



# DAIRY PROCESSING SECTOR PLAN

DRAFT FOR CONSULTATION

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## Why we are consulting

The draft sector plans are our initial ideas on where we can make the most significant impact. Getting feedback early in the process from our communities, partners and stakeholders is important and your feedback is critical to the success of our sector planning approach. If you think that we have got something wrong, missed a critical opportunity or not been as transparent as possible, please let us know your thoughts.

We aim to get these plans finalised in the first months of 2019 and then push on to implement them. Your views will also help to shape the prioritisation for the implementation, which will be completed following the consultation period.

The consultation is open until Friday 15 February 2019. Have your say, by completing the online consultation survey available from:

<https://consultation.sepa.org.uk/sector-plan/dairy-processing>



**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 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:

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

This draft sector plan outlines how we will do this in regulating the dairy processing sector.

Dairy processing turns Scottish farm produce into products that are sold in domestic and export markets. It is a sector that has a good record of compliance with Scotland's environment protection laws. Opportunities exist to drive further significant reductions in energy, water and materials use throughout the sector's operations. Importantly, these reductions should also generate economic and social gains.

We are determined to ensure this solid compliance performance is entrenched and that we play our role in supporting the opportunities for beyond compliance improvements. This is why this draft sector plan is important as it maps out how we plan to do this work.

This draft 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.

We would love to hear what you think of our draft plan. Once it's finalised, we are going to push on and implement it. So if you think we've got something wrong, missed something out or not been as transparent as possible, please let us know your thoughts. We want to get this right and then get on with it.

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

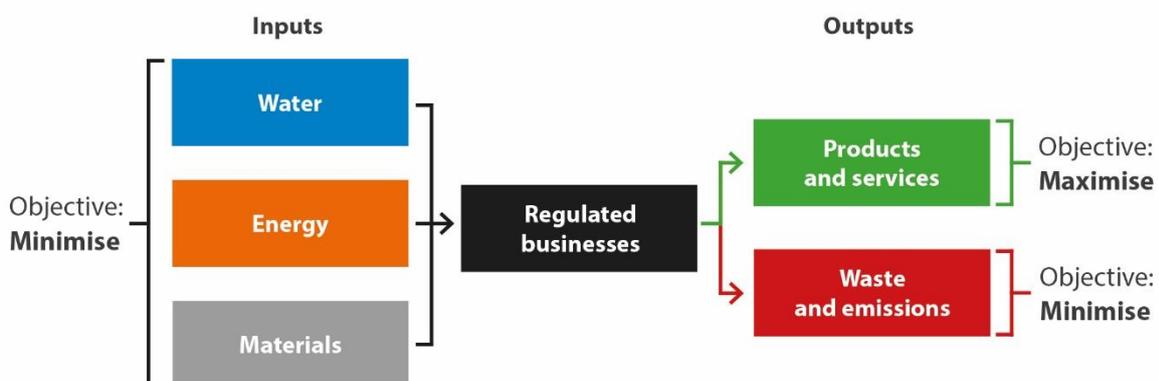
# 1. Introduction

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 regulation in working across whole sectors. In this way we can systematically identify the compliance issues that need to be tackled by the sector. But 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 will 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 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 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 SEPA to use the most appropriate enforcement tools to bring them into compliance.

This is our plan for the dairy processing sector. It details how we will regulate the sector and work with it to protect and improve the environment. The plan focuses on all aspects of dairy processing, starting when the milk leaves the bulk-tank (either to be transported to a processor or to be processed on the farm). And includes the impact of the processing of all dairy products, up to the point of sale or export. While the plan focuses on processing of cow's milk, many of the actions will be applicable to other milk types. It explains how we will work directly with dairy processing sites and also includes ways in which we will work with them to use our shared influence to improve environmental performance throughout the industry supply chain.

The Dairy Roadmap<sup>1</sup>, which sets out the industry's own aspirations, is already moving processors in the sector beyond compliance; this plan will build on that momentum and identify how SEPA can drive beyond compliance activity.

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<sup>1</sup> <https://www.dairyuk.org/the-dairy-roadmap/>

## **2. Our vision for the dairy processing sector**

The dairy processing sector recognises that protecting the environment is fundamental to its success. This means that all resources are used carefully; energy comes from low carbon sources, waste is minimised and innovation is embraced to ensure that maximum value is extracted from all inputs and by-products.

Within their supply chain, dairy processors select milk and other ingredients, transport mechanisms and packaging materials that have minimal environmental impact. Dairy processors are valued members of, and contributors to, their local communities and they are resilient to the challenges of climate change. Consumers actively select dairy products based on their environmental credentials.

Environmental excellence in the sector will be driven by:

- running more efficient processes and reducing packaging and fuel costs;
- development of a strong Scottish brand as a unique selling point for dairy products; this brand will rely on and contribute to a high quality environment.

