SUPPLY CHAIN SUSTAINABILITY SCHOOL

SSEN Climate Academy

Waste, Resource Efficiency & the Circular Economy - Webinar session

2nd March: 12 noon until 1pm

SUPPLY CHAIN SUSTAINABILITY SCHOOL

Welcome & introductions

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Sector lead for FM and Waste & resource use

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@SupplyCSSchool

Outcomes

At the end of this webinar you will:

- Have revisited SSE's strategic priorities on waste, resource efficiency and the circular economy
- Have an understanding of what's influencing these themes
- Have begun to consider opportunities to introduce circular ways of working within your work
- Be able to explain the challenges and opportunities to your colleagues, customers and supply chain.

Please Participate!

Due to the size of the audience today we need to mute microphones and switch off your cameras

HOWEVER

If you have **QUESTIONS**, feel free to write them down in the Q&A

- we'll answer what we can in the time available

Join in with the various Zoom Polls – I'll explain this in a minute!

SLIDES will be distributed afterwards

We need your feedback please

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POLL QUESTIONS

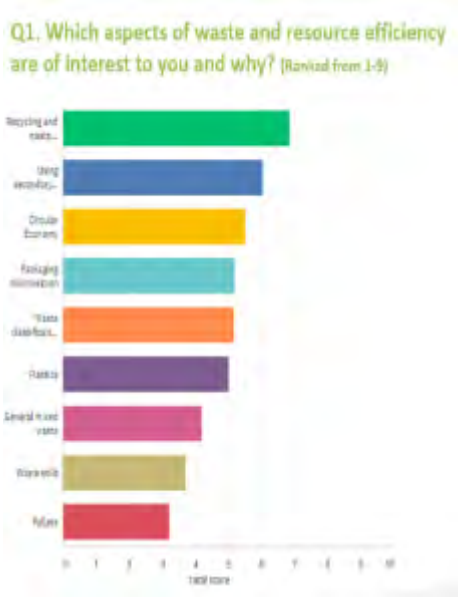
REBECCA RICHARDSON,
DIRECTOR OF PROCUREMENT AND COMMERCIAL, SSEN DISTRIBUTION

Scottish & Southern Electricity Networks

The School's Waste & Resource Use Category Group

Refreshed
-Landing page
-Resources (new and old)

Material Exchange Platforms Mapping
- Skanska collaboration



Surveys
-Member interest
- Partner plastic waste

Partner case studies

New resource in development

"Reducing Project Lifecycle Waste"

What is waste?

…. and who is interested?

SUPPLY CHAIN SUSTAINABILITY SCHOOL

What is Waste?

“Any substance or object that the holder discards, or intends to, or is required to discard.”

(Waste Framework Directive)

Waste? ….

Or resources?

Zoom Poll

1. Does your own organisation currently have a waste reduction target?
   - Yes
   - No
   - In development

Legislative background

Some Relevant Waste Legislation

Environmental Protection Act 1990	Waste (England & Wales) Regulations 2011	Environmental Permitting (England & Wales) Regulations 2012
Waste disposal to waste management	Waste hierarchy	Permits and Exemptions for waste recovery and disposal

Relevant Waste Legislation cont'd

Waste Electrical and Electronic Equipment Regs 2010

Collection, treatment, recycling and recovery of WEEE

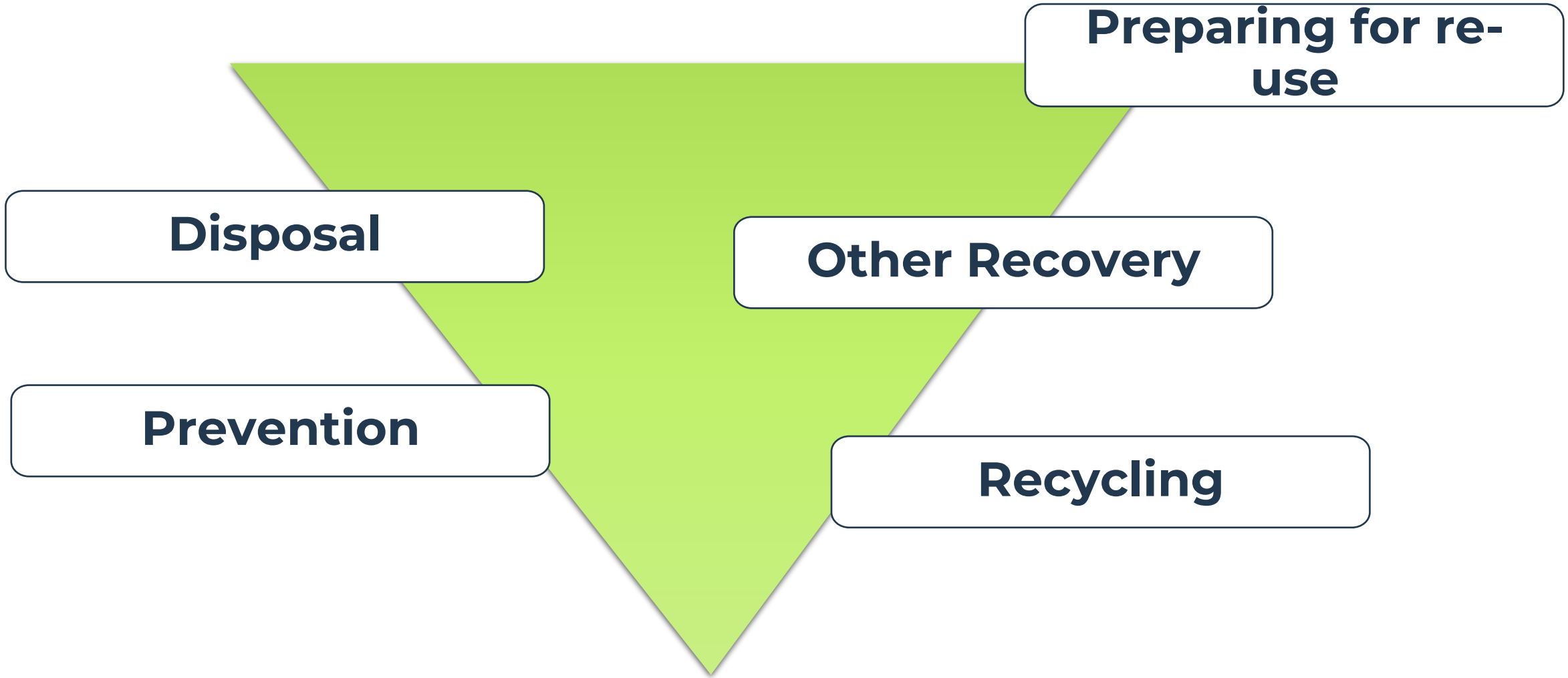
Producer Responsibilities Obligations (Packaging Waste) Regs 2010

Recover and recycle waste packaging

Waste (Scotland) Regs 2014

All organisations must recycle plastic, metal, glass, paper and card

The Waste Hierarchy



Two questions

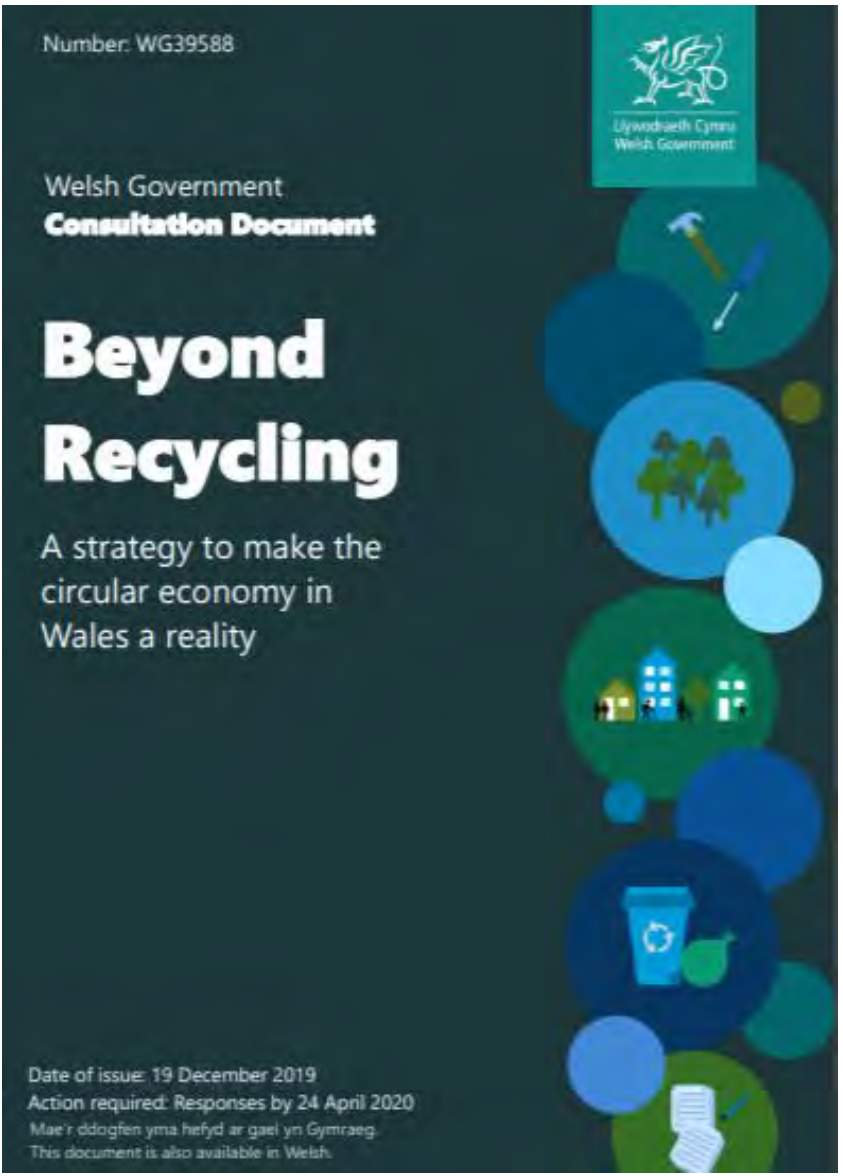
1. Which do you think is the most sustainable option in the waste hierarchy?
   - Preparing for reuse
   - Other recovery
   - Recycling
   - Prevention
   - Disposal
2. Which do you think is the least sustainable option in the waste hierarchy?
   - Preparing for reuse
   - Other recovery
   - Recycling
   - Prevention
   - Disposal

