



Factsheet: Circular Economy in the United Kingdom

Key opportunities for Dutch businesses

Partners:

usefulprojects

part of the Useful Simple Trust



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Executive Summary

Overview

The aim of this factsheet is to be a useful starting point for Dutch circular economy (CE) companies who are interested in doing business and collaborating in the UK, but haven't done so before. It is particularly aimed at Small and Medium Enterprises (SMEs).

This factsheet provides a high-level overview of three key sectors: **construction, manufacturing and waste management**. For each sector, we include case study references and insights into the future of the sectors.

This factsheet also highlights key circular economy activity in different regions in the UK, including local authorities, businesses, universities and institutions.

Finally, it provides top tips for doing business and collaborating on the circular economy in the UK, based on insight from Dutch businesses who have already been through the process and are providing products and services in the UK.

“The UK is advanced in its approach to sustainable development and action on climate change internationally, and momentum behind the circular economy is growing for government and businesses alike. There is huge opportunity for Dutch circular economy businesses to supply their products and services to the UK market.”

Useful Projects

Recommendations

1. UK market opportunity

UK circular economy policy and practice is evolving, and the market is ripe for innovation. Dutch circular economy-focused SMEs and larger enterprises should look to the UK market for opportunities to supply products, set up business or simply develop collaborations.

2. Key sectors

The sectors with the biggest potential for circular economy solutions in the UK are construction (buildings and infrastructure) and manufacturing (particularly food and drink which is the biggest sector). Within manufacturing, key areas of growth with CE potential are electric vehicle batteries, and wind turbines. The waste sector is also a key opportunity, particularly CE solutions for managing plastic packaging. Dutch CE businesses active in these sectors should actively seek to do business in the UK.

3. Top tips

Dutch businesses looking to enter the UK market should consider the ‘top tips’ identified in the three case studies from companies who have successfully supplied circular economy products to the UK market, or set up registered companies in the UK.

4. Support

Dutch businesses should contact the [Dutch Embassy](#) or visit the [Digital Trade office](#) for help finding reliable business partners or getting answers to any trade questions.

Top tips from Dutch businesses who have supplied products and services to the UK

- Ensure your website is in English and focus on search engine optimisation of key words so potential clients can easily find you.
- Offer free Continuing Professional Development sessions to potential clients and collaborators in the UK where they can learn about your product/service.
- Consider setting up an ‘Innovation Panel’ or something similar that includes UK experts.
- Try to build a network of informal ambassadors or “fans” of the product from different organisations, who will refer and recommend you to their friends in the industry.
- Ensure compliance with UK legislation and standards which may differ from the EU.
- Find a support organisation in the UK (like Cambridge Cleantech) to help develop your network and customer base.
- For SMEs: take advantage of the UK’s flexible labour market to reduce the risk of expanding into the UK by hiring part-time representatives.
- Use an agency to streamline the process of becoming a UK LTD and ensure you meet all the regulatory requirements.
- Hire UK staff as soon as possible to deal with UK clients, recognising that there are cultural differences.
- Develop relationships with Universities to support R&D.
- Be active in the circular economy sector – develop relationships quickly with investors.
- Get a good lawyer – the Landlord and Tenancy Act is completely written the other way around in NL. In UK, it protects landlords, in NL it protects tenants.

Facts & figures

UK Circular Economy

 **2042**

The UK targets the elimination of all avoidable plastic waste by 2042.

 **7%**

Growth in manufacturing output over the past 5 years

 **£22.5m**

UK Government investment in five interdisciplinary circular economy centres

 **£9bn**

Turnover of the UK waste sector

 **£75m**

Boost to the UK economy by transitioning to a circular economy

 **£650bn**

The national infrastructure and construction pipeline investment for the next decade

 **21m tonnes**

Material savings by harnessing the potential of the UK's circular economy

 **Net zero by 2050**

The UK was the first major economy to set a legally binding climate change target

1

Introduction

This section provides an overview of the circular economy market maturity and scale of opportunity in the UK, and provides the policy context from national, regional and local government level.

It also includes a map of key circular economy activity in the UK.

1. Introduction

Factsheet purpose and overview

The Netherlands is renowned for being leaders in the circular economy internationally. The United Kingdom ('UK', comprising England, Wales, Scotland and Northern Ireland) is committed to moving towards a more circular economy and many regions and sectors are starting to take action. There are significant opportunities for British-Dutch collaboration, and for Dutch circular economy companies to supply their products and services to the UK market.

The aim of this factsheet is to be a useful starting point for Dutch circular economy companies who are interested in doing business and collaborating in the UK, but haven't done so before. It is particularly aimed at Small and Medium Enterprises (SMEs).

This factsheet provides a high-level overview of three key sectors:

- Construction
- Manufacturing
- Waste management

For each sector, we include case study references and insights into the future of the sectors.

This factsheet also highlights key circular economy activity in different regions in the UK, including local authorities, businesses, Universities and institutions.

Finally, it provides top tips for doing business and collaborating on the circular economy in the UK, based on insight from Dutch businesses who have already been through the process and are operating successfully in the UK.

The circular economy opportunity in the UK

The circular economy opportunity in the UK is significant, particularly in the construction, manufacturing and waste management sectors, but also for textiles, plastic packaging and food systems. The UK is advanced in its approach to sustainable development and action on climate change internationally, and momentum behind the circular economy is growing for government and businesses alike.

There is increasing recognition that the circular economy has tremendous financial, environmental and social benefits and there are calls for the UK to accelerate its transition. The Waste and Resources Action Programme (WRAP) has forecasted that a circular economy could bolster the UK economy by £75 billion. It could create half a million jobs and help the UK build a sustainable and resilient economy following the Covid-19 pandemic and the UK's exit from the EU ("Brexit"). Additionally, harnessing the potential of the circular economy could deliver 21 million tonnes in material savings and over 38 million tonnes of waste diverted from landfill.

"The UK Circular Economy Package is part of the Government's existing commitment to move towards a more circular economy and reach Net Zero greenhouse gas emissions by 2050. The UK is already a global leader, with the Resources and Waste Strategy setting out our comprehensive and ambitious plan to transform our waste industry and produce a more circular economy by going further and faster to reduce, reuse and recycle more of our resources.."

UK Dept. for Environment, Food and Rural



Key sector: construction



Key sector: manufacturing



Key sector: waste management

1. Introduction

UK circular economy maturity

In general, the circular economy is less established in policy and practice in the UK compared to the Netherlands.

Charities like [The Waste and Resources Action Programme](#) (which operates as WRAP) and [Business in the Community \(BITC\)](#) have worked across the UK to deliver practical solutions to reduce waste and improve resource efficiency.

However, the development of the CE in the UK has been quite fragmented, with policies and strategies being developed by different regions. This is explained further in this factsheet.