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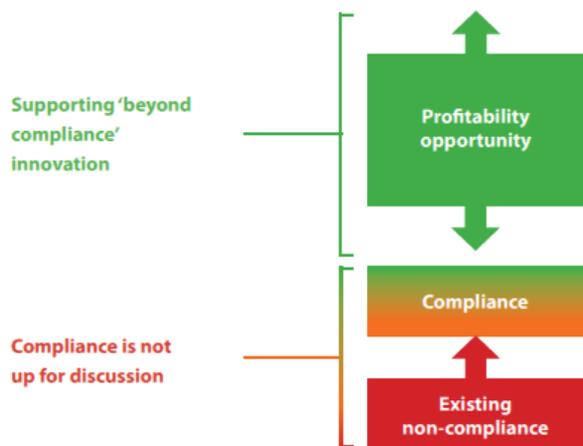
### **Our objectives**

The objectives of the Dairy Processing Sector Plan are to:

- ensure all operators in the sector reach and maintain full compliance with Scotland's environment 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 dairy processing sector. For our vision and objectives to be achieved, our staff will work with partners and facilitate liaison between them and the sector to create opportunities that link business success with environmental success.

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 dairy processing sector on a pathway to becoming a 'one planet' sector.

### 3. The dairy processing sector

Approximately 1.4 billion litres of raw milk were processed in Scotland during 2015–2016<sup>2</sup>. It is important to acknowledge that each year there is movement of milk between Scotland and England, depending on prices and businesses' decisions. Processors in Scotland make a range of dairy products from liquid milk, including cheese, butter, ice cream and yoghurt. They also produce bulk ingredients for further processing outside Scotland, into products such as chocolate and spreadable cheese.

Processing sites range in size from on-farm processors producing artisan products, to multinational companies operating industrial-scale processing, distribution and export of products.

In 2017, Scottish dairy products contributed £218 million to Scottish Gross Value Added (GVA), representing 6% of the Scottish food and drink manufacturing GVA<sup>3</sup>.

The dairy industry in Scotland, like the rest of the UK dairy industry, is heavily reliant on the domestic market with around 92% of Scottish dairy products being sold in the UK<sup>4</sup>.

Most of the dairy supply chain greenhouse gas emissions are incurred in producing milk, i.e. dairy farming. Total cradle-to-grave dairy supply chain emissions amount to around 3% of Scotland's direct greenhouse gas emissions, with 14% of that coming from emissions associated with dairy processing, transport and retail of dairy products<sup>5</sup>.

Each year the UK wastes around 200,000 tonnes of dairy products; almost a quarter of the total manufacturing edible-food waste produced in the UK. At least 13,000 tonnes of waste per year are attributed to milk processing and bottle filling<sup>6</sup>.

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<sup>2</sup> <https://www2.gov.scot/Resource/0053/00536754.xlsx> & AHDB (2017) Market Intelligence, November 2017, p18

<sup>3</sup> [Scottish Government: Agricultural facts and figures 2018](#)

<sup>4</sup> [Scottish Dairy Review: Ambition 2025](#)

<sup>5</sup> [Scottish Dairy Supply Chain Greenhouse Gas Emissions: Main Project Report](#)

<sup>6</sup> [WRAP report: Quantification of food surplus, waste and related materials in the supply chain](#)

For example, it can take around 10 kg of milk to make 1 kg of a hard cheese like cheddar. This leaves 8.5 kg of whey and 0.5 kg of cream. Currently, the majority of whey and other processing residues are either discarded, used in biogas, fed to animals or applied to land as a fertiliser. There are opportunities for processors to recover more value from this material.

Fresh milk is mainly packaged in high-density polyethylene (HDPE) plastic, a readily recycled and valuable material targeted by kerbside recycling. The recycling rate for HDPE containers is estimated to be 53%<sup>7</sup>. Long life milk is often packaged in cartons, which are currently harder to recycle. Other packaging options include re-useable containers, such as glass.

Dairy covers a range of other products, often consumed directly from the container and on the go, and there is less evidence that these containers are captured for recycling<sup>8</sup>.