The Waste Hierarchy

Policy

Becoming mainstream?

It’s not just all about England….



Source: https://gov.wales/sites/default/files/consultations/2020-03/consultation-circular-economy-strategy_1.pdf

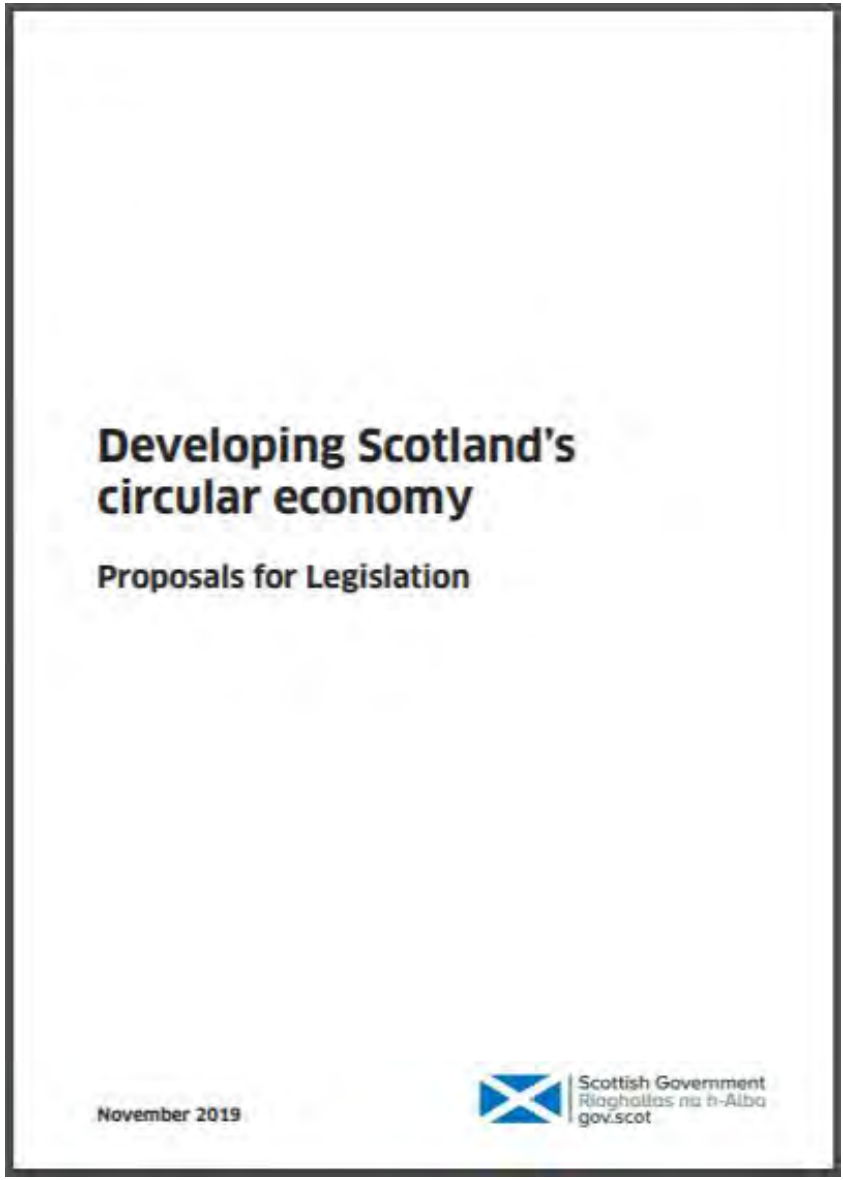
Minister urges Northern Ireland businesses to grasp circular economy “momentum”

Circular Economy, Environment and Energy, Resource Management, Sustainability

23rd June 2020

Northern Ireland’s Environment Minister Edwin Poots MLA says more businesses in Northern Ireland should “grasp the momentum behind recycling and creating a circular economy”.

Source: https://www.circularonline.co.uk/news/minister-urges-northern-ireland-businesses-to-grasp-circular-economy-momentum/



Source: https://www.gov.scot/publications/delivering-scotlands-circular-economy-proposals-legislation/

New and future UK Waste Regulations

- THE LONDON PLAN (2019) includes requirement for all major construction projects to produce Circular Economy statements, including how the project will enable building materials, components and products to be disassembled and re-used.
- UK/EU Circular Economy Strategy/package
- UK ENVIRONMENT ACT 2021 - framework for increasing recycling, power to make regulations relating to regulation of hazardous waste in England, import, export and transit of waste, littering enforcement powers etc.
- EXTENDED PRODUCER RESPONSIBILITY for packaging
  - producer will PAY!

Imminent publication of:

The Programme for Government 2021-22

(p67) which commits to introducing a Circular Economy Bill this parliamentary session which will put in place legislative measures to support the implementation of a circular economy

“To ensure the necessary legislation is in place, we will bring forward a Circular Economy Bill, later in this parliamentary session, helping facilitate the development of an economy which reduces demand for raw materials, designs products to last as long as possible and encourages reuse, repair and recycling”.

Imminent publication of:

The draft Fourth National Planning Framework

Laid before Parliament and out for final consultation

Circular economy is referenced much more heavily in this document than it has been before

A recognition of the fact that CE needs to be embedded right from the start of the construction process

Referenced throughout Part 1 which sets out spatial planning strategies

Also addressed somewhat in Part 2 as the 5th National Development

Zero Waste Scotland (ZWS) and Planning Aid Scotland (PAS) are currently developing a response and encourage others to do the same.

“Right to Repair”

- The UK generates around 1.5 million tonnes of electrical waste every year
- Now introducing new rules for electrical products to tackle ‘premature obsolescence’ – a short lifespan deliberately built into an appliance by manufacturers which leads to unnecessary and costly replacements for the consumer
- From Summer 2021, manufacturers will be legally obliged to make spare parts for products available to consumers for the first time – a new legal right for repairs – so that electrical appliances can be fixed easily
- Expected to extend lifespan of products by up to 10 years.

Though primarily aimed towards domestic users this could maybe point the way for future policy in other areas?

The Green Construction Board

Construction Leadership Council

The Routemap for Zero Avoidable Waste in Construction

Introduction

Waste costs the construction industry an estimated £11 billion per annum and emits 3.5 million tonnes of CO2e, yet waste can be reduced, materials used more efficiently, and buildings and structures at end of life repurposed, refurbished or dismantled to enable products and materials to be a resource for new activities.

This Routemap aims to catalyse actions by all parts of the supply chain to reduce and ultimately eliminate all avoidable waste. It adopts the interpretation of Zero Avoidable Waste in construction published by the Green Construction Board (GCB) in 2020 and adopts the principles of the waste hierarchy and life cycle assessment.

The Routemap is an interactive infographic identifying aims, actions, context and guidance. Click on an Aims button and a new page appears. Hover over Context and an explanation appears. Click Guidance and a new page links to published guidance.

It has been prepared by the GCB's Resources and Waste Task Group with the principal authors being Katherine Adams, Rob Pearce and Jane Thornback. The project received financial support from BEIS, and was in collaboration with Defra.

Click for Context

Targets and Guiding Principles

Click for Acknowledgements

Design out waste

Aim: **The use of materials is optimised in the design of the buildings and structures and waste is designed out throughout the design and construction process**

2020s	2030s	2040s
• Waste reduction targets are commonplace in most construction projects. • Professional institutions develop training and CPD. • BS8895 is widely adopted throughout the design process for major projects.	• By 2030 costs are reduced by 10% through designing out waste and material optimisation.	• The amount of waste generated from new build construction is minimal.

