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DeCarb-Pro

Decarbonise public procurement in NWE – account for the future

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Carbon Pricing into Public Procurement: DeCarb-Pro strategy for local and regional governments

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DeCarb-Pro partnership

Climate Alliance Netherlands (Lead Partner) | Climate Alliance | South East Energy Agency (SEEA) | Municipality of Amsterdam | City of Essen | City of Paris | Arnhem-Nijmegen Green Metropolitan Region | Foundation HIER Klimaatbureau | Strasbourg Eurometropolis | Climate Agency Wiesbaden | Flux50 | Climate Agency Strasbourg

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Executive Summary

This Strategy provides local and regional authorities with a **practical framework for integrating CO₂ pricing into public procurement as a tool for reducing greenhouse gas emissions and accelerating the transition towards climate neutrality**. It outlines a structured approach that embeds climate considerations throughout policy development, project planning, procurement, and contract implementation.

The Strategy is organised around four interconnected phases and several steps (see Figure 1).

The **Foundation phase** establishes the governance structures, policy frameworks, and organisational awareness required to support climate-conscious decision-making. It focuses on understanding Scope 1, 2, and 3 emissions, defining CO₂ reduction objectives, and integrating CO₂ pricing into local policies and procurement practices.

The **Project phase – Initiation** introduces a more reflective approach to public investment decisions. Before initiating a new project, local authorities consider the underlying need and evaluate the project's benefits alongside its carbon impacts and long-term environmental costs to determine whether, and in what form, it should proceed.

The **Project phase – Design and Realisation** integrates CO₂ pricing into feasibility assessments, project criteria, design choices, and implementation processes. This ensures that low-carbon solutions are systematically prioritised alongside financial and technical considerations.

The **Tender phase** operationalises these principles through supplier engagement, award criteria, contract management, and performance monitoring. Carbon reduction becomes a measurable and strategic component of procurement decisions and project delivery.

Together, these phases provide local authorities with a **coherent pathway for using CO₂ pricing not merely as an accounting mechanism, but as a strategic instrument capable of reshaping policies, investments, and procurement practices** in line with European climate objectives.

By following this Strategy, local authorities can align public spending with climate goals, reduce long-term financial risks, stimulate innovation in low-carbon solutions, and contribute meaningfully to national and European climate commitments.

Towards a low-carbon organization

Strategy for working on CO₂ reduction through CO₂ pricing in procurement

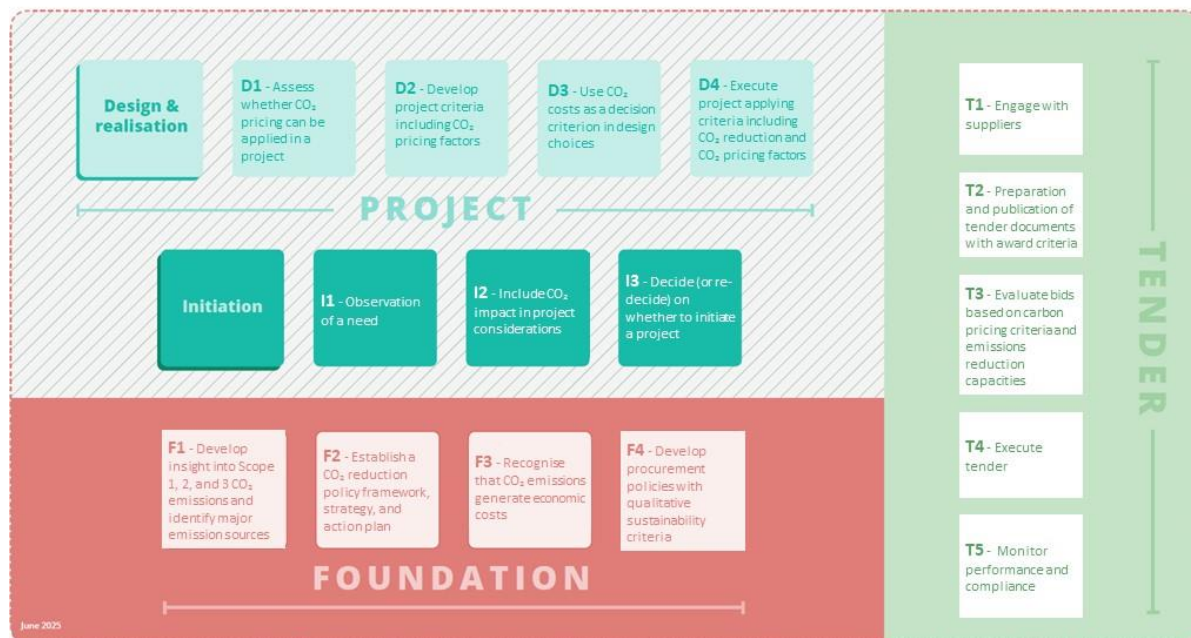
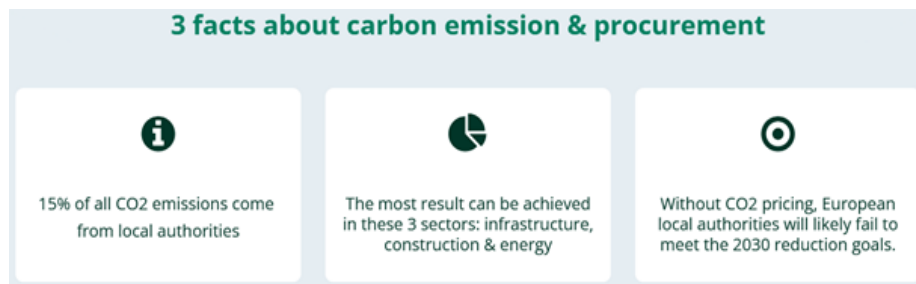


Figure 1 - Flow diagram CO₂ pricing strategy elaborated within the DeCarb-Pro project

1. A few words on DeCarb-Pro and CO₂ pricing

Public procurement significantly contributes to greenhouse gas (GHG) emissions, particularly through construction, transport, and energy-related activities. Public procurement of goods and services contributes to about 15% of global greenhouse gas emissions¹. **The DeCarb-Pro project was established to address this challenge by supporting local authorities in North-West Europe in reducing procurement-related emissions.**



Public procurement processes are traditionally driven by financial considerations. By integrating CO₂ pricing into procurement procedures, local authorities can encourage suppliers to compete not only on price, but also on carbon performance. This creates incentives for the delivery of lower-emission products, services, and infrastructure solutions.

The DeCarb-Pro partnership brings together local authorities, climate agencies, city networks, and market actors from across North-West Europe (see Figure 2). Together, the partners are **developing and testing a toolbox of CO₂ pricing and procurement instruments that can be applied by local authorities of different sizes and capacities.**

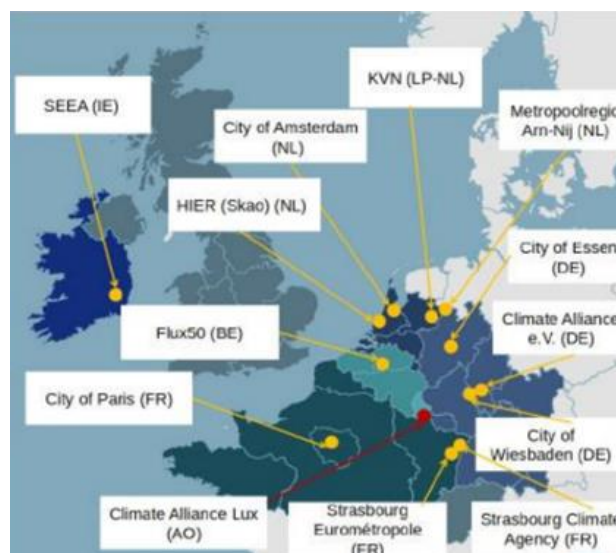


Figure 2 - DeCarb-Pro Consortium

¹ Stockholm Environment Institute, 2023, <https://www.sei.org/wp-content/uploads/2023/02/green-public-procurement-eu.pdf>

The project focuses particularly on three high-impact sectors: infrastructure, construction and energy. These sectors represent a substantial share of procurement-related emissions and therefore offer significant potential for emissions reductions.

Objectives of DeCarb-Pro

The project aims to:

- Reduce CO₂ emissions and improve energy efficiency within public procurement processes.
- Actively involve more than 85 local authorities across North-West Europe.
- Strengthen the capacity of local authorities to apply CO₂ pricing.
- Implement pilot projects that demonstrate measurable emissions reductions.



1. CO₂ Pricing into public procurement: a strategic approach to reducing the carbon footprint of local authorities

1.1 A growing urgency

Local authorities across North-West Europe play a critical role in achieving the objectives of the European Green Deal, including the target of reducing greenhouse gas emissions by 55% by 2030. Carbon pricing is increasingly recognised as one of the most effective policy instruments for supporting the transition towards a climate-neutral society.

In Europe, the first steps towards a carbon price have already been taken in several countries, where the issue of emission rights has led to a market price for CO₂ emissions (the European Emissions Trading System or EU ETS).

The amount of carbon pricing schemes is increasing in EU and around the world. The [World Bank report State and Trends of Carbon Pricing 2023](#) states that **there is a growing consensus among both governments and businesses on the fundamental role of carbon pricing in the transition to a decarbonized economy**. Furthermore, it shows that governments are prioritizing direct carbon pricing policies to reduce emissions, even in difficult economic times. **In most cases, carbon pricing is also a source of revenue, which is particularly important in an economic environment of budgetary constraints².**

² <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing>

As of 2024, more than 50 countries and 39 subnational jurisdictions globally apply direct carbon pricing mechanisms, covering over 12.8 GtCO₂e and representing 24% of global GHG emissions (World Bank, Carbon Pricing Dashboard)³.

Public procurement represents a particularly important area for climate action. **Public procurement today makes up 14% of the EU's GDP, giving it the power to shape markets and accelerate sustainability (EC, 2025)⁴.** Moreover, **public procurement contributes approximately to 15% of worldwide GHG emissions (WEF, 2022)⁵.** Procurement activities therefore offer substantial opportunities to reduce emissions, especially in sectors such as infrastructure, construction, and energy, which represent over 2/3 of CO₂ emissions of local procurement (OECD, 2025⁶).

Integrating CO₂ pricing into public procurement means assigning a monetary value to greenhouse gas emissions associated with products, services, or projects. These carbon costs can then be incorporated into procurement decisions, investment assessments, and tender evaluations.

This approach enables local authorities to:

- Steer investments towards low-carbon solutions;
- Reduce long-term financial and environmental risks;
- Stimulate innovation in sustainable products and services;
- Align public spending with climate objectives.

1.2 What is CO₂ pricing and why use it as a local authority?

Scientific consensus clearly demonstrates that human-caused greenhouse gas emissions are the primary driver of climate change. The impacts are increasingly visible through rising temperatures, flooding, droughts, biodiversity loss, and growing social and economic disruptions. As reported by IPCC in the [VI Assessment Report \(AR6\)](#)⁷, key consequences of climate change are heat stress and extreme temperatures, rising sea level and coastal impacts, flooding and intense precipitation, forest fires and drought, ecosystem loss and biodiversity crisis, food and water insecurity, health and displacement.

All these environmental and societal impacts bring significant associated costs for societies. Many of these costs are not reflected in the market price of products and services. CO₂ pricing addresses this issue by assigning a monetary value to greenhouse gas emissions. This allows environmental impacts to be considered more systematically in decision-making processes that are often dominated by short-term financial considerations.

³ <https://carbonpricingdashboard.worldbank.org/compliance/instrument-detail>

⁴ <https://public-buyers-community.ec.europa.eu/resources/webinar-why-should-public-procurers-choose-eu-ecolabel-certified-products>

⁵ [WEF Green Public Procurement 2022.pdf](#)

⁶ https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/11/environmental-and-social-impacts-across-industry-sectors_0e34ef29/dd39761c-en.pdf

⁷ <https://www.ipcc.ch/assessment-report/ar6/>

For local authorities, CO₂ pricing is not an objective in itself, but a policy instrument that supports climate targets and more sustainable investment choices.

CO₂ pricing can support local authorities in:

- Reducing emissions from buildings, infrastructure, and public services;
- Improving long-term financial planning;
- Encouraging suppliers and contractors to develop low-carbon solutions;
- Integrating climate considerations into procurement and investment decisions.

By incorporating carbon costs into planning and procurement processes, local authorities strengthen their ability to align operational decisions with broader sustainability objectives.

Why put a price on carbon?

Applying a price to carbon emissions enables local authorities to:

Raise the local authority budget through generated revenues. Carbon pricing revenues present opportunities to address unique challenges towards local energy reduction and achieve economic and environmental gains.

Anticipate future changes. In the coming years, there will probably be more mandatory forms of carbon pricing. By starting now with voluntary carbon pricing, public authorities and organisations can already prepare for the impact of mandatory CO₂ pricing.

Bring innovation in all project phases. Carbon pricing helps to reduce GHG emissions throughout the several phases and components needed to successfully implement and monitor a project, stimulating innovation within enterprises and LAs.

Make climate action fairer. Pricing forces those most responsible for causing climate change to take on the greatest financial responsibility for change.

Raise revenues for just climate action. Standards, taxes, trading systems and other tools have the potential to bring in significant funding, which can enable the implementation of climate actions including vulnerable and low-income groups.

Accelerate private-sector transitions to net zero. It sends a clear signal to major emitters, such as large building owners and polluting industries, on the need to change their practices.

Force greater disclosure and awareness about the carbon footprint of organisations, buildings, activities and more. Measuring and disclosing emissions as part of pricing schemes can itself improve transparency and accelerate action, as well as inform climate policy.

Trigger national or global action by demonstrating the viability of pricing policies.

Reduce costs of climate change. The longer we wait to reduce our emissions, the more expensive it will become. Carbon pricing is emerging as an efficacious, cost-effective and equitable key mechanism for speeding up the transition to a low-carbon economy.

1.3 Different forms of CO₂ pricing

CO₂ pricing can be applied in different ways depending on whether the mechanism is **notional or real**, and whether it is applied **internally or externally**. This creates four broad approaches (see Figure 3).

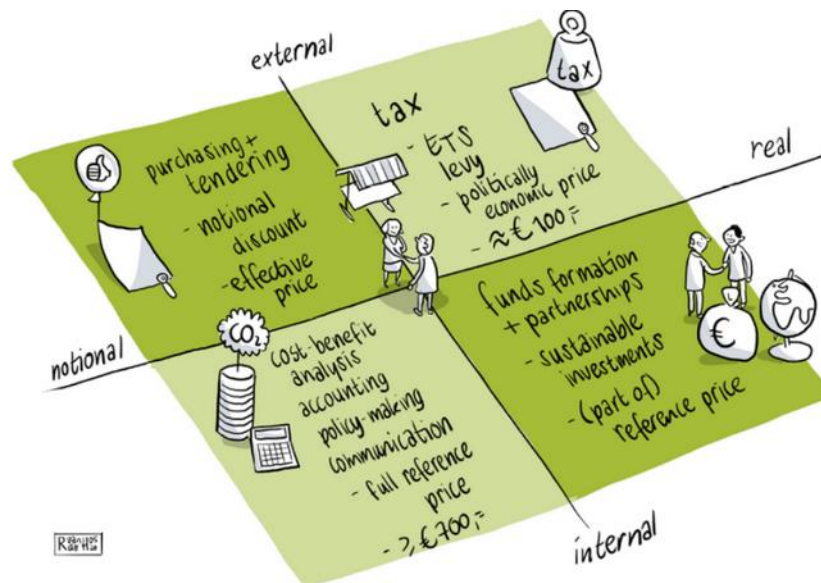


Figure 3 Different forms of carbon pricing, distinguishing between a notional or real application on the one hand, and between an internal or external focus on the other

Bottom-left side -> Internal-Notional. In the initial stage, carbon pricing is often applied in a notional, internal context. Here, a “shadow price” of carbon is introduced within the organisation for analytical and decision-support purposes. **This price is not associated with actual financial transactions, but is instead used in cost–benefit analysis, policy evaluation, budgeting, and internal carbon accounting.** The objective is to internalize the social cost of emissions within organisational decision-making processes, thereby improving strategic alignment with climate objectives without imposing immediate financial consequences.

Top-left side -> External-Notional. Subsequently, the notional price may be extended to an external context. In this notional, external application, **the organisation incorporates the shadow carbon price into interactions with third parties, such as procurement and tendering processes.** For example, bids may be evaluated using emission-adjusted cost metrics. Although no direct payments are required, this approach influences supplier behaviour and incentivizes lower-emission solutions through modified selection criteria.

Bottom-right side -> Internal-Real. A more advanced stage involves the transition to real, internal carbon pricing. In this configuration, the organisation establishes mechanisms that generate actual financial flows, such as **internal carbon fees or levies applied to companies based on their emissions.** Revenues collected may be allocated to dedicated funds supporting emissions reduction measures,

innovation, or sustainability initiatives. This approach strengthens incentives by directly linking emissions performance to financial outcomes within the organisation.

Top-right side -> External-Real. Finally, carbon pricing may be implemented in a real, external context, where it affects the broader economy. This includes **policy instruments such as carbon taxes or emissions trading systems** (e.g., the European Union Emissions Trading System). In this case, emissions are explicitly priced through market or regulatory mechanisms, resulting in observable economic impacts and behavioural changes across sectors.

Together, these different forms demonstrate that CO₂ pricing is not a single instrument, but a spectrum of approaches that can evolve gradually over time.

For most local authorities, notional carbon pricing represents the most practical and accessible starting point. By incorporating a shadow carbon price into planning, appraisal, procurement, and investment decisions, authorities can account for climate impacts without the legal, administrative, and political complexities associated with implementing real carbon charges. While **internal real pricing** mechanisms, such as internal carbon funds, may offer additional incentives for emissions reduction, they require more advanced governance arrangements and are not yet widely applied in the local government context. **External real pricing** instruments, such as carbon taxes and emissions trading systems, are typically established at national or supranational levels and fall outside the direct remit of local authorities.

For this reason, **the approaches presented in this strategy primarily focus on the application of internal and external notional carbon pricing** as practical tools that local authorities can adopt today, while recognising that more advanced forms of carbon pricing may become relevant as organisational capacity and climate ambitions mature.

1.4 CO₂ pricing applied in infrastructure, construction, and energy sectors

Carbon pricing can be effectively applied in the infrastructure, construction and energy sectors - the sectors on which DeCarb-Pro focuses - by incorporating carbon costs into the planning, development, and operational phases of projects. These sectors are particularly relevant because local authorities are major procurers within them, investing substantial public funds in infrastructure development, public buildings, and energy services. Through this significant purchasing power, local authorities can exert considerable influence on market demand and shape industry standards.

By assigning a cost to carbon emissions, these mechanisms would incentivize and reward the use of low-carbon materials and construction techniques, thereby encouraging suppliers to adopt more sustainable practices. Given the scale of local authorities' procurement budgets in these sectors, even moderate adjustments in tender criteria can have system-wide effects, steering markets toward greener solutions. For instance, using recycled materials and implementing energy-efficient designs

could become more financially attractive, as they would reduce the carbon costs associated with the project and increase competitiveness in public tenders.

Additionally, carbon pricing could be applied to the lifecycle emissions of construction projects, including the energy used during the building phase (and depending on the contract, also the maintenance and demolition phases). This would promote the adoption of energy-efficient technologies and construction methods.

Overall, applying carbon pricing in these sectors would create a financial incentive to reduce emissions, fostering innovation in green technologies, and promoting sustainable development practices.

Given their substantial and predictable spending in infrastructure, construction, and energy, local authorities are uniquely positioned to drive market transformation, making these sectors both a strategic entry point and a high-impact leverage area for integrating carbon pricing into public procurement.

1.5 Basics to start using CO₂ pricing in public procurement

In order to get started with carbon pricing, some elements are essential starting points for local authorities aiming to operationalise carbon pricing effectively.

➤ **Build support**

A crucial step is to build support within the organisation, to ensure that all relevant responsible from several organisational layers and departments are involved and understand what is required and how it will affect their daily work (policy and decision makers, civil servants, etc.). In this sense, the introduction of carbon pricing should be part of a wider transitional process including administrative commitment and availability of resources within the organisation.

➤ **Have carbon footprint insights**

Another important step is to begin mapping and monitoring the local authority's carbon footprint. Initially, the focus can be on scope 1 and 2 emissions – those from the organisation's own energy consumption, vehicle fleet, purchased heat and electricity. After that, scope 3 emissions can also be calculated. These emissions result from the organisation's activities but occur from sources not owned or controlled by the organisation. For public authorities, scope 3 emissions include emissions caused by public procurement, such as infrastructure and construction work. Therefore, scope 3 emissions are much higher than scope 1 and 2, making it critical to prioritise efforts to reduce these emissions. Tools like the [CO₂ Performance Ladder](#) (CO₂PL), focused on energy, CO₂ management and procurement, can help local authorities to start mapping and monitoring their emissions and to help decide what departments or projects to focus on to achieve the biggest impact.

➤ **Decide how to use CO₂ pricing**

A third important step is to decide how and where the organisation intends to apply CO₂ pricing. For instance, the first step could be using an internal carbon price for raising

awareness, with the potential to implement carbon pricing in procurement at a later stage. Depending on how it is applied, decisions will need to be made regarding the value of the carbon price.

In the strategy described in Chapter 2, all the steps necessary to integrate carbon pricing into public procurement are explained.

1.6 Target groups

Implementing CO₂ pricing within local authorities requires more than methods and strategies, technical tools or policy frameworks; it depends on people, roles, and decision-making processes. Different actors influence climate-related choices at different phases - from setting strategic direction to delivering projects on the ground. Large, medium, and small LAs have different levels of capacity, but the core roles and the target groups remain similar.

