ARUP

Producing a decarbonisation roadmap

A simplified guide for small-
and medium-sized enterprises

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Introduction

We are delighted to share this guide that is tailored for small- and medium-sized enterprises, including not for profits, to help navigate your decarbonisation journey.

The world is at a critical juncture – and must make deep emission cuts to limit global warming to 1.5°C and minimise the global impacts of a rapidly changing climate.

In 2019 Arup announced ambitious greenhouse gas (GHG) emissions reduction targets and have committed to becoming a science-based net zero organisation by 2040. Our Net Zero Plan sets out how we will decarbonise Arup's operations to reach net zero emissions.

We cannot do this alone. Our suppliers are critical partners in helping us achieve our net zero ambition. We must work together to set and achieve ambitious net zero targets, recognising that organisations are at different stages of their decarbonisation journeys.

We have developed this Decarbonisation Guidance for small- and medium-sized enterprises (SMEs) as a practical starting point. It provides a broad overview of GHG emissions and their importance and provides a six-step plan to identify, measure and report your own emissions. This guidance includes links to useful external resources and organisations for further information and tools.

We hope that it is helpful in guiding your journey towards net zero and enabling meaningful climate action.

We welcome any feedback at:
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Glossary and definitions

GHG: Greenhouse gases (GHG) are a group of gases that contribute to global warming and climate change. The main types of greenhouse gases include carbon dioxide, methane, nitrous oxide, and fluorinated gases. They are measured in terms of carbon dioxide equivalents (CO_2e).

The GHG Protocol: The protocol is the primary internationally recognised standard for reporting on corporate emissions. The GHG Protocol Corporate Accounting and Reporting Standards underpins the calculation tools and certifications cited within this Guidance and should be consulted where more complex organisation structures or emission types are to be considered.

Science Based Targets initiative: The Science Based Targets initiative (SBTi) is a corporate climate action organisation. They develop standards, tools and guidance that enables organisations to set and report on GHG emissions targets aligned with action required to achieve net zero emissions globally by 2050.

Net Zero: SBTi has defined net zero as having cut greenhouse gas emissions from all sources (Scope 1, 2, and 3) by more than 90%, following pathways that keep global warming to 1.5°C. Any remaining emissions must be permanently neutralised at the target year and for any emissions released after that.

Scope 1 emissions: Direct greenhouse gas emissions from sources that are owned or controlled by your company, such as emissions from fuel combustion in company-owned vehicles, onsite energy generation and refrigerant losses.

Scope 2 emissions: Indirect greenhouse gas emissions associated with the generation of purchased electricity, steam, heating, and cooling consumed in your offices/facilities. These emissions occur at the facilities where your energy is produced.

Scope 3 emissions: All other indirect greenhouse gas emissions that occur in your value chain, including both upstream and downstream activities. This includes emissions from purchased goods and services, capital goods, business travel, employee commuting, and waste disposal.

Why do you need a decarbonisation plan?

Organisations are increasingly reliant on their supply chain to support them in demonstrating and reporting emissions reductions.

Your services and products contribute to a client's or customer's carbon footprint. They may ask about your emissions data and / or reduction strategy to meet their own reporting obligations.

In our experience, clients are increasingly making this a mandatory requirement in order to do business with them. We anticipate this requirement will only grow further.

Benefits of having a decarbonisation plan
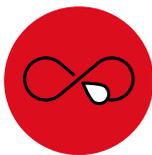
Comply with regulations
Prepare for evolving regulations and client requirements by putting structures in place now.

Improve efficiency
Reduce costs by managing your resources more efficiently. You can take steps today that benefit both your business and the planet.

Enhance access to capital
Many banks and investors favour businesses with strong sustainability credentials. Net zero commitments may help you secure better financing terms.

Combating climate change
Proactively contribute to global and local climate action.

Manage business risk
Build resilience against risks such as energy price volatility, climate-related disruptions, and rising operational costs.
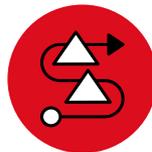
Gain competitive advantage
Demonstrating ambitious, data-driven climate action signals that your business is responsible and forward-thinking—enhancing your reputation and market position.

Now that you understand what emissions are and why they matter, it's time to take action. Follow our six-step framework to identify, measure, and report your own emissions - and begin your journey towards meaningful climate impact.

Step 1 - Determine your organisational boundary

Defining your organisational boundary is the first step in creating an emissions inventory. It helps you identify which emissions you control, which you influence, and how to monitor and report each category.