Click for Guidance

Act now

- Clients, design teams and contractors set project waste reduction targets during design and construction.
- Design teams share their learnings and best practice on designing out waste within their practices and externally through their networks.
- Design teams write up case studies on how designing out waste has been considered within the design process and what changed as a result.
- Design teams implement waste reduction practices in their design work.
- Design teams undertake material optimisation through design choices and material selection working with manufacturers.
- Professional institutions and universities and colleges include designing out waste in training, CPD and academic courses.
- If participating in environmental certification schemes, such as BREEAM, LEED etc pursue the credits that relate to waste reduction and material efficiency.
- At project level, contractors and quantity surveyors, reduce the wastage allowances that are set for materials and do not over order.
- Contractors incentivise subcontractors to reduce waste.
- Contractors and subcontractors manage materials on site carefully to avoid damage.
- Manufacturers and contractors collaborate to implement reusable packaging schemes.

The School is developing new pages containing practical advice and examples based on this model -

We would love to include your own content

What is a circular economy?

A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.

The Circular Economy

Ellen MacArthur Foundation

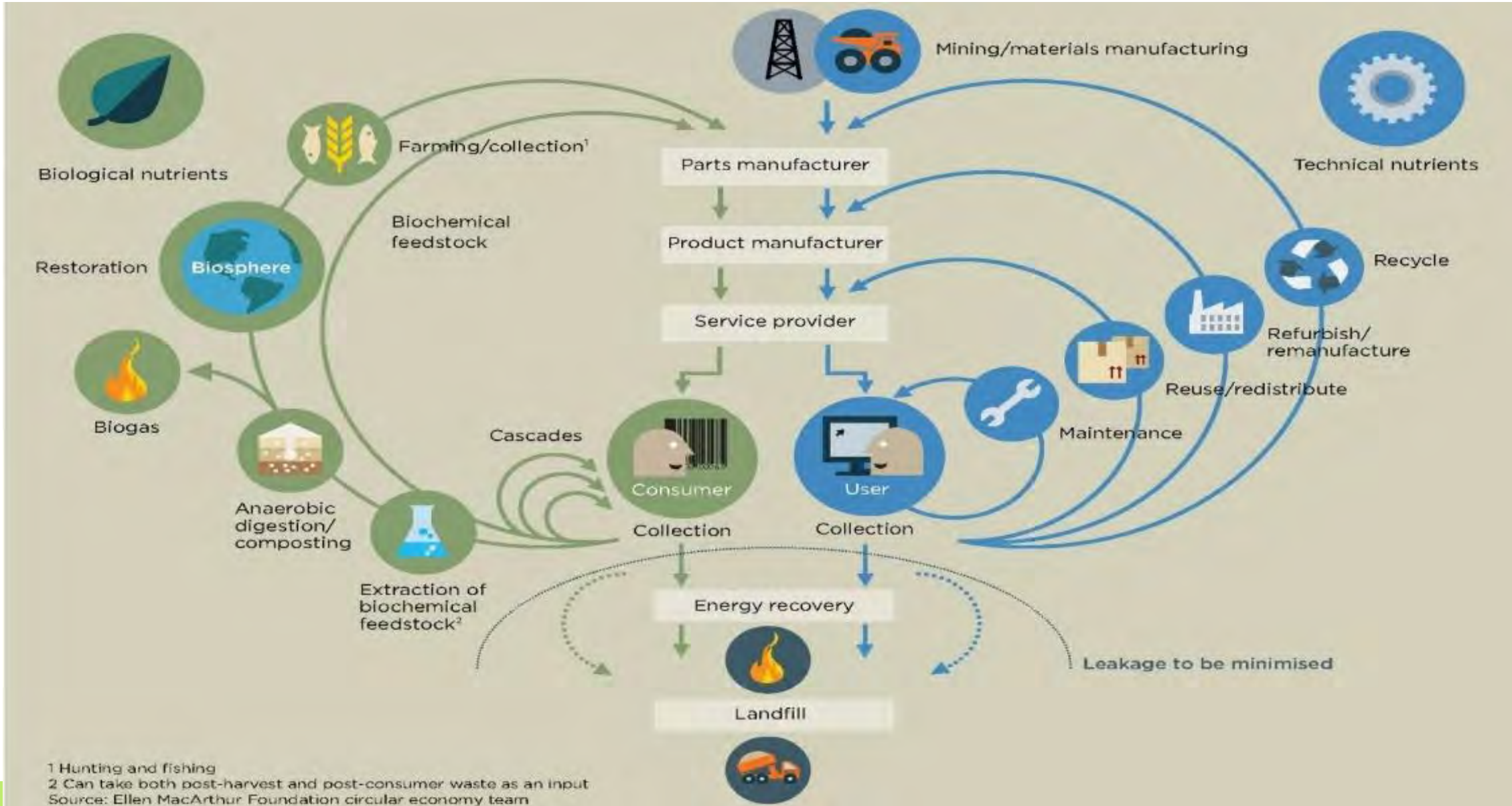
"The circular economy is based on three principles, driven by design:

- *Eliminate waste and pollution*
- *Circulate products and materials (at their highest value)*
- *Regenerate nature*

It is underpinned by a transition to renewable energy and materials. A circular economy decouples economic activity from the consumption of finite resources. It is a resilient system that is good for business, people and the environment"

Source: https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview

More detail


Mining/materials manufacturing
Biological nutrients
Farming/collection[1]
Technical nutrients
Parts manufacturer
Biochemical feedstock
Product manufacturer
Restoration
Biosphere
Recycle
Service provider
Refurbish/ remanufacture
Biogas
Reuse/redistribute
Maintenance
Cascades
Consumer
User
Anaerobic digestion/ composting
Collection
Collection
Extraction of biochemical feedstock[2]
Energy recovery
Leakage to be minimised
Landfill
1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation circular economy team

New thinking?

.. Not entirely!

Circularity isn't just recycling...

Do you need it?

Can you fix it?

It's being more thoughtful and resource efficient

Could you design it better?

Could somebody else use it?

Can you retain more value?

Can you save time and money?

More circular or less circular?

Thinking about the last two years in your home life and your working environment:

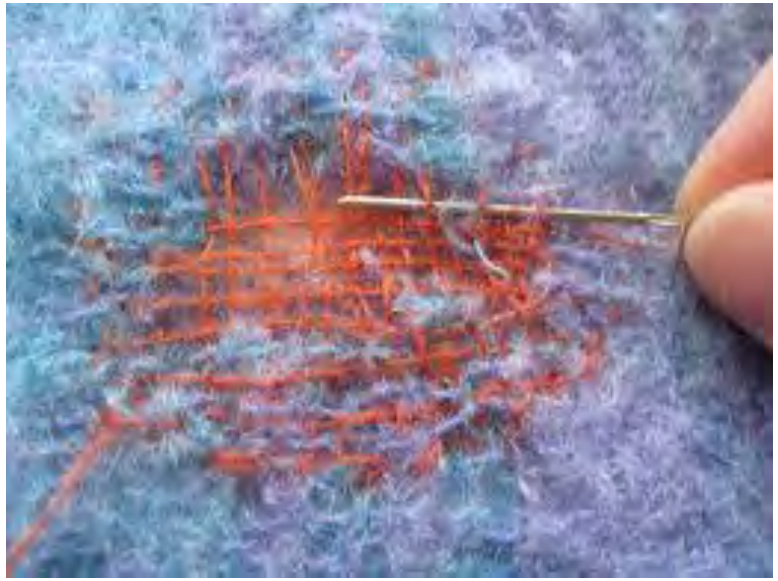
- What has become MORE circular?
- What has become LESS circular?
- Is it that simple - What requires more thought?

Anything we can learn and take on in future?

More circular
Less circular?
Needs more thought?

More circular
Less circular?
Needs more thought?

More circular
Less circular?
Needs more thought?



More circular
Less circular?
Needs more thought?

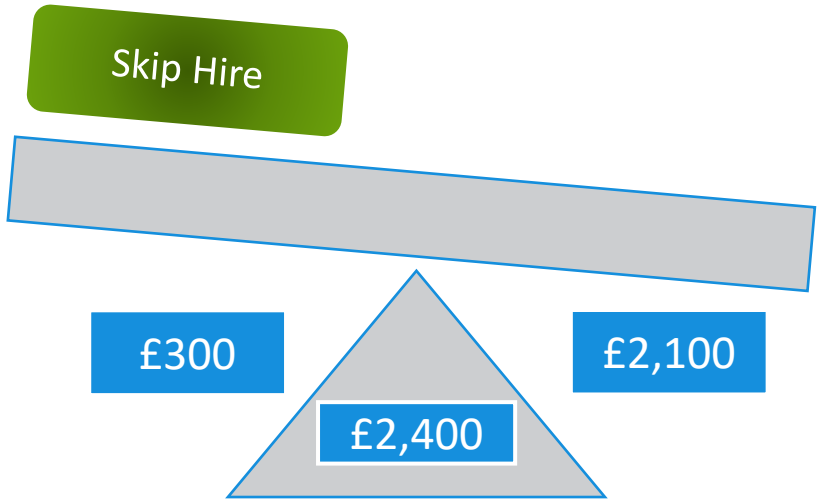
The financial case

Waste costs!

