



# Beacon<sup>CO<sub>2</sub></sup> a new methodology

Helping you transform the carbon management of your supply chain

ARUP

## A sustainable business strategy

By managing and reducing greenhouse gas emissions organisations are able to improve the efficiency of their operations, lower risk and reduce costs, thereby contributing to a sustainable business strategy and long-term profitability.

## A step change in carbon management

Management of scope 1 and 2 emissions is widely practised by large organisations, but, up until recently, the potential for realising carbon and cost savings associated with scope 3 emissions, often the biggest contributor to an organisation's overall emissions, has remained untapped.

With Beacon your organisation can now access carbon and cost savings associated with scope 3 emissions.

**Scope 1 emissions** are direct GHG emissions, i.e. those from sources owned or controlled by an organisation, such as from its buildings and transport fleet.

**Scope 2 emissions** are indirect GHG emissions associated with an organisation's consumption of electricity, heat or steam.

**Scope 3 emissions** are all other indirect emissions, i.e. emissions that are a consequence of an organisation's activities, but occur at sources owned or controlled by another entity, such as from procurement.

# Introducing Beacon

## The robust way to identify scope 3 carbon hotspots

Beacon is our new global carbon-reporting tool and supporting methodology to identify and quantify carbon hotspots throughout your supply chain. It offers a rapid and cost effective method of analysis, without compromising on data quality.

## New insights into your supply chain carbon footprint

Regardless of the complexity of your organisation, or where in the world you operate, Beacon provides you with a complete carbon footprint covering your scope 1, 2 and 3 emissions. It takes your organisation's readily available financial data representing your supply chain activity and converts this into a carbon footprint using current, multi-country greenhouse gas (GHG) emissions intensity data.