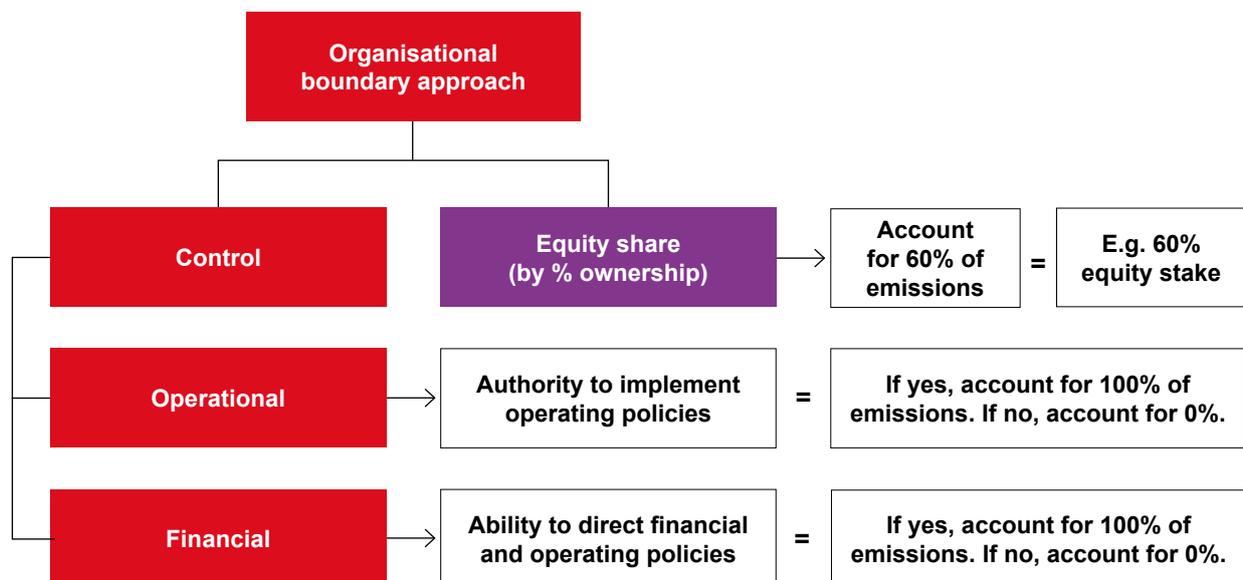**What is an organisational boundary?**

Your boundary includes the facilities and operations that will be reported on. The GHG Protocol offers two main approaches:

– Control approach: include operations you control. For example if you have ability to direct financial and operating policies, account for 100% of emissions.

– Equity share approach: include operations based on your share of ownership. For example, if you own 60% of a joint venture, report 60% of its emissions.

It is best to align your GHG reporting boundaries with how your organisation already reports financially. To do this, speak with your finance team to confirm how your organisation defines its financial boundaries for inclusion and exclusion within financial reports. Using the same approach for GHG reporting helps ensure consistency and makes it easier to gather accurate data which is especially helpful where resources may be limited.

Figure 1 - Organisational boundary approach

Step 2 - Identify emissions sources

Once you've defined your organisational boundary, the next step is to identify all activities that generate greenhouse gas (GHG) emissions. This ensures your emissions inventory is complete and accurate.

Your boundary approach (whether based on financial control, operational control, or ownership share) will affect which emissions sources are counted in each reporting category.

Figure 2 shows the full list of categories to be considered for company emissions reporting. These are split into activities the company has direct control over, as well as upstream and downstream activities.

Emissions are grouped into three categories:

Scope 1 – Direct emissions: from sources you own or control like gas boilers, company vehicles or onsite fuel consumption.

Scope 2 – Indirect emissions: from purchased electricity, heating, cooling or steam used in your operations.

Scope 3 – Other indirect emissions: from activities in your value chain including purchased goods and services, business travel, employee commuting and waste. Noting that not all Scope 3 activities may be applicable to every company.

For SMEs it's often easiest to start with Scope 1 and Scope 2, as these are more straightforward to measure, before expanding to Scope 3 as your data collection improves.