Construction Demolition and Excavation Industry

Waste costs Cont'd

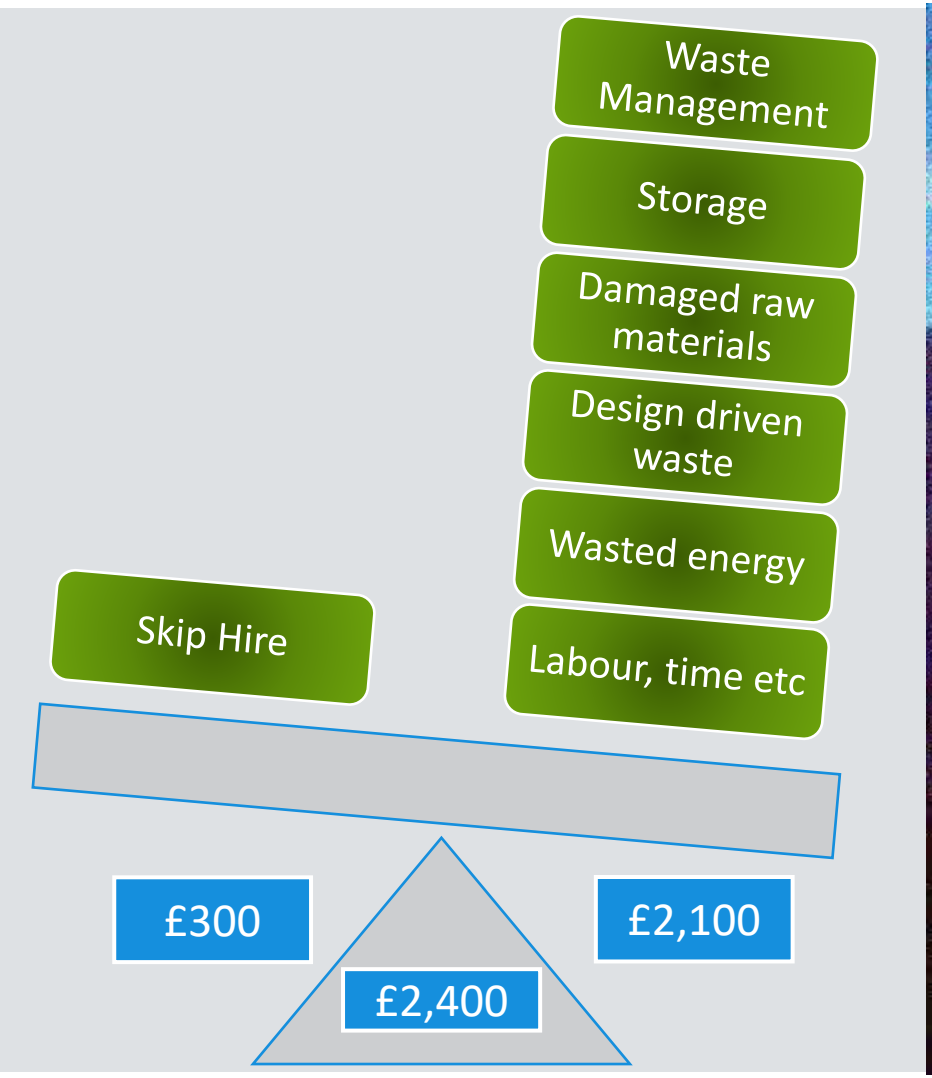
True Cost of Waste

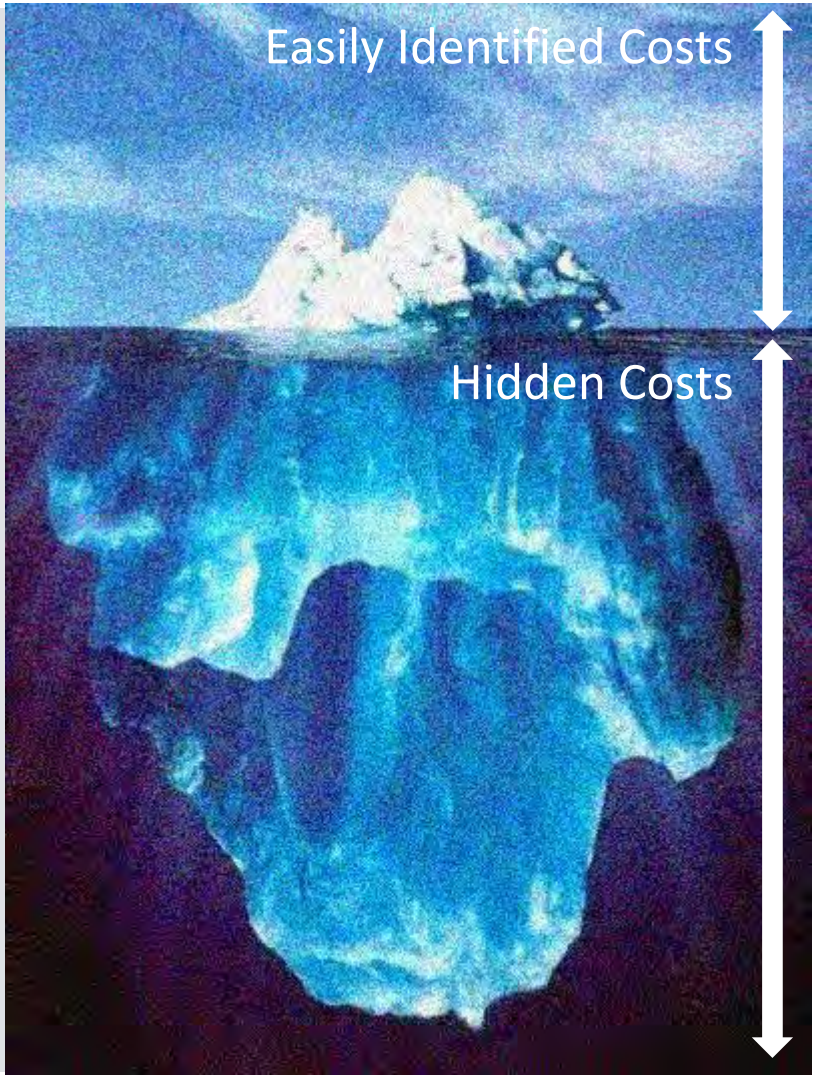


What are the other contributing factors to the true cost of waste?

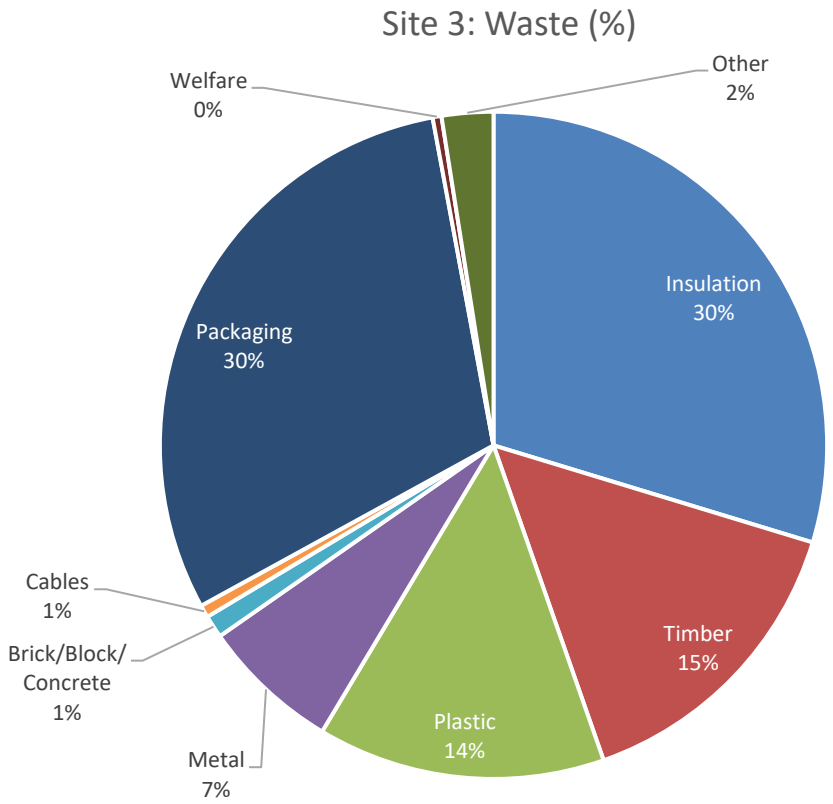
List your thoughts in the Q&A please!