National context: environmental policy

The UK was the first major economy to set a legally binding target to be net zero by 2050, and [‘The Net Zero Strategy: Build Back Greener’](#) sets out policies and proposals for decarbonising all sectors of the UK economy to meet its net zero target by 2050.

The UK Government is committed to moving towards a more circular economy. In the past there have been various policies focused on diverting waste to landfill, but lacked a circular economy focus. It has stated that leaving the EU (commonly referred to as “Brexit”) has not changed its world leading ambitions on the environment, and it has no intention of weakening its policy in this area.

[The UK has adopted the EU Circular Economy Package](#) (CEP) which introduces a revised legislative framework, identifying steps for the reduction of waste and establishing an ambitious and credible long-term path for waste management and recycling.

Motivators for transitioning to a circular economy in the UK extend far beyond resource efficiency. There are also significant opportunities to improve skills, create jobs and drive progress towards national climate targets. According to the [Closing the Loop report](#) by the Aldersgate Group, 517,000 jobs could be created across the UK by 2030, generating a net gain in Gross Value Added of £9.1bn.

The CE was explicitly mentioned in the UK Government’s 2017 [Industrial Strategy](#) which recognised it presents strong opportunities for innovation and collaboration in meeting targets for clean growth. This has now been superseded by the Government’s more recent strategy [‘Build back better: our plan for growth’](#) (2021). ‘Build back better’ set out the government’s plans to support economic growth through significant investment in infrastructure, skills and innovation - including investment in a more circular economy.

[The Environment Act](#) became law in 2021, and acts as the UK’s new framework for environmental protection following the UK’s exit from the EU. The Act focuses on cleaning up the country’s air, restoring natural habitats, increasing biodiversity, reducing waste and make better use of resources. It intends to help the UK transition to a more circular economy, incentivising people to recycle more, encouraging businesses to create sustainable packaging, making household recycling easier and stopping the export of polluting plastic waste to developing countries. Work on implementing Environment Act policies is well underway. The government has started developing legally binding environmental targets, and launched consultations on the deposit return schemes for drinks containers, extended producer responsibility for packaging and consistent recycling collections which will transform the way the UK deals with our rubbish. See the waste management section of this factsheet for more information.

National context: social policy

The UK suffers from geographic economic, social and health inequalities: talent is spread equally across the country, but opportunity is not. This is often referred to as the [‘North South Divide’](#) which distinguishes the ‘wealthier’ regions of London, the South East, and the West from the rest of the UK.

[‘Levelling up’](#) is the UK Government’s mission to challenge, and change that unfairness. Levelling up means giving everyone the opportunity to flourish, live longer and more fulfilling lives, and benefit from sustained rises in living standards and wellbeing.

The benefits of CE approaches are currently typically addressed through the environmental and economic dimensions, neglecting social benefits. We forecast that the most successful circular economy manufacturing businesses in the future will also consider how social benefits can be created, contributing to the [UK Government’s new Levelling Up white paper](#).

Social value creation is of increasing importance in both public and private sector procurement, particularly driven by the [Social Value Act](#) and [Procurement Policy Note 06/20](#). This is particularly beneficial for SMEs. PPN 06/20 encourages businesses to create a diverse supply chain to deliver the contract including new businesses and entrepreneurs, start-ups, SMEs and voluntary community and social enterprise (VCSE) organisations.

Businesses are also seeking to create social benefits for communities and stakeholders through their corporate social responsibility strategies.

1. Introduction

National context: government investment

In 2020 the UK Government invested £22.5 million in five new UK Research and Innovation (UKRI) interdisciplinary [circular economy centres](#) to move the UK towards a circular economy. The five centres are:

- The Interdisciplinary Textiles Circularity Centre, led by the Royal College of Art.
- The Interdisciplinary Circular Economy Centre for Mineral-based Construction Materials (ICEC-MCM), led by University College London (UCL).
- The Interdisciplinary Centre for Circular Chemical Economy, led by Loughborough University.
- The Interdisciplinary Circular Economy Centre in Technology Metals, led by the University of Exeter.
- The Interdisciplinary Centre for Circular Metal, led by Brunel University London.

As well as the interdisciplinary centres, which have been allocated £4.5 million in UKRI funding each, UKRI has provided £2.5 million of funding to enable small and medium enterprise involvement with centres. They will support an integration hub to provide national leadership and coordination, driving knowledge exchange and whole-systems learning.

UKRI supports international researchers to get visas in the UK as part of a fellowship or research team. For international businesses to be involved, they need to be based in the UK or part of a team that has at least one person from the UK to get research funding.

Regional level context: devolved administrations

The four countries (or “devolved administrations”) within the UK are all at different levels of CE maturity, with Wales, Scotland and England being the most advanced:

- **England** – [The Resources and Waste Strategy \(RWS\) for England](#) forms part of the UK government’s commitment in the [25 Year Environment Plan for England](#) to leave the environment in a better state than we inherited it.
- **Scotland** – In 2016, the Scottish Government produced its first circular economy strategy ‘[Making Things Last](#)’ which puts focus on the manufacturing industry as a driver for circularity, and Scotland set a series of ambitious targets to drive circularity. [Zero Waste Scotland \(ZWS\)](#) is the main organisation encouraging the development of new circular economy solutions in Scotland.
- **Wales** – In 2021, the Welsh Government published its Circular Economy Strategy ‘[Beyond Recycling](#)’ which aims to support the green recovery by taking actions which support a zero waste, net zero carbon Wales that uses its fair share of resource. It is considered one of the most advanced countries in the devolved nations for its CE policy and plans.
- **Northern Ireland** is not so advanced in CE or sustainability. It is lacking policy in this area due to the collapse of the Northern Irish Government between 2017-2020. The Department of Agriculture, Environment & Rural Affairs (DAERA) is currently developing the ‘[Environment Strategy for Northern Ireland](#)’ which will consider the main long-term environmental priorities for Northern Ireland.

Local government context

Local government is a driving force for the circular economy and the net zero carbon agenda in the UK.

The local government structure across the UK varies from country to country and is quite complex. The [www.politics.co.uk](#) website provides a good overview.

Several Local Authorities (also known as Councils) have commissioned studies to identify CE opportunities in key sectors and stimulate the market. Circular Economy Routemaps have been produced by several local governments including:

- [London](#)
- [West Midlands Combined Authority](#)
- [Glasgow](#)
- [Brighton and Hove](#)

[Essex County Council](#) is leading the ERDF-funded BLUEPRINT project that will help local authorities in England, France and beyond transition to a circular economy. The project will create a toolkit for local authorities, develop a circular economy training programme and engage residents and businesses in circular economy practices.