The Greenhouse Gas Protocol Scope 2 and Scope 3 guidance provide step-by-step instructions for identifying emissions sources and measuring or estimating emissions.
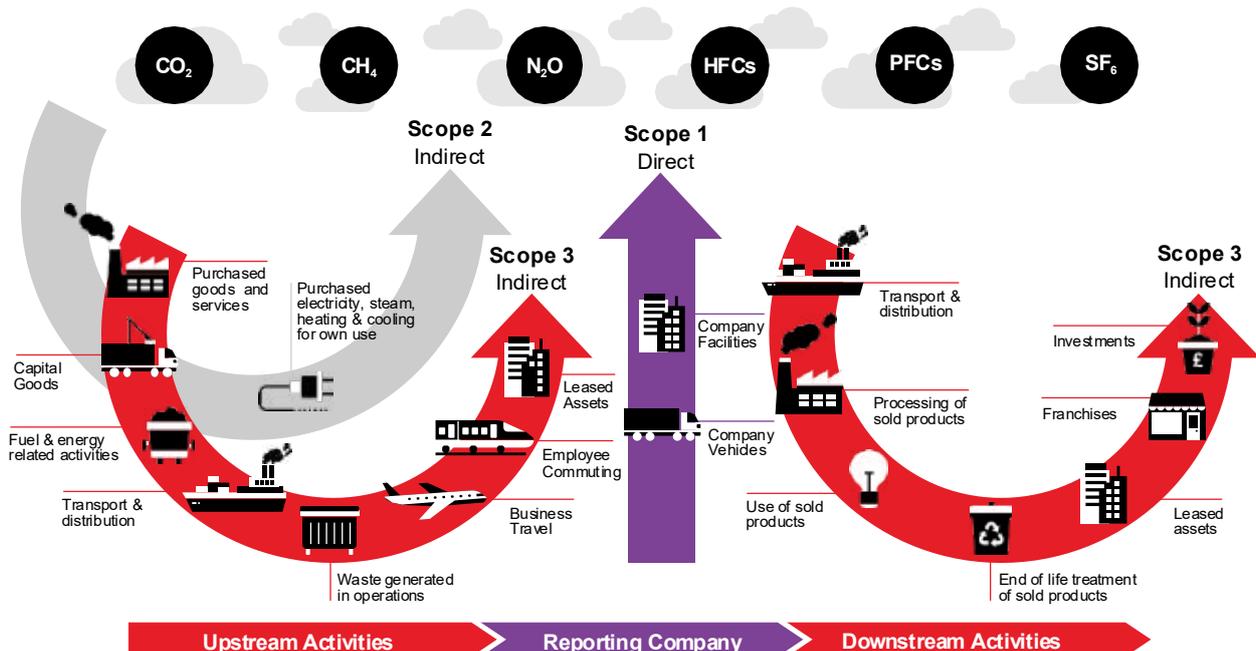
Figure 2 - Greenhouse gas emission sources

Image above taken from the GHG Protocol (2024) Reporting Standard Document.

Step 3 - Calculate your current emissions

Calculating your emissions gives you a baseline—a reference point for tracking progress and setting reduction targets.
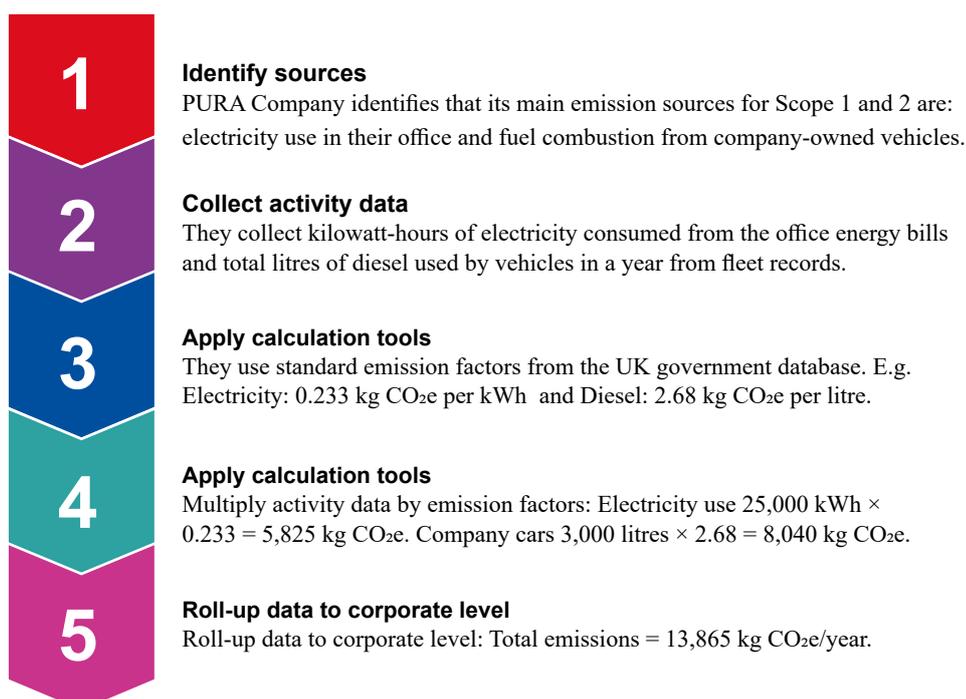
1. **Identify operational activities**
   List all operational activities that may generate emissions. For example office heating and cooling, electricity use, transportation of product to customers etc.