Identifying and understanding these target groups is therefore essential to ensure that knowledge, tools, and support are tailored to real responsibilities and moments of influence. This is important for each phase and step of the process, thereby strengthening the chances that CO₂ pricing becomes a practical and effective part of everyday decision-making.

In this DeCarb-Pro strategy, we identified the following target groups, both within and outside local authorities (see Figure 4).



Figure 4 Target groups addressed by DeCarb-Pro

Target groups within LAs

Decision-makers. Such as aldermen, executive boards, council coalitions and senior management. They set the political and organisational direction within local authorities.

They define priorities, allocate budgets, and provide or withhold the mandate needed for policy and project teams to act. However, their decisions are primarily driven by political agendas, public interests, and administrative responsibilities.

They are included because their awareness, openness, and high-level support create the organisational space to explore and implement carbon pricing. Their engagement is primarily supported through targeted communication and inspiring showcases that make the value and potential impact of CO₂ pricing tangible.

Strategy and Policy Advisors. They determine the long-term direction of the organisation. They translate societal values, climate ambitions, spatial planning, and economic development into policies, programs, legislation, financial instruments (e.g., subsidies, taxes) and asset-management frameworks. Through these strategic choices they set the conditions that enable carbon-pricing initiatives to emerge later in projects and procurement.

Their work is strongly influenced by political leadership, which means the project's direct influence on their day-to-day decisions is limited. Nevertheless, they play a crucial role in shaping the organisational context in which CO₂ pricing can take root. For this reason, they are included as a target group: to inspire them, broaden their awareness of carbon pricing as a strategic lever, and help them recognise where and how CO₂ pricing aligns with long-term ambitions.

Project Managers. They are responsible for the feasibility phase of projects: developing initial concepts, defining the project vision, identifying general goals and criteria, assessing design options, estimating budgets, and preparing the investment decision. Their work is positioned at the intersection of long-term strategy and short-term practical execution.

Because they translate high-level policy goals into concrete project scopes, they play a crucial role in determining whether and how CO₂ pricing can be integrated (later) in the process. They are therefore a key target group, as they help bridge long-term ambitions with practical, implementable steps, and can create momentum for low-carbon decision-making early in the project phases.

Project and Implementation teams. They are responsible for the design, preparation, and implementation of projects. Their work includes developing project criteria, selecting materials, planning implementation, coordinating contractors, and making practical, daily decisions that have a direct and measurable carbon impact. This allows preventative choices—such as material selection, construction methods, operational optimization, and logistics planning—to significantly reduce carbon emissions.

They are also included as key target group because they translate the organisation's ambition into concrete results: they can take the first preventive steps today, experiment with low-carbon options, and feed practical insights back into future policy and tenders.

Procurement Professionals. They support project managers, project leaders and contract managers throughout the tendering process. They prepare and publish tenders, communicate with suppliers, monitor and communicate the outcomes of the evaluation of the bids, and ensure that all procedures comply with procurement law. Their role is procedural, risk-aware and focused on safeguarding transparency, fairness and legal correctness.

Even if they do not fully decide on project content or CO₂ ambitions themselves, they play a crucial role in correctly applying the criteria that other departments prepare. This makes them essential for integrating CO₂ pricing correctly and consistently into procurement documents. They are therefore not part of the core target group, but it is crucial that they understand what CO₂ pricing means for their role. This way, they can collaborate better with the other parties involved in the project.

Target groups outside LAs

Supporting partners. Such as climate agencies, regional networks and intermediary organisations. They act as facilitators and frontrunners who help local authorities explore and apply CO₂ pricing. They support pilots, provide guidance, translate insights, and strengthen local capacity for climate-smart decision-making.

Although they do not implement projects themselves, they play an important enabling role: they amplify knowledge, connect local authorities, and help scale lessons learned. They can also use the insights, tools and practical experience gained in this project to strengthen their own expertise and apply CO₂ pricing within their wider support programs.

Market Suppliers. Such as engineering firms, construction companies, architects, infrastructure developers, material producers, consultants, and service providers — design, build, and deliver the solutions that local authorities procure. They directly influence the technical choices, cost structures, material flows, and innovation potential of projects, and therefore play a decisive role in the actual carbon performance of public investments.

Although they do not set public policy or procurement rules, market suppliers respond to the incentives and criteria defined by local authorities. CO₂ pricing in procurement affects how they design proposals, calculate costs, select materials, and develop low-carbon alternatives. Their capacity to provide reliable carbon data, propose innovative solutions, and translate CO₂ requirements into practical offers is essential for making carbon pricing operational rather than symbolic.

They are therefore included as an external target group, not as recipients of policy guidance, but as key implementation partners. Engaging them helps ensure that CO₂ pricing leads to realistic, competitive, and scalable solutions, and that suppliers understand how carbon criteria are applied, measured, and rewarded. Over time, this also supports market transformation by encouraging suppliers to invest in low-carbon technologies, improve transparency, and integrate carbon performance into their standard business practices.

2. Strategy

This strategy sets out a **structured, step-by-step approach for integrating CO₂ pricing into public procurement**. It positions **CO₂ pricing as a strategic instrument for reducing greenhouse gas emissions and steering public investment towards climate neutrality**. The strategy guides local authorities from foundational awareness and governance through project development to practical implementation in procurement procedures and contract management.

The strategy is organised around **four interconnected phases and a series of associated steps** that together embed climate considerations throughout public investment and procurement processes (see Figure 5).

The **Foundation phase** establishes the governance structures, policy frameworks, and organisational awareness required to support climate-conscious decision-making. It focuses on understanding Scope 1, 2, and 3 emissions, defining CO₂ reduction objectives, and integrating CO₂ pricing into local policies and procurement practices.

The **Project phase – Initiation** introduces a more reflective approach to public investment decisions. Before deciding to launch a new project, local authorities consider its carbon impacts and long-term environmental costs to determine whether the project is necessary at all. And if so, whether the project is needed urgently and in its proposed form.

The **Project phase – Design and Realisation** integrates CO₂ pricing into feasibility assessments, project criteria, design choices, and implementation processes. This ensures that low-carbon solutions are systematically prioritised alongside financial and technical considerations.

The **Tender phase** operationalises these principles through supplier engagement, award criteria, contract management, and performance monitoring. Carbon reduction becomes a measurable and strategic component of procurement decisions and project delivery.

Together, these phases and steps provide local authorities with a **coherent pathway for using CO₂ pricing not merely as an accounting mechanism, but as a strategic instrument capable of reshaping policies, investments, and procurement practices** in line with European climate objectives.

While the whole framework of the strategy is structured to provide a clear pathway, **the strategy should not be interpreted as a strictly linear process** that must always begin with the first step of the Foundation phase and proceed sequentially to the final step of the Tender phase. The strategy is designed as a flexible framework that allows local authorities to enter at the level that is most relevant to their starting position, organisational maturity, or project context. In practice, some authorities may begin with pilot projects, specific procurement initiatives, or project-level applications of CO₂ pricing before all elements of the Foundation phase have been fully established. The phases and steps should therefore be viewed as interconnected building blocks rather than mandatory prerequisites. Local

authorities are encouraged to tailor the approach to their circumstances, using the framework to identify priorities, address gaps, and progressively strengthen the integration of CO₂ pricing into their policies, projects, and procurement practices.

All the phases and specific steps are further explained in the next chapters and subchapters.

Towards a low-carbon organization

Strategy for working on CO₂ reduction through CO₂ pricing in procurement

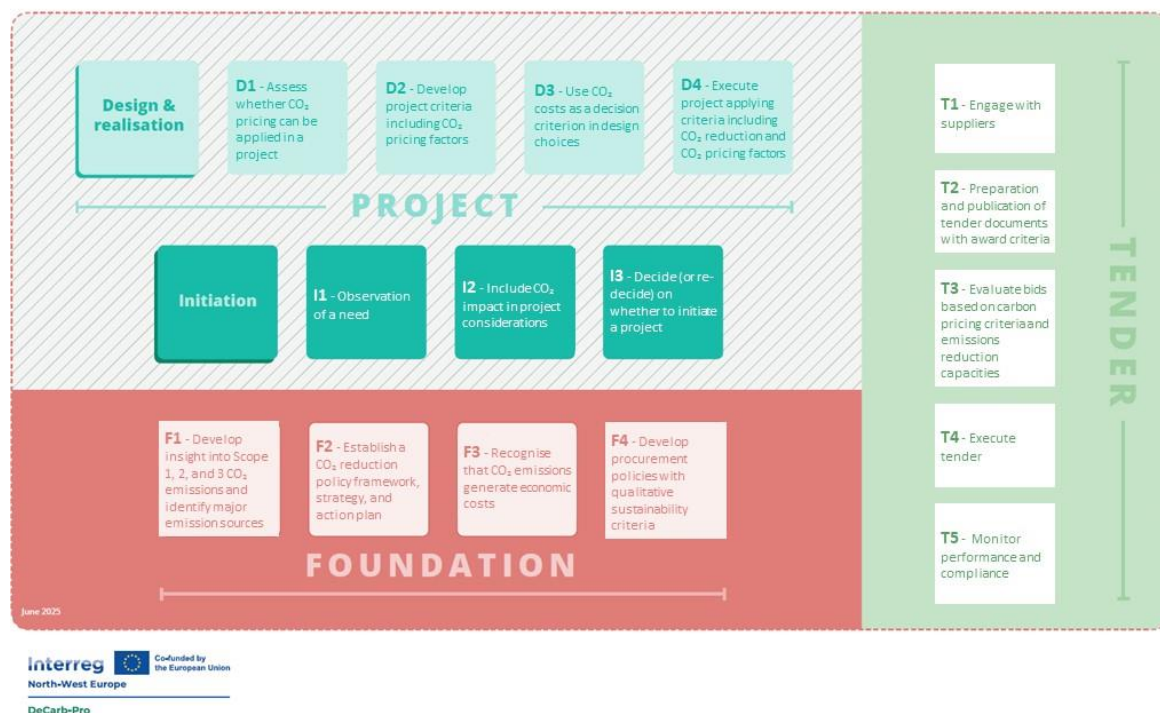


Figure 5 - Flow diagram CO₂ pricing strategy elaborated within the DeCarb-Pro project

2.1 Foundation phase

The Foundation phase establishes the **essential knowledge base, governance framework, and strategic orientation needed for local authorities to meaningfully reduce their carbon emissions through carbon pricing in public procurement.**

This phase focuses on **building organisational awareness, creating governance structures, and embedding climate-conscious decision-making into policy, planning, and procurement practices.** It supports local authorities in moving from reactive climate action towards a more systematic and proactive approach in which climate considerations become an integral part of everyday governance.

The phase begins with the development of a comprehensive understanding of greenhouse gas emissions across Scope 1, 2, and 3 categories. By establishing robust emissions inventories and identifying the most significant sources of emissions, local authorities can **prioritise mitigation efforts where they will have the greatest impact (Step F1).**

Building on these insights, local authorities **develop a coherent CO₂ reduction policy framework, strategy, and action plan aligned with European and national climate objectives (Step F2).** This includes defining measurable reduction targets, identifying sector-specific actions, establishing governance and monitoring mechanisms, and strengthening cross-departmental coordination.

A key conceptual shift within this phase is recognising that CO₂ emissions represent not only environmental impacts, but also long-term economic costs and financial risks. This understanding supports the **integration of climate considerations into investment and procurement decisions (Step F3).**

Central to this transformation is the **introduction of CO₂ pricing as a strategic instrument for steering behaviour and investment towards lower-emission solutions (Step F3.1).** This phase supports local authorities in **integrating CO₂ pricing into policy frameworks (Step F3.2), developing a clear stakeholder narrative (Step F3.3), and formalising organisational commitment to CO₂ pricing (Step F3.4).**

Finally, the Foundation phase establishes the basis for sustainable procurement by encouraging the **development of procurement policies that incorporate qualitative sustainability criteria, particularly related to greenhouse gas emissions (Step F4).** This culminates in the **creation of award criteria that explicitly support CO₂ reductions through CO₂ pricing mechanisms (Step F4.1).**

Steps included in the Foundation phase:

- Foundation phase
 - F1 - Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources

- F2 - Establish a CO₂ reduction policy framework, strategy, and action plan
- F3 - Recognise that CO₂ emissions generate economic costs
 - F3.1 - Introduce CO₂ pricing as a policy instrument for emissions reduction
 - F3.2 - Apply CO₂ pricing within CO₂ reduction policies
 - F3.3 - Develop a CO₂ pricing narrative for stakeholders
 - F3.4 - Formalise policy commitment to CO₂ pricing
- F4 - Develop procurement policies with qualitative sustainability criteria
 - F4.1 - Establish award criteria that support CO₂ reductions through CO₂ pricing

F1 - Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources

Goal

The objective of this step is to establish a comprehensive understanding of greenhouse gas emissions and energy use across the activities of the local authority or organisation.

Local authorities and organisations should regularly quantify emissions across Scope 1, 2, and 3 categories, identify the most significant sources of emissions, analyse emissions across sectors and activities, and establish a baseline for future emissions reduction measures (see Figure 6).

The distinction between Scope 1, 2, and 3 emissions follows the Greenhouse Gas Protocol methodology. **Scope 1 emissions** are direct emissions from the combustion of different energy carriers generated within the municipal boundaries. **Scope 2 emissions** relate to purchased electricity, heating, and cooling. **Scope 3 emissions** include indirect emissions associated with procurement, supply chains, services, and other external activities. For many local authorities, Scope 3 emissions represent the largest share of total emissions.

The **emissions inventory should be based on an energy balance, an energy review, and greenhouse gas emissions calculations** using recognised methodologies and emission factors.

Emissions should be analysed by sector to identify the activities that generate the highest emissions and where mitigation efforts can achieve the greatest impact.

Sectoral analysis may include:

- Street lighting, municipal buildings, and infrastructure.
- Households.
- Industry, services, agriculture, and forestry.
- Transport systems and mobility.
- Waste management activities.

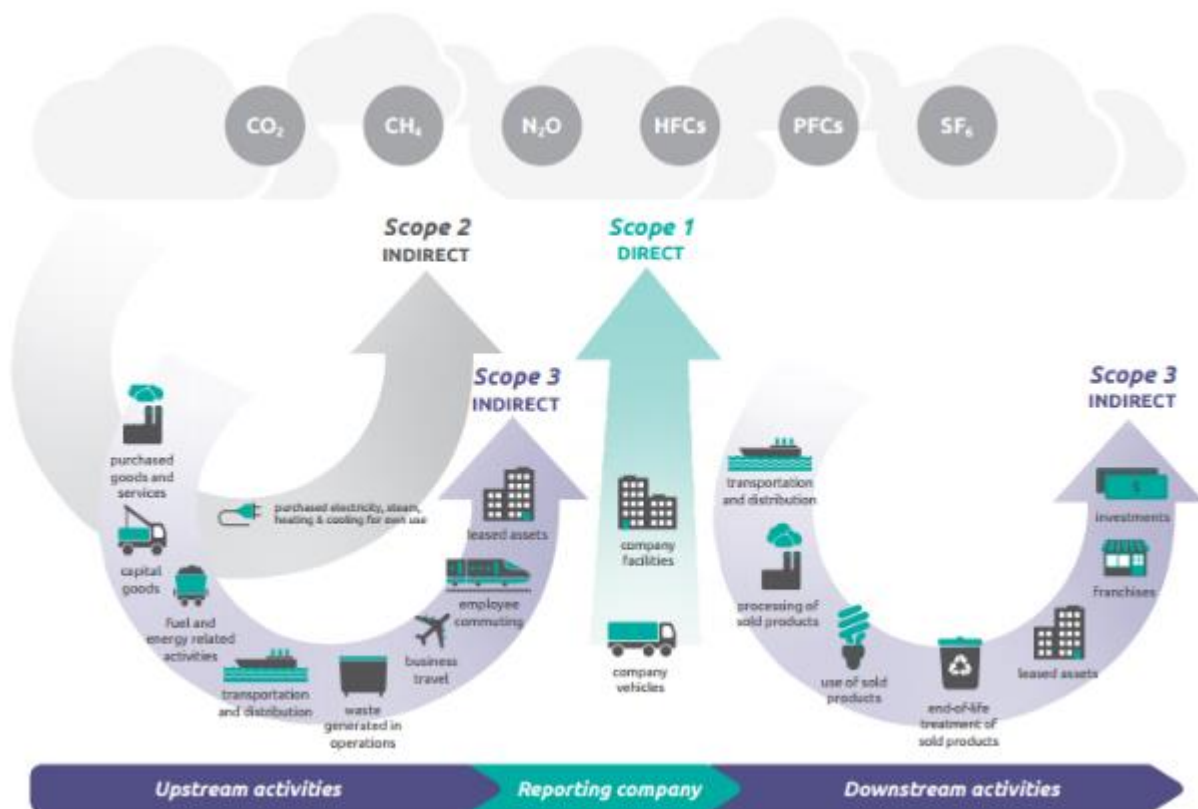


Figure 6 Description of the Scope 1,2 and 3 emissions regarding the GHG Protocol methodology. Source <https://ghgprotocol.org/blog/you-too-can-master-value-chain-emissions>

What this step involves

Continuous emissions monitoring is fundamental to all subsequent phases of the Strategy. Reliable emissions data enables local authorities to understand their climate impacts, assess whether climate actions are effective, and identify priority areas for intervention.

This step also strengthens organisational credibility. Local authorities are better positioned to request emissions reductions from suppliers and contractors when they have first established a clear understanding of their own emissions profile.

Key actions for implementation

The main actions include:

- Collecting internal and supplier-related activity data.
- Conducting an energy balance and energy review (see [CO₂ Performance Ladder Manual version 4.0](#)).
- Developing a greenhouse gas emissions inventory using recognised emission factors.
- Categorising emissions by sector and activity.
- Identifying the most emission-intensive sectors and activities.

- Determining priority areas for emissions reduction measures.

Key target groups (ref. to chapter 1.6 for further details)

- Strategy and policy advisors
- Project managers
- Project and implementation teams
- Market suppliers

Tools and methods

Several tools and methods can support the calculation of greenhouse gas emissions inventory and energy use across the activities of the local authority or organisation.

- [Greenhouse Gas \(GHG\) Protocol](#)

The Greenhouse Gas (GHG) Protocol provides comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions.

The methodology supports the classification of emissions into Scope 1, 2, and 3 categories and is widely used as a reference framework for organisational carbon accounting.

- [ISO 14064](#)

ISO 14064 is an internationally recognised standard that defines principles and requirements for the quantification, reporting, monitoring, and verification of greenhouse gas emissions and removals at organisational level.

Especially, it requires organisations to identify and quantify all relevant GHG emissions and removals associated with the organisation's operations, to establish procedures for regular monitoring, reporting, and verification of GHG data and to maintain clear documentation and provide accessible information to stakeholders regarding GHG emissions and reduction efforts.

- [Bilan Carbone®](#)

The Bilan Carbone® tool is a comprehensive GHG accounting methodology developed by the French Agency for Ecological Transition (ADEME). The methodology supports comprehensive greenhouse gas accounting across organisational activities and sectors. Since 2022, the inclusion of Scope 3 emissions has become mandatory within the methodology.

Bilan Carbone® requires detailed activity data but provides a robust and adaptable framework aligned with international standards such as ISO 14064.

- **Bottom-up data inventories**

Many European local authorities apply bottom-up emissions inventories based on locally collected activity data. These inventories typically combine collected data on energy consumption and GHG emissions from individual sources within the local boundaries, such as energy consumption data from buildings, vehicle miles travelled, waste generation and/or local economic activities.

The aggregated data supports the estimation of local greenhouse gas emissions and helps identify priority areas for emissions reduction measures.

- **[CO₂ Performance Ladder \(CO₂PL\)](#)**

The CO₂ Performance Ladder is a carbon management and certification framework that supports organisations in monitoring and reducing greenhouse gas emissions. The CO₂PL GHG calculation methodology is helpful to define organisational boundaries, categorizing emissions into scopes 1, 2 and 3, collecting accurate activity data, using standardised emission factors, and applying calculation tools. Verification through external audits ensures credibility, and the framework encourages continuous improvement in emissions reduction efforts. This structured approach helps organisations systematically reduce their carbon footprint and achieve higher levels of sustainability certification.

- **[Climate Alliance tools](#) and [Bisko methodology](#)**

Many German local authorities use greenhouse gas emissions monitoring tools developed by Climate Alliance in accordance with the BSKO standard (Bilanzierungs-Systematik Kommunal, the official accounting framework used by German municipalities to measure and compare their greenhouse gas emissions.

The [Climate Protection Planner](#) (Klimaschutz-Planer) is a tool to create energy and greenhouse gas balances based on a systematic and standardised methodology. Thanks to integrated benchmarking, the tool also shows local authorities where they stand in comparison to other cities and towns and contributes to sustainability reporting with municipal monitoring results. With the Climate Protection Dashboard, municipalities can clearly display and communicate their balance sheet results, energy consumption and greenhouse gas emissions, broken down by the various energy sources and sectors within the local authority. The tool is currently used by local authorities throughout Germany and East Belgium. Since 2024, the Climate Protection Planner has also been in use in Austria as part of the [KlimaBilanz](#) initiative.

The [ESG Cockpit](#) enables local administrations and companies to create their own greenhouse gas emissions balance sheets based on energy and heat consumption data, travel activities and much more. The tool is easy to use and provides clear evaluations to measure the fulfilment of both emissions' reduction targets and sustainability goals. By analysing the emissions of individual organisations, the ESG Cockpit complements the Climate Protection Planner. This enables local authorities, federal and state administrations, non-profit organisations and private companies to develop appropriate measures for continuous emissions reductions.