There are 38 [Local Enterprise Partnerships \(LEPs\)](#) in England, which are locally-owned partnerships between local authorities and businesses. LEPs play a central role in determining local economic priorities and undertaking activities to drive economic growth and the creation of local jobs. Several LEPs have identified an interest or have started planning to include CE-related activities in their Strategic Economic Plans, for example Greater Manchester, Yorkshire and Oxfordshire.

Key activity in different regions of the UK

★ Key organisations

- 1 [ReLondon](#)
- 2 [WRAP](#)
- 3 [The National Interdisciplinary Circular Economy Research Hub \(CE Hub\), led by University of Exeter](#)
- 4 [Scottish Institute for Remanufacturing, University of Strathclyde, Department of DMEM](#)
- 5 [Zero Waste Scotland \(ZWS\)](#)
- 6 [Scottish Enterprise](#)

🔍 Research & collaboration

- 1 [Cranfield University – one of six CE ‘Pioneer Universities’ in the world](#)
- 2 [The Interdisciplinary Circular Economy Centre for Mineral-based Construction Materials \(ICEC-MCM\), led by University College London \(UCL\)](#)
- 3 [UCL Circular Economy Lab](#)
- 4 [Cambridge Cleantech](#)
- 5 [The Interdisciplinary Centre for Circular Metal, led by Brunel University London](#)
- 6 [The Interdisciplinary Textiles Circularity Centre, led by the Royal College of Art](#)
- 7 [The Interdisciplinary Centre for Circular Chemical Economy, led by Loughborough University](#)
- 8 [Circular Economy Hub, led by University of Exeter](#)
- 9 [The Interdisciplinary Circular Economy Centre in Technology Metals, led by the University of Exeter](#)
- 10 [Yorkshire Circular Economy Lab](#)

🟢 CE strategies, policies and route maps

- 1 [London: CE Routemap](#)
- 2 [London: CE Statement required for major developments](#)
- 3 [UK’s Environment Bill](#)
- 4 [Brighton & Hove: CE Routemap](#)
- 5 [Peterborough: Circular City Programme](#)
- 6 [WMCA: CE Routemap](#)
- 7 [Stoke-on-Trent & Staffordshire: Make it](#)
- 8 [Cardiff Capital Regions \(CCR\): Industrial & Economic Plan](#)
- 9 [Wales: CE Strategy ‘Beyond Recycling’](#)
- 10 [Glasgow: CE Routemap](#)
- 11 [Scotland: CE Strategy ‘Making things last’](#)
- 12 [Zero Waste Scotland: CE Investment fund](#)
- 13 [DAERA’s Environment Strategy – currently out for consultation](#)

⚙️ Sector activity

- 1 **South East:** Electronics manufacturing, drive to digital technologies and automati
- 2 **Midlands:** Key region for car manufacturing, aerospace, ELV battery manufacturing
- 3 **Stoke-on-Trent & Staffordshire:** Key region for advanced materials, automotive, ceramics
- 4 **North West:** Biggest region for manufacturing output
- 5 [Sunderland gigafactory](#)
- 6 [Teesside: N+P Production facility](#)
- 7 [Teesside: Mura Technology advanced plastics recycling plant](#)



2

Sector overviews:

- Construction
- Manufacturing
- Waste management

For each sector, we provide a general introductory overview, provide links to case studies, discuss future insights, and highlight key conferences, resources and networks.

2. Sector overview: Construction

Overview

- The construction sector is vital to the UK economy, being one of the **largest sectors and a key source of the employment**. However, in the past it has suffered from low levels of investment, insufficient focus on a move towards net zero emissions and not enough modernisation of skills and innovation. This was further hampered by the COVID-19 pandemic, which at times reduced the workforce, created issues with supply chains and diminished productivity. The UK is committed to turning this situation around.
- The [National Infrastructure and Construction Pipeline](#) sets out an **ambitious pipeline of investment** totalling almost £650bn, the highest figure ever reported. This investment will be delivered over the next decade, building back and delivering thriving regions, cities, towns and communities across the country.
- The [Construction Index](#) lists the Top 100 Construction Companies in the UK. As well as summarising turnover, it also highlights that **profitability in the construction sector is an ongoing challenge** (even before the pandemic struck, profitability was struggling).
- The UK construction industry is notoriously **risk averse and slow to innovate**.
- **Health and safety** remains a top priority, and the transition to net zero carbon is also increasingly important in the construction sector.
- CE is emerging as a **key topic for the built environment sector to focus on**, driven by policy, rising material and construction costs, resource scarcity, and the link with embodied and whole life carbon.
- CE is a big focus area for the **UK Green Building Council**, who launched a [Circular Economy programme for the built environment in 2018](#).
- The circular economy is also a key area of focus for the **Green Construction Board**. The new [Low Carbon Concrete Routemap](#) - the culmination of more than two years of work by the Green Construction Board's Low Carbon Concrete Group (LCCG) - was launched in 2022.
- The [London Energy Transformation Initiative](#) (LETI) recently launched two **new publications on circular economy and carbon in construction**. LETI is a network of over 1000 built environment professionals that are working together to put London on the path to a zero carbon future.
- **Tools** have been launched to support the construction industry engage with the circular economy including the [Regenerate](#) tool by the University of Sheffield Urban Flows Observatory, and the [Circular Buildings Toolkit](#) by Arup and the Ellen MacArthur Foundation.
- The UK is part of several **EU funded collaborative projects** including [CIRCuiT – Circular Construction in Regenerative Cities](#) and the [BAMB Project](#) – these are exciting ways to be part of innovative projects and build relationships with key stakeholders in the UK.
- The **Greater London Authority** now requires a [Circular Economy Statement](#) to be submitted with planning permission for major developments, which has stimulated construction projects in London to start addressing the circular economy in a more meaningful way.
- Built environment **clients** are starting to explore CE opportunities and include CE in policies and design briefs. For example:
 - + *High Speed 2 (HS2) has established a series of [Circular Economy Principles](#). HS2's vision is to be a catalyst for growth and they recognise the adoption of circular economy principles can play a key role in delivering this through stimulating new approaches, products and services, and by creating employment opportunities. They are actively seeking suppliers who can help them meet their aims.*
 - + *The Crown Estate, who manages a £12bn real estate portfolio, is committed to embedding principles of the circular economy in its operations. They have a target to be a carbon-free, waste-free business by 2030 and are part of the [Ellen MacArthur Foundation CE100 Programme](#).*
- **Architects and engineers** are increasingly focusing on reuse of existing assets, modular approaches, design for flexibility and ease of maintenance. Several projects include meanwhile uses and these temporary projects are ripe for CE principles to be applied.
- The construction sector's **procurement approach** to take into account CE is less advanced than the Netherlands. The main focus areas in UK construction procurement are whole life carbon and social value.

