EAUC-Scotland Conference

The Elephants in the Room

Tuesday 26 November 2019

The Lighthouse, Glasgow

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The Alliance for Sustainability Leadership in Education

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Reducing Consumption

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Alexander Clark, Environment Officer, University of St Andrews

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The Future is Circular

Climate change, the circular economy and the role for higher education

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Environmental Policy Advisor

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Presentation Outline

1. Why a circular economy is essential to fight climate change
2. Why the public sector is essential to the circular economy story
3. Integrating circularity into your operations and decision-making

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About Zero Waste Scotland

Funded by Scottish Government and ERDF, we exist to help Scotland achieve its vision of a more circular, sustainable economy in a world with limited resource.

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Section 1:

Why is the circular economy essential to the fight against climate change?

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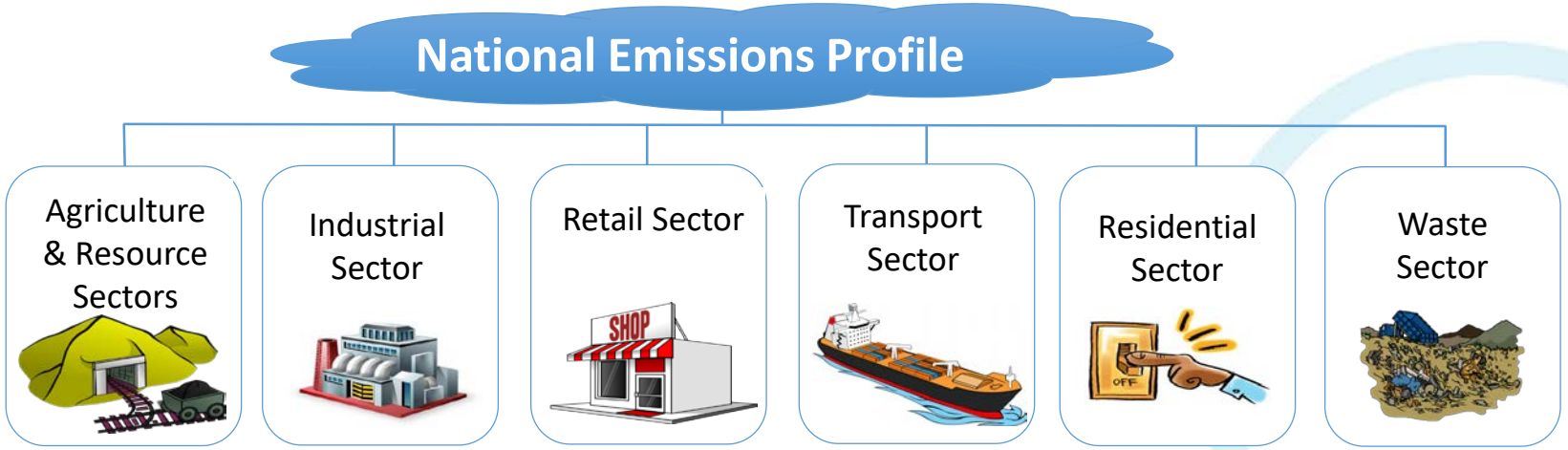
‘Supply-Side’ Decarbonisation

The predominant approach to tackling climate change

- **Reducing the carbon intensity per unit of supply (kwh, km, kg etc.)**
- Very practical approach
  - Matches existing government structure
  - Sector-specific, discrete actors, focused interventions
  - Techno-focus (no behavior/business model changes)
- Basis for international emissions reporting