- **[Life Cycle Assessment \(LCA\) methodologies](#)**

Life Cycle Assessment evaluates the environmental impacts associated with products, materials, services, and energy systems throughout their full lifecycle, including extraction of raw materials, production, use, and disposal (or reuse).

LCA methodologies extend beyond greenhouse gas emissions and assess multiple environmental impact categories.

At local level, LCA can support the evaluation of procurement-related emissions and the environmental impacts of goods and services used within municipal activities. Lifecycle

assessment factors can also be integrated into procurement databases and calculation tools. There are several tools available on the market⁸.

- **Covenant of Mayors for Climate and Energy – Europe (CoM EU) methodology**

The CoM EU is the largest European initiative for local climate and energy action. Through the CoM EU framework, cities voluntarily commit to tackling climate change, and thus to pursuing and advancing the commitments of national governments at the local scale. The initiative provides methodologies and guidance for developing Sustainable Energy and Climate Action Plans (SECAPs), including detailed guidance for preparing greenhouse gas emissions inventories (How to prepare a greenhouse gas emission inventory, elaborated and published by the Joint Research Centre).

- **CDP-ICLEI Track reporting platform**

The Global Covenant of Mayors supports the CDP-ICLEI Track reporting platform, which enables cities, regions, and local authorities to measure, manage, and disclose environmental and climate-related data.

The platform supports transparency, benchmarking, and long-term monitoring of climate performance.

When this step is completed

This step is completed once the local authority has established a greenhouse gas emissions inventory for a defined baseline year.

The emissions inventory should be updated regularly in order to monitor progress, assess the effectiveness of climate actions, and maintain reliable emissions data for decision-making processes. Annual updates are recommended where possible, although reporting frequency may depend on national legislation or certification requirements.

In France, the BEGES methodology requires local authorities with more than 50,000 inhabitants to update their emissions inventory every three years.

Within the CO₂ Performance Ladder framework, annual updates of the CO₂ footprint are required for external audits and certification processes.

Dependencies with other steps

Developing an emissions inventory strengthens organisational awareness of greenhouse gas emissions and establishes a baseline for future climate action. Identifying the most emission-intensive sectors and activities also enables local authorities to prioritise mitigation measures where they can achieve the greatest impact.

The results of this step directly support:

⁸ List of the most used LCA tools: <https://lca-software.org/>

- The development of CO₂ reduction strategies and action plans, and the identification of priority sectors for intervention (Step F2).
- The integration of CO₂ pricing into procurement and investment decisions (Step F3).
- Long-term monitoring and reporting processes (Step T5).

F2 - Establish a CO₂ reduction policy framework, strategy, and action plan

Goal

The objective of this step is to **develop and formally establish a comprehensive CO₂ reduction policy framework, strategy, and action plan aligned with 2030 and 2050 climate objectives**, ideally supporting the transition towards climate neutrality.

The strategy should be consistent with [European goals](#) and **national climate and energy objectives** and provide a structured framework for long-term emissions reduction at local level.

CO₂ reduction targets should be defined and monitored through the baseline emissions inventory (see step F1), measurable quantitative reduction targets, clearly defined implementation timelines, and sector-specific actions and monitoring mechanisms.

The strategy and action plan should translate climate objectives into concrete short-, medium-, and long-term measures.

As a high-level governance framework, the strategy should be developed collaboratively with relevant departments, decision-makers, and stakeholders. Cross-departmental coordination is essential to ensure consistency across climate, energy, infrastructure, mobility, and procurement policies.

The final strategy and action plan should be formally approved by the city council and monitored by the responsible department, such as the environmental or energy department.

What this step involves

Developing a long-term climate strategy helps local authorities to allocate adequate resources, to establish implementation priorities, and to strengthen institutional continuity. A successful implementation requires political commitment, organisational coordination, stakeholder engagement, sufficient financial and human resources.

Internal alignment is particularly important for building credibility and encouraging participation from external stakeholders, including companies, citizens, and civil society organisations.

The strategy should establish ambitious but achievable objectives supported by measurable actions, realistic timelines, and continuous monitoring processes.

Key actions for implementation

The main actions include:

- Analysing the baseline greenhouse gas emissions inventory in order to identify the most emission-intensive sectors and activities.
 - Where no baseline emissions inventory is available, local authorities may refer to comparable local authorities and existing reporting platforms, such as the Covenant of Mayors Europe or [CDP databases](#), in order to identify likely high-emission sectors and relevant mitigation approaches.
- Identifying strategic priorities, reduction measures, and key implementation parameters.
- Establishing cross-departmental working groups to co-develop actions and implementation pathways.
- Defining quantitative reduction targets based on expected emissions reductions, available resources, and long-term trends.
- Estimating the potential CO₂ reductions associated with planned measures using recognised methodologies, modelling tools, and experiences from other local authorities.
- Preparing and formally approving the final strategy and action plan through the city council.
- Establishing periodic review and revision mechanisms, for example every three years, to assess progress, update priorities, and integrate new measures where necessary.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Project Managers
- Market Suppliers

Tools and methods

Several tools and methodologies can support the development, implementation, and monitoring of local climate strategies and action plans.

- [Covenant of Mayors for Climate and Energy – Europe \(CoM EU\) methodology](#)
The [EU Covenant of Mayors](#) provides a widely recognised methodological framework for local climate and energy planning across Europe.
The initiative supports local authorities in developing Sustainable Energy and Climate Action Plans (SECAPs) through a series of guidance documents and technical methodologies. These include (i) [How to develop a Sustainable Energy and Climate Action Plan \(SECAP\)](#), (ii) [How to plan mitigation, adaptation and energy poverty actions](#).

The framework provides guidance on climate governance, emissions reduction planning, stakeholder engagement, implementation and monitoring processes.

- **[Method for Budget Climate Assessment \(BCA\)](#)**

Budget Climate Assessment (BCA) is a methodology developed through collaboration between I4CE, five local authorities, France Urbaine, and the French Mayors' Association (AMF).

The methodology evaluates the climate impact of public expenditure by analysing budget lines according to their contribution to climate mitigation, adaptation, and biodiversity objectives. Budget items are generally classified as highly favourable, favourable, neutral or unfavourable for the climate.

The methodology is aligned with the EU Taxonomy framework and supports climate-conscious budget planning and investment prioritisation.

A simplified version is mandatory in France for local authorities with more than 3,500 inhabitants under the 2024 Finance Law.

- **[Label TETE](#)**

[Label TETE](#) (Territoires Engagés pour la Transition Ecologique or Committed Territories for the Ecological Transition in English) provides a methodology for monitoring and evaluating climate and energy action plans (including SECAPs).

The framework supports local authorities in assessing implementation progress, monitoring climate actions, adapting mitigation measures based on observed results, strengthening continuous improvement processes.

- **[EU City Calc](#)**

[EU City Calc](#) is a scenario-modelling tool that supports local authorities in developing greenhouse gas reduction pathways.

The tool enables users to model emissions reduction scenarios, assess the impact of policy measures, analyse long-term climate trajectories, and support strategic decision-making processes.

- **[CO₂ Performance Ladder \(CO₂PL\)](#)**

The [CO₂ Performance Ladder](#) is a carbon management and certification framework that supports continuous improvement in greenhouse gas emissions reduction.

The framework follows a Plan–Do–Check–Act approach and focuses on emissions monitoring and reporting, setting reduction objectives, implementing mitigation measures, monitoring progress and organisational improvement.

Certification can support local authorities in institutionalising climate governance and sustainable procurement practices.

- **[Carbon Pricing Incidence Calculator](#)**

The Interactive and publicly accessible platform [Carbon Pricing Incidence Calculator](#) was developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable.

It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households.

The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.

- [QuantiGES](#)

[QuantiGES](#) is a methodology designed to quantify the potential greenhouse gas emissions reductions associated with climate actions and projects.

The methodology enables detailed assessment of mitigation measures but may require extensive data collection, technical expertise, significant analytical resources.

Simplified approaches may also be developed based on the same methodological principles.

- [France ecological transition agency \(ADEME\) climate transition scenarios](#)

The France ecological transition agency (ADEME) has developed scenario methodologies that support the localisation of national greenhouse gas reduction strategies.

These methodologies help local authorities to align local climate policies with national objectives, to develop locally adapted emissions reduction pathways, to define strategic priorities and action plans, and to account for local territorial and socio-economic characteristics.

The approach supports consistency between national climate policy and local implementation.

When this step is completed

This step is completed once the climate and energy strategy and action plan:

- Have been formally approved by the city council.
- Include clear quantitative targets and implementation deadlines.
- Define governance and monitoring responsibilities.
- Establish implementation and reporting mechanisms.

A dedicated internal monitoring structure should also be identified to coordinate implementation and track progress over time.

Dependencies with other steps

This step depends on the development of a baseline greenhouse gas emissions inventory (Step F1), which provides the data necessary to identify emissions reduction priorities and assess achievable mitigation pathways. The strategy and action plan establish the policy and governance framework required to support subsequent implementation steps.

F3 - Recognise that CO₂ emissions generate economic costs

Goal

This step represents a strategic shift in how local authorities understand and manage climate impacts. Rather than viewing CO₂ emissions solely as an environmental issue, **local authorities recognise that greenhouse gas emissions also generate long-term economic costs, financial risks, and implications for public investment.**

The objective of this step is to establish a shared understanding that climate performance and economic performance are increasingly interconnected. **Low-carbon investments can contribute not only to emissions reductions, but also to:**

- **Lower climate adaptation costs**
- **Lower lifecycle costs.**
- **Reduced exposure** to future regulatory and energy-price risks.
- **Improved environmental quality.**
- **Enhanced social and public value.**
- **Greater long-term resilience** of public infrastructure and services.

Within this approach, climate-related criteria — particularly carbon-related criteria — are considered alongside traditional economic and technical criteria in procurement and investment decisions.

The integration of carbon considerations is therefore not presented as an additional administrative burden, but as a strategic mechanism for supporting more resilient, efficient, and future-oriented public investment.

This step also highlights the broader value of carbon-conscious decision-making. By recognising the economic dimension of climate change, local authorities strengthen their ability to assess long-term investment impacts, identify co-benefits associated with low-carbon projects, improve transparency in decision-making, and align public spending with climate and sustainability objectives.

Building on this awareness, the step progressively introduces CO₂ pricing as a practical policy instrument for influencing procurement, investment, and governance decisions.

The step is organised into four complementary substeps:

- Step F3.1 – Introduce CO₂ pricing as a policy instrument for emissions reduction
- Step F3.2 – Apply CO₂ pricing within CO₂ reduction policies
- Step F3.3 – Develop a CO₂ pricing narrative for stakeholders
- Step F3.4 – Formalise policy commitment to CO₂ pricing

Together, these substeps transform carbon emissions from an external environmental impact into a measurable consideration within public decision-making processes.

Step F3 therefore establishes the foundation for integrating climate objectives into governance, procurement, and investment frameworks in a manner that is environmentally necessary, economically rational, and institutionally sustainable.

What this step involves

Motivations for climate action differ across stakeholder groups and institutional contexts. For some stakeholders, scientific evidence related to climate change may be sufficient to support action. Others may require clearer economic justification before supporting climate-related measures. This is particularly relevant in the context of increasing financial pressures faced by local authorities in recent years, including rising energy prices, budgetary constraints, inflationary pressures, and economic uncertainty following major crises such as the COVID-19 pandemic.

As a result, short-term financial considerations may dominate investment decisions, potentially overlooking the long-term environmental, economic, and social benefits associated with low-carbon projects.

This step therefore supports local authorities in recognising that greenhouse gas emissions also create measurable economic impacts and that climate-conscious investments can generate significant long-term co-benefits.

The step also introduces the use of carbon-related indicators and carbon pricing approaches as practical tools to support more transparent and evidence-based decision-making processes.

Key actions for implementation

The actions required for implementation will depend on the existing level of organisational awareness, technical knowledge, and political commitment.

Key actions may include:

- Organising internal workshops and learning activities related to climate impacts, carbon accounting, and social carbon costs.
- Providing introductory training sessions for elected representatives on the carbon impacts of different types of projects and investments.
- Presenting practical examples of low-carbon solutions and procurement approaches to operational teams.
- Introducing relevant local, national, and European methodologies related to greenhouse gas accounting and CO₂ pricing.

- Communicating experiences and results from pilot projects, including lessons learned and implementation challenges.
- Strengthening internal dialogue between financial, procurement, environmental, and operational departments.

Participatory awareness tools, such as [Climate fresk](#) or similar methodologies, may also support organisational learning and stakeholder engagement.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Target groups outside LAs
- Supporting partners

Tools and methods

Several tools and methodologies can support the integration of climate-related economic considerations into governance and procurement processes.

- **[Method for Budget Climate Assessment \(BCA\)](#)**
Budget Climate Assessment (BCA) is a methodology developed through collaboration between I4CE, five local authorities, France Urbaine, and the French Mayors' Association (AMF). The methodology evaluates the climate impact of public expenditure by analysing budget lines according to their contribution to climate mitigation, adaptation, and biodiversity objectives. Budget items are generally classified as highly favourable, favourable, neutral or unfavourable for the climate.
The methodology is aligned with the EU Taxonomy framework and supports climate-conscious budget planning and investment prioritisation.
A simplified version is mandatory in France for local authorities with more than 3,500 inhabitants under the 2024 Finance Law.
- **Social cost of greenhouse gas emissions methodologies**
Methodologies for calculating the social costs of greenhouse gas emissions quantify the broader economic impacts associated with environmental degradation and climate change. For example, the German Environment Agency (UBA) provides methodological guidance and value factors for assessing environmental costs related to greenhouse gas emissions, air pollution, transport, energy production, building materials, agricultural emissions ([UBA 2025, Methodological Convention 4.0 for the Assessment of Environmental Impacts](#)).

These methodologies can support public investment assessment, policy evaluation, economic instrument design, sustainability reporting processes.

They also help local authorities translate environmental impacts into measurable economic indicators that support decision-making.

- **[Climate fresk](#)**

[Climate fresk](#) is a participatory climate education methodology designed for businesses, educational institutions, NGOs, and public authorities.

The tool supports climate awareness, stakeholder engagement, organisational learning, understanding of climate science and emissions impacts.

The methodology is designed to be accessible and scalable across organisations and communities.

- **[Responsible purchasing fresk \(*Fresque des achats responsables*\)](#)**

The [Responsible purchasing fresk \(*Fresque des achats responsables*\)](#) is a participatory methodology focused specifically on sustainable and responsible procurement practices. ([Fresque des achats responsables](#) in French).

Similar to Climate Fresk, the methodology supports awareness-building and organisational learning, with a stronger focus on sustainable procurement, supply chain impacts, purchasing decisions, and environmental and social responsibility.

When this step is completed

This step is completed once local authorities systematically consider both economic and climate-related impacts when prioritising projects, investments, and procurement decisions.

At this stage, climate considerations — including greenhouse gas emissions and carbon-related costs — are integrated alongside traditional financial and technical criteria within decision-making processes.

Dependencies with other steps

This step can be developed in parallel with:

- Step F1 – Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources
- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan

Together, these steps strengthen organisational awareness, establish climate governance structures, and support the integration of climate considerations into procurement and investment decisions.

Step F3 also provides an important foundation for subsequent implementation steps, particularly:

- Step F4 – Develop procurement policies with qualitative sustainability criteria
- Step I2 – Include CO₂ impact in project considerations

F3.1 - Introduce CO₂ pricing as a policy instrument for emissions reduction

Goal

Once local authorities recognise that greenhouse gas emissions generate negative economic impacts, the next step is to introduce CO₂ pricing as a formal policy instrument for supporting emissions reduction objectives.

The objective of this step is to institutionalise CO₂ pricing within organisational governance and decision-making processes. Rather than limiting CO₂ pricing to isolated projects or pilot initiatives, local authorities establish a structured framework that integrates carbon-related costs into broader policies, procurement practices, investment decisions, and planning processes.

By formalising the use of CO₂ pricing, local authorities strengthen the long-term consistency, transparency, and effectiveness of their climate policies.

What this step involves

Implementing this step requires local authorities to establish a coherent and organisation-wide approach to CO₂ pricing.

Embedding CO₂ pricing within policy frameworks helps ensure consistency across decision-making processes, reduce case-by-case ambiguity, align financial planning with climate objectives. Moreover, it provides clear signals to suppliers, project developers, and stakeholders regarding the cost of carbon-intensive activities.

This step also demonstrates institutional commitment to integrating climate considerations into governance, procurement, and investment practices.

Successful implementation requires both political support and practical usability. CO₂ pricing mechanisms should therefore be sufficiently robust to support climate objectives while remaining accessible and operational for non-specialist users across departments.

Key actions for implementation

The main actions include:

- Strengthening internal understanding of CO₂ pricing concepts and methodologies.
- Providing training for policy advisors, procurement professionals, financial departments, and operational teams.
- Introducing different CO₂ pricing approaches, such as social cost of carbon methodologies, marginal abatement cost approaches, and internal carbon pricing systems.
- Developing a formal CO₂ pricing policy or internal guideline.

- Defining the organisational scope of application, including areas such as procurement, investment planning, subsidies, land-use planning, and infrastructure projects.
- Establishing internal CO₂ price levels and documenting the underlying rationale and calculation methods.
- Integrating CO₂ pricing into organisational decision-making procedures through templates, tools, and guidance documents.
- Securing formal political and managerial support for implementation.
- Ensuring that methodologies remain practical, transparent, and proportionate to organisational capacity.

The implementation approach should prioritise **usability and long-term institutional adoption rather than excessive methodological complexity**.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Project Managers
- Project and Implementation teams
- Procurement Professionals

Tools and methods

Several tools and methodologies can support the introduction of CO₂ pricing within local policy frameworks.

- **Internal CO₂ pricing guidance and handbooks**
Guidance documents developed by local and regional authorities, public institutions, or European organisations can support local authorities in designing internal CO₂ pricing approaches and governance structures.
These resources may include implementation methodologies, pricing models, governance procedures, procurement integration examples.
- **Carbon pricing policy guidance**
Publications such as [Pricing carbon. An important instrument of ambitious climate policy](#) (Heinrich Böll Foundation, Brussels, 2020), provide analysis and guidance on different carbon pricing systems and implementation approaches. These resources can support local authorities in understanding pricing methodologies, policy implications, governance considerations, and implementation challenges.
- **Shadow price models**
Shadow pricing models support the estimation of indirect carbon-related costs associated with activities such as energy consumption, infrastructure development, and procurement decisions.

These models can help integrate climate-related externalities into economic assessments and investment evaluations.

- **Decision support tools and templates**

Decision-support tools can assist departments in applying CO₂ pricing consistently within procurement, investment, and planning processes.

These tools may include procurement templates, investment assessment frameworks, lifecycle costing models, and emissions evaluation tools.

Several practical resources are available through organisations such as the European Commission, C40, ICLEI, and [PIANOo](#).

- **[Carbon Pricing Incidence Calculator](#)**

The Interactive and publicly accessible platform [Carbon Pricing Incidence Calculator](#) was developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable.

It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households.

The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.

- **[Carbon Pricing Dashboard](#)**

The [Carbon Pricing Dashboard](#) provides details about direct carbon pricing instruments and carbon markets around the world. The dashboard includes data published in the World Bank's State and Trends of Carbon Pricing Report and is structured into two main sections: compliance instruments and carbon crediting markets.

Data available: (i) details on carbon taxes and emissions trading systems. This includes detailed information and visualizations on design attributes, GHG emissions coverage, price, and revenue; (ii) information and visualizations regarding crediting mechanisms (international, independent, and governmental), including issuances. This section also includes information regarding participation in cooperative approaches under Article 6.2 of the Paris Agreement.

When this step is completed

This step is completed once the local authority has formally established a CO₂ pricing framework for organisational use.

At a minimum, the framework should define the internal CO₂ price or pricing methodology, the scope of application, governance responsibilities, implementation procedures, and basic monitoring and review mechanisms.

The framework may be documented through a policy document, internal guideline, procurement procedures, and broader sustainability or climate governance frameworks.

Implementation should remain adaptable over time, allowing the organisation to revise price levels, expand the scope of application, improve methodologies and usability, and strengthen integration across departments and processes.

Dependencies with other steps

This step builds upon the awareness and governance structures established in:

- Step F1 – Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources
- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan
- Step F3 – Recognise that CO₂ emissions generate economic costs

Step F3.1 establishes the operational foundation for subsequent implementation steps, particularly:

- F3.2 – Apply CO₂ pricing within CO₂ reduction policies
- F3.3 – Develop a CO₂ pricing narrative for stakeholders
- F3.4 – Formalise policy commitment to CO₂ pricing

The step ensures that CO₂ pricing can be applied consistently across organisational policies, procurement processes, and investment decisions.

F3.2 - Apply CO₂ pricing within CO₂ reduction policies

Goal

Once CO₂ pricing has been introduced as a formal policy instrument, the next step is to apply it proactively within climate, investment, and procurement policies in order to support emissions reduction objectives.

The objective of this step is to use CO₂ pricing not merely as an accounting or analytical mechanism, but as an operational tool for influencing policy choices, investment priorities, and organisational behaviour.

By integrating carbon-related costs into policy implementation, local authorities can steer resources and decision-making processes towards lower-emission solutions and more climate-resilient outcomes.

What this step involves

At this stage, CO₂ pricing becomes an active driver of emissions reduction policies and implementation processes.

Rather than using carbon pricing solely to estimate environmental impacts, local authorities apply pricing results to influence concrete policy decisions and resource allocation.