2. Sector overview: Construction

UK case studies

- Business in the Community has published [four Advancing Circular Construction case studies](#) from the building and infrastructure sectors. The case studies are from real estate advisors Jones Lang LaSalle (JLL), infrastructure client Tideway, University College London and the Flat House (a prefabricated construction system using hemp, designed by Practice Architecture).
- [The Circular Buildings Toolkit](#) includes 16 case studies including several from the UK and the Netherlands.
- The 'Circular Economy in Action' portfolio by leading circular economy consultants Useful Projects and structural engineering designers Expedition includes a selection of circular economy case studies and programmes across the UK.
- There are some examples of CE business models in the built environment such as product-as-a-service lighting e.g. [National Union of Students head office](#), but this is not mainstream.

Future insights

- The [President of the Institution of Civil Engineers](#), Ed McCann is focusing on improving infrastructure **productivity** within the context of delivering the United Nation's Sustainable Development Goals, and achieving net zero carbon by 2050, sending a strong signal to the sector to focus on these areas. He urges civil engineers to strive for efficiency and effectiveness, which the circular economy can contribute to. He also encourages the sector to be more imaginative and more diligent in developing an operating infrastructure that maximises the benefit to our communities.

- **Technology** is rapidly redefining the construction industry as it is other sectors. The rise of digitisation, offsite manufacturing and robotics in construction is expected to bring about a huge increase in productivity in what is a very large but historically low-productivity sector.
- For years, developers have remained on the fence when it comes to **modular buildings**, meaning uptake has been slow. However, we are now seeing a shift in attitude when it comes to offsite building techniques, largely driven by increased awareness of the time and cost-saving benefits. This in turn is leading to an increase in adoption.
- Increased global demand in the construction sector, combined with the multiple and complex impacts of the pandemic and logistic issues, have resulted in unprecedented shortages, delays and ultimately, **increased prices of materials and labour across the economy**.
- In 2021, the government released its [Heat and Buildings Strategy](#), which brings together the government's work on energy efficiency and clean heat and sets out the vision for a greener future. By 2025, all new homes will be banned from installing gas and oil boilers and will instead be heated by low-carbon alternatives. New homes will have alternative heating systems, such as **heat pumps**, which presents a circular economy opportunity. In addition to the 2025 goal, the Heat and Buildings Strategy also states that it's aiming to phase out the installation of natural gas boilers beyond 2035. As such, there will be a circularity opportunity associated with managing waste from existing gas boilers.

Events, networks and information sources

- Stakeholders can keep abreast of the latest developments in sustainable construction in the UK through several resources and networks including:
 - + [Footprint Plus](#) – the new UK property event for a Zero Carbon Future.
 - + [Futurebuild](#) – a curated exhibition and conference showcasing manufacturers and suppliers of the most innovative technology, products and services. Occurs annually.
 - + [The UK Green Building Council \(UKGBC\)](#), a charity and membership organisation with over 600 member organisations spanning the entire built environment sector.
 - + [The Construction Products Association \(CPA\)](#), the organisation that represents and champions construction product manufacturers and suppliers in the construction sector.
 - + [The Institution of Civil Engineers \(ICE\)](#), the global professional membership body for the infrastructure sector.
 - + [Building](#), the UK's leading online magazine/website for construction professionals featuring the latest news, expertise and intelligence from the Building industry. Building also hosts a broad range of events across the country and online, alongside hosting the prestigious construction industry awards - the Building Awards.
 - + [Construction News](#), which provides news on projects and contracts, market insights & trends.

2. Sector overview: Manufacturing

Overview

- The concept of the circular economy has gained traction in the manufacturing sector in recent years and is arguably the most advanced sector worldwide in this regard.
- [The Great Recovery](#) was a very successful programme that investigated the role of design in the circular economy. It was a joint programme between Innovate UK and the RSA and ran between 2012 and 2016. This programme supported a number of large competitions by Innovate UK to get CE kick-started in the UK.
- [Producer responsibility regulations](#) in the UK cover packaging, electrical and electronic equipment (EEE), batteries and end of life vehicles (ELVs). Producer responsibility is about making sure businesses that manufacture, import and sell these products are responsible for their end of life environmental impact. The regulations require businesses to:
 - + *Minimise waste arising from these products and promote their re-use.*
 - + *Ensure the waste products are treated and meet recovery and recycling targets.*
 - + *Design products by reducing material use and enhancing reusability and recyclability.*
- Under the new [UK Environment Bill](#), the Government Department for Environment, Food & Rural Affairs (DEFRA) consulted on introducing [Extended Producer Responsibility](#) for packaging and packaging waste in 2021. The reforms will implement Extended Producer Responsibility (EPR) for packaging from 2024. It will focus on producer payments for managing household packaging waste and packaging in street bins managed

by local authorities and will appoint a scheme administrator to oversee this system. DEFRA also has intentions to introduce a Deposit Return Scheme (DRS) for plastic bottles in England and Wales in 2024 with future EPR in textiles, furniture and mattresses. [Scotland will be introducing a DRS scheme for PET bottles in summer 2023.](#)

- The UK targets the **elimination of all avoidable plastic waste** by 2042. A plastic packaging tax will become effective in 2022. [The UK Plastics Pact](#) brings together businesses from across the entire plastics value chain with UK governments and NGOs to tackle plastic waste.
- The UK is relatively advanced in **Industrial Symbiosis**. [The National Industrial Symbiosis Programme \(NISP\)](#), launched in 2005, was the world's first facilitated programme of its kind and has now been replicated in over 20 countries. Businesses use the NISP network, resource matching workshops, and on-site visits from practitioners to identify mutually profitable transactions that will eradicate waste and put underused resources into productive use. With recognition from the UN, European Commission and WWF, the NISP has enabled businesses in England to divert 47 million tonnes of industrial waste from landfill and reduce carbon emissions by 42 tonnes, while generating £1 billion in new sales revenue and safeguarding over 10,000 jobs.
- The UK **battery sector** is expected to grow rapidly as a result of the UK government's ban on internal-combustion engine vehicles by 2030, making the UK one of the largest EV markets in Europe. The future demand for batteries manufactured in the UK will require an additional [7 gigafactories by 2040](#) to supplement the UK's only gigafactory in Blyth, each

producing 20 GWh per year of batteries. There is also high demand for lithium-ion battery recycling within the UK as [339,000 tonnes of batteries are expected to reach end of life by 2040.](#)

- In 2020, **wind power** accounted for [24% of total energy in the UK](#), half of which is driven by the largest offshore wind farm in the world: [Hornsea One](#). From 2009 to 2020, electricity generated from wind increased by 715%, with a turnover of £6 billion in 2019. However, the circular economy surrounding wind turbines is immature, with a lack of recycling methods for Glass Fibre Reinforced Polymer (GFRP) materials that are scalable and in cost parity with landfill. With a life expectancy of 20-25 years, approximately [14,000 wind turbine blades will face landfill disposal or incineration within the next 3 years](#), requiring more sustainable materials in their production, alongside cost-effective and scalable recycling methods.