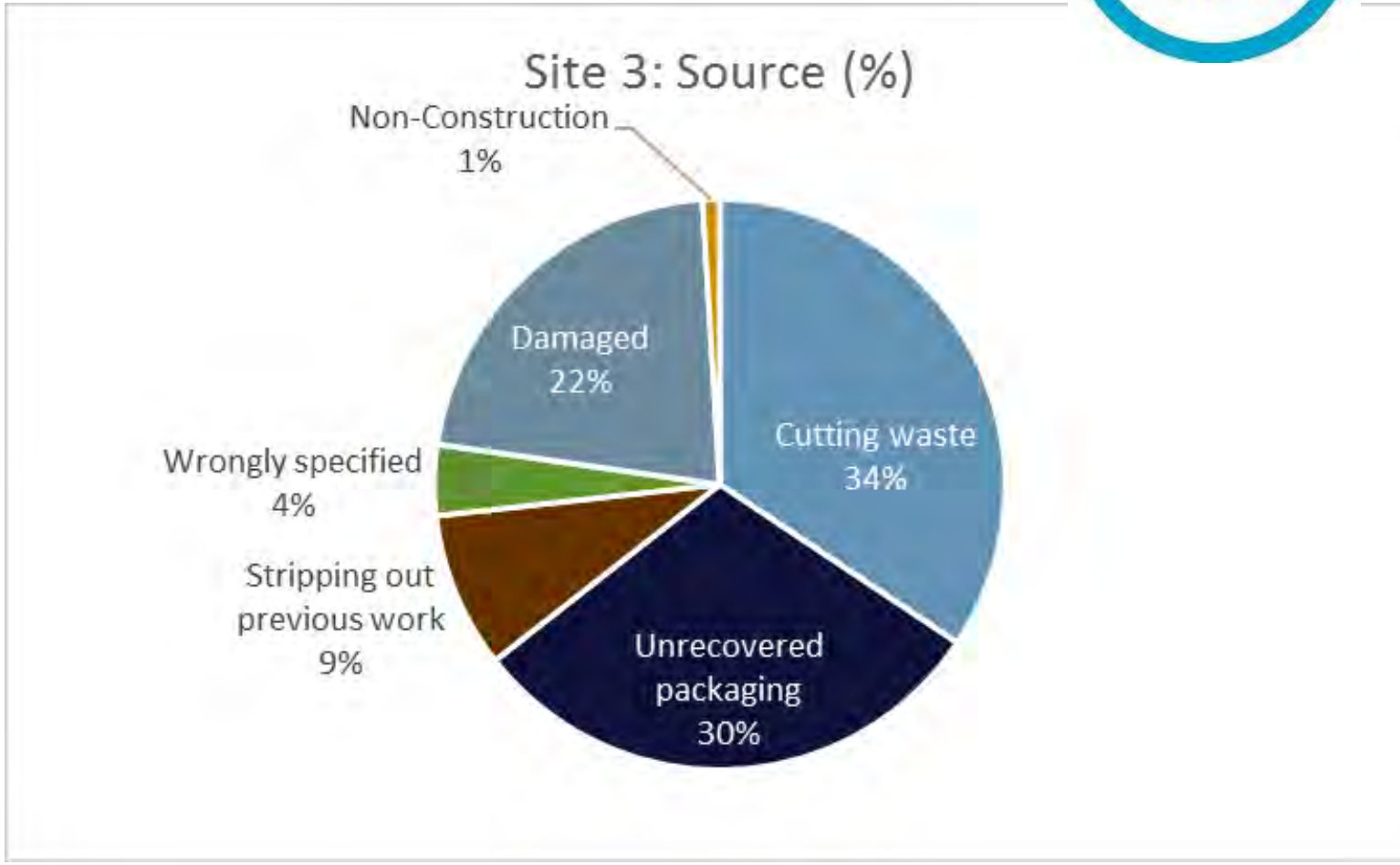
True Cost of Waste



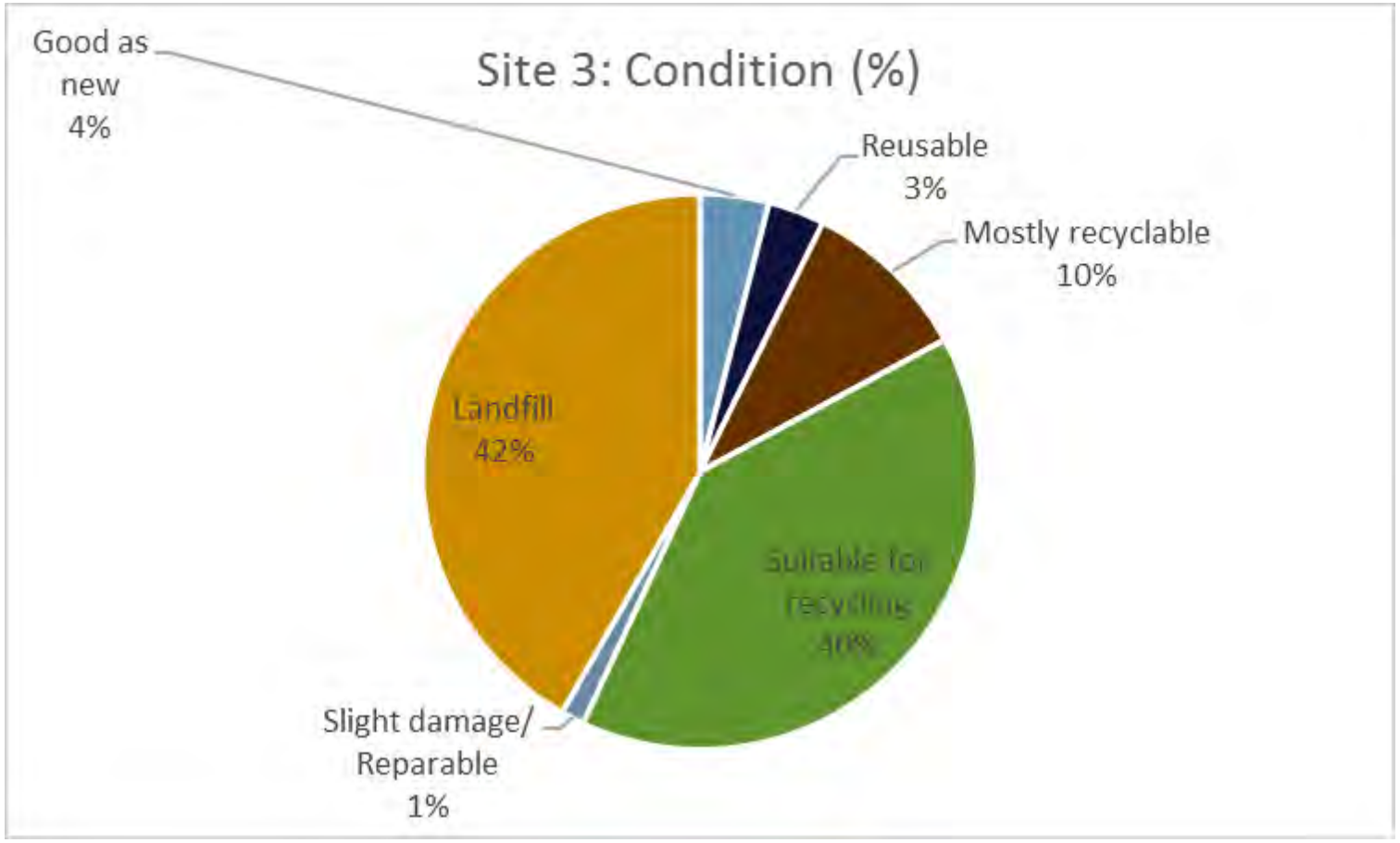


Waste by percentage of volume
Source: Zero Waste Scotland – standard housing project example