‘Supply-Side’ Decarbonisation

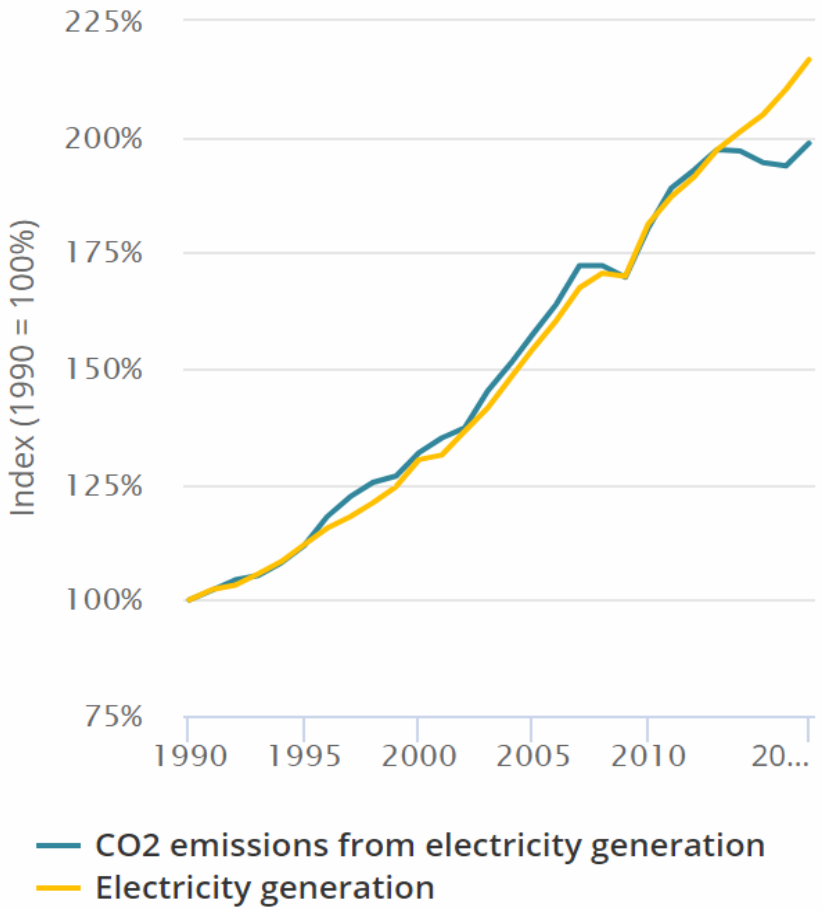
From cars to trains to washing machines, supply-side decarbonisation is working!

- Between 2010-2018, global carbon intensity of electricity generated fell 10% (avg. 475gCO2e/kwh).

But it’s outpaced by demand growth:

- Over the same period, electricity consumption grew 20%

International Energy Agency (2019)



Territorial vs. Consumption Emissions

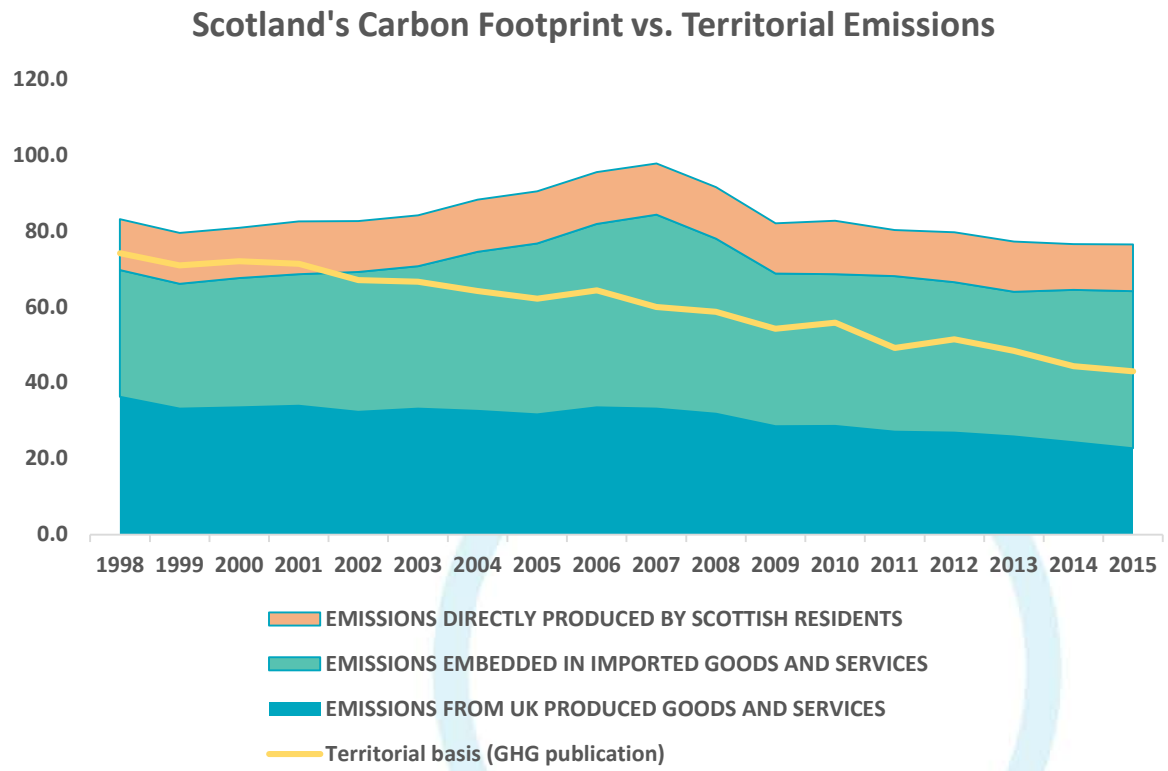
By offshoring emissions, developed countries are hitting emissions targets but not solving climate change