This may include prioritising low-carbon investment alternatives, adjusting subsidy or funding mechanisms, integrating carbon-related thresholds into project evaluation procedures, revising permitting or procurement criteria, and reallocating financial resources towards lower-emission activities.

The objective is to ensure that CO₂ pricing directly influences governance, planning, and operational decisions rather than remaining a purely informational exercise.

Applying CO₂ pricing consistently across policy areas also strengthens transparency, accountability, and alignment between climate objectives and public spending.

Key actions for implementation

The main actions include:

- Identifying sectors and activities with the greatest emissions reduction potential and policy leverage, such as mobility, buildings, infrastructure, procurement, urban development, and energy systems.
- Integrating CO₂-related thresholds or trigger mechanisms into policy and investment procedures.
- Establishing criteria requiring projects with significant emissions impacts to assess lower-carbon alternatives.
- Incorporating CO₂-related costs into subsidy schemes, permitting procedures, and funding mechanisms.
- Using carbon pricing outcomes to support budget allocation and investment prioritisation during annual planning cycles.
- Integrating carbon-related indicators into policy monitoring and evaluation systems.
- Ensuring that CO₂ pricing mechanisms are linked to concrete policy consequences and implementation measures.

Local authorities should avoid applying symbolic CO₂ pricing approaches that do not influence actual decisions or implementation processes.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Project Managers

Tools and methods

Several tools and methodologies can support the practical application of CO₂ pricing within local policies and governance frameworks.

- **Carbon budget tools**

Carbon budget tools support the monitoring of cumulative greenhouse gas emissions in relation to reduction targets and climate objectives.

These tools help local authorities assess emissions trajectories, identify deviations from targets, prioritise mitigation measures, and strengthen long-term planning processes.

- **Policy dashboards and monitoring tools**

Policy dashboards can visualise the climate impacts of different policy choices and investment scenarios.

These tools support evidence-based decision-making, policy evaluation, monitoring and reporting processes, and communication with decision-makers and stakeholders.

- **CO₂ threshold models**

Threshold models establish predefined emissions or carbon-cost limits that trigger additional assessment, mitigation requirements, or policy review.

Such approaches can support investment screening, procurement evaluation, project prioritisation, and climate-risk management.

- **Internal carbon cost calculators**

Internal carbon cost calculators estimate the economic impacts associated with greenhouse gas emissions using methodologies such as social cost of carbon approaches.

These tools support investment evaluation, lifecycle costing, policy assessment, and budget planning and prioritisation.

When this step is completed

This step is completed once CO₂ pricing actively influences policy implementation, investment decisions, and resource allocation processes within the local authority.

At this stage, CO₂ pricing is no longer limited to project-level analysis but is systematically integrated into policy development, budget allocation, procurement procedures, subsidy mechanisms, and planning and permitting processes.

Implementation should result in measurable policy adjustments, such as increased prioritisation of low-carbon investments, integration of CO₂ thresholds into decision-making procedures, revised funding priorities based on climate impacts.

The approach should remain subject to periodic review and refinement as climate objectives, policy cycles, and organisational capacities evolve.

Dependencies with other steps

This step depends on the prior establishment of:

- Step F3 – Recognise that CO₂ emissions generate economic costs
- Step F3.1 – Introduce CO₂ pricing as a policy instrument for emissions reduction
- Step F3.3 – Develop a CO₂ pricing narrative for stakeholders
- Step F3.4 – Formalise policy commitment to CO₂ pricing

Step F3.2 enables the transition from CO₂ pricing as an analytical exercise towards CO₂ pricing as an operational policy instrument. The step also supports emissions monitoring and reporting, policy evaluation processes, future revisions of CO₂ pricing methodologies and price levels, and integration of climate considerations into procurement and investment governance.

F3.3 - Develop a CO₂ pricing narrative for stakeholders

Goal

Once CO₂ pricing has been established as part of the local climate policy framework, it becomes essential to develop a clear and coherent narrative explaining its purpose, application, and expected benefits.

The objective of this step is to strengthen understanding, acceptance, and support for CO₂ pricing among internal and external stakeholders.

A well-developed narrative helps explain why CO₂ pricing is necessary, how it contributes to local climate objectives, how it supports more sustainable public investment, how implementation will remain fair, transparent, and proportionate.

This step therefore focuses not only on communication, but also on building legitimacy and institutional trust around climate-related decision-making.

What this step involves

CO₂ pricing can be perceived as technical, abstract, or financially restrictive if not communicated clearly.

Without a consistent and accessible narrative, local authorities may encounter organisational resistance, political hesitation, stakeholder misunderstanding, and external criticism.

This step supports local authorities in presenting CO₂ pricing as a forward-looking and balanced policy approach that contributes to climate objectives, responsible public spending, long-term resilience, improved environmental quality, and sustainable investment decisions.

A strong narrative also helps demonstrate that climate-conscious policies are compatible with economic responsibility and public value creation.

Successful communication should combine technical credibility with accessible and relatable messaging adapted to different stakeholder groups.

Key actions for implementation

The main actions include:

- Identifying key stakeholder groups, including elected representatives, operational departments, procurement professionals, project managers, suppliers and contractors, citizens and community organisations.
- Developing tailored communication approaches for different audiences.
- Adapting messages according to stakeholder priorities, such as fairness and transparency, financial efficiency, climate responsibility, and long-term public benefits.
- Using practical examples and case studies to illustrate the impacts of carbon-intensive and low-carbon choices.
- Integrating CO₂ pricing narratives into climate strategies, policy documents, council communications, procurement guidance, and public information materials.
- Ensuring that communication materials use accessible and non-technical language wherever possible.
- Strengthening coordination between communication, climate, financial, and operational departments.
- Supporting political leadership in communicating climate-related objectives consistently and transparently.

Narratives should emphasise practical outcomes, long-term value, and shared societal benefits rather than relying exclusively on technical carbon accounting concepts.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Project Managers
- Project and Implementation teams

Tools and methods

Several communication and stakeholder-engagement methodologies can support the development of an effective CO₂ pricing narrative.

- **Narrative development frameworks**

Narrative templates and communication frameworks can help local authorities structure consistent messaging across departments and stakeholder groups.

These frameworks support message consistency, stakeholder alignment, communication planning, and institutional coherence.

- **Storytelling methodologies**

Storytelling approaches — such as future-oriented scenario narratives or problem–solution frameworks — can support stronger stakeholder engagement and improve the accessibility of climate-related concepts.

These methodologies help connect technical policy measures with practical and societal impacts.

- **Stakeholder mapping tools**

Stakeholder mapping methodologies help identify relevant stakeholder groups, communication priorities, influence and engagement levels, appropriate communication channels.

These tools support targeted and proportionate engagement strategies.

- **Visual communication tools**

Visual tools such as infographics, dashboards, and emissions visualisation platforms can help communicate climate impacts and CO₂-related costs more clearly.

These tools support public communication, policy transparency, stakeholder understanding, and evidence-based discussions.

- **[Method for Budget Climate Assessment \(BCA\)](#)**

Budget Climate Assessment (BCA) is a methodology developed through collaboration between I4CE, five local authorities, France Urbaine, and the French Mayors' Association (AMF).

The methodology can also support communication efforts by illustrating the relationship between public expenditure and climate impacts.

These approaches strengthen transparency and help demonstrate the practical implications of climate-conscious budgeting and investment decisions.

- **[Carbon Pricing Incidence Calculator](#)**

The Interactive and publicly accessible platform [Carbon Pricing Incidence Calculator](#) was developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable.

It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households.

The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.

- **[Carbon Pricing Dashboard](#)**

The [Carbon Pricing Dashboard](#) provides details about direct carbon pricing instruments and carbon markets around the world. The dashboard includes data published in the World Bank's

State and Trends of Carbon Pricing Report and is structured into two main sections: compliance instruments and carbon crediting markets.

Data available: (i) details on carbon taxes and emissions trading systems. This includes detailed information and visualizations on design attributes, GHG emissions coverage, price, and revenue; (ii) information and visualizations regarding crediting mechanisms (international, independent, and governmental), including issuances. This section also includes information regarding participation in cooperative approaches under Article 6.2 of the Paris Agreement.

When this step is completed

This step is completed once the local authority has developed and communicated a clear, accessible, and consistent narrative explaining the purpose and application of CO₂ pricing.

At this stage:

- Key stakeholders understand the objectives and rationale behind CO₂ pricing.
- Communication materials are integrated into relevant policy and governance documents.
- Political leadership publicly supports the approach.
- Departments are able to explain CO₂ pricing consistently within their respective activities and responsibilities.

The narrative should remain adaptable and may require revision as policies evolve, implementation expands, political priorities change, and stakeholder expectations develop over time.

Dependencies with other steps

This step builds upon:

- Step F3.1 – Introduce CO₂ pricing as a policy instrument for emissions reduction
- Step F3.2 – Apply CO₂ pricing within CO₂ reduction policies

A clear and coherent narrative is essential for strengthening organisational support, political acceptance, and stakeholder engagement. Without effective communication and institutional alignment, even technically robust CO₂ pricing policies may face resistance, misunderstanding, or inconsistent implementation.

Step F3.3 therefore supports the broader governance and implementation processes required for the long-term integration of CO₂ pricing into procurement, investment, and climate policy frameworks.

F3.4 - Formalise policy commitment to CO₂ pricing

Goal

Once CO₂ pricing has been introduced as a policy instrument and supported through a clear stakeholder narrative, the next step is to formalise organisational commitment within governance and policy structures.

The objective of this step is to institutionalise CO₂ pricing by embedding it within municipal strategies, regulations, procedures, and decision-making frameworks.

Formal policy commitment strengthens organisational consistency, long-term continuity, political legitimacy; operational enforceability, and alignment between climate objectives and public investment practices.

By integrating CO₂ pricing into official governance structures, local authorities ensure that carbon-related considerations become a standard component of procurement, planning, budgeting, and investment decisions.

What this step involves

This step establishes the formal governance and policy foundations required for long-term implementation.

Without official policy adoption, CO₂ pricing may remain a voluntary, fragmented, or project-specific practice. Formal integration ensures that climate-related considerations are systematically incorporated into organisational procedures and decision-making processes.

Embedding CO₂ pricing within governance frameworks enables local authorities to apply climate-related criteria consistently across departments, strengthen accountability and transparency, align operational procedures with climate strategies, support long-term policy stability across political cycles, and provide clear implementation expectations for staff, suppliers, and stakeholders.

This step therefore transforms CO₂ pricing from a strategic concept into an institutionalised governance mechanism.

Key actions for implementation

The main actions include:

- Developing a formal CO₂ pricing policy or internal guideline.
- Defining the internal CO₂ pricing methodology, the scope of application, governance responsibilities, implementation procedures, and monitoring and reporting mechanisms.

- Integrating CO₂ pricing into broader internal frameworks, including climate strategies and action plans, procurement policies, investment procedures, budgetary frameworks, and sustainability governance structures.
- Formally adopting the policy through appropriate administrative or political procedures, such as municipal council approval, executive decisions, internal governance regulations, and environmental policy frameworks.
- Communicating the policy commitment internally and externally.
- Developing indicators and monitoring systems to assess implementation progress and effectiveness.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Project Managers
- Project and Implementation teams

Tools and methods

Several governance and implementation tools can support the formal adoption of CO₂ pricing policies.

- **Model policy frameworks and policy templates**
Existing policy documents developed by municipalities, climate networks, and public-sector organisations can support local authorities in designing CO₂ pricing frameworks and governance structures.
These resources may help accelerate policy development, improve consistency, strengthen legal and procedural completeness, and support alignment with existing best practices.
- **Legal guidance documents**
Legal guidance materials can support local authorities in assessing compatibility between CO₂ pricing mechanisms and national or European regulatory frameworks.
These documents may address procurement law, municipal governance requirements, public finance considerations, and environmental policy obligations.
- **Internal implementation manuals**
Implementation manuals and operational guidance documents support the practical integration of CO₂ pricing into organisational procedures.
These documents may clarify roles and responsibilities, calculation methodologies, reporting procedures, procurement integration processes, and monitoring requirements.
- **Existing national and regional policy examples**
Examples of formal commitment to CO₂ pricing and climate-related economic instruments already exist across several European countries.
For example:

- The Netherlands integrates environmental cost approaches into national construction-related regulations⁹.
- Ireland has introduced national carbon pricing mechanisms¹⁰.
- Germany applies CO₂-related taxation mechanisms to fossil fuels¹¹.

These examples demonstrate increasing recognition that greenhouse gas emissions generate long-term economic and societal costs that should be reflected within governance and investment systems.

When this step is completed

This step is completed once CO₂ pricing has been formally integrated into the organisation's governance and operational frameworks.

At this stage formal policies or guidelines have been adopted, implementation responsibilities are defined, monitoring mechanisms are established, and CO₂ pricing procedures are embedded within internal decision-making processes.

The framework should also be incorporated into standard operational procedures, procurement systems, and relevant governance documentation.

Implementation should remain adaptable and may be revised over time as organisational experience increases, methodologies evolve, climate strategies are updated, and political priorities develop.

Dependencies with other steps

This step builds upon:

- Step F3.1 – Introduce CO₂ pricing as a policy instrument for emissions reduction
- Step F3.2 – Apply CO₂ pricing within CO₂ reduction policies
- Step F3.3 – Develop a CO₂ pricing narrative for stakeholders

Step F3.4 establishes the formal governance structures necessary to ensure organisation-wide implementation and long-term continuity of CO₂ pricing approaches. The step also strengthens enforceability, consistency, and accountability across departments and decision-making processes.

⁹ https://www.rvo.nl/sites/default/files/2025-09/RVO_sectorgids%20circulaire%20bouw_English.pdf

¹⁰ https://www.oecd.org/en/publications/2021/09/ipac-policies-in-practice_1a65968e/a-credible-carbon-tax-trajectory-for-ireland_b07887bd.html, [Citizensinformation: Carbon tax](#); gov. Dept Expenditure (DPER) Infrastructure Guidelines, Shadow price of Carbon for investments over €20m: <https://www.gov.ie/en/department-of-public-expenditure-infrastructure-public-service-reform-and-digitalisation/collections/infrastructure-guidelines/>

¹¹ <https://www.bundesregierung.de/breg-en/issues/climate-action/effectively-reducing-co2-1795850>

F4 - Develop procurement policies with qualitative sustainability criteria

Goal

Once CO₂ pricing has been formally integrated into municipal governance structures, the next step is to establish a coherent and organisation-wide sustainable procurement strategy.

The objective of this step is to define how sustainability and climate considerations — particularly CO₂ reduction objectives — will be systematically integrated into procurement policies, tender procedures, and project delivery processes.

The strategy should identify:

- The procurement categories and activities with the highest greenhouse gas emissions impacts.
- The sectors with the greatest emissions reduction potential.
- The sustainability criteria to be applied in tenders and contracts.
- The types of projects and procurement procedures where these criteria should be prioritised.

The strategy should also establish a predictable and transparent framework for suppliers and market actors. Clear communication with external stakeholders is therefore essential to support market preparedness, encourage innovation, and facilitate the transition towards lower-carbon procurement practices.

This may include public communication measures such as publication of procurement strategies and objectives, supplier engagement activities, sector-specific information sessions, and collaboration with business associations and professional networks.

What this step involves

Developing a sustainable procurement strategy requires local authorities to move from isolated sustainability initiatives towards a more coordinated and strategic procurement approach.

To maximise climate impact, procurement priorities should be aligned with the internal broader climate and CO₂ reduction strategy. This includes focusing efforts on the activities and supply chains responsible for the highest levels of emissions, particularly Scope 3 emissions associated with purchased goods, services, and infrastructure projects.

A structured procurement policy helps ensure consistency across departments and projects while providing greater predictability for suppliers and contractors.

It also supports long-term market transformation, integration of sustainability criteria into procurement culture, improved coordination between procurement, climate, and operational departments, and greater transparency regarding organisational expectations and priorities.

By establishing clear qualitative sustainability criteria, local authorities can progressively embed climate considerations into procurement decision-making while supporting innovation and low-carbon market development.

Key actions for implementation

The main actions include:

- Assessment of the local authority's most significant greenhouse gas emission sources, building on the emissions inventory and climate strategy developed in earlier steps. Particular attention should be paid to procurement-related Scope 3 emissions, including emissions associated with construction and infrastructure materials, transport and mobility services, outsourced operations, energy supply chains, and purchased goods and services.
- Based on this analysis, local authorities can identify priority procurement categories and define the sustainability criteria and implementation mechanisms most relevant to their climate objectives.
- Development of the procurement strategy, involving both political leadership and operational departments to ensure strategic alignment and practical applicability. Internal workshops or cross-departmental working sessions may support the definition of priorities, governance responsibilities, implementation timelines, and procurement criteria.
- Formal approval of the strategy through the appropriate governance procedures (e.g. by City Council) and integrated into procurement policies, tender documentation, and operational guidance materials.
- Dissemination and clear communication of the strategy to suppliers and relevant stakeholders through guidance documents, market consultations, and information sessions.

A phased implementation approach is generally advisable, beginning with procurement categories and activities associated with the highest emissions impacts and greatest reduction potential.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Project Managers
- Project and Implementation teams
- Market Suppliers

Tools and methods

Several tools, methodologies, and policy frameworks can support the development of sustainable procurement strategies and qualitative sustainability criteria.

- **Methodologies and tools introduced in earlier steps — particularly those related to greenhouse gas accounting and climate strategy development**

They can provide valuable insight into procurement-related emissions and reduction priorities. Frameworks such as the CO₂ Performance Ladder can help identify high-impact procurement activities and support the integration of sustainability criteria into procurement processes.

- **Local and national procurement policies and frameworks**

Existing procurement policies, frameworks and guidance documents developed at local, national, and European levels can support local authorities in defining sustainability criteria, governance procedures, and monitoring approaches adapted to their organisational context.

- **Paris City-hall** adopted **thematic plans** as well as an **overarching scheme** providing guidelines and objectives on the social and environmental aspects of public procurement (***schéma de promotion des achats socialement et environnementalement responsables, SPASER***). This pluriannual strategic document highlights primarily the objective of having an environmental component in all public procurement contracts. Additionally, this goal is completed by actions favouring the integration of circular economy within the building sector, targets to reduce car-induced pollution by systematizing the use of EVs/biofuels, and the promotion of offers relying on cleaner delivery methods for the supply chain.

Knowledge of this document is widespread across the financial department and other directions, and information is shared to the potential bidders interested.

Examples of contracts which were affected by the SPASER include a provision on reused materials for the renovation of a daycare centre (circular economy provision) or on the provision of 100% renewable energy for the city's actions.

When this step is completed

This step is completed once the sustainable procurement strategy has been formally integrated into the organisation's procurement procedures, governance documentation, and operational practices.

At this stage sustainability criteria are clearly defined, procurement priorities are aligned with climate objectives, implementation responsibilities are established, and procurement guidance has been communicated to suppliers and stakeholders.

The strategy should also be publicly accessible and supported through ongoing stakeholder engagement and communication activities.

Periodic review and revision — for example every three years — are recommended to ensure continued alignment with climate objectives, market developments, and organisational priorities.

Dependencies with other steps

This step builds upon:

- Step F1 – Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources

- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan
- Step F3 – Recognise that CO₂ emissions generate economic costs

The sustainable procurement strategy established in this step also provides the operational foundation for subsequent procurement implementation measures, including the development and application of project-specific sustainability criteria, procurement tools, and tender evaluation methodologies.

F4.1 - Establish award criteria that support CO₂ reductions through CO₂ pricing

Goal

Once a sustainable procurement strategy has been established, the next step is to operationalise climate objectives within procurement procedures through the use of award criteria that support CO₂ reduction.

The objective of this step is to introduce procurement award criteria that incentivise suppliers and contractors to reduce greenhouse gas emissions through the application of CO₂ pricing mechanisms and carbon-related performance measures.

These criteria should support the broader procurement and climate strategy by rewarding bids that demonstrate lower carbon impacts, stronger emissions reduction commitments, or more sustainable implementation approaches.

The use of carbon-related award criteria enables local authorities to move beyond minimum compliance requirements and actively encourage innovation and low-carbon project delivery within procurement processes.

What this step involves

This step focuses on the identification, development, and implementation of procurement award criteria that integrate CO₂ reduction objectives into tender evaluation processes.

Based on the sustainable procurement strategy established in previous steps, contracting authorities apply award criteria that provide an advantage to suppliers offering lower-carbon solutions or stronger emissions reduction commitments during project execution.

These criteria are intended to complement — rather than replace — contractual obligations and technical specifications included in tender documents.

For example, procurement specifications may already require suppliers to assess or report the carbon impact of a project. Award criteria can then provide additional scoring advantages to bids

that demonstrate greater reductions in CO₂ emissions, stronger climate performance, or more ambitious sustainability measures.

The approach therefore combines mandatory sustainability requirements with incentive-based evaluation mechanisms that encourage suppliers to exceed minimum expectations.

This contributes to stronger integration of climate objectives into procurement decisions, increased market incentives for low-carbon innovation, more transparent evaluation of environmental performance, and alignment between procurement outcomes and organisational climate goals.

Key actions for implementation

The main actions include:

- Identification of procurement categories and tender procedures where carbon-related award criteria can generate meaningful climate impact.
Priority should generally be given to sectors and procurement activities associated with high greenhouse gas emissions, particularly where suppliers have the capacity to influence emissions outcomes through project design, material choices, logistics, or operational practices.
- Development of clear and applicable award criteria, together with any associated contractual provisions or implementation requirements.
This process typically includes defining carbon-related evaluation methodologies, identifying measurable emissions reduction indicators, determining how CO₂ performance will influence tender scoring, clarifying reporting and verification requirements, and developing standardised procurement templates and guidance documents.
- Periodic review and continuous improvement of standard procurement documents and implementation guidance, based on lessons learned from previous procurement procedures.