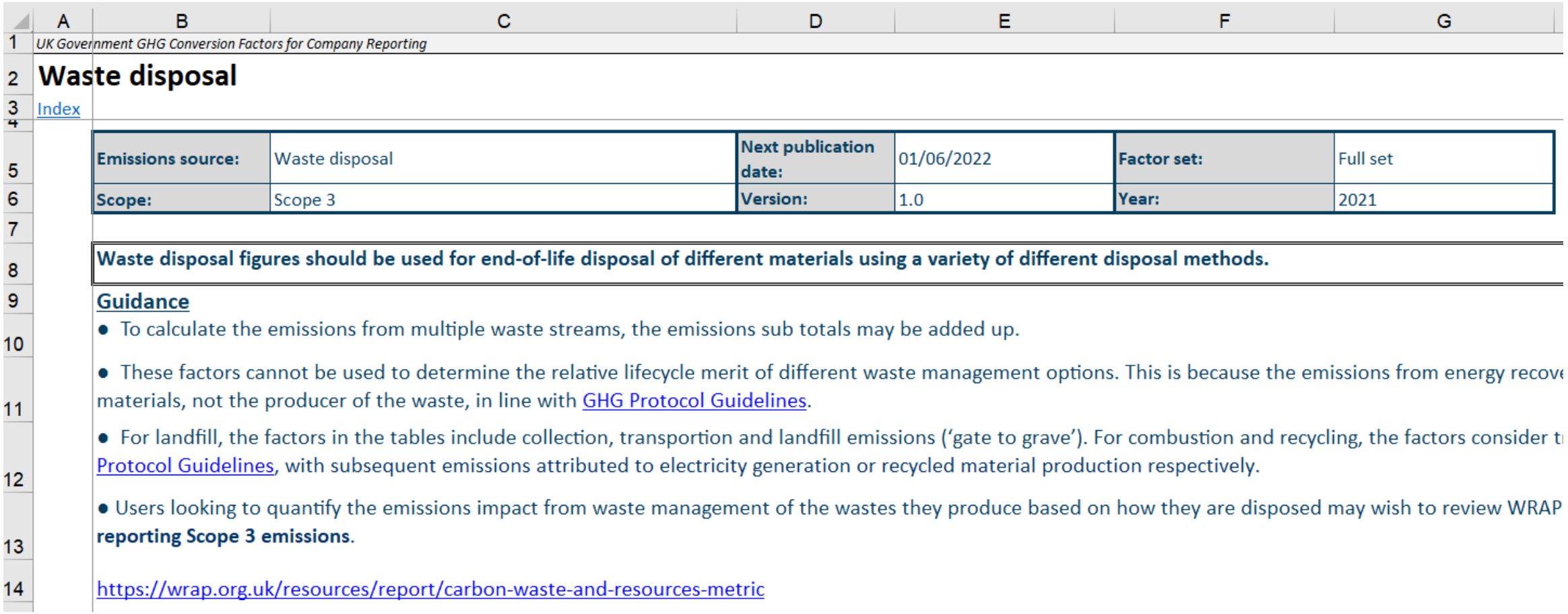




Condition of the Waste



Have a think about how all this relates to Carbon……



UK Government GHG Conversion Factors for Company Reporting

Waste disposal

Index

Emissions source:	Waste disposal	**Next publication date:**	01/06/2022	**Factor set:**	Full set
Scope:	Scope 3	**Version:**	1.0	**Year:**	2021

Waste disposal figures should be used for end-of-life disposal of different materials using a variety of different disposal methods.

Guidance

- To calculate the emissions from multiple waste streams, the emissions sub totals may be added up.
- These factors cannot be used to determine the relative lifecycle merit of different waste management options. This is because the emissions from energy recove materials, not the producer of the waste, in line with GHG Protocol Guidelines.
- For landfill, the factors in the tables include collection, transportion and landfill emissions ('gate to grave'). For combustion and recycling, the factors consider t Protocol Guidelines, with subsequent emissions attributed to electricity generation or recycled material production respectively.
- Users looking to quantify the emissions impact from waste management of the wastes they produce based on how they are disposed may wish to review WRAP **reporting Scope 3 emissions**.

https://wrap.org.uk/resources/report/carbon-waste-and-resources-metric

Source: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

All that wasted material

All those needless vehicle movements

All that wasted time

We could have been doing something better

We must also consider issues like business reputation and brand....

..... Supply chain security and availability of stock/raw materials ....

A few examples of the circular economy in action

Theory and practice

Case Study: Renal Dialysis Bottle Compacting

Barts Health NHS Trust has succeeded in reducing its waste disposal costs by £2.8million over the past four years. The dramatic savings were achieved after it focused on segregating recyclable materials from domestic waste, working in partnership with Skanska Facilities Services. Innovation was built into its contract as a tender requirement, meaning Skanska was able to focus on innovative ways to handle their waste.

Case Study: Sony Interactive Entertainment reverse logistics

For over 20 years Sony Interactive Entertainment (SIE) has provided affordable repair and reuse of PlayStation consoles outside of warranty in the UK. Up to 4000 consoles a month can be repaired, avoiding the creation of electronic waste and unnecessary consumption of virgin resources.

Source: Our Waste, our Resources: a Strategy for England – HM Govt

Plastic Packaging Tax

SOME KEY POINTS:

- A tax of £200 per tonne
- Will apply from April 2022
- Will apply to manufacturers and importers
- Will apply to plastic packaging manufactured in or imported into the UK containing less than 30% recycled plastic
- Intended to discourage use of virgin material and help develop use of recycled content
- Expecting £200M plus annual revenues.

Zoom poll:
What percentage of plastics production is packaging?

1. 7%
2. 26%
3. 44%

Zoom poll:
What percentage of plastics waste is packaging?

1. 17%
2. 44%
3. 63%

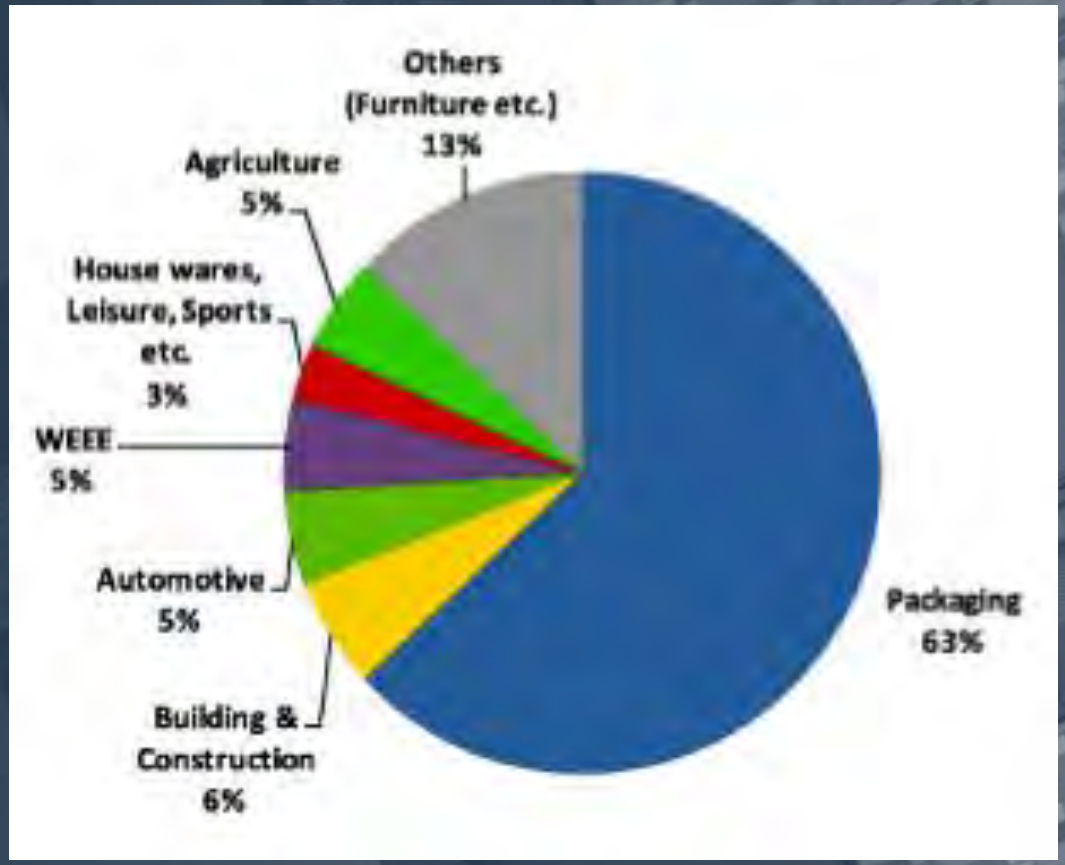
Why plastic packaging?: Sources of plastic waste

"Plastics and plastic packaging are an integral and important part of the global economy.

Plastics production has surged over the past 50 years, from 15 million tonnes in 1964 to 311 million tonnes in 2014, and is expected to double again over the next 20 years, as plastics come to serve increasingly many applications.

*Plastic packaging is and will remain the largest application; currently, packaging represents **26%** of the total volume of plastics used"*

Source:
https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNewPlasticsEconomy_29-1-16.pdf



Source:
https://ec.europa.eu/environment/integration/research/newsalert/pdf/IR1_en.pdf

School Members

Protec - Proplex

Source: Protec

Circular Case Study:

‘Upcycling’ Cheshire Police HQ

Whitecroft lighting

2,000Kg Raw Material Saved

23W energy saved per fitting

1.5 tonnes packaging reduction

£30 Cheaper to re-use

A New Circular Business Model

Whitecroft Vitality

- Circular Design and Manufacture
- Highest Through Life Utility
- Regeneration and Recovery

Can you think of any good examples of circularity in your business?

Or things that went less well? Why??