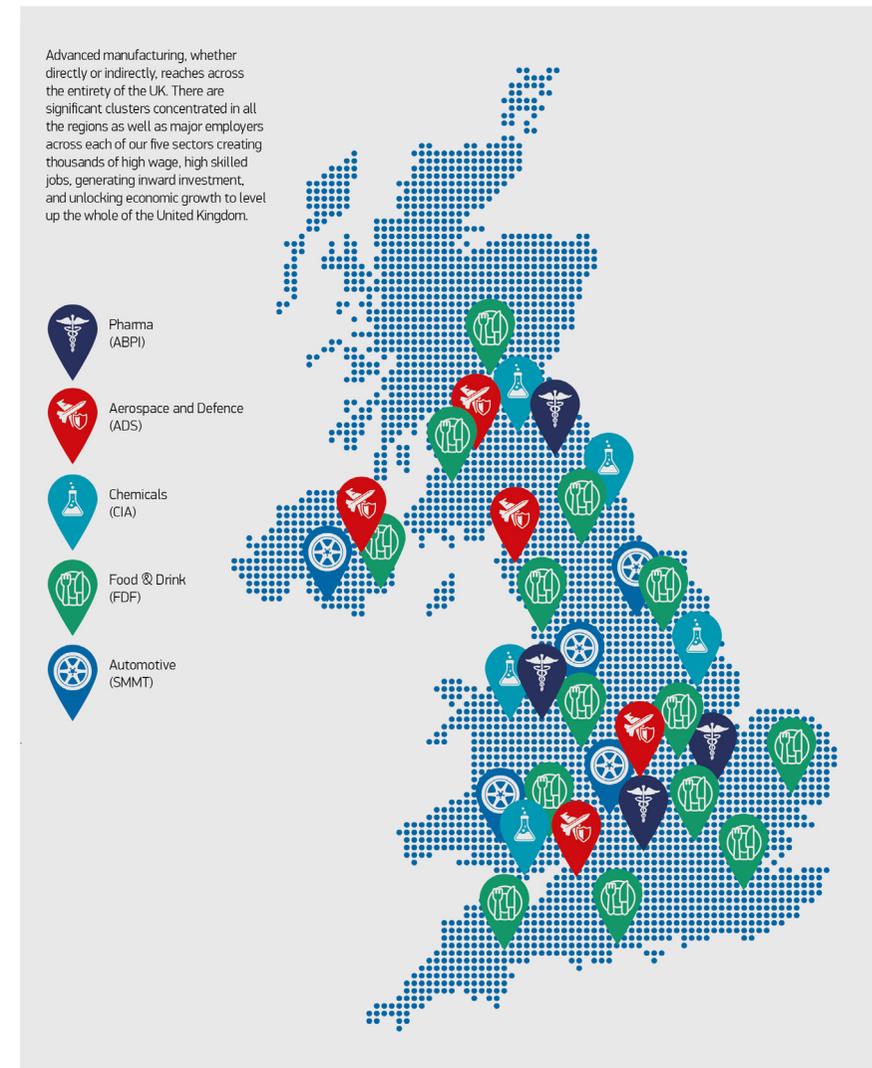


Wind turbine manufacturing is a key area of growth, and a CE opportunity

2. Sector overview: Manufacturing

- The UK retained its global position as the **ninth leading manufacturer and tenth in terms of global exports** with output totalling £191bn in 2019 – a growth of 7% over the last five years.
- Looking at the manufacturing industry by sector size, **Food and Drink remains the single biggest sector** contributing 15.1% of GVA worth roughly £73.1 billion, closely followed by transport (14.9% worth £72.1bn) and pharmaceuticals and chemicals (14.2% worth £68.7bn).
- According to the UK Manufacturer's Association, **The North West remains the single biggest region in terms of manufacturing output.** London and the South East is also a significant region - this is down to the heavy concentration of electronics – worth £4.7bn alone - in the South East which was already benefiting from the drive towards digital technologies and automation, a trend which the pandemic is likely to have accelerated.
- **The Midlands is known for being a manufacturing hub in the UK.** For example, the West Midlands is a major automotive hub, with 40% of all cars exported from the UK made in the West Midlands. It is also the largest aerospace cluster in the UK, with 25% of the country's aerospace sector located in the region. New ELV battery factories (Gigafactories) are planned.
- In 2021, five manufacturing trade associations published a [joint report setting out policy recommendations to maximise the potential of UK manufacturing to generate and sustain high value jobs and growth, and contribute to the UK Government's levelling up agenda](#). As part of this, they highlighted the key UK manufacturing clusters for five sectors, which is shown in the adjacent image.

UK MANUFACTURING CLUSTERS



UK Manufacturing Clusters. Image source: SMMT

2. Sector overview: Manufacturing

UK case studies

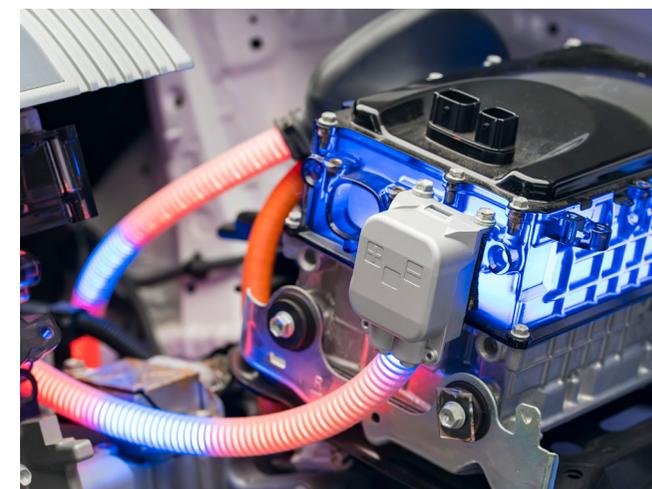
- The UK's [first battery recycling ecosystem](#) will be in operation by mid-2023 via a joint venture between battery manufacturer [Britishvolt](#) and [Glencore](#). The recycling plant located at the Britannia Refined Metal operation will recycle batteries from [Britishvolt's Gigafactory](#) in Blyth with a minimum processing capacity of 10,000 tonnes of lithium-ion batteries per year, and aims to be 100% powered by renewable energy.
- A pilot project to develop the [UK's first wind turbine blade recycling plant](#) has been launched after receiving a £1.3m grant from [Innovate UK](#). The three-year project is being led by Aker Offshore Wind, Composites UK, and researchers from the University of Strathclyde to commercialise a viable solution to recycling wind turbine blades. Their method separates the glass-fibre and resin components in wind turbine blades and recovers the glass-fibre component that can then be reprocessed and reused.
- [Samsung](#) is an example of an electronics manufacturer that is engaged in efforts to focus on a circular economy. Going beyond the conventional practice of using resources once and discarding them, Samsung is working to ensure that products can remain in use longer, and that resources can be reused at end of life by recovering, reusing and recycling after the product's lifespan.
- [British Steel](#) recognises that steel plays a central role in transitioning to a low-carbon, circular economy, and they are taking action on both of these agendas.