84% of Scotland's carbon footprint are from goods and services

- ¾ due to material consumption (ZWS, 2015)
- Increasing carbon imports (emissions outsourcing)

Growing gap between Scotland's territorial emissions & carbon footprint:

- Between 1998 and 2015, Scotland's territorial emissions fell 42%; carbon footprint just 8%



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Decarbonising supply remains critical, but we also need to reduce demand…

Enter the Circular Economy…

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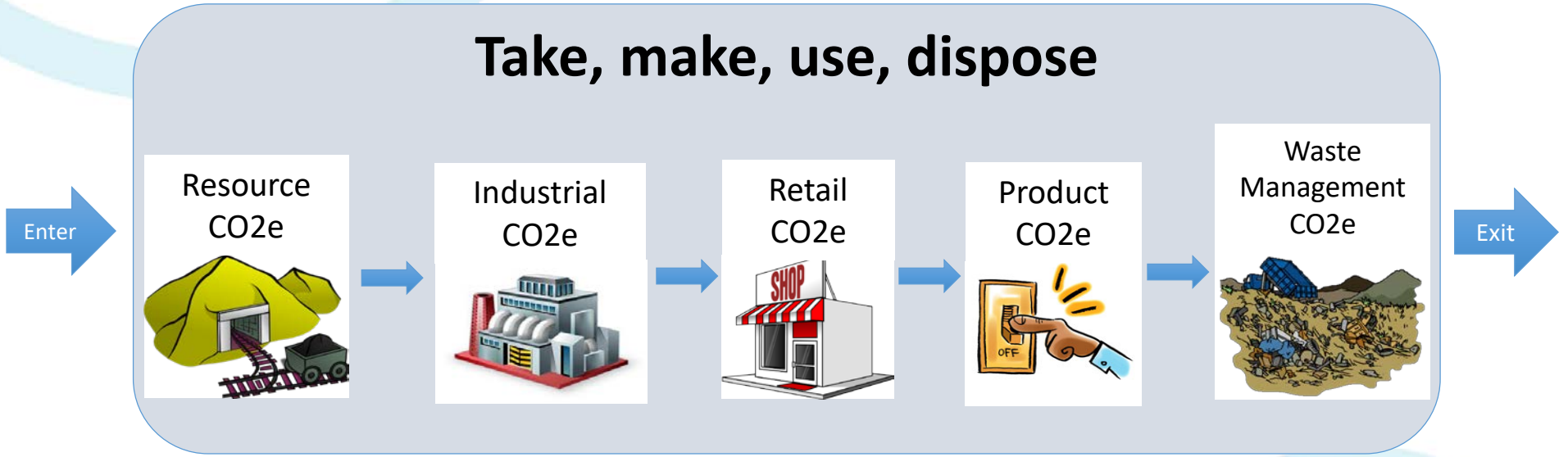
The Linear Economy