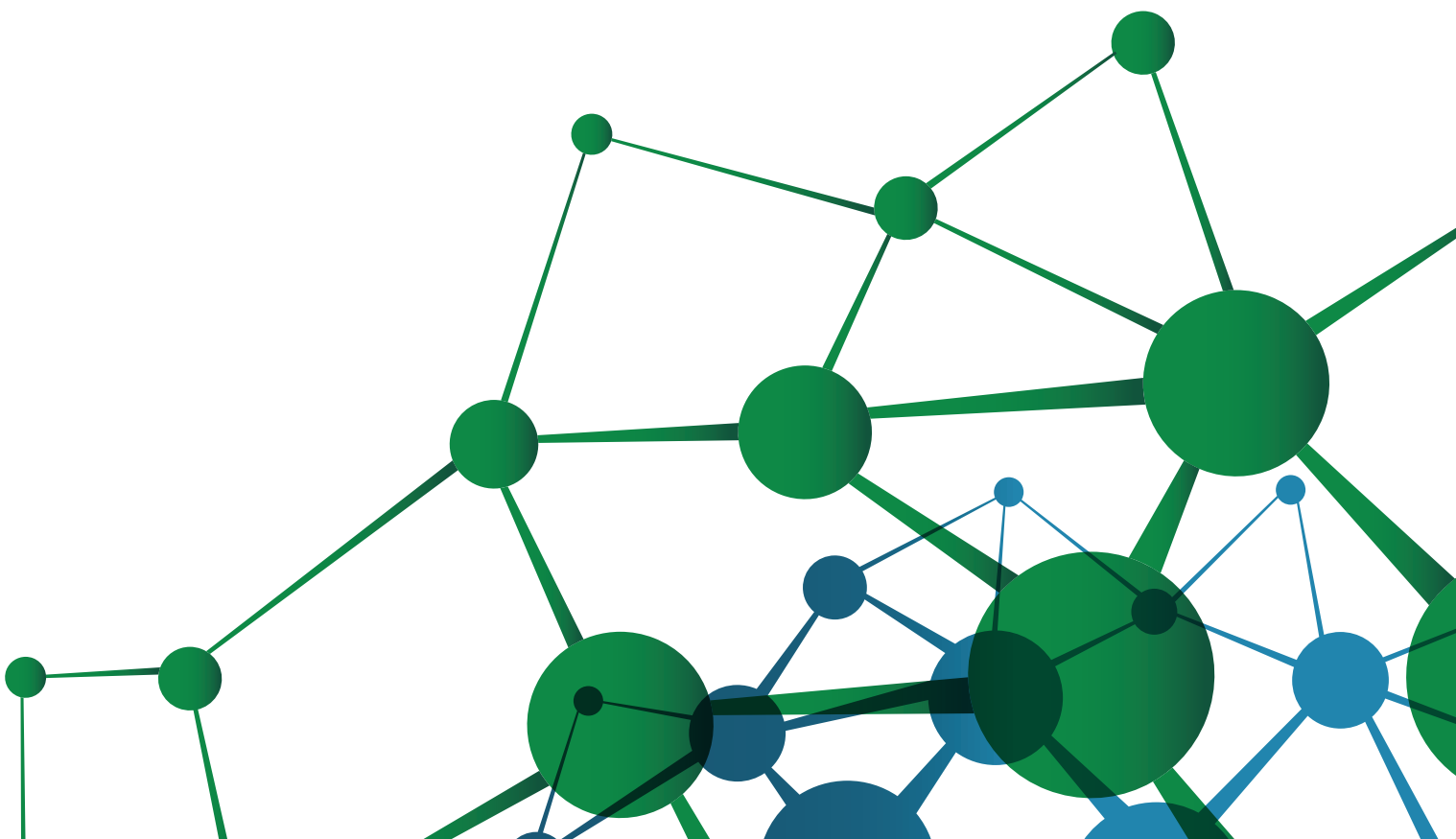
## Carbon and cost savings

By using the Beacon methodology, we enable organisations to identify carbon hotspots and prioritise both quantitative and qualitative interventions. For many business sectors scope 3 emissions can account for the majority of their carbon emissions, so this work can lead to significant carbon and cost savings.

### The Beacon methodology allows you to:

1. Gain rapid insight
2. Identify carbon hotspots
3. Prioritise interventions

The outputs from the Beacon methodology are fully compliant with the WRI Greenhouse Gas (GHG) Protocol for scope 3 emissions.



# Case studies

## Helping shape strategy in the NHS

As the world's fourth largest employer, the NHS has a hugely complex supply chain. By using the Beacon methodology we were able to derive emissions data for each sector within their supply chain using existing cost information. As a result the NHS and individual Trusts have visibility of where the biggest impacts and opportunities for carbon savings lie.

This was the first step in defining a reduction strategy and provided the basis for an action plan. The work continues to underpin the carbon strategy throughout the NHS.



60% of NHS emissions are related to procurement including pharmaceuticals and medical instruments

## A full consumption-based footprint for De Montfort University

DMU was the first university in England to undertake a full consumption-based footprint and associated interventions study.

Using the Beacon methodology, scope 3 emissions were found to account for 74% of DMU's total emissions.

Arup identified potential savings of £350,000 and 800tCO<sub>2</sub>e (tonnes of CO<sub>2</sub> equivalent) per year and also wrote a detailed action plan to enable DMU to meet Level 3 of the government's procurement Flexible Framework.

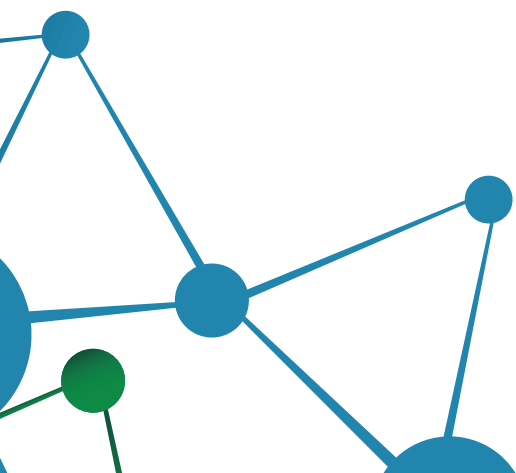


Providing evidence of carbon emissions at DMU allows more informed choices

*“We were delighted with the outcomes of the study, which identified significant carbon savings for the University and highlighted the potential to reduce emissions generated through procurement activities.”*

Karl Letten, De Montfort University

Estimated savings  
of **£350,000** and  
**800tCO<sub>2</sub>e** for DMU

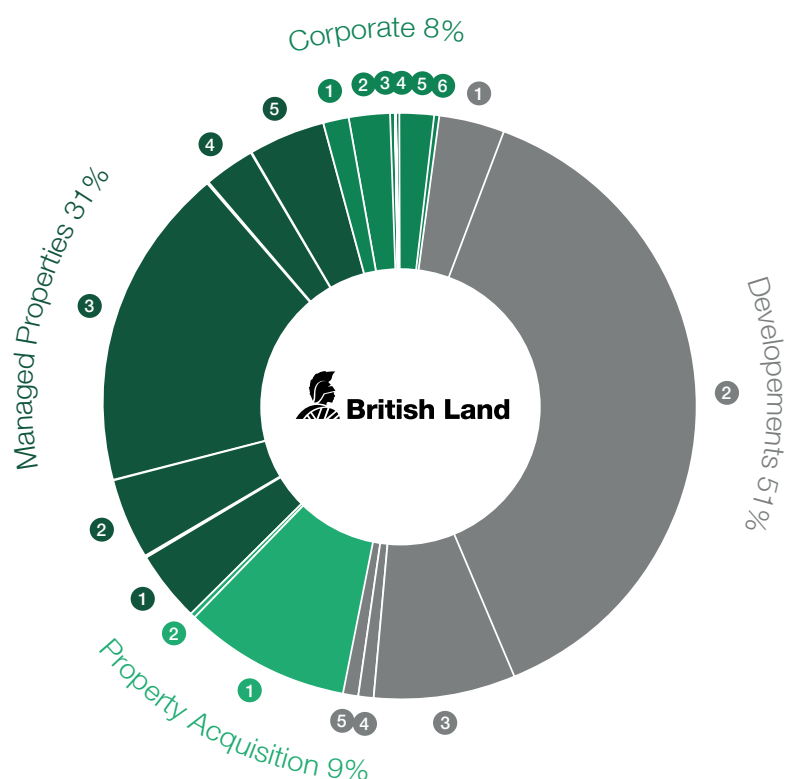


## Identifying and quantifying scope 1, 2 and 3 emissions for British Land

In light of the Greenhouse Gas Protocol scope 3 guidance from the WRI and the WBCSD, British Land commissioned Arup to undertake a study to calculate all scope 3 emissions using the Beacon analysis tool to ensure they were focusing on the right issues.