The approach should remain practical, transparent, and proportionate to the scale and complexity of the procurement activity concerned.

Key target groups (ref. to chapter 1.6 for further details)

- Strategy and Policy Advisors
- Project Managers
- Procurement Professionals

Tools and methods

Several tools and methodologies can support the integration of CO₂ reduction criteria into procurement procedures.

- **CO₂ Performance Ladder (CO₂PL) Award Criterion** (see [Procurement Guide 4.0](#))

The CO₂PL is a third-party certified, multi-level award criterion. Organisations can submit an ambition level for the project (0-3) and are then awarded the respective award advantage, as defined by the procuring authority. This can be a fictitious discount (percentage or fixed amount e.g. 5-10-15% or €50,000, €100,000, €150,000). The winning bidder(s) then has a fixed amount of time, defined by the contracting authority (e.g. one year) to provide proof that they are meeting the offered performance level, either with project-specific or organisation-level (including tendered projects) proof. Step 1 of the CO₂PL focuses on the project/organisation in question, while step 2 also covers up- and downstream emissions. Step 3 further increases the ambition, requiring organisations to have a plan to achieve zero emissions by 2050 at latest. The CO₂PL requires implementing an energy and CO₂ management system at project level, and includes thematic requirements related to insight, reduction, communication and collaboration.

- **Environmental Cost Indicator (ECI)**

The ECI - referred to in Dutch as the MKI (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) method based on the European EN 15804 standard. The ECI value can be calculated as an indicator for the environmental impact of the scope of a project, which uses an accumulation of products (and processes). The ECI is expressed in euros. These euros represent a social value, assigned to a number of environmental effects, similar to the monetary values arising from a Social Cost Benefit Analysis (SCBA). These euros are not economical euros in trade (yet). In the Netherlands, calculating the (total) ECI value is facilitated with the nationally used software program [Dubocalc](#). Dubocalc was developed on behalf of Rijkswaterstaat (the Dutch national road authority) and is used as a software instrument when the environmental impacts of different materials need to be added and/or when the National Environmental Database (NMD) needs to be used.

When this step is completed

This step is completed once applicable carbon-related award criteria have been identified, developed, and integrated into relevant procurement procedures and tender categories.

At this stage procurement templates and guidance documents include carbon-related award criteria, evaluation methodologies are clearly defined, implementation responsibilities are established, and procurement teams are able to apply the criteria consistently across relevant tenders.

The framework should also include procedures for periodic review and continuous improvement based on implementation experience and evolving procurement practices.

Dependencies with other steps

This step builds upon:

- Step F1 – Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources
- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan
- Step F3 – Recognise that CO₂ emissions generate economic costs
- Step F4 – Develop procurement policies with qualitative sustainability criteria

The award criteria established in this step provide a practical mechanism for translating climate and procurement strategies into operational procurement decisions and supplier incentives.

2.2 Project phase – Initiation

The Project phase – Initiation focuses on the **earliest stage of the project lifecycle**, where a potential need for action is identified, critically examined, and formally assessed. Rather than assuming that a project should automatically proceed, this phase introduces a **reflective and climate-conscious approach to decision-making**.

It begins with the **identification and clear definition of a perceived need**, which may be societal, infrastructural, environmental, or policy-driven (Step I1).

This initial trigger is then **assessed through a climate lens**, with particular attention to the CO₂ emissions associated with the proposed intervention (Step I2). At this stage, alternatives are also considered, including low-carbon options or, where appropriate, the possibility of not proceeding with an intervention at all.

The phase concludes with a structured **decision or re-decision on whether the project should proceed** (Step I3). This ensures that only projects that are necessary, justified, and aligned with climate objectives are taken forward into planning and implementation.

Together, these steps establish a decision-making process that integrates climate considerations at the very beginning of project development, helping to avoid unnecessary carbon-intensive investments and supporting more sustainable public spending.

Steps included in the Project phase – Initiation:

- I1 - Observation of a need
- I2 - Include CO₂ impact in project considerations
- I3 - Decide (or re-decide) on whether to initiate a project

I1 - Observation of a need

Goal

The objective of this step is to identify and describe the initial trigger or need within the municipality that may justify future action, project or intervention.

This step captures early signals of societal, infrastructural, environmental, organisational, or policy-related needs. It marks the starting point of the project initiation phase by documenting and communicating why a potential intervention may be required.

The purpose of this step is not to define immediate solutions, but rather to recognise emerging challenges, risks, or opportunities at an early stage. This helps local authorities avoid reactive decision-

making processes driven by short-term pressures and business-as-usual thinking and instead supports a more strategic and forward-looking assessment of priorities and long-term objectives.

What this step involves

This step focuses on the early identification, recognition, and documentation of needs. It answers the ‘why’ question and prevents ‘tunnel vision’.

A “need” should not be understood as a predefined project or technical solution, but rather as the recognition of a broader issue, ambition, concern, or desired direction for future development. For example, a local authority may consider widening a tarmac road between two locations to address peak-hour congestion. However, the underlying need is not necessarily additional road surface; it is to reduce congestion and ensure that people can reach their destinations in time. When the need is defined first, a wider range of options can be considered, such as improving public transport connections, enhancing cycling infrastructure, or encouraging travel outside peak hours. Starting from the need helps ensure that a broader range of solutions can be considered in Step I2, including options that may have lower carbon impacts and deliver wider social benefits.

Key actions for implementation

The main actions include:

- Identifying the source of the observed need or issue.
This includes determining who identified or reported the issue, such as citizens, municipal departments, monitoring systems, external stakeholders, or operational teams. Understanding the origin of the signal helps assess its relevance, urgency, and reliability.
- Clearly describing the observed issue or need.
This includes defining what is occurring, where and when it occurs, who is affected, and what potential impacts may arise. A clear description supports consistent interpretation and avoids misunderstandings during subsequent assessment stages.
- Collecting available initial information and supporting data.
Relevant information may include policy objectives, sustainability targets, existing assessments, monitoring data, asset-management information, environmental indicators, or preliminary CO₂-related data where available.
- Refining or validating the identified need where necessary.
Initial observations may require further clarification or validation if available information indicates that the issue is insufficiently substantiated, inaccurately framed, or inconsistent with broader strategic objectives.
- Recording observations and collected information.
All relevant findings, supporting information, and observations should be documented within an internal system or issue-management process. Proper documentation supports transparency, follow-up actions, organisational learning, and future decision-making processes.

Key target groups (ref. to chapter 1.6 for further details)

Frontline staff, citizens, monitoring bodies, and thematic experts.

- Project Managers
- Project and Implementation teams
- Supporting partners

Tools and methods

Several tools and methods can support the identification and documentation of needs, including issue-tracking systems, monitoring platforms, and stakeholder feedback mechanisms.

- **Digital reporting platforms and citizen feedback tools** (e.g. [Fixi](#), [OmgevingsAlert](#)).
- **Early warning dashboards and monitoring systems** used to detect emerging risks or trends.
- **Internal issue logs and asset-management systems** for recording operational or technical observations.
- **Stakeholder mapping methodologies** to identify affected groups and relevant actors.
- **Basic environmental or emissions-monitoring tools** where climate-related issues are involved.

When this step is completed

This step is completed once the identified need has been clearly documented, supported by available information, and formally recorded within the internal processes or monitoring systems.

At this stage, sufficient information should be available to support further assessment regarding whether additional analysis, policy development, or project initiation may be required.

The step may nevertheless be revisited as new information becomes available, internal priorities evolve, or additional monitoring data emerges.

Dependencies with other steps

This step represents the starting point of the project initiation phase and therefore has no direct dependencies on previous project steps.

The observations and information collected during this step provide the basis for:

- Step I2 – Include CO₂ impact in project considerations
- Step I3 – Decide (or re-decide) on whether to initiate a project

I2 - Include CO₂ impact in project considerations

Goal

The objective of this step is to assess what type of proposed project or intervention is necessary and proportionate when considering its greenhouse gas emissions, in addition to the usual considerations of environmental, societal, and economic impacts. This step introduces CO₂-related considerations into the early decision-making process by ensuring that potential climate impacts are evaluated before a project proceeds to design or implementation phases.

Rather than assuming that every identified need in step I1 automatically justifies a new project, local authorities are encouraged to critically assess whether the proposed intervention aligns with climate objectives, whether lower-carbon alternatives exist, or whether the identified need could be addressed through non-material, organisational, or less carbon-intensive approaches.

The step therefore supports more informed, sustainable, and climate-conscious investment decisions.

What this step involves

This step involves integrating greenhouse gas emissions and carbon-related costs into early-stage project assessment and “go/no-go” decision-making processes.

A significant proportion of a project’s future emissions are often determined during the earliest planning stages. Assessing CO₂ impacts at this stage therefore enables local authorities to avoid carbon-intensive pathways before substantial financial, technical, or political commitments are made.

The step focuses on estimating the expected emissions associated with a proposed intervention, monetising these emissions through the organisation’s internal CO₂ pricing framework where applicable, and comparing these impacts against the anticipated social, economic, environmental, and policy-related benefits of the project.

The objective is not to produce highly detailed emissions calculations at this stage, but rather to establish an indicative understanding of the project’s potential climate impact in order to support proportional and evidence-based decision-making.

Key actions for implementation

The main actions include:

- Exploring the identified need, proposed intervention, and underlying objectives.
This includes assessing why the proposed project is considered necessary, which problem or ambition it aims to address, and whether climate-related impacts have already been considered within the initial proposal.
- Estimating expected greenhouse gas emissions associated with the project.

At this stage, simplified estimation methods may be used, such as preliminary lifecycle assessment approaches, screening methodologies, simplified cost–benefit analysis, or emissions databases. Since project details are often still limited, results should be interpreted as indicative orders of magnitude rather than precise calculations.

- Applying the organisation’s internal carbon pricing methodology.
Where applicable, estimated emissions may be monetised using the internal CO₂ pricing framework established during the Foundation phase.
- Comparing CO₂-related impacts against expected project benefits and policy objectives.
This includes assessing whether the anticipated social, economic, operational, or environmental benefits justify the project’s expected climate impacts and whether the intervention aligns with broader organisational strategies and climate ambitions.
- Exploring lower-carbon or non-project alternatives.
Local authorities should assess whether the identified need can be addressed through alternative organisational, operational, behavioural, or technical approaches requiring fewer material resources or generating lower emissions. This may include optimising existing assets, reducing project scale, or identifying alternative technical solutions.
- Combining quantitative and qualitative assessment approaches.
Not all environmental or societal impacts can be fully captured through numerical carbon pricing methodologies. Qualitative judgement and broader policy considerations may therefore also be required.
- Ensuring meaningful use of CO₂ pricing approaches.
- CO₂ pricing should support genuine reflection and informed decision-making rather than functioning as a purely procedural or administrative exercise.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Supporting partners

Tools and methods

Several tools and methodologies can support the assessment of project-related greenhouse gas impacts and CO₂-related costs during early-stage decision-making.

- [Social Cost of Carbon calculator](#)
Used to monetise greenhouse gas emissions through standardised carbon values.
- **Lifecycle Assessment (LCA) screening tools and estimators**

Those tools are particularly relevant for infrastructure and construction projects. (e.g. [DuboCalc](#), [One Click LCA](#)).

- **Extended Social Cost–Benefit Analysis methodologies ((S)CBA or MKBA+)**

Extended social cost-benefit analysis integrating environmental and climate-related impacts into broader investment assessment.

- **Urban or infrastructure screening tools**

A variety of private digital platforms and frameworks are available on the market and used to analyse, simulate, and stress-test city systems. They help planners evaluate how proposed developments, transportation networks, and utility grids impact sustainability, climate resilience, and economic growth. Those tools are useful to support early-stage sustainability assessment and climate evaluation.

The choice of methodology should remain proportionate to the scale, complexity, and expected impacts of the proposed intervention.

When this step is completed

This step is completed once the expected greenhouse gas emissions and associated CO₂-related impacts of the proposed project have been assessed and considered within the project decision-making process.

At this stage indicative emissions estimates have been established, CO₂-related costs have been evaluated where applicable, alternatives have been considered, and climate-related impacts have been compared against broader project objectives and policy ambitions.

The results should support a transparent and evidence-based decision regarding whether the project should proceed, be adapted, be postponed, or not be pursued further.

The step may be revisited if political priorities, technical assumptions, financial conditions, or project parameters evolve over time.

Dependencies with other steps

This step depends on Step I1 – Observation of a need. The identification and documentation of a need provide the basis for assessing whether a project or intervention is justified once climate-related impacts and alternatives are considered.

Step I2 supports Step I3 – Decide (or re-decide) on whether to initiate a project.

The step therefore acts as a critical transition between the identification of a potential need and the formal decision regarding project initiation.

I3 - Decide (or re-decide) on whether to initiate a project

Goal

The objective of this step is to formally assess or reassess whether a project should be initiated, continued, postponed, modified, or not pursued further.

This step supports structured and transparent decision-making by evaluating whether a proposed project remains necessary, justified, and aligned with current policy objectives, organisational priorities, available resources, and climate ambitions.

The step also ensures that local authorities periodically reflect on whether circumstances, assumptions, alternatives, or policy conditions have changed since the initial identification of the need.

What this step involves

This step involves a critical review before formally initiating a project or proceeding to subsequent project phases.

Not every identified need necessarily requires the development of a dedicated project or infrastructure intervention. This step therefore acts as a decision point where the necessity, proportionality, and strategic relevance of the proposed intervention are reassessed.

The process supports efficient allocation of public resources, helps prevent unnecessary or outdated projects from progressing, and promotes transparent prioritisation within the organisation.

The reassessment should remain proportionate and pragmatic. The intention is not to restart the entire planning process, but rather to confirm whether the original rationale, assumptions, and conditions remain valid.

Key actions for implementation

The main actions include:

- Revisiting the identified need, project rationale, and broader context.
This includes reassessing the underlying problem, objectives, expected outcomes, and reasons why the proposed project was initially considered necessary.
- Reviewing changes since the initial observation and assessment stages.
Local authorities should verify whether relevant conditions, regulations, policy priorities, stakeholder positions, financial circumstances, technological developments, or environmental considerations have changed since Steps I1 and I2 were completed.
- Assessing whether non-project alternatives could address the identified need.

Alternative responses may include organisational measures, policy adjustments, behavioural interventions, communication measures, optimisation of existing assets, or smaller-scale interventions that avoid the need for a full project.

- Conducting a proportionate reassessment process.

The purpose of this step is not to repeat previous analyses in full, but rather to verify whether significant changes or new insights justify adapting, postponing, or cancelling the proposed intervention.

- Making a formal decision regarding the project.

Based on the available information, the organisation decides whether to proceed with project initiation, modify the scope, postpone further development, or close the issue entirely.

Key target groups (ref. to chapter 1.6 for further details)

- Decision-makers
- Strategy and Policy Advisors
- Supporting partners

Tools and methods

Several tools and methods can support structured reassessment and project initiation decisions.

- **Structured needs-assessment templates.**
- **Project initiation and decision-making frameworks.**
- **CO₂ screening and climate-impact assessment tools.**
- **Strategic alignment and policy consistency checklists.**
- **Feasibility, urgency, and impact assessment matrices.**

The complexity of the assessment process should remain proportionate to the scale and expected impact of the proposed intervention.

When this step is completed

This step is completed once a formal and documented decision has been made regarding whether the proposed project should proceed, be modified, be postponed, or be discontinued.

At this stage the original need and rationale have been reassessed, relevant contextual changes and alternatives have been considered, organisational and policy alignment has been verified, and a transparent decision has been recorded within the organisation's governance or decision-making procedures.

The step may be revisited if significant political, financial, technical, or policy developments occur at a later stage.

Dependencies with other steps

This step depends on:

- Step I1 – Observation of a need
- Step I2 – Include CO₂ impact in project considerations

The information and assessments developed during these steps provide the basis for deciding whether a project should formally proceed to subsequent project development and implementation phases.

This step enables the formal initiation of a project, the adaptation or reprioritisation of a proposed intervention, or the closure of the identified issue where no further action is considered necessary.

2.3 Project phase – Design and Realisation

The Project phase – Design and Realisation **translates climate ambitions into concrete project decisions and actions**. It integrates CO₂ considerations directly into feasibility assessments, design processes, and implementation activities, ensuring that projects are not only technically and financially viable but also aligned with climate objectives.

The phase begins by **assessing whether and how CO₂ pricing can be applied within a project** (Step D1), including decisions on the appropriate form and level of carbon pricing.

Based on this, **clear project criteria are developed** to make CO₂ impacts measurable and operational across all project components (Step D2).

During the design phase, **CO₂ costs are then applied as a decision-making parameter** when comparing alternatives (Step D3), systematically favouring low-carbon solutions in choices related to materials, technologies, and systems.

Finally, in the execution stage, these **criteria are applied in practice** through CO₂ inventories and comparative assessments of alternatives (Step D4), providing evidence-based input for subsequent procurement and implementation decisions.

Steps included in the Project phase – Design and Realisation:

- D1 – Assess whether CO₂ pricing can be applied in a project
- D2 – Develop project criteria including CO₂ pricing factors
- D3 - Use CO₂ costs as a decision criterion in design choices
- D4 - Execute project applying criteria including CO₂ reduction and CO₂ pricing factors

D1 - Assess whether CO₂ pricing can be applied in a project

Goal

The objective of this step is to assess the feasibility and appropriateness of applying CO₂ pricing within a specific project.

This step supports project teams in determining whether CO₂ pricing can be meaningfully integrated into the project's development, procurement, or implementation processes, taking into account organisational objectives, available resources, project characteristics, and data availability.

Where a broader organisational CO₂ pricing strategy has already been established during the Foundation phase (see Steps F2 and F4), this step focuses primarily on project-level validation and operational implementation. In cases where no predefined organisational framework exists, additional strategic or political approval may be required before CO₂ pricing approaches can be applied.

The step also aims to identify the most suitable form of CO₂ pricing for the project (e.g. internal or external, real or notional pricing approaches; see Chapter 1.3) and determine the appropriate carbon price level where this has not already been defined at organisational level.

What this step involves

This step involves assessing whether the application of CO₂ pricing is feasible, proportionate, and beneficial within the context of the specific project.

Different forms of CO₂ pricing require different levels of internal capacity, technical expertise, financial resources, and data availability. The selection of an appropriate approach therefore depends on the local authority's strategic objectives, governance arrangements, project scale, procurement context, and implementation capacity.

The step also involves assessing whether sufficient greenhouse gas emissions data and calculation methodologies are available to support reliable carbon assessment throughout the project lifecycle. At this stage, the objective is not to conduct detailed emissions modelling, but rather to evaluate whether adequate information, tools, and organisational conditions exist to integrate CO₂ pricing into project development and decision-making processes.

Where appropriate, multiple implementation scenarios may be explored in order to compare the implications of different CO₂ pricing approaches.

Key actions for implementation

The main actions include:

- Assessing the strategic relevance and added value of applying CO₂ pricing within the project. This includes evaluating whether the project is expected to generate significant greenhouse gas emissions, whether lower-carbon alternatives are available, and whether applying CO₂ pricing could meaningfully influence project decisions or outcomes.
- Verifying organisational and political support for CO₂ pricing approaches. Local authorities should determine whether the project falls within an existing organisational CO₂ pricing framework or whether additional political, administrative, or strategic approval is required before implementation.
- Assessing the proportionality of applying CO₂ pricing. This includes considering whether the scale, purchasing volume, environmental impact, and complexity of the project justify the additional analytical and organisational efforts associated with CO₂ pricing implementation.
- Selecting the most appropriate CO₂ pricing approach. The project team should determine which type of CO₂ pricing approach is most suitable for the project context (e.g. internal or external pricing mechanisms, real or notional pricing approaches). Different approaches serve different strategic purposes and may require different implementation processes and governance arrangements.

- Determining the applicable CO₂ price level (€/tCO₂).
Where an internal carbon price has already been established at organisational level, this value should normally be applied. Otherwise, project teams may rely on recognised literature, national guidance, or benchmark values to define an indicative carbon price for assessment purposes.
- Assessing the availability and quality of emissions-related data.
The project manager should verify whether sufficient information, databases, lifecycle descriptions, and emissions factors are available to support preliminary greenhouse gas assessment and carbon pricing calculations.
- Identifying suitable methodologies and tools.
Existing methodologies and tools used in comparable projects may be applied where appropriate, particularly where simplified or indicative calculations are sufficient at this stage.
- Assessing organisational capacity and resource availability.
The project manager should evaluate whether sufficient expertise, financial resources, staff capacity, time, and stakeholder engagement are available to implement CO₂ pricing throughout the project lifecycle.
- Mapping relevant stakeholders and implementation responsibilities.
This includes identifying internal departments, procurement teams, consultants, suppliers, and external stakeholders who may contribute to emissions assessment, carbon pricing implementation, or reporting activities.

Key target groups (ref. to chapter 1.6 for further details)

Public procurement department, Operational department conducting the project, Environmental team, Companies from the sector.

- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Market Suppliers

Tools and methods

Several tools and methodologies can support feasibility assessment and the selection of appropriate CO₂ pricing approaches.

- **Shadow pricing methodologies**
This is the most common method for evaluating risk, whereby a theoretical carbon price is applied to emissions in order to assess project sensitivity to future climate policies or carbon costs.
- **Carbon financial additionality assessments**

Used to determine whether project viability depends on carbon pricing mechanisms, offset revenues, or exposure to carbon taxation.