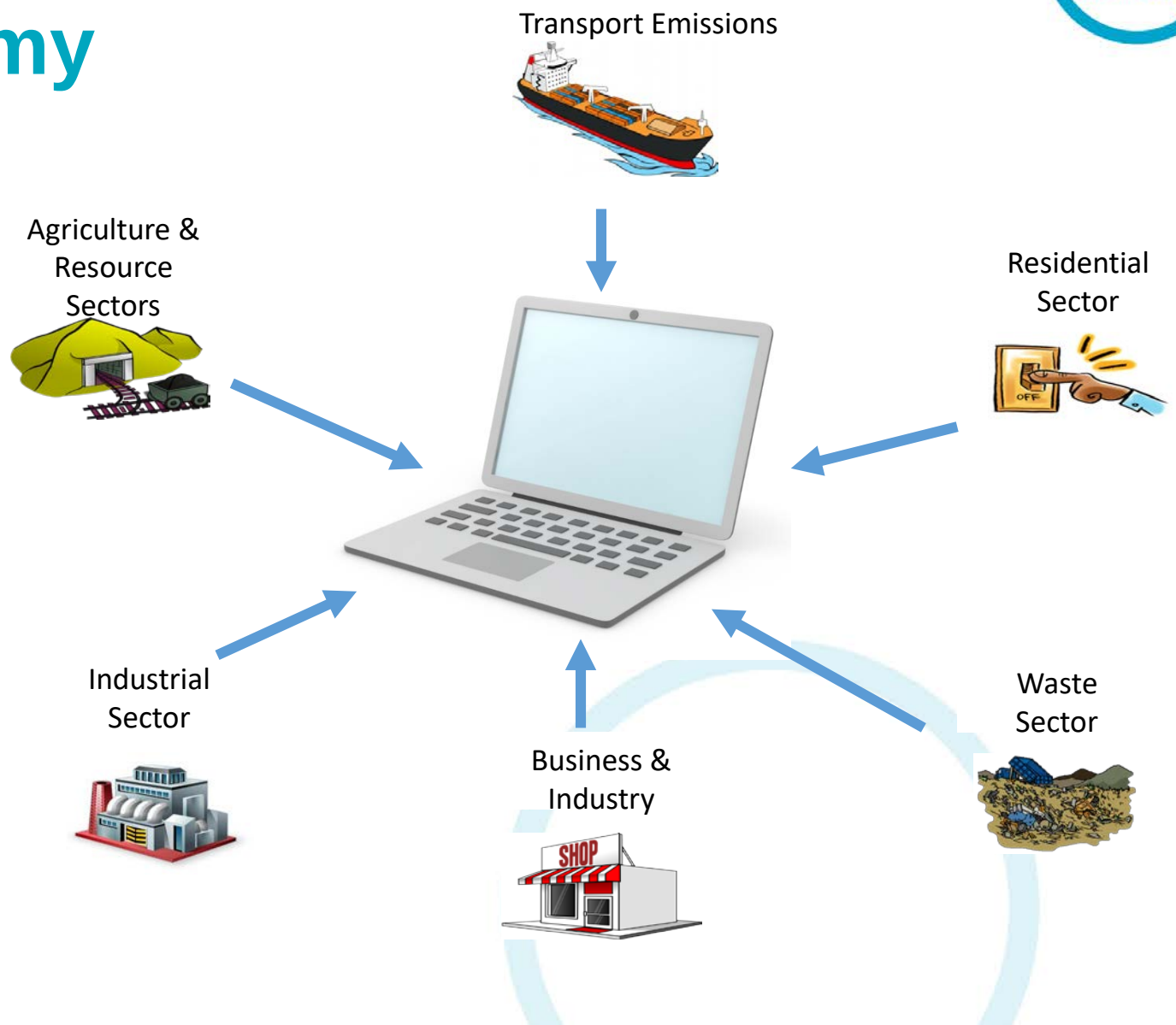
<u>High material demand + low material retention = carbon inefficient</u>