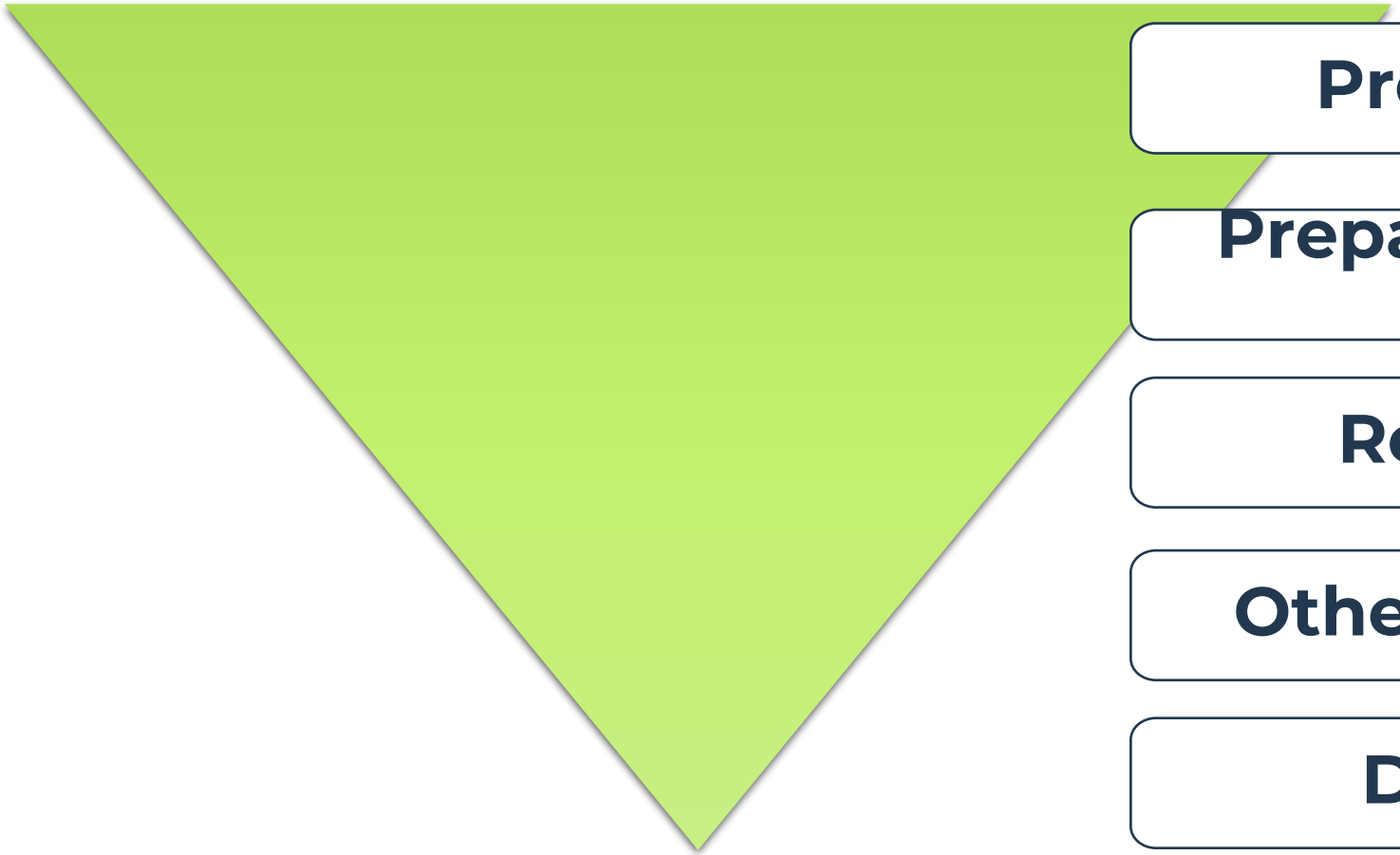
Or things you could introduce that would benefit you and your customers?..

….. Put something in the Q&A – we can comment

Where is it all going?
Further developing our approach to circularity

The Traditional Waste Hierarchy

REMEMBER _ You are legally obliged to consider this!



- Prevention
- Preparing for re-use
- Recycling
- Other Recovery
- Disposal

RRENT VALUE CHAIN

TRACKING FACILITY

This model aims to provide services to facilitate the tracking of materials, components and parts of a system so that they can be marketed and traded in secondary raw materials markets.

SUPPORT LIFECYCLE

Consumables, spare parts and add-ons to support the lifecycle of long-lasting products.

SELL AND BUY-BACK

In this case, a product is sold on the basis that it will be purchased back after a period of time.

LIFETIME EXTENSION

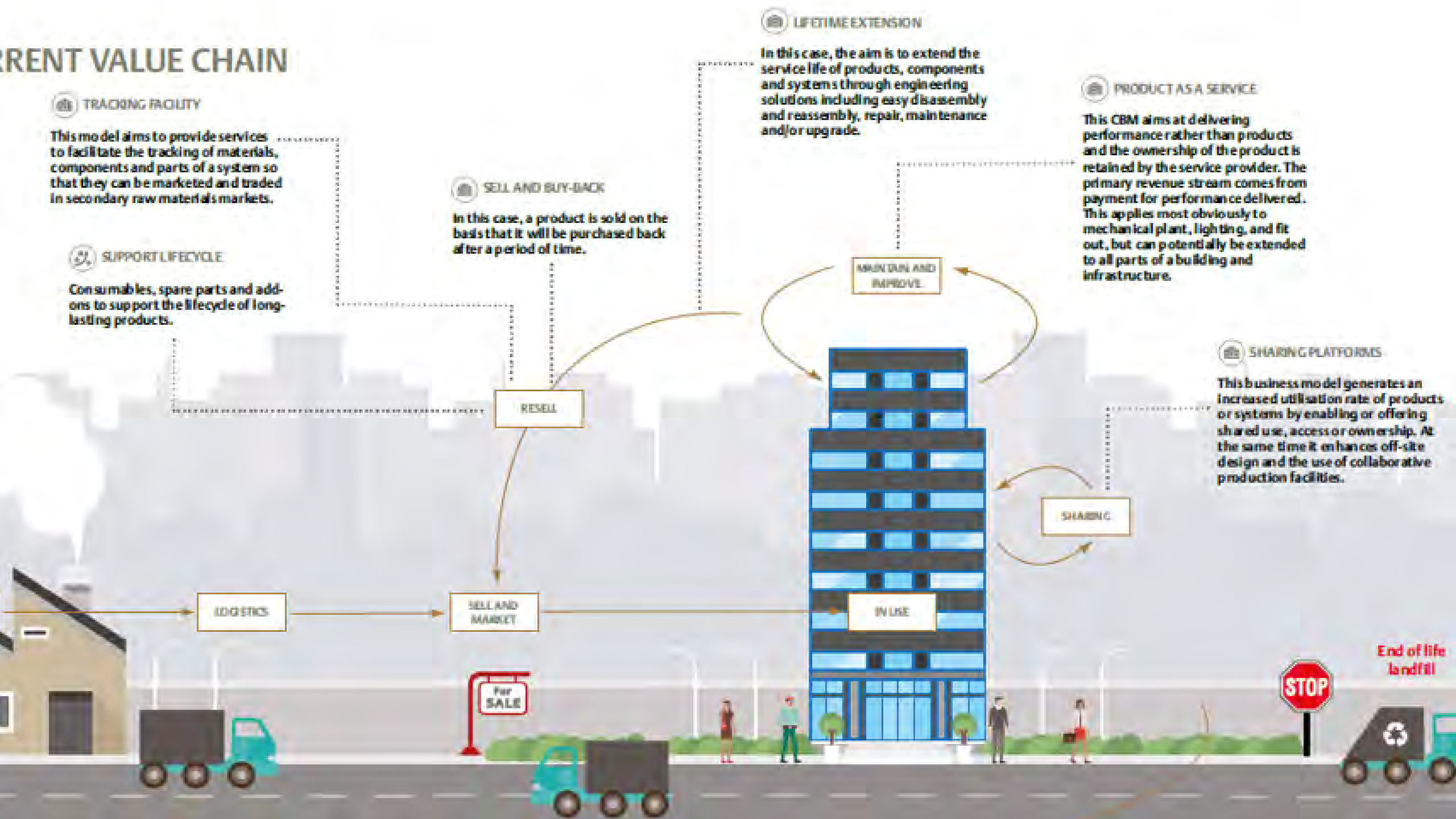
In this case, the aim is to extend the service life of products, components and systems through engineering solutions including easy disassembly and reassembly, repair, maintenance and/or upgrade.

PRODUCT AS A SERVICE

This CBM aims at delivering performance rather than products and the ownership of the product is retained by the service provider. The primary revenue stream comes from payment for performance delivered. This applies most obviously to mechanical plant, lighting, and fit out, but can potentially be extended to all parts of a building and infrastructure.

SHARING PLATFORMS

This business model generates an increased utilisation rate of products or systems by enabling or offering shared use, access or ownership. At the same time it enhances off-site design and the use of collaborative production facilities.