- **[Marginal Abatement Cost Curve \(MACCs\)](#)**

Tool supporting the identification of cost-effective emission reduction measures under different carbon price levels.

- **Scenario analysis methodologies (Low/High carbon pricing)**

Testing project robustness against different future carbon price trajectories, typically comparing a "business-as-usual" scenario with regulatory, tax, or market-based pricing scenarios.

- **Lifecycle Assessment (LCA) and Greenhouse Gas (GHG) accounting methodologies**

Used to estimate direct and indirect emissions associated with the project lifecycle.

- **[Carbon Pricing Incidence Calculator](#)**

The Interactive and publicly accessible platform [Carbon Pricing Incidence Calculator](#) was developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable.

It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households.

The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.

- **Sector-specific GHG calculation tools and databases**

Sector-specific calculation tools (e.g., for cement, iron, and steel) to determine emissions based on fuel and material consumption.

- **National or regional carbon pricing policy analysis**

Useful to assess the relevance of existing or future carbon taxes, emissions trading systems, or regulatory instruments affecting the project context.

- **Supporting decision-making indicators**

- **Net Present Value (NPV) calculations including CO₂-related costs.** Recalculating project return of investment by including the cost of carbon emissions over the economic life of the project.
- **Break-even carbon price assessments.** Determining the minimum carbon credit price or tax level that makes a mitigation project financially viable, to understand when a less emitting alternative starts to get cheaper.
- **Carbon intensity indicators per functional unit or project output.** Measuring emissions per unit (e.g., tCO₂/MWh) to assess efficiency relative to industry benchmarks.

When this step is completed

This step is completed once the feasibility, proportionality, and implementation conditions for applying CO₂ pricing within the project have been assessed and formally validated by the responsible project management or governance structures.

At this stage the suitability of applying CO₂ pricing has been evaluated, an appropriate pricing approach and indicative carbon price have been identified where relevant, organisational capacity and data availability have been assessed, and the project team has determined whether sufficient conditions exist to proceed with CO₂-integrated project development.

Dependencies with other steps

This step depends on:

- The strategic and organisational foundations established during the Foundation phase, particularly Steps F2 and F4.
- The project initiation and assessment steps completed during the Initiation phase.

The step provides essential input for:

- Step D2 – Develop project criteria including CO₂ pricing factors
- Step D3 – Use CO₂ costs as a decision criterion in design choices
- Step D4 – Execute project applying criteria including CO₂ reduction and CO₂ pricing factors

The step also contributes to increasing organisational awareness and operational understanding of CO₂ pricing among project managers, technical departments, and procurement teams.

D2 – Develop project criteria including CO₂ pricing factors

Goal

The objective of this step is to define the project criteria, indicators, methodologies, and data requirements necessary to apply CO₂ pricing within the project.

This includes determining:

- Which parts of the project will be subject to CO₂ assessment and pricing.
- Which emissions sources and lifecycle stages will be included.
- Which indicators and calculation methods will be used.
- How CO₂-related performance will be monitored, compared, and integrated into future procurement and implementation phases.

To maximise effectiveness and proportionality, project teams may adopt a “hotspot-first” approach, prioritising the most carbon-intensive materials, activities, or lifecycle stages while maintaining an overall carbon assessment framework to avoid sub-optimisation. This allows early efforts to focus on areas with the highest emission-reduction potential.

What this step involves

This step involves establishing a shared and transparent framework for applying CO₂ pricing and greenhouse gas assessment throughout the project lifecycle (see Step D1).

The project working group must agree on the scope of emissions assessment, the methodologies and tools to be applied, the required level of precision, the relevant indicators, and the governance arrangements for data collection, verification, and reporting.

The methodology for calculating the project’s greenhouse gas emissions should be clearly defined and consistently applied by all actors involved in the project, including designers, procurement teams, contractors, consultants, and monitoring bodies.

The level of detail and analytical precision should remain proportionate to the project’s scale, expected impacts, and decision-making needs. In many cases, approximate or screening-level calculations are sufficient to support design choices, particularly where major differences between alternatives already exist. Similarly, where specific materials, processes, or lifecycle stages dominate the project’s emissions profile, efforts should focus primarily on these carbon hotspots.

Existing environmental assessments, benchmark projects, and sectoral databases may support the identification of high-impact areas and guide prioritisation efforts.

The step also involves establishing common governance arrangements regarding tools, databases, reporting formats, evidence requirements, and data management procedures to ensure comparability, transparency, and consistency throughout the project lifecycle and procurement process.

Key actions for implementation

The main actions include:

- Clear definition of project scope and reference framework.
This includes specifying the project purpose, functional requirements, expected lifetime, geographic scope, reference situation, and relevant lifecycle boundaries.
- Definition of the greenhouse gas assessment methodology and system boundaries.
At minimum, the assessment should cover a cradle-to-handover scope, including materials and binders, transport activities, on-site construction processes, machinery and energy use, waste generation, and circular material flows.
Where proportionate and feasible, the scope may be extended to full lifecycle assessment approaches consistent with whole-life carbon management principles such as [PAS 2080](#).

- Identifying and validating emission databases and emission factors.
Project teams should select appropriate databases and emission factors for relevant materials, activities, and project phases. Where specific data are unavailable, reasonable estimations based on comparable products, sectoral averages, or supplier information may be used.
- Selecting shared tools and governance arrangements.
To ensure consistency and comparability, all relevant project actors should use common tools, reporting structures, and methodological assumptions where possible. Shared governance arrangements should define required data fields, accepted evidence and documentation, reporting formats, update frequency, and verification procedures.
- Defining project indicators and reporting outputs.
The project team should determine which indicators will be used throughout the project lifecycle, including indicators for total greenhouse gas emissions, emissions per functional unit, hotspot-related emissions, lifecycle carbon costs, and comparative performance between variants.
Indicators should be suitable for integration into procurement documents, monitoring procedures, and final project evaluation.
- Preparing standardised carbon assessment documentation.
Carbon model outputs should include transparent documentation of assumptions, quantities, emissions factors, calculation methodologies, and data sources. Concise indicator tables and summary reports should also be prepared for inclusion within tender documentation and project monitoring systems.
- Conducting hotspot analysis and prioritisation.
Project teams should identify the materials, activities, or processes responsible for the largest share of emissions and prioritise reduction measures accordingly. In infrastructure and construction projects, this often includes concrete, cement, transport, machinery use, and energy consumption.
- Developing low-carbon alternatives and variants.
Where relevant, the project team should develop alternative technical solutions, material variants, or design options aimed at reducing emissions in identified hotspot areas.
- Establishing a phased implementation approach.
Local authorities may progressively strengthen the integration of CO₂ considerations over time. For example:
 - Phase 1 may focus on carbon accounting and familiarisation with shared tools and reporting methods (e.g. SEVE-TP bidder report).
 - Phase 2 may introduce environmental award criteria and comparative carbon performance evaluation, such as total tCO₂e or tCO₂e per m² vs a reference solution, or hotspot thresholds, encouraging contractors to propose carbon reduction measures and improved materials while complying with public procurement principles.
 - Phase 3 builds on feedback from the earlier phases by translating carbon emissions into a monetary value (national/local carbon value) and integrating this carbon cost into life-

cycle costing, drawing on established international approaches and adapting them to the local legal context. As an inspiration, the Dutch ECI/MKI with DuboCalc monetises impacts in euros for infrastructure tenders.

Key target groups (ref. to chapter 1.6 for further details)

- Project Managers
- Project and Implementation teams
- Procurement Professionals (e.g. [Relais 2D](#) or [Maximilien](#) in Grand Est and Ile de France in France)
- Market Suppliers

Tools and methods

Several tools and methodologies can support the development of project criteria and greenhouse gas assessment frameworks.

- **Lifecycle Assessment (LCA) methodologies** and whole-life carbon assessment frameworks.
- **PAS 2080 principles** for whole-life carbon management in infrastructure projects.
- **Shared carbon accounting tools** for public works and infrastructure projects.
 - **SEVE-TP (France)**. Tool designed by the federation of public works and audited externally. It ensures that companies competing in a tender all agree on the method, and it is also designed for public work projects, with the most up-to-date and product-specific emissions factors possible. It is free and can be used quite easily (with training available) for project designers. There is a general database with common types of processes or materials, but it is possible to add more precise data, provided a proof (a datasheet of a low carbon material for example).
 - **The Environmental Cost Indicator (ECI)**. The ECI - referred to in Dutch as the [MKI](#) (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) method based on the European EN 15804 standard. The ECI value can be calculated as an indicator for the environmental impact of the scope of a project, which uses an accumulation of products (and processes). The ECI is expressed in euros. These euros represent a social value, assigned to a number of environmental effects, similar to the monetary values arising from a Social Cost Benefit Analysis (SCBA). These euros are not economical euros in trade (yet). In the Netherlands, calculating the (total) ECI value is facilitated with the nationally used software program [Dubocalc](#). Dubocalc was developed on behalf of Rijkswaterstaat (the Dutch national road authority) and is used as a software instrument when the environmental impacts of different materials need to be added and/or when the National Environmental Database (NMD) needs to be used.
- **[Carbon Pricing Incidence Calculator](#)**

The Interactive and publicly accessible platform [Carbon Pricing Incidence Calculator](#) was developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable.

It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households.

The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.

- **National or regional environmental product declaration (EPD) databases and emissions databases** compliant with EN 15804 or equivalent standards.
- **Carbon hotspot analysis methodologies.**
- **Comparative lifecycle costing and carbon monetisation approaches.**

Where product-specific precision is required, project teams may complement general databases with verified Environmental Product Declarations (EPDs), certified emissions data, or supplier-specific information.

When this step is completed

This step is completed once the greenhouse gas assessment methodology has been defined, the relevant indicators and lifecycle boundaries have been established, appropriate tools, databases, and governance arrangements have been selected, and the project team has agreed on how CO₂ pricing and emissions-related criteria will be integrated into project development and procurement processes.

At this stage data requirements and reporting responsibilities are clearly defined, hotspot areas and reduction priorities have been identified, standardised reporting formats and indicator frameworks have been prepared, and the selected criteria are suitable for use in design evaluation, procurement documentation, contract management, and project monitoring.

Dependencies with other steps

This step depends on Step D1 – Assess whether CO₂ pricing can be applied in a project.

The feasibility assessment conducted during Step D1 provides the strategic and methodological basis for defining project-specific CO₂ criteria and assessment frameworks.

This step provides essential input for:

- Step D3 – Use CO₂ costs as a decision criterion in design choices
- Step D4 – Execute project applying criteria including CO₂ reduction and CO₂ pricing factors
- The subsequent Tender phase, particularly the development of environmental award criteria and procurement documentation.

D3 - Use CO₂ costs as a decision criterion in design choices

Goal

The objective of this step is to integrate CO₂-related costs and emissions impacts directly into project design decision-making processes.

This step ensures that CO₂ pricing and greenhouse gas assessment are actively used when selecting between design alternatives, enabling low-carbon solutions to be systematically identified, compared, and prioritised alongside financial, technical, operational, and functional considerations.

Following the development of project-specific CO₂ criteria in Step D2, this step translates these criteria into practical design decisions regarding materials, construction methods, energy systems, mobility concepts, technical installations, logistics arrangements, and other project components.

By making greenhouse gas emissions and associated CO₂ costs visible and measurable, this step strengthens the integration of climate objectives into core project design processes.

What this step involves

This step involves the practical application of CO₂-related criteria and carbon pricing methodologies to evaluate and compare project design alternatives.

Project teams are required to systematically assess the greenhouse gas implications and associated CO₂ costs of major design choices throughout the project development process. This includes evaluating alternatives not only on the basis of financial cost, technical feasibility, and operational performance, but also in terms of lifecycle emissions and carbon-related impacts.

The process should be transparent, evidence-based, and consistently documented to ensure that design decisions can be justified, monitored, and reviewed throughout the project lifecycle.

The level of analytical detail should remain proportionate to the scale and complexity of the project. In some cases, simplified comparisons may be sufficient to distinguish between high- and low-carbon alternatives, while more detailed lifecycle analyses may be appropriate for projects with significant environmental impacts or multiple technically comparable solutions.

Key actions for implementation

The main actions include:

- Collecting greenhouse gas emissions data for relevant design alternatives. This may include data related to materials, construction processes, operational energy use, transport logistics, maintenance requirements, or end-of-life scenarios.

- Applying the agreed CO₂ pricing methodology. Project teams should calculate and compare the CO₂-related costs of alternatives using the pricing framework and methodologies defined during previous project phases.
- Comparing design alternatives using combined environmental, financial, and technical criteria. Design choices should be evaluated using integrated assessment approaches, such as lifecycle costing combined with greenhouse gas assessment methodologies.
- Prioritising low-carbon solutions where feasible and proportionate. Where technically and economically viable, preference should be given to alternatives demonstrating lower lifecycle greenhouse gas emissions and reduced CO₂-related costs.
- Documenting and justifying design decisions. The assessment process and resulting design choices should be transparently documented. Where higher-carbon alternatives are selected, the justification should clearly explain the technical, financial, legal, operational, or functional reasons supporting the decision.
- Identifying opportunities for continuous improvement. Documented assessments and decision rationales may support future refinement of organisational CO₂ criteria, procurement approaches, and design methodologies.
- Avoiding methodological inconsistencies and assessment gaps. Project teams should ensure that consistent data sources and emissions factors are used, relevant lifecycle stages are included, assumptions are transparently documented, and decisions are supported by quantitative evidence where feasible.

Key target groups (ref. to chapter 1.6 for further details)

The successful implementation of this step requires the involvement of several actors:

- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Supporting partners (External experts or certifiers - e.g. DGNB in Germany, CO₂ Performance Ladder coordinators - if methodological support is needed)

Tools and methods

Several tools and methodologies can support the integration of CO₂-related considerations into project design decisions.

- **Life Cycle Assessment (LCA) methodologies**
Life Cycle Assessment evaluates the environmental impacts associated with products, materials, services, and energy systems throughout their full lifecycle, including extraction of raw materials, production, use, and disposal (or reuse).

At the local level, LCA can be used to assess the carbon footprint of specific goods or services produced or consumed within the community, providing insights into the emissions associated with local economic activities.

LCA factors are fundamental for the calculation of the emissions of goods and products at the local level through the local procurement. These factors can be integrated in databases and tools. There are several tools available on the market¹².

- **Lifecycle Costing (LCC) approaches combined with CO₂ pricing methodologies**
Enabling the integration of environmental and financial costs into a single evaluation framework.
- **CO₂ Performance Ladder**
Widely applied in NL, it offers structured methodology for CO₂ evaluation in procurement. The CO₂ Performance Ladder's GHG calculation methodology involves defining project-specific boundaries, categorizing emissions into scopes 1, 2 and 3, collecting accurate activity data, using standardised emission factors, and applying calculation tools. Verification through external audits ensures credibility, and the framework encourages continuous improvement in emission reduction efforts. This structured approach helps organisations systematically reduce their carbon footprints and achieve higher levels of sustainability certification.

Depending on the project context, additional sector-specific tools and methodologies may also be used.

When this step is completed

This step is completed once CO₂-related costs and greenhouse gas impacts have been systematically applied in the comparison of relevant design alternatives, design decisions have been documented and justified, and the selected project design demonstrates a clear and transparent consideration of lower-carbon alternatives.

At this stage CO₂ costs have been integrated into project decision-making processes, lifecycle emissions considerations have influenced design choices where appropriate, and the assessment outcomes have been formally documented within project reports, design documentation, or decision records.

Where lower-carbon alternatives are not selected, the reasons for deviation should be transparently justified and recorded.

The step may continue to evolve over time as organisations improve their emissions data, methodologies, tools, and internal CO₂ pricing practices.

Dependencies with other steps

¹² List of the most used LCA tools: <https://lca-software.org/>

This step depends on:

- Steps F1–F4 – Organisational foundations, emissions insights, policy frameworks, and CO₂ pricing strategies
- Step I2 – Include CO₂ impact in project considerations
- Step I3 – Decide (or re-decide) on whether to initiate a project
- Step D1 – Assess whether CO₂ pricing can be applied in a project
- Step D2 – Develop project criteria including CO₂ pricing factors

This step provides essential input for:

- Step D4 – Execute project applying criteria including CO₂ reduction and CO₂ pricing factors
- Step T2 – Prepare and publish tender documents with award criteria
- Step T3 – Evaluate bids based on carbon pricing criteria and emissions reduction capacities
- Step T5 – Monitor performance and compliance

D4 - Execute project applying criteria including CO₂ reduction and CO₂ pricing factors

Goal

The objective of this step is to apply CO₂-related criteria and carbon pricing methodologies during project execution and evaluation processes in order to support informed decision-making and effective implementation of low-carbon solutions.

This step operationalises the methodologies, indicators, and design choices developed during the previous project phases by integrating greenhouse gas emissions assessment and CO₂-related costs into the evaluation of investments, materials, services, works, and implementation alternatives.

Specific objectives include assessing and comparing the greenhouse gas impacts of proposed investments and alternatives, translating emissions impacts into CO₂-related costs where applicable, identifying opportunities for emissions reduction, and providing evidence-based recommendations to support procurement, implementation, and operational decision-making.

What this step involves

This step involves the practical application of greenhouse gas assessment methodologies, carbon pricing approaches, and comparative evaluation processes during project implementation.

Project teams assess and compare the CO₂ emissions and associated carbon-related costs of planned investments, implementation methods, materials, energy systems, and alternative solutions. This includes identifying carbon hotspots, evaluating lower-carbon alternatives, applying agreed carbon

pricing methodologies, and analysing the implications for project performance and organisational climate objectives.

The results provide stakeholders with transparent and comparable information regarding, the environmental impacts of project choices, the associated CO₂-related costs, potential emissions reduction opportunities, and the alignment of project implementation with broader climate targets and long-term budgetary planning.

Monitoring emissions and associated carbon costs throughout implementation also supports adaptive project management and allows adjustments to project specifications, procurement choices, or delivery approaches where necessary.

Key actions for implementation

The main actions include:

- Applying the project specifications and criteria established during previous phases.
The requirements regarding services, materials, works, energy use, lifecycle boundaries, indicators, and assessment methodologies established during Steps D1–D3 should be operationalised during project execution.
- Identifying carbon hotspots and major emissions sources.
Project teams should identify the materials, processes, activities, or implementation stages responsible for the largest greenhouse gas impacts.
- Assessing greenhouse gas emissions associated with investments and alternatives.
This includes evaluating emissions linked to materials and products, transport activities, construction processes, machinery and energy use, operational systems, and alternative implementation solutions.
- Collecting and validating emissions-related documentation and data.
Where relevant, Environmental Product Declarations (EPDs), lifecycle assessment data, supplier documentation, and verified emissions factors should be used to support transparent and comparable greenhouse gas calculations.
- Applying the selected CO₂ pricing methodology.
The agreed pricing framework (e.g. internal, external, notional, or real pricing approaches) should be applied to translate greenhouse gas emissions into comparable carbon-related costs.
- Comparing project alternatives and visualising results.
The greenhouse gas impacts and associated CO₂ costs of alternatives should be compared and clearly communicated to relevant stakeholders and decision-makers. Comparative assessments may support modifications to project designs, material choices, implementation approaches, or procurement specifications.
- Evaluating results and preparing recommendations.

Project teams should evaluate the outcomes of the assessment process and formulate recommendations supporting procurement decisions, project adjustments, implementation priorities, or tender specifications.

- Monitoring implementation feasibility and market readiness.

Where procurement or external suppliers are involved, project teams should assess the market availability of low-carbon materials, technologies, services, and certified suppliers capable of meeting the project's environmental requirements.

Key target groups (ref. to chapter 1.6 for further details)

- Project Managers
- Project and Implementation teams
- Supporting partners
- Market Suppliers

Tools and methods

Several tools and methodologies can support the practical implementation of greenhouse gas assessment and CO₂ pricing during project execution.

- **Lifecycle Assessment (LCA) tools and whole-life carbon assessment methodologies**
To compile Material-Environmental Product Declaration (EPDs), useful tools are LCA tools, e.g. [one clickLCA](#), for identifying carbon hotspots and GWP/CO₂eq emissions. See Steps D2 and D3 with further examples of tools.
- **Greenhouse gas accounting and Global Warming Potential (GWP) calculation tools**, such as the [Greenhouse Gas Accounting Methodology](#) and [CSR Tools](#)
- **Carbon management and certification frameworks**, such as the CO₂ Performance Ladder
- **Sector-specific databases, emissions calculation tools, and procurement-related sustainability instruments**

Where no formal tendering process is used, local authorities may need to adapt existing procurement procedures or obtain approval for the use of additional carbon assessment methodologies or low-carbon procurement instruments.

When this step is completed

This step is completed once the greenhouse gas emissions and associated CO₂-related costs of proposed investments and alternatives have been assessed, hotspot analyses and comparative evaluations have been conducted, alternative solutions have been considered, and the results have been evaluated and documented.

At this stage carbon pricing methodologies have been applied, investment options and alternatives have been compared, the implications for project implementation and procurement have been

identified, and recommendations have been prepared to support project execution, procurement processes, and subsequent tendering activities.

The outputs of this step should provide a transparent and evidence-based foundation for procurement specifications, implementation decisions, and project monitoring activities.

Dependencies with other steps

This step depends on:

Steps F3.3, F3.4, and F4 – Organisational emissions insights, governance arrangements, and CO₂ pricing frameworks

- Step I1 – Observation of a need
- Step D1 – Assess whether CO₂ pricing can be applied in a project
- Step D2 – Develop project criteria including CO₂ pricing factors
- Step D3 – Use CO₂ costs as a decision criterion in design choices

The methodologies, indicators, and design decisions established during these earlier steps provide the basis for applying greenhouse gas assessment and CO₂ pricing during project execution.