Supply side decarbonisation does not address this fundamental inefficiency

The Circular Economy

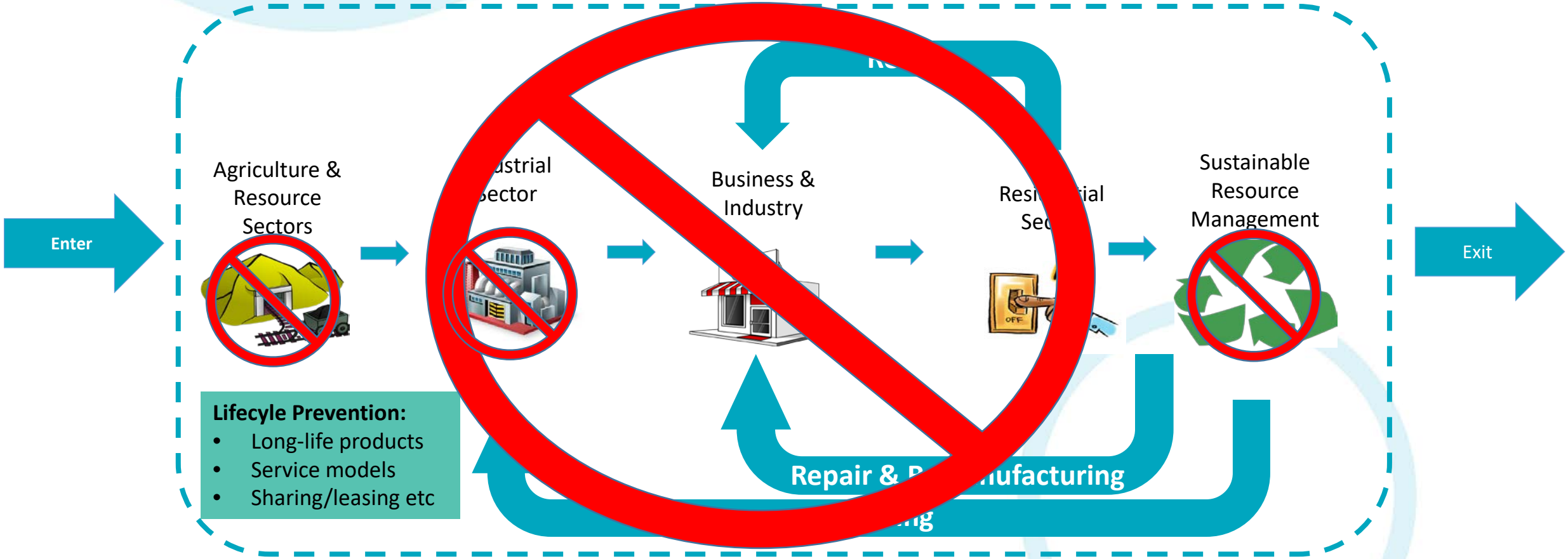
Whole Lifecycle Perspective:

The majority of global emissions are driven by material consumption and waste



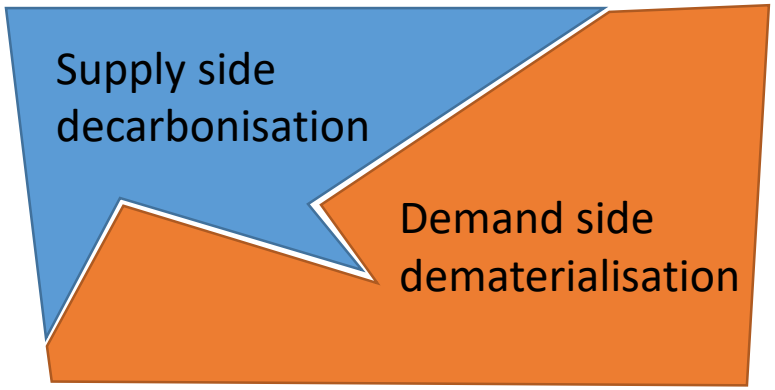
The Circular Economy

CE interventions aim to eliminate lifecycle stages or whole product lifecycles



The Circular Economy

‘Demand-side dematerialisation’



By reducing overall material demand, the circular economy offers a complementary approach to conventional ‘supply-side decarbonization’.

Key Challenges:

Lack of Material Data - limits our ability to measure, implement and even imagine circular solutions

Requires behavioural and business model change – this takes time, imagination and leadership!

