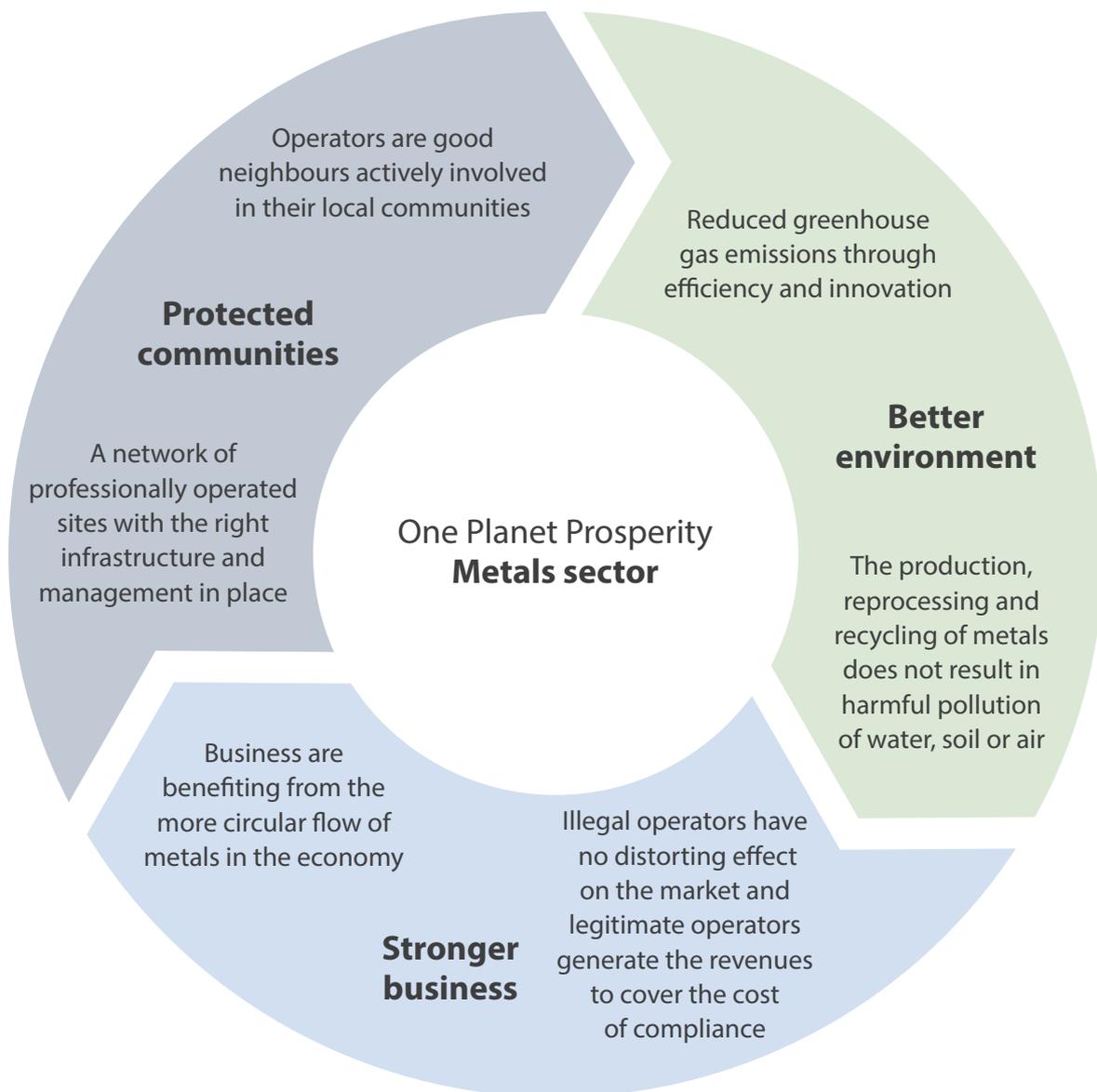
## Beyond compliance actions

**SEPA will work with the metals industry and other organisations to reduce the amount of materials, energy and water used across the sector.**

Beyond compliance outcome sought	Action
<b>Materials</b>	
The metals sector is increasingly resource efficient	<ol style="list-style-type: none"> <li>1. Influence metal product design, reuse, remanufacture and waste prevention using regulatory tools such as producer responsibility.</li> <li>2. Work with industry to identify innovative opportunities to displace virgin raw materials with recycled or recovered metals. This will include using all our regulatory influences and promoting support services from partners.</li> <li>3. Influence and contribute to the development of public sector procurement policy including the purchasing of products with a minimum recycled content.</li> </ol>
Improve the quality and reduce levels of contamination in metallic waste streams to improve their economic value and realise carbon benefits	<ol style="list-style-type: none"> <li>4. Explore with partners how, across the supply chain, operators can better collect individual metal types and alloys.</li> <li>5. Support the metal recycling industry to achieve the EU end-of-waste accreditation for metals.</li> </ol>
ELV 95% producer responsibility recycling/recovery targets are achieved as vehicle technologies change	<ol style="list-style-type: none"> <li>6. Engage with vehicle manufacturers, DEFRA, ATF representatives and other partners to understand how changing vehicle technology will impact on achieving the target in Scotland.</li> <li>7. Work with manufacturers and recycling trade associations to understand implications of changing vehicle technology on ELV depollution and dismantling operators.</li> </ol>
Automotive shredder residue (ASR) and other non-metal waste from ELV shredding are recycled or recovered	<ol style="list-style-type: none"> <li>8. Work with partners to assess alternatives to landfill disposal for the non-metal ASR element of ELV shredding.</li> </ol>
<b>Energy</b>	
Opportunities to save energy are identified and transferred	<ol style="list-style-type: none"> <li>9. Baseline energy use at metals production sites regulated by SEPA and identify opportunities for energy efficiency.</li> <li>10. Identify and promote industry best practice energy efficiency and low carbon energy projects for applicability to Scottish metal manufacturing processes.</li> </ol>
<b>Water</b>	
Opportunities to save water are identified and transferred	<ol style="list-style-type: none"> <li>11. Baseline water use at metals production sites regulated by SEPA and identify opportunities for water efficiency.</li> </ol>

# 6. Outcomes

If we achieve the vision we have set out in this plan, we anticipate that we will help to deliver positive outcomes that protect and improve the environment in ways that also protects communities and enable businesses to operate effectively and successfully in their markets.





# 7. Priority actions

- Undertake enforcement action against unauthorised sites, prioritising the most significant, high risk operators.
- Metal sector licences will be reviewed and simplified.
- Non-compliant sites will have an improvement plan to ensure regulatory requirements are achieved within specified deadlines.
- Conduct a vulnerability study on the illegal ELV market to identify areas of criminal exploitation.
- Undertake a national audit of paragraph 45 exemptions to ensure operators have the correct authorisation for the activities they are undertaking.
- Work with partners (inc. Police Scotland, Driver Vehicle Standards Agency (DVSA), HM Revenue and Customs, DVLA, British Transport Police, Scottish Business Resilience Centre, local authorities and Scottish Fire & Rescue Service) to disrupt and deter illegal transport of metal waste across Scotland.
- Undertake monitoring of operators and brokers that export metal wastes to check compliance with transfrontier shipment of waste requirements.
- Use Fixed Monetary Penalties (FMPs) to improve compliance with waste data return obligations for waste metals sites.
- Work with partners to assess alternatives to landfill disposal for the non-metal automotive shredder residue (ASR) element of ELV shredding.
- Improve capture and management of sector data and information to be more accessible, be capable of measuring improvements and support decision making.

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