This step also provides important input for the subsequent Tender phase, particularly:

- Step T1 – Engage with suppliers
- Step T2 – Prepare and publish tender documents with award criteria
- Step T4 – Execute tender
- Step T5 – Monitor performance and compliance

2.4 Tender phase

The Tender phase focuses on **translating carbon pricing principles and sustainability ambitions into practical procurement processes**. It ensures that climate objectives are embedded not only in policy and project design, but also that public contracts are awarded, executed, and monitored according to climate objectives.

The phase begins with **proactive engagement with suppliers** to ensure transparency regarding carbon-related expectations and to prepare the market for climate-oriented procurement (Step T1).

It then moves to the **preparation and publication of tenders that include clear award criteria** linked to CO₂ pricing and emissions reduction (Step T2).

Bids are subsequently **evaluated based on their carbon performance** alongside traditional price and quality considerations (Step T3), ensuring that contracts are awarded to proposals that deliver the best overall value, including climate benefits.

During contract execution, **contractors are required to implement the agreed CO₂ reduction measures in practice (Step T4)**.

Finally, **performance is systematically monitored** to ensure compliance, enable reporting, and generate lessons learned for future tenders (Step T5).

Steps included in the Tender phase:

- T1 – Engage with suppliers
- T2 – Prepare and publish tender documents with award criteria
- T3 – Evaluation of bids based on carbon pricing criteria and emissions reduction capacities
- T4 – Execute tender
- T5 – Monitor performance and compliance

T1 - Engage with suppliers

Goal

The objective of this step is to inform and engage market participants regarding the contracting authority's CO₂-related procurement approach, expectations, and evaluation criteria.

This step ensures that suppliers and other economic actors are made aware of the carbon-pricing methodologies and environmental criteria that may apply within a specific tender process, the broader organisational climate and procurement strategy, and the implications of these approaches for bid preparation, project delivery, and competitive positioning.

Early and transparent engagement with suppliers supports market preparedness, improves the quality of bids, and strengthens the effective integration of CO₂-related criteria into procurement processes.

What this step involves

This step involves structured communication and dialogue between the contracting authority and relevant market actors regarding the application of CO₂ pricing and climate-related procurement criteria.

The objective is to improve suppliers' understanding of:

- The environmental expectations associated with the procurement process.
- The methodologies and criteria that will be applied.
- The opportunities and competitive advantages associated with low-carbon solutions and environmental performance.

Transparent supplier engagement contributes to improved quality and comparability of bids, greater market readiness regarding carbon-related criteria, increased supplier commitment to low-carbon innovation and reporting practices, and reduced risks of misunderstanding, procedural disputes, or legal challenges.

Engagement activities should be conducted in a transparent, fair, and non-discriminatory manner consistent with public procurement principles and applicable regulatory frameworks.

Key actions for implementation

The main actions include:

- Preparation of communication and information materials.
The contracting authority should prepare clear and accessible information regarding the procurement approach, CO₂-related criteria and methodologies, reporting requirements, expected supplier contributions, and the broader climate objectives associated with the project or procurement strategy.
- Organisation of supplier engagement and dialogue sessions.
Engagement activities may include information sessions, market consultations, “meet-the-buyer” events, workshops, webinars, or bilateral clarification meetings where legally permissible.
These sessions should provide opportunities for questions, clarification, and feedback.
- Engaging suppliers both before and after tender publication where appropriate.
Early engagement before publication supports market preparation and feasibility assessment, while post-publication engagement may help clarify methodologies, expectations, and procedural aspects within the limits permitted by procurement regulations.
- Providing transparent follow-up documentation.

Shared materials such as presentations, guidance documents, tender links, methodological explanations, and summaries of questions and answers should be made available to all participants to ensure equal access to information.

- Supporting supplier understanding and capacity-building.
Where proportionate and legally appropriate, contracting authorities may provide additional guidance or support mechanisms to help suppliers understand CO₂-related methodologies, reporting obligations, or evaluation approaches.
- Ensuring procedural fairness and regulatory compliance.
All supplier engagement activities should comply with public procurement principles related to transparency, equal treatment, non-discrimination, and fair competition.

Key target groups (ref. to chapter 1.6 for further details)

Communications, sustainability officers, contract managers, suppliers.

- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Market Suppliers

Tools and methods

Several tools and methods can support structured supplier engagement and market dialogue regarding CO₂-related procurement approaches.

- [How to engage the market - a step by step guide for dialogue events](#)
The guide is focusing on market engagement events such as “meet the buyer events” which are as much about event organisation and facilitation as they are about dialogue and learning processes. Dialogue events can take various forms, online and in-person. Typically, they last between half a day to a full day. Participants range from the relevant public authority staff to representatives of resellers, suppliers and service providers as well as other relevant stakeholders such as NGOs or other public buyers.
- [Communicating with the Market for Socially Responsible Sustainable Public Procurement](#) (in German language).
The report identifies key needs from procurement officers and bidding companies in order to promote an early dialogue between them and allow efficient exchanges throughout the process.

When this step is completed

This step is completed once suppliers and relevant market actors have been informed about the contracting authority’s CO₂-related procurement approach, the applicable environmental criteria and

methodologies have been clearly communicated, and engagement activities have provided sufficient transparency regarding expectations, procedures, and evaluation approaches.

At this stage relevant information and supporting documentation have been shared, supplier questions and clarifications have been addressed, market readiness and feasibility considerations have been assessed, and the contracting authority has established a transparent basis for subsequent tendering activities.

Dependencies with other steps

This step depends on:

- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan
- Step F3.3 – Develop a CO₂ pricing narrative for stakeholders
- Step F4 – Develop procurement policies with qualitative sustainability criteria
- Step D2 – Develop project criteria including CO₂ pricing factors

These earlier steps provide the strategic framework, methodological basis, and procurement criteria required for effective supplier engagement and market communication.

T2 - Prepare and publish tender documents with award criteria

Goal

The objective of this step is to prepare and publish procurement and tender documentation that integrates CO₂-related award criteria, greenhouse gas reduction requirements, and carbon-pricing methodologies into the procurement process.

This step translates the organisational procurement strategy, project criteria, and climate objectives established during previous phases into concrete procurement documents, evaluation frameworks, contractual requirements, and award methodologies applicable to a specific tender.

By integrating CO₂-related considerations into tender documentation, contracting authorities can systematically encourage low-carbon solutions, improve comparability between bids, and align procurement decisions with broader climate and sustainability objectives.

What this step involves

This step involves preparing procurement documentation that clearly defines the applicable CO₂-related award criteria, the greenhouse gas assessment methodologies, the reporting and evidence requirements, and the evaluation and contract management arrangements associated with the tender process.

The selected criteria should be proportionate to the nature, scale, and objectives of the procurement and should align with the local authority's procurement policy framework and climate strategy.

The tender documentation should ensure that suppliers clearly understand how environmental performance will be evaluated, how CO₂-related criteria interact with financial, technical, and quality criteria, what documentation and evidence are required, and what obligations may apply during contract implementation.

The methodology and evaluation framework should be transparent, measurable, and legally robust in order to support fair competition, comparability between bids, and compliance with public procurement principles.

Key actions for implementation

The main actions include:

- Verifying alignment with organisational procurement and climate policies.
Before introducing CO₂-related award criteria, the contracting authority should assess whether the selected criteria are consistent with the organisation's procurement framework, climate objectives, legal obligations, and the characteristics of the specific project or procurement procedure.
- Defining CO₂-related award criteria and evaluation methodologies.
The procurement documents should clearly describe the environmental criteria applied, their weighting within the overall evaluation framework, the scoring methodology, and the relationship between environmental, financial, technical, and quality criteria.
- Developing transparent evaluation grids and scoring systems.
- Evaluation frameworks should clearly indicate how greenhouse gas performance and CO₂-related considerations will be assessed, including quantitative indicators where feasible, qualitative assessment criteria, lifecycle emissions considerations, and methodological robustness.
- Defining acceptable evidence and reporting requirements.
Tender documentation should specify which forms of evidence are acceptable, which emissions methodologies or tools may be used, what supporting documentation suppliers must provide, and how reporting obligations will be monitored during implementation.
- Specifying implementation and compliance requirements.
Where relevant, procurement documents should define reporting timelines, monitoring requirements, update frequency, verification procedures, and potential consequences in cases of non-compliance with environmental commitments.
- Including technical annexes and supporting documentation.
- Where specific methodologies or tools are required, the tender documentation may include standardised calculation templates, reporting forms, methodological guidance, benchmark values, and detailed technical annexes supporting consistent application.

- Publishing the procurement documentation.

Once all criteria, methodologies, contractual requirements, and supporting documents have been finalised and validated, the procurement procedure may formally be launched.

As inspiration, we suggest reading the [CO₂PL Procurement Guide](#) and the method [Applying the CO₂ Performance Ladder 4.0 Award Criterion in four steps](#). And about the Environmental Cost Indicator: [Application of the Environmental Cost Indicator in Civil Engineering](#).

Key target groups (ref. to chapter 1.6 for further details)

- Procurement Professionals
- Project Managers
- Project and Implementation teams
- Procurement Professionals

Tools and methods

Several tools and methodologies can support the preparation of tender documentation integrating CO₂-related criteria.

- **CO₂ Performance Ladder**
 - [CO₂PL Procurement Guide](#)
 - [Applying the CO₂ Performance Ladder 4.0 Award Criterion](#)

- **The Environmental Cost Indicator (ECI)**

The ECI - referred to in Dutch as the [MKI](#) (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) and combines multiple environmental impact categories into one monetary score. This makes it easier to compare design options and material choices on a common basis. The ECI can be calculated at product level and at project level. For projects, the total score is determined by adding up the impacts of all relevant materials and processes within the defined scope. The resulting euro value is a social or shadow cost, not a market price used in commercial transactions.

In the Netherlands, these calculations are carried out with validated calculation tools that use data from the National Environmental Database (NMD). For civil engineering and infrastructure works, [Dubocalc](#) is the best-known and most widely used tool. It was developed for Rijkswaterstaat (the Dutch national infrastructure authority) and is commonly used in design comparisons and procurement procedures that include MKI-based sustainability criteria.

In the Netherlands, the methodology is linked to the EN 15804 framework for construction products, with the sector moving from EN 15804+A1 to EN 15804+A2 datasets in calculation tools.

When this step is completed

This step is completed once the procurement and tender documentation has been finalised, CO₂-related award criteria and reporting requirements have been integrated, the evaluation methodology and contractual provisions have been defined, and the tender has formally been published.

At this stage suppliers have access to transparent information regarding environmental expectations and evaluation criteria, the procurement framework supports the assessment of greenhouse gas performance and CO₂-related impacts, and the contracting authority has established the basis for environmentally informed bid evaluation and contract management.

Dependencies with other steps

This step depends on:

- Step F1 – Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources
- Step F2 – Establish a CO₂ reduction policy framework, strategy, and action plan
- Step F4 – Develop procurement policies with qualitative sustainability criteria
- Step D2 – Develop project criteria including CO₂ pricing factors
- Step D3 – Use CO₂ costs as a decision criterion in design choices
- Step T1 – Engage with suppliers

The environmental criteria, methodologies, and procurement approaches defined during these earlier steps provide the basis for integrating CO₂-related considerations into tender documentation and procurement procedures.

This step provides essential input for:

- Step T3 – Evaluate bids based on carbon pricing criteria and emissions reduction capacities
- Step T4 – Execute tender
- Step T5 – Monitor performance and compliance

T3 - Evaluate bids based on carbon pricing criteria and emissions reduction capacities

Goal

The objective of this step is to evaluate bids and award the contract to the tender offering the best price-quality ratio (BPQR), taking into account greenhouse gas performance, CO₂-related criteria, and emissions reduction capacities alongside financial, technical, and qualitative considerations.

This step operationalises the environmental award criteria and CO₂ pricing methodologies defined in the tender documentation by integrating them into the formal bid evaluation and contract award process.

The aim is to ensure that procurement decisions systematically consider lifecycle greenhouse gas impacts and encourage suppliers to propose low-carbon solutions, innovative practices, and transparent emissions reporting approaches.

What this step involves

This step involves evaluating bids using the environmental criteria, greenhouse gas assessment methodologies, and carbon-pricing approaches defined in the procurement documentation.

The contracting authority compares bids not only on the basis of price and technical quality, but also according to their expected greenhouse gas impacts, emissions reduction performance, environmental management approaches, and compliance with the CO₂-related criteria established during previous phases.

Depending on the procurement framework applied, greenhouse gas performance may influence the evaluation through qualitative environmental scoring, quantitative emissions indicators, lifecycle costing methodologies, notional or shadow carbon pricing approaches, or combined price-quality assessment mechanisms.

The evaluation process should remain transparent, proportionate, evidence-based, and consistent with public procurement principles, ensuring equal treatment of bidders and comparability between offers.

Key actions for implementation

The main actions include:

- Defining the scope of the carbon-related bid evaluation. The contracting authority should determine which services, works, materials, or lifecycle elements are subject to greenhouse gas assessment and environmental evaluation.
- Applying the award methodology defined in the tender documentation. Bids should be evaluated according to the predefined evaluation framework, including weighting of environmental criteria, scoring methodologies, lifecycle emissions indicators, and any applicable CO₂-related cost calculations or notional discounts.
- Assessing greenhouse gas performance and emissions reduction capacities. The evaluation may include total greenhouse gas emissions, emissions intensity indicators, hotspot-related reductions, lifecycle environmental performance, circularity measures, durability considerations, and environmental management practices.
- Evaluating methodological robustness and supporting evidence. Bidders should provide appropriate documentation supporting their environmental claims and

greenhouse gas calculations, such as lifecycle assessment outputs, Environmental Product Declarations (EPDs), technical datasheets, carbon accounting reports, fuel and energy records, and certification or labelling evidence where applicable.

- Using shared and transparent assessment tools where appropriate. The use of common tools and standardised methodologies can improve comparability between bids and support equal treatment during evaluation procedures. Operational staff and contract managers should possess sufficient technical expertise to assess the consistency and credibility of the information provided.
- Integrating environmental commitments into contractual arrangements. Where relevant, the selected environmental performance commitments, greenhouse gas targets, or CO₂ ambition levels may be incorporated into the final contract, together with reporting obligations, verification procedures, compliance mechanisms and non-compliance repercussions (see T.5). Particular attention should be paid to establishing these consequences at the contracting stage, as practical experience has shown that environmental commitments made during the procurement process are not always reflected in contractual enforcement provisions, making it difficult to address situations where implementation falls short of the promised environmental performance.
- Establishing accountability and verification mechanisms. Contracting authorities may define procedures for monitoring compliance with environmental commitments and, where legally appropriate, establish corrective measures or penalties in cases of significant deviation or inaccurate reporting.
 - Examples of environmental evaluation indicators.
Depending on the sector and project characteristics, relevant indicators may include:
 - Total greenhouse gas emissions (tCO₂e) per project, lot, phase, or functional unit.
 - Emissions intensity indicators (e.g. tCO₂e per m², kilometre, or infrastructure unit).
 - Material-related indicators, such as cement type, clinker content, recycled material content, production processes, or verified Environmental Product Declarations (EPDs).
 - Site environmental management indicators, including low-emission machinery and vehicle fleets, energy efficiency measures, waste management and traceability practices, and reduction of noise, dust, and air pollution.
 - Circularity and durability indicators, including reuse and recovery rates, design for maintenance and longevity, and lifecycle cost optimisation approaches.
 - Transport-related emissions indicators, such as tonne-kilometres and associated greenhouse gas emissions.

Key target groups (ref. to chapter 1.6 for further details)

- Project Managers
- Project and Implementation teams
- Procurement Professionals
- Market Suppliers

Tools and methods

Several tools and methodologies can support the evaluation of bids based on greenhouse gas performance and CO₂-related criteria.

- **CO₂ Performance Ladder (CO₂PL) Award Criterion** (see [Procurement Guide 4.0](#))

The CO₂PL is a third-party certified, multi-level award criterion.

Organisations can submit an ambition level for the project (0-3) and are then awarded the respective award advantage, as defined by the procuring authority. This can be a fictitious discount (percentage or fixed amount e.g. 5-10-15% or €50,000, €100,000, €150,000. The winning bidder(s) then has a fixed amount of time, defined by the contracting authority (e.g. one year) to provide proof that they are meeting the offered performance level, either with project-specific or organisation-level (including tendered projects) proof.

Step 1 of the Ladder focusses on the project/organisation in question, while step 2 also covers up- and downstream emissions. Step 3 further increases the ambition, requiring organisations to have a plan to achieve zero emissions by 2050 at latest. The Ladder requires implementing an energy and CO₂ management system at project level, and includes thematic requirements related to insight, reduction, communication and collaboration.

- **The Environmental Cost Indicator (ECI)**

The ECI - referred to in Dutch as the [MKI](#) (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) method based on the European EN 15804 standard. The ECI value can be calculated as an indicator for the environmental impact of the scope of a project, which uses an accumulation of products (and processes). The ECI is expressed in euros. These euros represent a social value, assigned to a number of environmental effects, similar to the monetary values arising from a Social Cost Benefit Analysis (SCBA). These euros are not economical euros in trade (yet). In the Netherlands, calculating the (total) ECI value is facilitated with the nationally used software program [Dubocalc](#). Dubocalc was developed on behalf of Rijkswaterstaat (the Dutch national road authority) and is used as a software instrument when the environmental impacts of different materials need to be added and/or when the National Environmental Database (NMD) needs to be used.

- **Shadow pricing methodologies**

This is the most common method for evaluating risk, whereby a theoretical carbon price is applied to emissions in order to assess project sensitivity to future climate policies or carbon costs.

- **Life Cycle Assessment (LCA)**

LCA evaluates the environmental impacts of energy carriers, energy supply and products or services throughout their entire life cycle, including extraction of raw materials, production, use, and disposal (or reuse).

At the local level, LCA can be used to assess the carbon footprint of specific goods or services produced or consumed within the community, providing insights into the emissions associated with local economic activities.

LCA factors are fundamental for the calculation of the emissions of goods and products at the local level through the local procurement, these factors can be integrated in databases and tools. There are several tools available on the market¹³.

- **SEVE-TP (France)**

The tool SEVE-TP was designed by the French federation of public works and audited externally. It ensures that companies competing in a tender will all agree on the method, and it is also designed for public work projects, with the best emissions factors possible. It is free and can be used quite easily (with training available) for project designers. There is a general database with common types of processes or materials, but it is possible to add more precise data, provided a proof (a datasheet of a low carbon material for example).

The use of transparent, accessible, and standardised tools can support comparability, verification, and procedural fairness throughout the evaluation process.

When this step is completed

This step is completed once all bids have been evaluated according to the published procurement criteria and methodologies, greenhouse gas performance and CO₂-related criteria have been assessed, the best price-quality ratio (BPQR) has been determined, and the contract has been formally awarded and signed.

At this stage environmental commitments and greenhouse gas performance requirements may be incorporated into contractual arrangements, evaluation results and justifications have been documented, and the contracting authority has established the basis for implementation monitoring and compliance assessment.

Dependencies with other steps

This step is linked with all Tender phase related steps, and relevant preparatory steps.

This step depends on:

- Step F4 – Develop procurement policies with qualitative sustainability criteria
- Step D2 – Develop project criteria including CO₂ pricing factors

¹³ List of the most used LCA tools: <https://lca-software.org/>.

- Step D3 – Use CO₂ costs as a decision criterion in design choices
- Step D4 – Execute project applying criteria including CO₂ reduction and CO₂ pricing factors
- Step T1 – Engage with suppliers
- Step T2 – Prepare and publish tender documents with award criteria

These earlier steps establish the environmental methodologies, procurement criteria, market preparation activities, and reporting frameworks necessary for evaluating bids based on greenhouse gas performance and CO₂-related considerations.

This step provides essential input for:

- Step T4 – Execute tender
- Step T5 – Monitor performance and compliance

T4 - Execute tender

Goal

The objective of this step is to ensure that the contract is implemented in accordance with the CO₂ reduction commitments, environmental criteria, and carbon-related requirements established during the procurement process.

During contract execution, contractors are expected to deliver the agreed works, services, or products while implementing the greenhouse gas reduction measures and environmental management practices proposed in their bids and formalised within the contract.

This step aims to ensure that the environmental ambitions and CO₂-related performance levels used during bid evaluation are effectively translated into practical implementation and measurable project outcomes.

What this step involves

This step involves monitoring and supporting the implementation of the environmental commitments and CO₂ reduction measures agreed upon during the tendering process.

The contracting authority follows the execution of the contract by assessing whether contractors are complying with agreed greenhouse gas reduction objectives, environmental management requirements, reporting obligations, and technical and operational commitments related to CO₂ performance.

Monitoring activities may rely on contractor reports and declarations, lifecycle assessment outputs, emissions accounting tools (e.g. Omega-TP calculator used in Paris for the road infrastructures),

Environmental Product Declarations (EPDs), certification systems, or externally verified documentation.

Depending on the scale, duration, and environmental significance of the project, monitoring may include indicators related to fuel and energy consumption, materials use, transport activities, waste generation, circularity measures, or broader environmental management practices.

This step also encourages ongoing dialogue and collaboration between the contracting authority and contractors to identify additional opportunities for emissions reduction, improve implementation practices, and support organisational learning for future projects.