2. **Collect activity data**
   Gather data that describes the operational activities listed. For example kWh of electricity used, litres of fuel consumed, kms of distance travelled or tonnes of material purchased.

3. **Find emissions factors**
   Emission factors convert activity data into CO_2e. For example kg CO_2e per kWh electricity. Use reliable sources such as government provided factors – a good source is the Carbon and Data Intelligence platform.

4. **Calculate emissions**
   Multiply your activity data by the corresponding emissions factor.

5. **Roll-up data**
   Combine all sources to get your organisation's total emissions.

Tip for SMEs

If you lack detailed data (for example if your direct energy use is not metered separately) then you can use benchmark assumptions. It's important to try and improve your data quality over time for more accurate reporting and monitoring.

Figure 3 - Example of how to identify and calculate GHG emissions

1 Identify sources
PURA Company identifies that its main emission sources for Scope 1 and 2 are: electricity use in their office and fuel combustion from company-owned vehicles.

2 Collect activity data
They collect kilowatt-hours of electricity consumed from the office energy bills and total litres of diesel used by vehicles in a year from fleet records.

3 Apply calculation tools
They use standard emission factors from the UK government database. E.g. Electricity: 0.233 kg CO_2e per kWh and Diesel: 2.68 kg CO_2e per litre.

4 Apply calculation tools
Multiply activity data by emission factors: Electricity use 25,000 kWh × 0.233 = 5,825 kg CO_2e. Company cars 3,000 litres × 2.68 = 8,040 kg CO_2e.

5 Roll-up data to corporate level
Roll-up data to corporate level: Total emissions = 13,865 kg CO_2e/year.

Step 4 - Set targets and develop a plan

Clear targets provide direction and accountability, helping you turn ambition into measurable climate action.

How to set targets

1. Choose your baseline year

Select a recent year with complete and reliable emissions data. This will be your reference point for tracking progress.

2. Define your target year

Aim to achieve net zero by 2050 at the latest—earlier if possible. SBTi defines net zero as reducing emissions across Scopes 1, 2, and 3 by at least 90%, with any remaining emissions permanently neutralised.

3. Set interim targets

Break your journey into manageable steps. Near-term targets are typically set every five years along a net zero pathway.

4. Minimum target level

To align with Paris Agreement, scope 1 and 2 targets should align with the 1.5°C pathway[1]. The SBTi[2] recommends a minimum annual reduction formula of: 4.2% × (Target Year − Base Year).

Prioritise actions

Once targets are set, identify the most impactful actions and interventions to achieve them:

1. Focus on high-emission areas: Use your emissions breakdown to find hotspots.

2. Prioritise quick wins: Achieve early reductions to build momentum and maintain enthusiasm.

3. Plan for long-term changes: Invest in low-carbon technologies, electrify fleets, and engage suppliers.

4. Integrate into business strategy: Make decarbonisation part of your existing processes e.g. procurement.

Develop a transition or net zero plan

The next step is to build a clear and practical transition plan that shows how you'll achieve your targets. The plan should include:

1. Clear targets, goals and objectives.

2. Specific actions and timelines.

3. Stakeholder engagement strategy.

4. Metrics to track progress.

5. Governance for oversight and responsibility.

Review and update your plan regularly to reflect new technologies, business changes, and emerging opportunities.

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1. The Paris Agreement commits countries to both limiting global warming and adapting to the impacts of climate change. The agreement's aim is to hold warming to well below 2°C above pre-industrial levels (1850-1900), and pursue efforts to limit it to 1.5°C, known as the Long-Term Temperature Goal (LTTG).

2. SBTi (Science Based Targets initiative) provides a framework for companies to set greenhouse gas reduction targets that are consistent with climate science and the goals of the Paris Agreement.

Step 5 - Implement actions

Once you've set your targets, it's time to deliver real emissions reductions. Interventions should be targeted to deliver emissions reductions in the most effective way. A useful approach is the Lean, Clean, Green, Seen pathway.

Programme interventions

Put plans in place to deliver your interventions with realistic goals. Consider financial and staff time investment needed to make progress.

Helpful resources

– UK Business Climate Hub: sector-specific guidance.