The study found that scope 3 emissions represent over 90% of British Land's carbon footprint and so offer significant opportunities for carbon savings. It served to confirm the main source of emissions, but also identified and quantified scope 3 emissions that had not previously been captured, notably those relating to service charge spend on behalf of occupiers, property acquisition and Head Office property outgoings.

Greenhouse gas emissions using Arup's Beacon analysis tool:  
**441,300 tonnes**



### Developments

- 1 Construction on site
- 2 Embodied carbon in materials and transport
- 3 Supply chain emissions **NEW**
- 4 Design and professional services **NEW**
- 5 Finance, legal and other business services **NEW**

### Property Acquisition

- 1 Embodied carbon in building **NEW**
- 2 Investment and finance **NEW**

### Managed Properties

- 1 Office - landlord - influenced energy use and refrigerant loss
- 2 Retail - landlord - influenced energy use and refrigerant loss
- 3 Occupier/third party controlled energy use and refrigerant loss
- 4 Retail - service charges **NEW**
- 5 Offices - service charges **NEW**

### Corporate

- 1 Administrative expenses **NEW**
- 2 Finance **NEW**
- 3 Staff commuting **NEW**
- 4 Staff business travel
- 5 Head office - energy use and refrigerant loss
- 6 Head office - property outgoings **NEW**

Percentages may not sum to 100% due to rounding



## Beyond Beacon: full service carbon management

Drawing on the expertise of in-house specialists within our Carbon Management team, we can help you to create a strategy to manage your scope 1, 2 and 3 emissions within the context of your business objectives.

We provide a methodology and resources designed to assist you in identifying and quantifying the costs, risks and opportunities associated with your business-related carbon emissions. We provide expertise in developing, prioritising and delivering practical cost and carbon reduction measures tailored to your business process.

Our full carbon management service enables you to unlock the potential for significant cost and carbon savings through prioritised interventions.

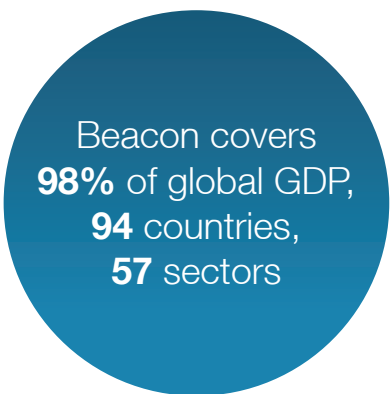


## What makes Beacon so reliable?

The dataset that drives Beacon is the result of many years of rigorous research by Arup's partner, the Centre for Sustainability Accounting (CenSA). Our colleagues at CenSA are recognised as world leaders in supply chain emissions. CenSA's reputation is underlined by the fact they provide Defra with the official set of UK supply-chain factors available to all UK businesses for carbon reporting.

Beacon's dataset covers 98% of world GDP and includes 94 countries across 57 sectors; it is the most robust and detailed global supply chain carbon data available.

It is the level of detail within Beacon's dataset that enables us to measure the carbon output embodied within your supply chain so accurately. This means you can confidently focus your reduction efforts in the areas that are most material to your operations.



Beacon covers  
**98%** of global GDP,  
**94** countries,  
**57** sectors

*“Beacon represents a dramatic advance in understanding global supply chain emissions and brings added clarity to the carbon agenda. Arup can now provide understanding and a unique solution in response to the revised GHG reporting protocols.”*

Jonathan Ben-Ami, Director

### Contact us

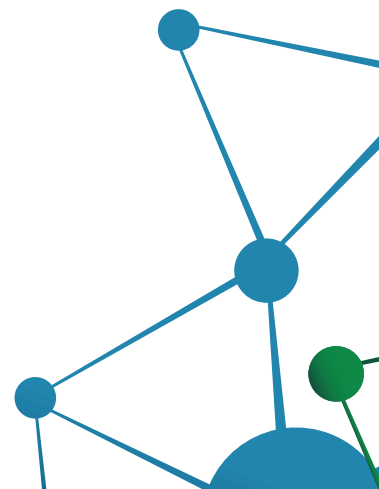
To find out more about how Beacon can help reduce your emissions and save your business money

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Arup is the creative force at the heart of many of the world's most prominent projects in the built environment and across industry. From 90 offices in 38 countries our 11,000 planners, designers, engineers and consultants deliver innovative projects across the world with creativity and passion.