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<sup>7</sup> [Scottish Government consultation: A Deposit Return Scheme for Scotland](#)

<sup>8</sup> [Scottish Government consultation: A Deposit Return Scheme for Scotland](#)

## Facts and figures about dairy processing<sup>9</sup> (Figure 3)



Liquid whey produced in making 1 kg of cheese



The amount of milk processed in Scotland per year



The value of the Industry to the Scottish economy in 2017



Amount of milk wasted per year in the UK. Almost 90% of the waste is in the home



Increase in yoghurt consumption in the UK, from the 1970s to now



Cheese accounts for around 40% of dairy production in Scotland



Annual ice cream consumption in the UK, per person



The amount of water used to produce 1 kg of cheese



The number of large scale processing plants licenced by SEPA

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<sup>9</sup> Liquid whey: [LCA Food report: Yellow Cheese Production](#)

Milk processing: <https://www2.gov.scot/Resource/0053/00536754.xlsx> & AHDB (2017) Market Intelligence, November 2017, p18

Value to Scottish economy: [Scottish Government Agricultural facts and figures 2018](#)

Waste: [WRAP report: Opportunities to Reduce Waste along the Journey of Milk, from Dairy to Home](#)

Yoghurt consumption: [The Dairy Council Yoghurt factsheet](#)

Cheese production: 2012 figures ([AHDB Dairy report: Milk Utilisation Scotland](#))

Ice cream consumption: [Ice Cream Alliance: Facts about ice cream](#)

Water use: [Benchmarking water use in dairies \(report WRAP website\)](#)

## 4. Environmental impacts and how we manage them

### Environmental impacts throughout the supply chain (Figure 4)

#### Ingredients and materials

- Impact on water quality from rural diffuse pollution sources of dairy farming activities.
- Impact on soil quality and structure from farming activities in production of milk and other ingredients (see [Dairy Production and Crop Production Sector Plans](#)).
- Greenhouse gas emissions and impacts on air quality from production of milk and other raw materials (e.g. fruit and sugar).

#### Processing and maturation

- Greenhouse gas emissions from transport of raw milk.
- Impacts on air quality from transport of raw milk and other ingredients.
- Greenhouse gas emissions from energy use at processors:
  - refrigerating dairy products;
  - heating for pasteurisation and other processing steps.
- Impacts on air quality from energy use at processing sites.
- Impacts on river ecology or groundwater from controlled effluent discharges and accidental spillages.
- Impacts on water quantity and ecology from abstraction of water for cooling.
- Impacts from use of refrigerants with high global warming potential.
- Impacts on water and air quality from the use of cleaning chemicals.
- Greenhouse gas, soil, air and water quality emissions from [landfilling](#) of food waste and dairy process residues.
- Impact on communities from noise and odour from sites.
- Impacts on soil, water and air quality from spreading of waste products.

#### Packaging

- Greenhouse gas emissions, water and air quality impacts associated with manufacture, printing and transport of packaging.
- Impacts on water quality and ecology from discharges of water and waste chemicals from washing reusable packaging.
- Generation of micro plastics from manufacturing, recycling and disposal of plastic packaging.

#### Transport to market

- Greenhouse gas emissions from transport of products to market.
- Impacts from use of refrigerants in transport with high global warming potential.
- Impacts on air and soil quality from transport to market.
- Impacts on the environment from micro plastics from [tyre wear](#).

## **Environmental regulation of dairy processing sector**

Not all dairy processing sites are required by law to be licensed by SEPA. We do regulate five large dairy processing sites in Scotland under section 6.8 of Pollution Prevention and Control (Scotland) Regulations 2012 (referred to as PPC). These sites are large industrial plants that process more than 200 tonnes of raw milk per day. They operate under a permit that requires the use of Best Available Techniques (BAT) to reduce the environmental impact of the process.

Smaller scale, on-farm, dairy processing units do not require authorisation by SEPA. When a dairy farm also processes their milk on the farm, the sites often store and apply wastes to land under an exemption from the Waste Management Licensing (Scotland) Regulations 2011. It is in their own interest for dairy processors to recognise waste as a resource and utilise by-products; this maximises their income and, if used properly, minimises the risk of pollution.

Where large scale dairy processing occurs, the potential scale of risk to the environment is increased and it is important that those risks are managed on site by compliance with the permitting regime. As the dairy processing industry continues to grow, we will ensure that any sites that operate at this scale are brought into PPC regulations.

Significant volumes of water are used in dairy processing sites; for example, a UK study found it typically takes 1.3 litres of water to process a litre of milk<sup>10</sup>.

We regulate a number of dairy processing sites for abstractions from, and discharges to, the water environment under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (referred to as CAR).

In the most recent assessment (2017) there were seven CAR licences and five PPC permits for dairy processing sites in Scotland.

SEPA has registered a small number of exemptions from Waste Management Licensing (Scotland) Regulations 2011 for on-farm dairy processing sites. This allows them to apply the residues from dairy processing (which contain beneficial

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<sup>10</sup> [2007 Dairy UK report](#)

nutrients) to land. The material is stored and applied to land in addition to the slurry and manure from the farm. This can impact dairy farming if the residue reduces the capacity of the slurry store and adversely affects the nutrient budget on farm.

The larger processors in Scotland are obliged to register with SEPA and fulfil prescribed recovery and recycling targets, under the Producer Responsibility Obligations (Packaging Waste) Regulations 2007. These regulations encourage minimisation of packaging waste, as well as increased recycling.