– Klimaatplein's Quick Wins (NL): practical steps for buildings, transport, and business.

– Carbon Trust: operational energy efficiency guides for office environments.

Investment and funding

Many interventions pay back over time through energy savings. For example, LED lights will generally achieve financial payback. Grants and financial support may be available – check locally.

The SME Climate Hub Financial Support Section covers financial support including from customers, banks, grants, balance sheet and investors.
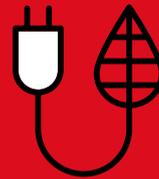
Be 'lean'
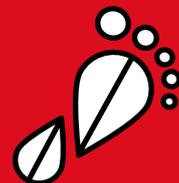**Reduce energy demand through efficiency and behavourial changes.**

For example: Encourage staff to turn off lights and equipment when not in use.

Be 'clean'
Remove fossil fuel sources and improve equipment efficiency.

For example: Upgrade to high-rated energy efficient applications.

Be 'green'
Switch to renewable energy sources or green tariffs.

For example: Talk to your energy provider about green energy options.

Be 'seen'
Communicate progress and engage suppliers & consumers.

For example: Share success stories to build momentum.

Step 6 - Monitor emissions and report on progress

Monitoring and reporting emissions demonstrates accountability and transparency. It also helps you to stay on track with your reduction targets and meet growing client and customer requirements.

How to report your results

Publish an annual update to show progress. This could be:

– A standalone carbon or sustainability report

– Page on your website.

– Integrated into your Annual Report or Financial statement.

Your update should include:

– Emissions compared to your baseline and targets.

– Actions completed and planned for next year.

– Any changes to forecasts or plans due to technology or business changes.

– Details of any third-party verification.

Should you get your results audited?

Independent verification isn't generally mandatory but it adds credibility, identifies data gaps, and builds trust with clients and investors. If you plan to align with frameworks like SBTi, third-party verification is highly recommended.

Keep your plan up to date

Revisit and update your Net Zero or Transition Plan regularly to reflect new technologies, operational changes, or emerging opportunities.

External frameworks, certifications and tools

There are a range of organisations, certifications and disclosure tools that can support your decarbonisation journey.

– Race to Zero: a United Nations-led campaign that is free for SMEs to join through the SME Climate Hub. By joining, companies commit to halving their emissions by 2030 and reaching Net Zero by 2050, with annual progress disclosures. All resources are freely available and can be accessed here.

– Science Based Targets Initiatives (SBTi): a globally recognised framework for setting GHG reduction targets aligned with the Paris Agreement. Validation under SBTi involves a cost but provides strong credibility.

– The Carbon Trust: offers free resources and guides tailored for SMEs. Whilst guidance is free, services such as carbon labelling incur a cost. Available here.

There are many other sustainability certification standards for organisations such as Planet Mark and EcoVadis. These frameworks go beyond carbon to address wider sustainability considerations. Certification costs typically vary based on factors like organisation size, industry sector and location.

Useful resources

SME Climate Hub

The CDP, in collaboration with the SME Climate Hub, have developed a guidance document which will help SME's design their climate strategy and set an achievable target in a clear concise set of modules.

The SME Climate Hub has guidance on target setting and practical guidance on how to reduce your own emissions from office buildings and renewable energy and further down your own supply chain.

Based on feedback from our suppliers here are some of the most useful resources to kick start your decarbonisation journey.

Target setting	Actions & guidance	Carbon calculators & reporting
CDP Framework for SME's	SME Climate Hub Action Guides	Small99 Carbon Calculator (Online)
SME Climate Hub Action Box	Exponential Road Map	SME Climate Hub Calculators (Online)
	Get Started - Climate 101	EPA Calculator (Offline - Excel)
	Greenhouse Gas Protocol	GHG Scope 3 Calculation Guidance
	GHG Scope 2 Guidance	

Free carbon calculators

Calculator	Description	Pro	Con
SME Climate Hub	Two calculators – small business and advanced business to help businesses start and develop their emissions calculations their Scope 1, 2 & 3 emissions.	Specifically designed for SMEs. Different levels of calculators Regional hubs	Webpage format. Not all countries have dedicated hubs
Small 99 Carbon Scorecard	Designed to show small businesses their carbon hotspots and provide actionable steps to reduce emissions immediately through answering a series of questions.	No data gathering is required. The scorecard is based on responses to questions.	Two versions designed for retail and professional services which limits its use.
EPA Carbon Calculator	A free carbon footprint calculator created by the American EPA.	Free, easy to use. Excel Sheet.	USA specific figures

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