Future insights

- Manufacturers continue to face the hurdle of recyclability of materials, particularly recycling sophisticated plastics or other complex materials. There is **demand for innovative technology to separate complex materials** quickly and efficiently for recycling and reuse.
- Make UK recommends that moving forward, manufacturers should include research into understanding flexible remanufacturing, for example, or how **reverse logistics** can be harnessed to increase productivity and active disassembly for efficient material recovery.
- Make UK is calling for the introduction of a Green Skills Tax credit to incentivise manufacturers to **invest in green skills** and green collar jobs.
- The shift to a CE will require unprecedented **collaboration and innovation** between manufacturing businesses, government and universities across the whole of the UK.
- Covid-19 has demonstrated that the UK science base is one of the best in the world. There are **ambitions to invest 2.4% of GDP in R&D**. To become a science superpower will require a partnership between Government and industry.

Events, networks and information sources

- Stakeholders can keep abreast of the latest developments in manufacturing in the UK through resources and networks including:
 - + [The National Manufacturing Conference](#) which happens annually.
 - + [Make UK](#), the manufacturer's association.
 - + [The RSA](#) (The royal society for arts, manufactures and commerce)
 - + [Ellen MacArthur Foundation](#) (relevant to all sectors).



Electric vehicle battery manufacturing and recycling is a key CE opportunity.

2. Sector overview: Waste Management

Overview

- The **resources and waste management sector in the UK turns over an estimated £9 billion every year** and carries out a number of activities including waste collection, treatment, recycling, reprocessing, disposal and the generation of energy from waste.
- It is a dynamic **growth sector**, providing some 150,000 jobs and circa £7bn GVA according to the CIWM.
- The waste and secondary resource management industry has an important role to play in **improving resource availability and security** across the UK economy through the supply of the quality secondary raw materials and feedstocks. The sector also has an ever increasing and important role to play in **supporting the UK green recovery and longer term decarbonisation** across the UK economy.
- WRAP (Waste Resources Action Programme) and DEFRA collect the [UK Statistics on Waste](#) - waste arisings and percentage recycled. The latest figures from 2020 show that the **recycling rates** are 44.0% in England, 50.6% in Northern Ireland, 44.9% in Scotland, and 56.4% in Wales.
- In the UK, **waste management policies differ between countries**, however, the overall target is to achieve a 65% municipal recycling rate and 10% reduction in waste sent to landfill by 2035.

- **Each Local Authority has its own approach** and waste management contracts with regards collection, management, treatment and recycling of household waste. The municipal collection systems therefore vary between regions across the UK. [The Environment Bill](#) will seek to improve recycling rates by moving towards a consistent set of dry recyclable materials being collected from all households and businesses.
- [The Environmental Protection Act 1990](#) imposes a **duty of care** on any person who imports, produces, carries, keeps, treats or disposes of controlled waste or, as a broker, has control of such waste.
- **Adherence to waste management regulations** is overseen by the Environment Agency (England), Scottish Environment Protection Agency (Scotland), Natural Resources Wales (Wales) and Department of Agriculture, Environment and Rural Affairs (Northern Ireland).
- The UK has a **mix of sorting, recovery and recycling processes**. These range from Anaerobic digestion (AD), incineration, EfW, Material Recovery (MRF), chemical and mechanical sorting and landfill.
- The government offers **innovation funding** for low-carbon technologies which includes infrastructure to manage or use waste as an energy resource, encourages investment from abroad and provides ongoing non-financial support to local authorities.
- Leading commercial **waste management companies** operating in the UK include: Biffa, Veolia, FCC Environment, Suez, Virador and Renewi.
- **Advanced technologies** in resource management, recycling and waste management is a fast moving sector with lots of innovation.

Events, networks and information sources

- Stakeholders can keep abreast of the latest developments in advanced waste management technologies in the UK through several resources and networks including:
 - + [RWM & Letsrecycle Live](#), the UK's largest annual recycling, resource and waste management expo.
 - + [The Chartered Institute of Waste Management \(CIWM\)](#) which is the leading professional membership organisation for individuals in the sustainability, resources and waste management sector. CIWM represents and supports over 5,000 individuals and 250 Affiliated Organisations across the UK and overseas.
 - + [Circular Online](#), a daily news and insights resource for sustainability professionals working in resources and waste. It is a good way to keep up to date with current sector news.
 - + [Recycling and Waste World](#) which is a monthly magazine and online service dedicated to the recycling and waste management industries.

2. Sector overview: Waste management

UK Case studies

- [Zero Waste Scotland](#) has collated several case studies from Scottish businesses leading the way in the circular economy - particularly businesses that are using waste products for useful purposes.
- The UK's first pneumatic waste collection system was installed in [Wembley Park, London](#). An analysis in 2020 concluded that Wembley Park residents are recycling four times more than the national average for apartments, largely due to the Envac automated waste collection system making recycling easier for residents.
- [Sherbourne Recycling](#) was established in 2021 to develop and operate a new state of the art materials recycling facility in Coventry. The final design utilises robots and optical sorters, within an overall solution to provide a highly automated and innovative state-of-the-art facility. It will also be one of the first facilities in the world that integrates, at this scale, artificial intelligence at the core of its system that allows real-time inter-connectivity between the main sorting equipment.
- The SME [Charpak](#) developed a localised circular economy that closed a loop in plastic waste. Cambridgeshire's plastic waste is collected, re-processed and re-manufactured into new packaging from the recycled resource, to reduce the amount of plastic that goes to landfill.
- [Mura Technology](#) is constructing the world's first commercial-scale plant to use its groundbreaking "hydrothermal" process, which is able to recycle all forms of plastic waste. The plant, which will be the first to use the technology on such a scale, is being built in Teesside, UK, and is scheduled to be operational in 2022.

- The [Minworth sewage treatment works](#) uses a thermal hydrolysis process to produce electricity and gas for 1.75 million people in the Birmingham and Black Country areas of the UK. The thermal hydrolysis process treats sewage using heat and pressure to produce methane-rich biogas that is cleaned and injected into the national grid, producing 30% of the green energy in the region. Minworth has an 8MW capacity and an ability to hold 9000m3 of biogas using the BIODOME® gas holder, allowing it to process both indigenous and imported sludge, and power over 11,000 homes.