To reduce greenhouse gas emissions, some large sites are regulated under the European Union Emissions Trading Scheme and under the Energy Saving Opportunity Scheme Regulations 2014 (referred to as ESOS). ESOS requires companies to undertake audits of energy usage across their business.

Sites above a certain threshold are also regulated under the Fluorinated Greenhouse Gases Regulations 2015 and the Ozone-Depleting Substances Regulations 2015.

New processing facilities and expansions of existing sites are subject to control through the planning system. Planning authorities are responsible for making planning decisions and SEPA is a statutory consultee in this process.

In addition to the environmental regulation that is carried out by SEPA, there are strict requirements for premises that process dairy products to ensure the safety of our food and minimise the risk of harm to human health. As food producers, the dairy processing industry is primarily regulated by Food Standards Scotland and local authorities. Wastes from dairy processing activities, both on and off farm, are subject to Animal By-Product (Enforcement) (Scotland) Regulations (2013).

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.

## **Wider influences on environmental performance of the dairy processing sector**

Full compliance with environmental regulations will not, by itself deliver the transformational change required to secure our One Planet Prosperity objectives. The Dairy Processing 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.

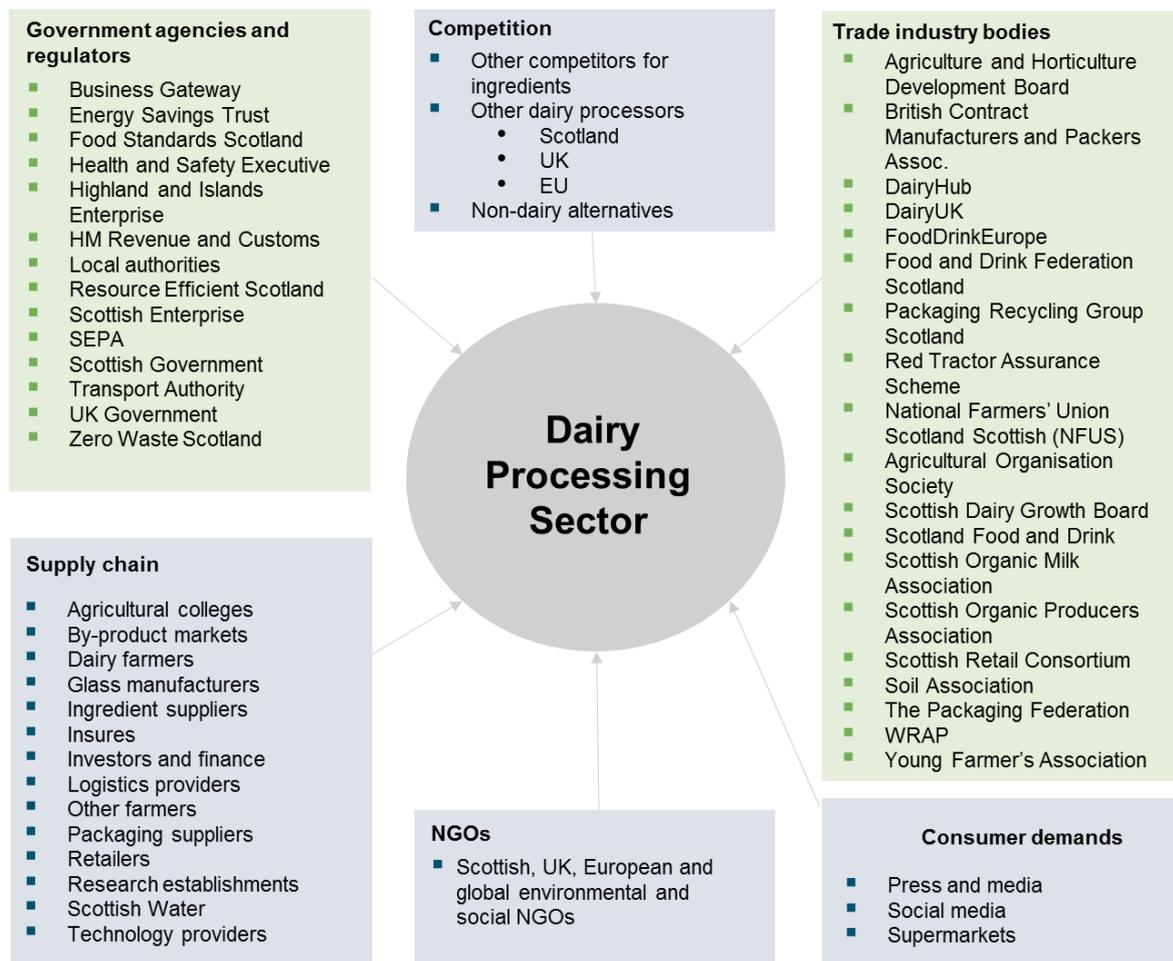
Working with the sector, we will place this more sophisticated way of operating at the heart of our work. Figure 5 summarises the main organisations that influence and are influenced by operators in the dairy processing sector and identifies those that we are likely to work with in both the short and longer term. As we implement the plan we will consider the opportunities these relationships provide and how we would like them to develop.