Beyond Carbon

The Circular Economy is more than a climate change solution

- Our material consumption is also responsible for habitat and species loss, deforestation, marine plastic pollution, declining ecosystem services etc. at a global scale.
- Increasingly, these non-carbon impacts are capturing public attention, and driving demand for action
- **The Circular Economy can not only help solve climate change; it can also help address the myriad other environment issues we face.**

Section 2:

Why is the public sector essential to the circular economy?

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The Role of the Public Sector and Higher Ed.

Helping bring circular economy solutions to market

Problem: Chicken or Egg?

- We need new products, services and business models that cut material use
- But businesses won't risk developing them unless there is already demand

Solution: Public Procurement

As major consumers, public sector orgs can create the base-level demand needed to kick-start circular innovations and bring them to the wider market.

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“We will mobilise the £11 billion of annual public procurement to support our […] climate change and circular economy obligations.”

Scottish Government, 2019-20
Programme for Government

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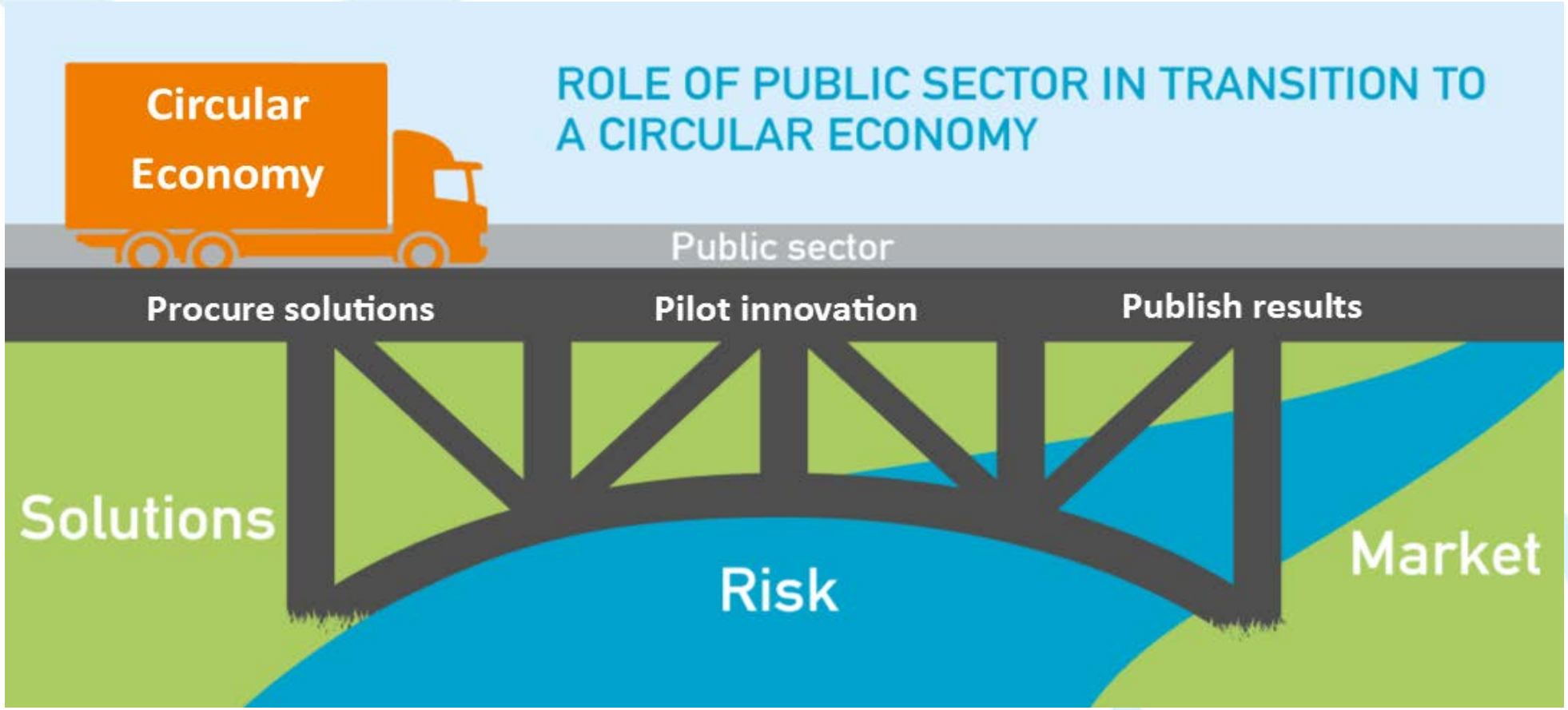
The Role of the Public Sector

Helping bring circular economy solutions to market



Section 3:

Integrating circularity into your operations and decision-making

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Going Circularity

Step 1 - Baseline

“You can’t manage what you can’t measure.”