Future insights

- [Policy Connect's plastic policy roadmap](#) published in 2019 called for the UK to **halt plastic exports and boost UK recycling infrastructure**. The Secretary of State for DEFRA recognises that the UK will have to stop exporting our waste. Achieving this ambition will require significant investment in domestic recycling, particularly for plastics.
- There is likely to be **widespread deployment of energy-from-waste (EfW) plants** across the UK, which are deemed to be a "win-win" for economic & environmental recovery. Industry is calling for a new policy framework from Government to create stability and certainty to unlock billions of pounds of community and infrastructure investment.
- There has been a 15% reduction in per capita UK **food waste** since 2007 driven by several government commitments and voluntary agreements. The UK has committed to reduce food waste by 50% from 2015 levels by 2030, supported by the [resource and waste strategy](#). The [Courtauld Commitment](#) is a voluntary

agreement between organisations which aims to reduce per capita UK food waste by 20%. However, there lacks statutory regulations to meet government targets, and [reductions in household food waste](#) during the pandemic (45% decrease from 2018–2020) have returned to pre-pandemic levels.

- The UK [Environment Bill](#) has enabled the government to take actions at all stages of a product's lifecycle by setting product design requirements, introducing new extended producer responsibility schemes, implementing charges on single-use plastics, and delivering consistent recycling collections across England. This produces market opportunities for a circular economy in a regulated legal environment.
- The UK Government is currently exploring proposals for the implementation of a mandatory [digital waste tracking service](#) across the UK.
- The UK has helped kickstart a resolution titled "[End plastic pollution: towards a legally binding international instrument](#)" that will establish a new treaty, to **address plastic pollution through a life-cycle approach**, with the aim of producing the treaty by 2024. The UK Government is also committed to introducing a Deposit Return Scheme for drinks containers, which will recycle billions more plastic bottles and stop them being landfilled or littered.

3

Top tips for doing business and collaborating on the circular economy in the UK

Several Dutch businesses have found their way to the UK market collaborating with British organisations. We interviewed three businesses from the construction, manufacturing and waste management sectors, all with a different route to market. In this section we highlight their experiences and top tips.

3. Top tips for doing business and collaborating on the circular economy in the UK

Case study: Construction

StoneCycling®

Overview: StoneCycling

[StoneCycling](#) transforms waste into unique building materials. It was founded in 2012 by ambitious designers from The Netherlands and was voted in the top 100 most innovative Dutch companies. StoneCycling is an SME with less than 50 employees. At present, they supply their products to projects in the UK, and are not yet registered as a business in the UK. StoneCycling participated in a [Climate-KIC programme](#), an innovation accelerator headquartered in London.

StoneCycling's 'WasteBasedBricks', which are made from construction and demolition waste, are used in several projects across the Netherlands, UK, Luxembourg, and the US. The UK is their second biggest market. Their products are compliant with EU and UK industry standards.



StoneCycling bricks are made from industrial and demolition waste. Image credit: Nienke Krook.

Why was StoneCycling interested in the UK circular economy market?

The UK real estate and architectural sector is quite advanced in its approach to sustainable design. StoneCycling also does all of its business in English so it was a natural fit.

How did they go about selling products in the UK?

StoneCycling has been fortunate that architect clients have found their product through online search engines and approached them directly. Their key driver for this is the emphasis that the [Royal Institute of British Architects \(RIBA\) places on sustainable design](#) considerations at the earliest point in a project.

One of the projects their product was used on (Sands End Arts and Community Centre) won several architectural awards, which resulted in lots of positive promotion and raised awareness of their product in the real estate sector.

Potential clients want to see and touch the product which requires the StoneCycling team to travel to the UK to show the product and secure contracts. Their solution has been to organise a couple of roadshows a year where they travel to the UK and set up several 1-1 meetings with existing and future clients.

StoneCycling set up an Innovation Panel of European architects that are interested in new products, where they inform them four times a year about the latest developments and get their feedback. This has helped build relationships and create an open dialogue. StoneCycling now has a group of people they can call upon to ask how a particular product works in a market.

What are their top tips for other Dutch businesses who want to start selling their products/services in the UK?

- Ensure your website is in English and focus on search engine optimisation of key words so potential clients can easily find you.
- Offer free CPD (Continuing Professional Development) sessions to potential clients and collaborators in the UK where they can learn about your product/service and you can establish a relationship with them.
- Consider setting up an 'Innovation Panel' or something similar.
- Try to build a network of informal ambassadors or "fans" of the product from different organisations, who will refer and recommend you to their friends in the industry.
- Ensure compliance with UK legislation and standards which may differ from the EU.



StoneCycling's low environmental impact bricks are durable and high quality, for external and internal use.

3. Top tips for doing business and collaborating on the circular economy in the UK

Case study: Manufacturing



Overview: Starke Energy

Founded in 2019, [Starke Energy](#) is a start-up that combines battery storage with smart technology to offer storage as a service through its UrbanPowerBank. The company uses AI to look after batteries by learning how much energy is being used to store and release energy across a network.

By integrating batteries into existing installations and networks, Starke Energy can relieve local congestion in electricity infrastructure by using their batteries for smarter and cheaper storage that reduces CO2 emissions in the process. In this way, Starke aims to be the leading provider for smart batteries in buildings as an optimal balance is found for storing, consuming, and trading clean energy.

Starke Energy is currently part of a collaborative project at Harwell Science and Innovation campus, delivered by the STEPS program by Faraday Institution and Cambridge Cleantech. The pilot project brings together the SMEs AMTE Power, Brill Power, and Starke Energy to demonstrate new energy storage product innovations at a commercial-scale testbed, bringing their solutions one stage closer to market. In 2020, Starke Energy won the start-up of the year for Cleantech Camp, and continues to obtain advice and a network of contracts from its relationship with Cambridge Cleantech.



Why was Starke Energy interested in the UK circular economy market?

They recognised the potential for their business to grow in the UK market.

How did Starke Energy start doing business as an SME in the UK?

- 2019 – start-up founded in the Netherlands.
- 2020 – established a LTD company in the UK using an agency for a simpler registration process.
- Cambridge Cleantech was a key partner for facilitating introductions to customers and networks across the UK market.
- Starke Energy does not operate an office in the UK or hold a UK bank account. Instead, the company uses UK-based freelancers or travels to the UK, and invoices through a Dutch bank account instead.

What were the greatest barriers to doing business in the UK?

- As a start-up and SME, Starke Energy has little experience in the UK and found minimum set-up difficult with limited capacity for navigating UK contractual agreements and networks. This is why Cambridge Cleantech was especially helpful as a support for the company.
- Navigating nuances in communication.

What are their top tips for other Dutch businesses who want to start selling their products/services in the UK?

- Find a support organisation in the UK (like Cambridge Cleantech) to help develop your network and customer base
- For SMEs: take advantage of the UK's flexible labour market to reduce the risk of expanding into the UK by hiring part-time representatives.
- Use an agency to streamline the process of becoming a UK Ltd company and ensure you meet all the regulatory requirements.