The Scotland Food and Drink Partnership has set out their vision for 2030. The Ambition 2030<sup>11</sup> vision is for the Scottish farming, fishing, food and drink industry to be a world leader in responsible, profitable growth. Collaboration and innovation are key features of the vision, which aims to build on previous growth and increase the contribution of the food and drink sector to the Scottish economy.

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<sup>11</sup> [The Scotland Food and Drink Partnership Vision for 2030](#)

## Dairy processing key influences (Figure 5)



The Dairy Roadmap<sup>12</sup> initiative brings together partners from across the dairy supply chain in the UK. Those processors who signed-up made a commitment to set targets and to report on their progress to reduce the environmental footprint of the industry.

From the ambition of businesses to be self-sufficient in energy, installations of combined heat and power plant technology (CHP) and planning return delivery journeys to transport other materials, processors in Scotland have shown commitment to reducing their impact on the environment.

<sup>12</sup> Dairy UK: The Dairy Roadmap <https://www.dairyuk.org/the-dairy-roadmap/>

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

### **Compliance in the sector**

Compliance<sup>13</sup> with environmental law is non-negotiable and regulated businesses in the sector need to comply.

In the 2017 reporting year all licensed dairy processors were compliant with environmental regulations. Of these, seven sites had CAR licenses, and 50% of those assessed were classed as 'excellent'. Of the five sites assessed under PPC regulations, 80% were classified as 'excellent'.

In 2017, the key issues contributing to these downgrades of environmental compliance were exceeding effluent quality and abstraction volume conditions, and inappropriate chemical storage.

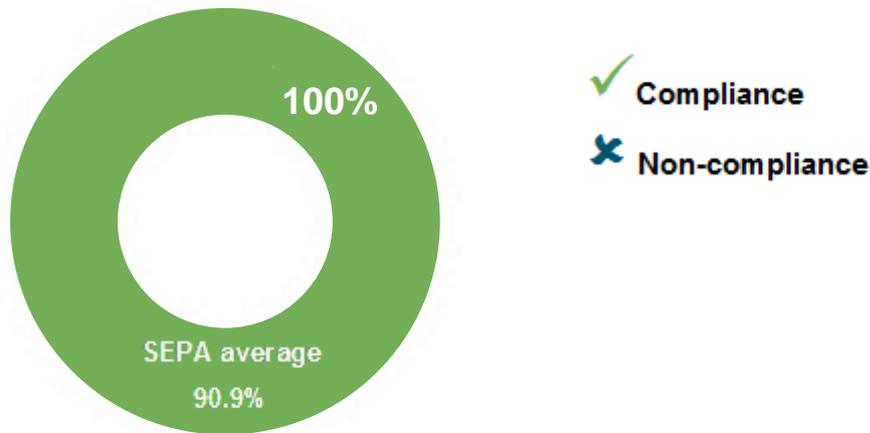
Although there have been non-compliances in the past, the most recent assessments show that the sector achieved overall compliance in 2017. Minor issues regarding missed deadlines for report submissions and infrequent low level consent limit breaches have led to some sites overall compliance status being downgraded to good, rather than excellent.

Of those businesses that have registered with SEPA under the Producer Responsibility Obligations (Packaging Waste) Regulations 2007, in 2017 all were compliant with their obligations.

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<sup>13</sup> Compliance with environmental authorisations is currently measured by our Compliance Assessment Scheme. This scheme is currently being reviewed.

**Compliance rate with environmental regulations of licensed dairy processors in 2017 (Figure 6)**



As the sector looks to expand processing activity, it will be important that environmental compliance remains high and businesses continue to maintain their excellent status.

Historically, there have been pollution incidents from unlicensed discharges and spillages to the water environment from dairy processing sites. Producing and implementing a water management plan could help to prevent these pollution issues arising, and could help operators to avoid the unplanned shut-downs that might be associated with pollution incidents.

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.

SEPA will:

- apply increasing scrutiny, prescription, fees and the use of enforcement and monetary penalties for those who fail to comply;
- ensure that any new, enlarged or existing sites processing more than 200 tonnes of milk per day are brought into the Pollution Prevention and Control (Scotland) Regulations 2012 permitting process;
- ensure that businesses are registered with Producer Responsibility Obligations (Packaging Waste) Regulations 2007, where appropriate;
- review permits and licences, as part of the [Integrated Authorisation Framework](#), to reflect current legislation and changes to reference documents on best available techniques;
- invest in our staff so that they are well informed about the sector and can provide knowledgeable, consistent and pragmatic support.