- Establishing a baseline will help you identify ways to reduce it.
- **Waste is an easy and good place to start**, because it accessible, and provides a window into our wider material consumption.

Going Circularity

Step 1 - Baseline

Waste: a window into our wider material consumption

1. **Obtain weights** by material and management type
   - Your waste contractor may be able to provide these, otherwise you can weigh your bins (this is what Zero Waste Scotland does).
2. **Periodic waste audits to determine**
   - Material composition of mixed waste streams
   - Contamination – what are people confused by?
3. **Apply the Scottish Carbon Metric**
   - To quantify the whole life carbon impacts of your waste
   - Zero Waste Scotland can support

Going Circularity

Step 1 - Baseline

Products & Materials of Interest

1. **Identify a specific product/material you want to tackle**
   - Surveying staff, students, other stakeholders may help here.
2. **Baseline**
   1. Quantify consumption - how many units are you consuming?
   2. Material Composition – what are they made of?
   3. How are they disposed of at end-of-life?
3. **Apply the Scottish Carbon Metric**
   1. To quantify the whole life carbon impacts of your waste
   2. Zero Waste Scotland can support

Going Circularity

Step 2 – Take Action

1. **Identify the problem(s)**
   - Single-use, contamination, underutilized stock, short-life product etc.
2. **Identify potential solutions**
   - Consult with key stakeholders (staff, students, suppliers) and experts
3. **Map user journey**
   - To visualize change, identify and address any issues
4. **Implement and Monitor**
   - Repeat baseline process to measure material and carbon change
   - Where relevant, survey affected stakeholders

Going Circularity

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Going Circularity

Step 3 – Share your findings!

- **If we fail to share our successes and failures, we deprive others from learning and improving, and make sustainability harder.**
- Sharing your journey showcases your commitment to stakeholders, and makes it easier for other to follow your lead.

The Role of the Public Sector

Helping bring circular economy solutions to market

Example: NHS Cups Trial

1. Identify product of interest – the NHS consumes millions of single-use cups each year, and wanted to take action to reduce them.
2. Baseline – working with Zero Waste Scotland at a trial location (Crosshouse Hospital), a baseline was developed
3. Solution – developed through engagement with hospital and catering staff, and advice from Zero Waste Scotland
4. Implementation and Monitoring – consumption, waste and survey data
5. Share results – report published on NHS website (national policy influence)

Thank you.

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Resources Plan

- No longer Waste Plan
- Focusses on a closed loop system (Circular Economy)
- Avoiding Waste as the priority

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Catering

- Stopping the sale of plastic water bottles
- Vegware and In-vessel composting
- Removing cups from retail outlets
- Tray Free Dining

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StAnd Reuse

- 5 Tonnes (2018) to over 37 Tonnes (2019)
- Waste avoidance- Pass it on

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Furniture Reuse

- Reuse collections across Halls and old halls
- Charities- Clean and Green and British Heart Foundation
- Working with Furniture suppliers to provide a closed loop system and take back scheme

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Recycling

- Measuring how much waste we produce
- Simplifying recycling through introducing mixed recycling
- Smartening up internal recycling facilities
- Standardising recycling facilities (not easy)
- Beginning to look at lab plastic waste

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Raisin Monday

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Plastic Free St Andrews

- Introduce town wide recycling both for households and on street
- Encourage reuse through promoting plastic reduction and introducing reusable cups
- Increase litter picks across beaches and implement a plastic patrol campaign to encourage people to pick up waste on beaches
- Work with Scottish Water to introduce water fountains across the town, increasing the ease of using reusable water bottles over disposable single use plastic bottles.