Starke Energy's innovative software supports the circular economy and carbon reduction.

3. Top tips for doing business and collaborating on the circular economy in the UK

Case study: Waste management



Overview: N+P Group

Founded in 1992, the [N+P Group](#) has specialised in turning waste into valuable new resources, which not only helps to decarbonise global industries but also to reduce the global challenge of non-recyclable waste. N+P Group is a family business that operates on an international scale. It has its head office in Nieuw Bergen (NL) and various production locations in both The Netherlands and the UK.

Their core activity is to find innovative solutions for waste derived materials. Offering various services for the development and delivery of projects, including logistics, notifications, quality control and research and development leading the way to new concepts to substitute fossil fuels with non-recyclable waste fractions.

N+P ensures that non-recyclable waste is converted into alternative fuels and raw materials. In this way, fossil fuels can be replaced in various industries and CO₂ emissions can be reduced. Also waste is given a new function and does not disappear from the cycle into landfill.

Since its founding N+P has also worked on supplying alternative raw materials, substituting primary materials and contributing to cheaper and cleaner production processes

Why was N+P interested in the UK circular economy market?

If you look at waste as a resource, every country has its own mine for replacing fossil fuels on the one hand and reducing its waste problem on the other hand. Although

the UK has a forward thinking in terms of sustainability, there wasn't a suitable solution for their landfill as the available knowledge to convert this into a usable high quality alternative fuel was insufficient.

How did they go about setting up business in the UK?

- 1992 – Founded in the Netherlands
- 2007 – Started exporting waste products to the British cement industry
- 2011 – N+P became a registered company in the UK, with support from the UK Department for International Trade, and started trading in the UK and exporting from the UK to mainland Europe (> 70% of N+P's trading is domestic in the UK)
- 2022 – Set up a production facility in Teesside, including local management team, producing 220kton alternative fuels per annum
- Acquired a MRF sorting plant in Crayford, sorting 330.000 tons of light weight packaging per annum and is therefore one of UK's largest sorting plants with an enormous contribution to the UK circular economy. (> Now 50% of the business is based in the UK with a turnover of £70m pounds in the UK market)

What were the greatest barriers to doing business in the UK?

It is important to observe local laws and regulations and to take into account some cultural differences. Although things sometimes don't seem very different at first glance, as a company you can be faced with unexpected surprises if you don't do a proper research and/or partner up with local experts.

What are their top tips for other Dutch businesses who want to start selling their products/services in the UK?

- Hire UK staff as soon as possible to deal with UK clients, recognising that there are cultural differences.
- Develop relationships with Universities to support R&D.
- Be active in the circular economy sector – develop relationships quickly with investors.
- Get a good lawyer – the Landlord and Tenancy Act is completely written the other way around in NL. In UK, it protects landlords, in NL it protects tenants. This is a big lesson learnt by N+P.



N+P has been pioneering the development of high quality waste derived fuels, which are able to substitute up to 100% fossil fuels.

3. Top tips for doing business and collaborating on the circular economy in the UK

Key differences between the Netherlands and the UK: market and culture

- Dutch people are generally characterised as being more direct than British people who are generally characterised as indirect. These communication nuances can have real impacts on business.
- There is more hierarchy in the UK which can make it more difficult to do business.
- While the Netherlands has an active network for stakeholders, clients, and consultants pushing for CE solutions and collaboration, the UK is still talking about the basics.
- The UK construction industry is risk averse and slow to innovate.
- The UK's procurement approach to the Circular Economy is less advanced than the NL.
- Getting business in the UK is more result-oriented compared to other European countries who follow a relationship and network-based model.
- In general, the UK is open to learning from and working with foreign businesses, especially post-Brexit.
- Registering as a legal entity in the UK takes about 24 hours, one of the quickest in Europe.

Finding business support

General information on doing business in the UK can be found on the Digital Trade Office of the Dutch Embassy: www.nlinuk.nl

[The UK Department for International Trade](#) provides advice to businesses who want to invest in the UK or buy from the UK. International businesses can use the Investment Atlas to navigate UK investment opportunities available to your business, learning more about areas of competitive advantage across our sectors, nations and regions.

In England, [Local Enterprise Partnership Growth Hubs](#) provide business funding, support or guidance.

[UK Research and Innovation \(Innovate UK\)](#) helps companies in any part of the UK to grow through innovation. They are a key delivery body for the government's Innovation Strategy. They support business through a range of interventions, including helping you:

- To find the right partners
- To access the right expertise and equipment
- With financial loans and grants
- By connecting you with investors.

[Innovate UK EDGE](#) provides bespoke support that grows and scales innovative businesses. They can help both with any initial enquiries and with looking at adaptation of your business growth strategy to a more sustainable approach. They can also help you access funding or specialist support.

Finding collaborators

Establishing personal relationships with potential collaborators in the UK is recommended for Dutch circular economy businesses looking to supply products and services to the UK market.

There are several ways you can find collaborators:

- Direct approaches to set up Business to Business (B2B) introductory meetings with potential partners - this could be a client or distributor. You can find leading business in the circular economy case studies highlighted in this factsheet.
- By joining a membership organisation such as [Cambridge Cleantech](#), which connects innovators, corporates, academics, SMEs and investors for a smarter, more sustainable future.
- By joining industry institutions and becoming actively involved in their activity e.g:
 - + *Construction: UK Green Building Council and the Construction Products Association*
 - + *Manufacturing: Make, The Manufacturers' Organisation*
 - + *Waste Management: Chartered Institute of Waste Management (CIWM)*
- By attending and networking at conferences (see sector sections for key conferences).
- By joining a [Circular Economy Club](#).
- Through Universities to establish R&D relationships (see page 4 for image of key University activity).

Recommendations

Recommendations

1

UK market opportunity

UK circular economy policy and practice is evolving, and the market is ripe for innovation. Dutch circular economy-focused SMEs and larger enterprises should look to the UK market for opportunities to supply products, set up business or simply develop collaborations.

2

Key sectors

The sectors with the biggest potential for circular economy solutions in the UK are construction (buildings and infrastructure) and manufacturing (particularly food and drink which is the biggest sector). Within manufacturing, key areas of growth with CE potential are electric vehicle batteries, and wind turbines. The waste sector is also a key opportunity, particularly CE solutions for managing plastic packaging. Dutch CE businesses active in these sectors should actively seek to do business in the UK.

3

Top tips

Dutch businesses looking to enter the UK market should consider the ‘top tips’ identified in the three case studies from companies who have successfully supplied circular economy products to the UK market, or set up registered companies in the UK.

4

Support

Contact the Dutch Embassy (email: [lon-
ea@minbuza.nl](mailto:lon-
ea@minbuza.nl)) or visit the Digital Trade office www.nlinuk.nl for help finding reliable business partners or getting answers to any trade questions.

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