## **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.

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.

Ambition 2030<sup>14</sup> sets out the vision for Scotland's food and drink industry; to be recognised as a world leader in responsible, profitable growth. The Scottish Dairy Review: Ambition 2025 describes how the Scottish dairy sector aims to achieve sustainable economic growth<sup>15</sup>.

This sector plan will help dairy processing businesses to identify opportunities to achieve long term business success. Processors that are aware of their environmental footprint, who constantly reassess their opportunities and adopt a responsible, more circular approach to resource use are likely to flourish.

Some dairy processors in Scotland have previously agreed to voluntary environmental targets laid out in the Dairy roadmap 2018<sup>16</sup>. Other, small and medium sized enterprises have also been keen to explore innovative ways of reducing environmental impacts as a way to add value to their brand.

### **Case study: The Courtauld Commitment 2025**

The Courtauld Commitment 2025 targets will help the UK to achieve UN Sustainable Development Goal 12.3. The dairy processors in Scotland that have signed up to this commitment have already achieved goals, including sending zero waste to landfill from their sites. They have also set objectives for improving water efficiency and reducing greenhouse gas emissions across their businesses.

Food and drink trade bodies along with Zero Waste Scotland and Scottish Government are working to help Scotland deliver reductions in food waste as part of this commitment.

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<sup>14</sup> [The Scotland Food and Drink Partnership Vision for 2030](#)

<sup>15</sup> [The Scottish Dairy Review: Ambition 2025](#)

<sup>16</sup> [Dairy UK: The Dairy Roadmap](#)

## Water

**Water in the right place, in the right amount and of the right quality underpins our society and economy. We need water to drink, wash, grow food, supply power, build things and maintain the benefits we all receive from a healthy functioning natural environment. Scotland's water resources vary by orders of magnitude in time and space and uncontrolled exploitation of water can affect its availability for other uses. This may be by increasing flood risk, reducing water availability, polluting water supplies or introducing invasive species into rivers, lochs and groundwater. All of these risks may be further enhanced as our climate changes and it is important that sector plans take account of risks from and to water resources.**

**SEPA is developing a Flood Strategy which will consider themes of future change, social impact and extended engagement in defining our ambition and outcomes to deliver effective flood risk management now and in the future. Early and strong links between this sector plan and flooding will strengthen opportunities for outcome delivery.**

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The dairy processing industry uses water throughout production. Water is used to maintain a scrupulously clean processing plant; as well as the public health concerns, a lack of cleanliness leads to increase spoilage and waste of product.

There are opportunities to reduce water use, re-use water on site and recover residues from used water.

SEPA's aspirations are:

- Work with businesses and advisors to investigate opportunities to increase water use efficiency in the dairy processing sector.
- Bring together experts in water innovation from across all business sectors to share experience and best-practise ideas.
- Work with partners and industry bodies to develop and disseminate guidance on environmental opportunities for dairy processing businesses, including how to increase their resilience to climate change, flood risk and water scarcity.

## Energy

**Energy is an essential resource that enables social and economic development. However, while energy is fundamental to the economy, electricity and heat production, transmission, storage and use can have significant environmental impacts.**

**How we use and manage our energy resources is central to our ability to live within the resources of our planet. Energy is one of the most important aspects of the transition to a sustainable low carbon economy and there are often cost savings and other benefits for businesses associated with improving their energy efficiency and making use of alternative sources of energy.**

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SEPA is a delivery agency for the Scottish Government's Energy Strategy, and we can use our regulatory tools, experience, knowledge, and partnership approach to support the sector to move beyond compliance. We will help the sector to use the most suitable energy sources, improve energy storage and increase energy efficiency and productivity (increased output from every unit of energy used) while minimising wasted energy.

Dairy processing uses a lot of energy; cooling, heating and refrigerating, and is considered an energy-intensive activity.

As with many industry sectors in Scotland, the reliance on fossil fuel powered heating and cooling is a significant part of their carbon footprint. In 2007, carbon emissions from energy and transport carbon emissions made up 37% of the total greenhouse gas emissions from dairy processing, transport and retail<sup>17</sup>.

Through the Dairy Roadmap<sup>18</sup>, the industry has already achieved an 18% improvement in energy efficiency since 2008, and is committed to a target of 30% by 2025.

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<sup>17</sup> [Scottish Dairy Supply Chain Greenhouse Gas Emissions: Main Project Report](#)

<sup>18</sup> [Dairy UK: The Dairy Roadmap](#)

If milk is processed off farm the sector depends on regular road transport to collect raw milk from the bulk tanks on dairy farms and deliver it to processing plants. Once processed, the products are moved, by road, to distribution centres and points of sale. Innovation, research and trials will be required across the industry spectrum to reduce the environmental impacts of the essential activity of moving materials and products.