Further learning

Training and Awareness – loads of content in the School library

VIRTUAL: Circular Economy Workshop

Join this event to understand the drivers for moving ...

Tuesday, 21 July 2020, 11:30 AM - 1:00 PM

VIRTUAL: A Circular Economy case study: Whitecroft Lighting and BAM

Join this discussion with BAM and Whitecroft Lighting ...

Monday, 3 August 2020, 1:00 PM - 2:00 PM

Wales and the Circular Economy

The opportunities and benefits for Wales for developing a ...

"Towards the Circular Economy" reports

Ellen MacArthur Foundation

Circular Economy and Resource Efficiency

European Commission: Circular Economy and Resource ...

Circular Economy for SMEs - Project Summary

Project summary and details of European partnerships

European Circular Economy project in Wales

European Circular Economy project kicks off in Wales

Circular Economy Metrics Case Study: Asphalt

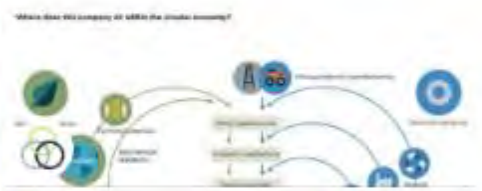
Three of Tarmac's asphalt products were selected to ...

Circular Economy Metrics Case Study: Built Assets

Case study: how progress towards the circular economy ...

CE Indicators and Metrics Tool

Created to calculate the values of Circular Economy Key ...



CE Indicators and Metrics Tool Guidance

Circular Economy Indicators and Metrics Tool Guidance

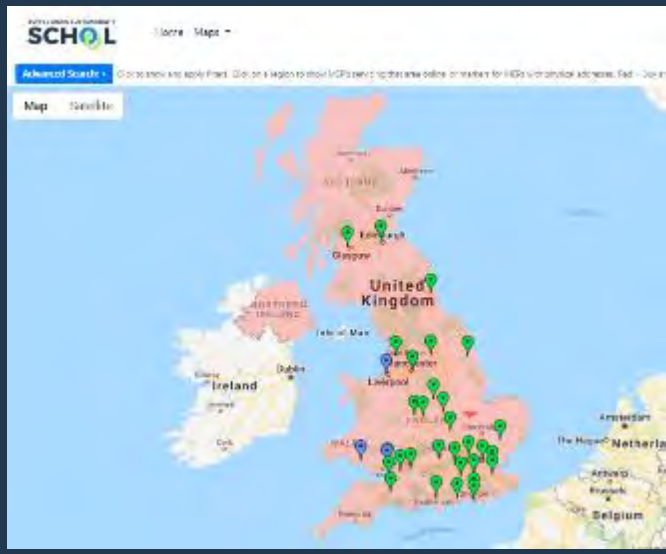
Embedding Circular Economy Principles

Top Tips for Embedding Circular Economy Principles in the ...

Other School resources to help you

1. **'Introduction to Waste' e-learning** – link will be provided

2. **MEP map:**
   - Feedback template ✓
   - Promotion & marketing ✓
   - Courtesy email to organisations ✓
   - New recommendations received ✓
     - *Now need to be added*
     - *New tags for social enterprises and academic institutions to be added*

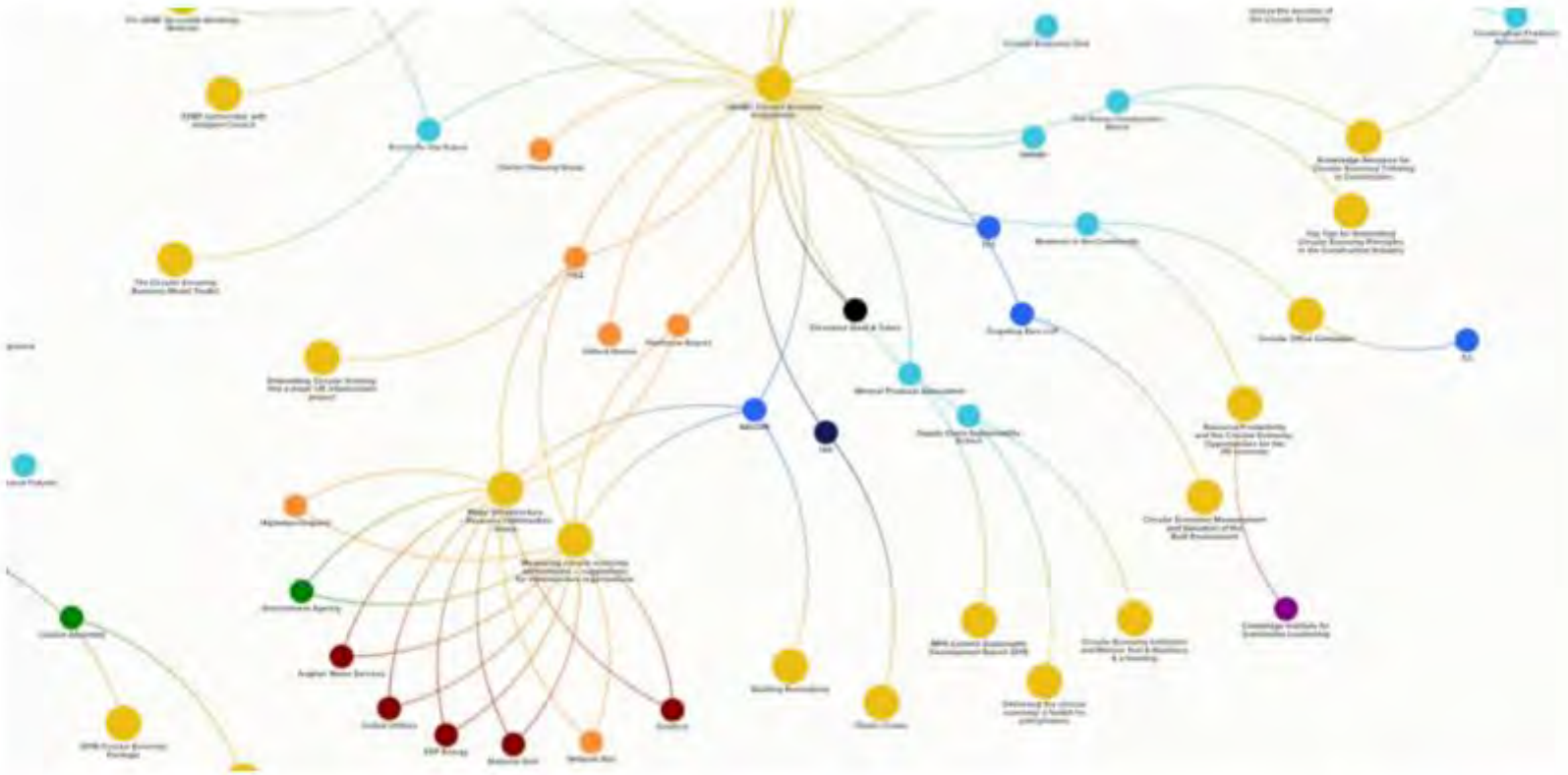


Disclaimer:

The Material Exchange Platform (MEP) Map has been set up to provide a searchable 'directory' of information on the location and characteristics of a variety of Materials Exchange Platforms across the UK. You may have surplus stock from a recently finished project, or are looking for second hand upcycled furniture; these are some examples of how you might use MEPs.

NB: The map is as a meta data tool. It is for the map user to do their own due diligence on any MEPs for which they get results.

Circular economy actor and resource map

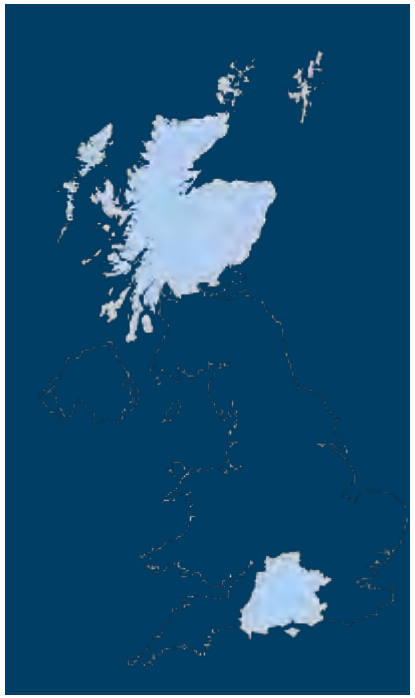


ADDED | TAGS | SHARE

Source: https://www.ukgbc.org/ukgbc-work/circular-economy-actor-and-resource-map/

WANT TO ENGAGE MORE WITH SSEN ON NET ZERO?

Join our stakeholder database!



We own and maintain the electricity networks across northern Scotland and central southern England.

Register now at:

https://www.ssen.co.uk/about-ssen/stakeholder-engagement/

Scottish & Southern Electricity Networks

Poll Questions

Thank you – Questions?

SUPPLY CHAIN SUSTAINABILITY SCHOOL

We need your feedback please

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