SEPA's aspirations are:

- Work with the industry and trade associations to review their energy targets to make a positive contribution to meeting Scotland's Energy Strategy targets.
- Engage with businesses, trade organisations, advisors and research institutes to explore opportunities to minimise impacts associated with energy use within the sector, in line with the Clean Air for Scotland Strategy.
- Explore opportunities to encourage investors to include dairy businesses' environmental sustainability in their investment decisions.
- Explore opportunities to work with advice services and financial partners to encourage businesses to understand and actively manage their energy, water and materials use.
- Work with dairy processors to phase-out the use of fluorinated gases with a high global warming potential in refrigerant systems.

## Materials

**SEPA views the circular economy as a game-changing opportunity to manage resources within planetary limits, reduce the harms associated with waste management and create economic opportunities. We must dramatically cut waste production across the economy, recover more and dispose of only the very minimum. Where waste is produced, we will always seek to facilitate the productive use within a framework of strong environmental protection.**

**Not only can resource efficiency improve productivity, and the bottom line for business, it can bring environmental improvements and reduce our reliance on virgin raw materials**

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### Reducing waste

The business benefits of creating value from all dairy processing materials are clear, and many dairy processors have already worked to reduce waste in their processing lines.

Opportunities exist to recover greater value from dairy processing residues by creating valuable foodstuffs or energy. For example, whey can be a valuable by-product, which is currently discarded as waste by some cheese-makers.

When a dairy farm processes their milk on the farm, they often store and apply their processing wastes to land. These waste materials have high nutrient values, so it makes sense for processors to explore opportunities to use these in a way that maximises the income and minimises the risk of pollution.

SEPA's aspirations are to:

- Work with businesses, trade bodies and funders to explore resource recovery opportunities from dairy processing residues.
- Develop and implement a package of work within SEPA to investigate the use of residues and other materials as fertilisers/soil conditioners on land.

### Case study: Value from food waste

It is estimated that waste costs food and drink processors approximately 4-5% of their turnover. Zero Waste Scotland has a focus on recovering products from food waste. They are promoting a mapping tool to help businesses get more value from their food and drink waste. The food waste valorisation programme will develop innovative solutions for wastes that will add economic value for businesses.

## Packaging

Appropriate packaging of perishable foods is important to maximise shelf life and ensure the product reaches the consumer in good condition. HDPE packaging is commonly used and is readily recyclable.

Alternatives to plastic packaging for some dairy foodstuffs are also available. There has been an increase in the popularity of reusable packaging in small scale dairy processing operations. Innovative options are in development that will also help to reduce our reliance on single use plastics, for example, cheese wrappings made from milk protein rather than plastic. The government is consulting on a deposit return scheme, which could target the primary milk packaging material (HDPE plastic), with the aim of increasing its recycling rate.

SEPA's aspirations are to:

- Continue to engage with the review of Producer Responsibility for packaging being undertaken by the Department for Environment, Food and Rural Affairs (DEFRA), and with the development and implementation of the Deposit Return Scheme for Scotland (Scottish Government have committed<sup>19</sup> to developing a deposit return scheme, although its final form will not be known until the 2018 consultation responses have been considered).
- Develop our understanding of both the current and emerging packaging choices available for dairy processing sites in Scotland.
- Support the sector in understanding the pros and cons of different packaging options.

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<sup>19</sup> [Scottish Government consultation: A Deposit Return Scheme for Scotland](#)

### Case Study: Reusable containers

The use of reusable containers that can be delivered to retail outlets or filled from milk vending machines are gaining popularity as consumers aim to 'ditch the plastic'. Industry awards recognising innovation have encouraged small dairy processors in Scotland to drive sustainability in their business.

## The future of dairy processing

Through Ambition 2030, the dairy processing sector intends to grow. This will be achieved by increasing the proportion of high-value dairy products, moving into new markets and new products and also by increasing production volumes.

Many processors are currently small-scale, and owned and operated by farm businesses. We anticipate that diversification into dairy processing will continue, with some processors increasing substantially in scale.

Successful dairy processors will be those that use low amounts of water, materials and carbon-based energy and create little waste.

SEPA's aspirations are to:

- Review our planning responses for dairy processing sites to ensure that we deliver information that is useful and reflects One Planet Prosperity principles.
- Engage with businesses and trade bodies to explore opportunities for processors to influence the delivery of actions in the Dairy Production Sector Plan with their suppliers.
- Support industry led, collaborative initiatives that will deliver business, environment and community success.
- Invest in our staff so that they are well informed about the sector and can provide knowledgeable, consistent and pragmatic support.
- Provide evidence that helps businesses to understand the key environmental risks and compliance issues in the sector.

## What actions are we going to take?

The following table summarises the actions that we have described above to fix compliance in the sector and, working in partnership, help businesses take opportunities to go beyond compliance. These are described according to the key outcomes that we would like this sector plan to achieve. The actions and aspirations set out, are our initial thoughts on what needs to be done to achieve the aims of this sector plan. We are at an early stage in sector plan development, and the actions that we prioritise will be informed by the findings of this consultation and further internal discussions between now and March 2019.

Outcome sought	Actions and aspirations
<b>Protected communities</b>	
Communities not negatively impacted by dairy processors	<ul style="list-style-type: none"> <li>■ Increasing scrutiny, prescription, fees and the use of enforcement and monetary penalties for those who fail to comply.</li> <li>■ Reviewing permits and licences, as part of the <a href="#">Integrated Authorisation Framework</a>, to reflect current legislation and changes to reference documents on best available techniques.</li> </ul>
Processors are actively involved in supporting local communities	<ul style="list-style-type: none"> <li>■ Support industry led, collaborative initiatives that will deliver business, environment and community success.</li> </ul>
<b>Better environment regulation</b>	
Reduced greenhouse gas emissions through energy and water efficiency and innovative solutions	<ul style="list-style-type: none"> <li>■ Work with the industry and trade associations to review their energy targets to make a positive contribution to meeting Scotland's Energy Strategy targets.</li> <li>■ Engage with businesses, trade organisations, advisors and research institutes to explore opportunities to minimise impacts associated with energy use within the sector, in line with the Clean Air for Scotland Strategy.</li> <li>■ Work with dairy processors to phase-out the use of fluorinated gases with a high global warming potential in refrigerant systems.</li> </ul>

Outcome sought	Actions and aspirations
<b>Better environment regulation</b>	
Reduced greenhouse gas emissions through energy and water efficiency and innovative solutions (continued)	<ul style="list-style-type: none"> <li>■ Work with businesses and advisors to investigate opportunities to increase water use efficiency in the dairy processing sector.</li> <li>■ Bring together experts in water innovation from across all business sectors to share experience and best-practise ideas</li> </ul>
Waste reduced by greater and more innovative use of by products	<ul style="list-style-type: none"> <li>■ Work with businesses, trade bodies and funders to explore resource recovery opportunities from dairy processing residues.</li> <li>■ Develop and implement a package of work within SEPA to investigate the use of residues and other materials as fertilisers/soil conditioners on land.</li> <li>■ Continue to engage with the review of Producer Responsibility for packaging being undertaken by the Department for Environment, Food and Rural Affairs (DEFRA), and with the development and implementation of the Deposit Return Scheme for Scotland (Scottish Government have committed<sup>20</sup> to developing a deposit return scheme, although its final form will not be known until the 2018 consultation responses have been considered).</li> <li>■ Develop our understanding of both the current and emerging packaging choices available for dairy processing sites in Scotland.</li> <li>■ Support the sector in understanding the pros and cons of different packaging options.</li> </ul>
Stronger environmental performance of processors and supply chain	<ul style="list-style-type: none"> <li>■ Ensure that any new, enlarged or existing sites processing more than 200 tonnes of milk per day are brought into the Pollution Prevention and Control (Scotland) Regulations 2012 permitting process.</li> <li>■ Ensure that businesses are registered with Producer Responsibility Obligations (Packaging Waste) Regulations 2007, where appropriate.</li> <li>■ Provide evidence that helps businesses to understand the key environmental risks and compliance issues in the sector.</li> </ul>

<sup>20</sup> [Scottish Government consultation: A Deposit Return Scheme for Scotland](#)

Outcome sought	Actions and aspirations
<b>Stronger business</b>	
High quality environment that processors depend upon is protected	<ul style="list-style-type: none"> <li>■ Engage with businesses and trade bodies to explore opportunities for processors to influence the delivery of actions in the Dairy Production Sector Plan with their suppliers.</li> <li>■ Review our planning responses for dairy processing sites to ensure that we deliver information that is useful and reflects One Planet Prosperity Principles.</li> </ul>
Businesses develop greater resilience to environmental challenges	<ul style="list-style-type: none"> <li>■ Work with sector partner organisations to ensure the sector is resilient to climatic changes, especially around flood risk and water scarcity issues.</li> <li>■ Work with partners and industry bodies to develop and disseminate guidance on environmental opportunities for dairy processing businesses, including how to increase their resilience to climate change, flood risk and water scarcity.</li> </ul>
Going beyond compliance helps deliver business success	<ul style="list-style-type: none"> <li>■ Invest in our staff so that they are well informed about the sector and can provide knowledgeable, consistent and pragmatic support.</li> <li>■ Explore opportunities to encourage investors to include dairy businesses' environmental sustainability in their investment decisions.</li> <li>■ Explore opportunities to work with advice services and financial partners to encourage businesses to understand and actively manage their energy, water and materials use.</li> </ul>

## 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 protect communities and enable businesses to operate effectively and successfully in their markets.

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