Key actions for implementation

The main actions include:

- **Monitoring compliance with contractual environmental commitments.**
The contracting authority should verify that contractors are implementing the CO₂ reduction measures, environmental management practices, and reporting obligations defined within the contract.
- **Collecting and reviewing supporting documentation.**
Contractors may be required to provide greenhouse gas reports, lifecycle assessment outputs, Environmental Product Declarations (EPDs), certification documents, fuel and energy records, site management plans, or other evidence demonstrating compliance with contractual environmental requirements.
- **Verifying achievement of agreed CO₂ performance levels.**
Where environmental performance levels or CO₂ ambition targets were included in the contract, the contracting authority should periodically verify that these commitments continue to be met throughout implementation.
- **Organising regular dialogue and collaboration with contractors.**
Constructive engagement between the contracting authority and contractors can support the identification of additional emissions reduction opportunities, the adaptation of implementation practices, knowledge exchange, and continuous improvement during project delivery.
Dialogue mechanisms may be formally included within procurement documentation and contractual arrangements, particularly for large or long-term projects.
- **Assessing project implementation against baseline scenarios.**
Project teams may compare actual implementation performance against reference scenarios or projected emissions baselines to evaluate the effectiveness of implemented measures.
- **Assigning clear monitoring responsibilities.**
Specific individuals or departments within the local authority should be designated to monitor compliance, review documentation, coordinate communication with contractors, and oversee environmental reporting processes.

- Documenting lessons learned and improvement opportunities.
Monitoring activities and implementation experiences should support organisational learning and contribute to the refinement of future procurement criteria, reporting methodologies, and low-carbon implementation practices.

Key target groups (ref. to chapter 1.6 for further details)

- Project Managers
- Project and Implementation teams
- Procurement Professionals

Tools and methods

Several tools and methodologies can support monitoring and implementation of CO₂-related contractual commitments.

- **CO₂ Performance Ladder (CO₂PL) Award Criterion** (see [Procurement Guide 4.0](#))
Contractor and client can also engage in dialogue with one another based on the project monitor of the digital environment my.co2performanceladder.com. In fact, sharing certain information with the procuring authority is a normative requirement in the system.
- **Energy and environmental management systems Management systems (e.g. ISO 14001 and ISO 50001)**
- **PAS 2080 principles** for whole-life carbon management in infrastructure projects.
- **Other asset related certifications**
Depending on the focus of the project, there are other asset related certifications, especially in the building sector (eg [BREEAM](#) and [LEED](#)).
- **Suggested method**
 - Have a precise knowledge of the different phases and provisions of the contract.
 - Clearly define the monitoring process and the necessary documents to gather.
 - Compare the actions pursued with a baseline scenario to assess whether the project met the requirements set in the contract or not.
 - Contractors may rely on a variety of tools to disclose information regarding their emissions reduction. These include product-level information (e.g. environmental product declaration, eco-labels), organisation-level tools and methods (e.g. emissions inventories of scopes 1, 2 and 3), and assessment tools and models (e.g. LCAs, avoided emissions). Relying on all three categories is not mandatory but it allows for a more comprehensive assessment of the environmental impacts.
 - Data on that matter may come from various sources such as surveys or suppliers' reports.

When this step is completed

This step is completed once:

- The contract has been executed in accordance with the agreed technical, environmental, and CO₂-related requirements.
- Monitoring and verification activities have been carried out.
- The contracting authority has assessed compliance with the environmental commitments established during the tendering process.

At this stage emissions-related reporting and monitoring activities have been finalised, implementation performance has been evaluated, lessons learned have been documented, and the project has generated evidence regarding the effectiveness of the applied CO₂-related procurement and implementation measures.

Dependencies with other steps

This step depends on:

- All preceding Tender phase steps (T1–T3).
- The relevant preparatory and project development steps completed during the Foundation, Initiation, and Design phases.

In particular, this step builds upon:

- The environmental criteria and methodologies defined during Steps D2 and D3.
- The procurement documentation developed during Step T2.
- The contractual commitments established during Step T3.

This step also provides important input for:

- Step T5 – Monitor performance and compliance.
- Future procurement procedures.
- Continuous improvement of organisational CO₂ pricing and low-carbon procurement practices.

T5 - Monitor performance and compliance

Goal

The objective of this step is to monitor environmental performance, verify compliance with contractual CO₂-related commitments, and collect data supporting organisational climate objectives, reporting obligations, and continuous improvement of procurement practices.

This step ensures that the greenhouse gas reduction measures, environmental criteria, and carbon-related commitments introduced during the procurement and contract execution phases effectively contribute to the local authority's broader climate and sustainability goals.

The information collected during monitoring activities also supports organisational learning, refinement of future procurement criteria, and improvement of carbon-pricing and low-carbon procurement methodologies.

What this step involves

This step involves monitoring whether contractors have fulfilled the environmental and greenhouse gas reduction commitments established during the tender and contract execution phases.

Monitoring activities focus on verifying compliance with contractual environmental obligations, assessing the actual greenhouse gas performance of the delivered works, services, or products, collecting emissions-related data and supporting evidence, and evaluating the effectiveness of the applied procurement and carbon-pricing approaches.

The collected information can be used to support organisational reporting obligations, evaluate the effectiveness of environmental award criteria, identify implementation challenges, improve future procurement procedures, and strengthen organisational climate strategies.

Where environmental commitments are not achieved, corrective measures or contractual penalties may apply in accordance with the procurement documentation and contractual provisions established during earlier phases.

Key actions for implementation

The main actions include:

- Monitoring compliance with contractual environmental commitments
The contracting authority should assess whether the supplier has achieved the agreed greenhouse gas reduction levels, environmental performance targets, and CO₂-related commitments included in the contract.
- Collecting and reviewing environmental performance data.

Monitoring activities may include the collection of greenhouse gas inventories, lifecycle assessment outputs, environmental certificates, emissions reports, fuel and energy consumption records, and other supporting evidence demonstrating compliance and performance.

- Verifying reported environmental information.
Given the technical complexity of greenhouse gas assessment and carbon accounting, independent external verification mechanisms may be appropriate, particularly for large or high-impact projects.
- Applying contractual compliance mechanisms where necessary.
Where contractors fail to provide required evidence or do not fulfil the agreed environmental commitments, corrective measures or penalties may be applied in accordance with the contractual provisions established during procurement (e.g. p.15, CO₂ Performance Ladder [Procurement Guide 4.0](#)).
- Establishing organisational monitoring systems.
Local authorities may implement organisation-wide monitoring systems or procurement monitoring frameworks to assess procedural compliance, the use of environmental criteria across procurements, greenhouse gas performance outcome, and the achievement of broader climate objectives. Refer to [IISD report monitoring Green Public Procurement](#) for more details.
- Analysing project outcomes and identifying improvement opportunities.
Monitoring results should support the evaluation of the effectiveness of procurement criteria and of the impact of applied carbon-pricing methodologies.
- Supporting organisational reporting and policy development.
The information collected may contribute to internal climate reporting, greenhouse gas inventories, procurement reporting obligations, and updates to procurement strategies, environmental criteria, and carbon-pricing frameworks.

Key target groups (ref. to chapter 1.6 for further details)

- Project Managers
- Project and Implementation teams
- Procurement Professionals

Tools and methods

Several tools and methodologies can support monitoring and compliance activities related to CO₂-related procurement commitments.

- **CO₂ Performance Ladder (CO₂PL) Award Criterion** (see [Procurement Guide 4.0](#))

The CO₂PL is a third-party certified multi-level procurement instrument based on the Best-Price-Quality-Ratio.

An external Certification body – accredited to audit the CO₂PL – examines whether project requirements have been met in execution of a Tender. Based on the required project monitor of the digital environment my.co2performanceladder.com contractor and client can engage in dialogue with one another based on the project data. In fact, sharing certain information (such as the project CO₂ & Energy footprint and reduction measures) with the procuring authority is a normative requirement in the system.

- **[IISD report on monitoring Green Public Procurement](#)**

It offers practical tips and a framework to monitor all aspects of the procurement (procedure, output and outcomes).

- **E-procurement platforms**

- **Surveys or questionnaires to suppliers**

Procuring authorities could consider sending **surveys or questionnaires** to suppliers to collect local data and realise context-specific estimates.

The use of standardised reporting frameworks and verification methodologies can improve transparency, comparability, and reliability of monitoring results.

When this step is completed

Monitoring and compliance activities should generally be considered an ongoing organisational process.

For an individual procurement procedure or contract, this step is completed once all required environmental and greenhouse gas performance data have been collected, compliance assessments have been finalised, contractual environmental obligations have been evaluated, and the results have been documented and incorporated into organisational reporting and evaluation processes.

At this stage the environmental performance of the project has been assessed, lessons learned have been identified, and the collected information can support future procurement procedures, climate reporting, and continuous improvement of carbon-pricing approaches.

Dependencies with other steps

This step depends on:

- All preceding Tender phase steps (T1–T4).
- The procurement and environmental criteria established during the Foundation and Project phases.
- The organisational climate and procurement strategies developed during Steps F2, F3.3, F3.4, and F4.

In particular, this step builds upon:

- The environmental criteria and reporting requirements defined during Steps D2 and D3.
- The procurement documentation developed during Step T2.
- The evaluation methodologies applied during Step T3.
- The implementation monitoring carried out during Step T4.

The results of this step provide important feedback for:

- Future procurement procedures.
- Refinement of environmental award criteria.
- Improvement of organisational carbon-pricing methodologies.
- Broader local authority climate and sustainability strategies.

3. Conclusions and recommendations

Conclusions

Local authorities play a decisive role in achieving climate neutrality and reducing greenhouse gas emissions. Through their responsibilities in infrastructure development, procurement, urban planning, public services, and investment decisions, municipalities and regional administrations directly influence both operational emissions and wider market behaviour. At the same time, they are increasingly challenged by rising climate ambitions, stricter environmental regulations, financial constraints, and growing expectations from citizens and stakeholders.

This strategy demonstrates that **CO₂ pricing can serve as a practical and effective instrument to support more climate-conscious public decision-making**. By integrating the cost of greenhouse gas emissions into planning, design, procurement, and implementation processes, local authorities can better account for the long-term environmental and societal impacts of their decisions. CO₂ pricing does not replace political or technical decision-making; rather, it strengthens it by **making carbon impacts visible, measurable, and comparable** alongside traditional financial and operational considerations.

The document also shows that implementing CO₂ pricing within local authorities requires more than simply selecting a carbon price. **Effective implementation depends on the development of an enabling organisational framework**, including political support, internal governance structures, procurement procedures, emissions data management, staff capacities, and monitoring systems. Carbon pricing therefore needs to be embedded within broader climate governance and procurement strategies rather than be treated as a standalone technical instrument.

A key conclusion emerging from the different phases described in this strategy is that successful implementation relies on **gradual institutional learning**. Local authorities differ significantly in terms of organisational maturity, technical expertise, available data, procurement practices, and financial resources. Consequently, **the integration of CO₂ pricing should be approached progressively, allowing organisations to build experience over time**. Starting with awareness raising, internal shadow pricing approaches, qualitative environmental criteria or pilot projects can provide valuable learning opportunities before moving towards more advanced lifecycle costing and monetised carbon approaches.

The strategy also highlights the importance of **proportionality and flexibility**. Not every project requires highly detailed lifecycle assessments or complex monetisation methods. In many cases, **focusing on the most carbon-intensive activities**, materials, or lifecycle stages can already deliver significant environmental benefits. A hotspot-oriented approach allows local authorities to prioritise action where emissions reduction potential is greatest while maintaining feasible administrative workloads and procurement procedures.

Furthermore, the document underlines the importance of **transparency and comparability throughout the procurement and project lifecycle**. Shared methodologies, common carbon accounting tools, harmonised reporting practices, and clearly defined evaluation criteria are essential to ensure procedural fairness, legal certainty, and equal treatment of suppliers. The use of recognised standards, environmental product declarations, lifecycle assessment methodologies, and external verification mechanisms can improve the reliability and credibility of emissions-related assessments and procurement decisions.

Supplier engagement also emerges as a critical success factor. The transition towards low-carbon procurement requires active collaboration between contracting authorities, market actors, technical experts, and project teams. Early communication with suppliers helps clarify expectations, encourages innovation, and allows market participants to prepare for evolving environmental requirements. At the same time, continuous dialogue during project execution supports further emissions reductions, knowledge exchange, and improvement of future procurement approaches.

Finally, the strategy demonstrates that **monitoring and organisational learning** are essential components of an effective CO₂ pricing framework. Collecting data on emissions performance, procurement outcomes, implementation challenges, and contractor compliance enables local authorities to evaluate the effectiveness of their approaches and continuously refine their climate strategies. Monitoring should therefore not be viewed solely as a compliance mechanism, but also as a tool for institutional learning and long-term policy improvement.

At the same time, successful implementation requires **clear governance, organisational commitment, adequate resources, technical capacity, and a phased approach** adapted to the maturity and context of each local authority.

Ultimately, the key insight of this strategy is that integrating CO₂ pricing into public decision-making is not an end in itself, but a means of making the climate impacts of investments and procurement decisions more visible and actionable.

While embedding CO₂ pricing throughout project initiation, design, procurement, and contract management may initially appear complex, meaningful progress often begins with practical application.

Local authorities do not need to have every governance structure, dataset, or methodology fully in place before taking action. By testing approaches, implementing pilot projects, and learning from experience, **local authorities can gradually build the knowledge, confidence, and institutional capacity needed to strengthen climate-conscious decision-making.**

In this way, CO₂ pricing becomes not only a technical instrument, but also a catalyst for organisational learning and the transition towards more sustainable and climate-neutral public investments.

Recommendations for local authorities for implementing CO₂ pricing effectively

Based on the findings of this strategy, several recommendations can support local authorities in implementing CO₂ pricing effectively.

By progressively integrating CO₂ pricing into planning, procurement, and project delivery, local authorities can strengthen their contribution to climate neutrality while improving the long-term sustainability and resilience of public investments.

Integrate CO₂ pricing into broader organisational strategies. CO₂ pricing should be aligned with climate action plans, procurement policies, and investment strategies. Political support and clear governance structures are necessary to ensure consistency and long-term implementation.

Apply a phased and proportionate approach. Local authorities should introduce CO₂ pricing progressively, starting with pilot projects, qualitative environmental criteria, or internal shadow pricing approaches before moving towards more advanced lifecycle costing methodologies. This allows organisations to build experience and internal capacity over time.

Focus on high-impact sectors and carbon hotspots. Priority should be given to sectors and materials with the greatest emissions reduction potential, such as construction materials, transport, and energy systems. A hotspot-focused approach allows authorities to achieve meaningful reductions while limiting administrative complexity.

Use transparent and harmonised methodologies. Clear greenhouse gas accounting methods, standardised reporting frameworks, and recognised lifecycle assessment tools are essential to ensure comparability, transparency, and fairness throughout procurement and project evaluation processes.

Strengthen technical expertise and collaboration. Successful implementation requires cooperation between procurement teams, sustainability departments, finance units, technical experts, and project managers. Training and internal capacity building should therefore be prioritised.

Engage suppliers early. Early dialogue with suppliers helps improve understanding of environmental expectations, supports innovation, and prepares the market for low-carbon procurement requirements. This is particularly important when introducing new environmental award criteria or reporting obligations.

Ensure monitoring and continuous improvement. Monitoring systems should be established to verify environmental performance, assess compliance with contractual commitments, and evaluate the effectiveness of procurement criteria. Lessons learned from completed projects should feed back into future procurement and climate strategies.

Adapt implementation to local context. There is no single model for implementing CO₂ pricing. Local authorities should adapt the approaches presented in this strategy to their legal, organisational, financial, and technical context while maintaining the principles of transparency, proportionality, and evidence-based decision-making.

Useful resources

A credible carbon tax trajectory for Ireland, OECD, 2021

(https://www.oecd.org/en/publications/2021/09/ipac-policies-in-practice_1a65968e/a-credible-carbon-tax-trajectory-for-ireland_b07887bd.html)

Environmental and social impacts across industry sectors, OECD, 2025

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Green Public Procurement: Catalysing the Net-Zero Economy, World Economic Forum, 2022

(https://www3.weforum.org/docs/WEF_Green_Public_Procurement_2022.pdf)

Green Public Procurement: a key to decarbonizing construction and road transport in the EU, Stockholm Environment Institute, 2023 (<https://www.sei.org/wp-content/uploads/2023/02/green-public-procurement-eu.pdf>)

Handbook on Environmental Value Factors. Methodological Convention 4.0 for the Assessment of Environmental Impacts, German Environment Agency, 2025,

https://www.umweltbundesamt.de/system/files/medien/479/publikationen/2026-02/UBA_Handbook%20on%20Environmental%20Value%20Factors.pdf

Public Procurement for Climate Neutrality: a transformative policy instrument?, Ecologic Institute, 2023

(<https://www.ecologic.eu/sites/default/files/publication/2023/33007-Report-Public-Procurement-for-Climate-Neutrality.pdf>)

State and Trends of Carbon Pricing 2023, World Bank, 2023

(<https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f>)

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(<https://carbonpricingdashboard.worldbank.org/>)

The Dutch circular built environment. Let's collaborate for a better world!, 2025

(https://www.rvo.nl/sites/default/files/2025-09/RVO_sectorgids%20circulaire%20bouw_English.pdf)

Webinar: Why should public procurers choose EU Ecolabel certified products?, 2025

(<https://public-buyers-community.ec.europa.eu/resources/webinar-why-should-public-procurers-choose-eu-ecolabel-certified-products>)

VI Assessment Report (AR6), IPCC, 2023 (<https://www.ipcc.ch/assessment-report/ar6/>)

Glossary

Analysis - Analysis is the process of dividing/breaking a complex item into separate components for individual examination.

Assessment - An Assessment follows the analysis process and is the process of evaluating the performance, efficacy and overall contributions of an item and what impact it has to the outcome.

Carbon - 1. Synonym, 2. Chemical element

1. The term is usually used as a Synonym to describe carbon dioxide (CO₂) in a short form.
2. A chemical element: C is the formula for the element Carbon. 1kg C = 3.67 t CO₂.

Carbon Budgeting - A Carbon Budget represents the total amount of GHG emissions (tCO₂eq) that may be released during an agreed period.

Carbon Budget, Methods to compile data - Spend-based, Activity-based (average data), Supplier-specific, Hybrid (mix of Spend, Activity and Supplier based data), organisation/department based.

Carbon Budget, Structure - Set boundary for evaluate/compile GHG emission Data (E.g.: organisation or territorial view, Scope 1, 2 and 3, etc.), collect accredited data, calculate a Baseline GHG Emission Inventory (BEI), set reduction targets, monitor & report.

Carbon Hotspot - Carbon Hotspots represent carbon-intense elements which are used in big quantities. Carbon Hotspots can be used to identify possible quick wins, where significant carbon reductions of these Carbon Hotspot are possible, when measurement data is more easily available. Identifying the Carbon Hotspots within your organisation can help to set priorities in decision making and in policy making.

Carbon Price (IPCC) - The price for avoided or released CO₂ or CO₂-equivalent emissions. This may refer to the rate of a carbon tax, or the price of emission permits. In many models that are used to assess the economic costs of mitigation, carbon prices are used as a proxy to represent the level of effort in mitigation policies^[5]. It may also refer to the “effective price” or “full reference price”, used as a proxy for the damage caused by emitted carbon emission^[6].

CO₂ versus CO₂eq - CO₂ is the formula for the gas Carbon Dioxide. CO₂eq stands for “Carbon Dioxide Equivalent” and expresses the Global Warming Potential (GWP). CO₂eq is the calculation unit for the emissions of any number of Greenhouse Gases (GHG). These emissions quantities, the GWP Impact, are then converted into carbon dioxide equivalents expressed in “CO₂e” or “CO₂eq”. CO₂ emissions are the dominant part of total global GHG (CO₂eq) emissions, which is why other GHGs are also expressed in these terms.

Design for Procurement and Tendering - This can include all phases of the Procurement Process of a project or only some or individual phases (e.g. design and realisation), depending on what the organisation wants to procure. E.g.: The governmental organisation provides input regarding what they wish or require from potential contractors, who want to execute a certain project. The actual contractor(s) deliver certain services or works to the governmental organisation.

Distinction between Planning and Design - Planning: The act of deciding how to do an object, project, or process. Design: Creating an appropriate form and function of an object or process.

External Costs - Costs that are not included in the market price of the goods and services being produced. In terms of Carbon Price this refers to mostly environmental and social costs. These are the costs of consuming and producing fossil-based energy and materials and their impact on the climate as a result of release GHG.

GHG Emission - Green House Gases (GHG) emitted, originating in human activity and their effect on the climate. Natural origins are excluded (e.g. volcanic eruptions), at least within DeCarb-Pro, as these emissions lie outside the scope of the project.

Global Warming Potential (GWP100) - A relative and unitless index of how much a given mass of GHG is estimated to contribute to global warming. It is measured against CO₂, which has a GWP of 1. GWP100 means the contribution of GHG emissions to the greenhouse effect averaged over a period of 100 years^[3].

Green House Gases (GHG)^[4] - GHGs are atmospheric gases that absorb and emit radiation within the thermal infrared range and that contribute to the greenhouse effect and global climate change. Many different GHGs are produced as a result of human activities, including (underlined the GHG of the Kyoto Protocol and GHG that the GHG Protocol Corporate Standard is accounting for^[2]):

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorinated compounds: (PFCs)
 - Sulphur hexafluoride (SF₆)
 - Nitrogen trifluoride (NF₃)
 - Perfluorocarbons (PFCs)
- Fluorinated ethers (HFEs)
- Perfluoropolyether's (e.g., PFPEs)
- Chlorofluorocarbon (CFCs)
- Hydrochlorofluorocarbon (HCFCs)

Green Public Procurement - Procuring goods, services and works with a reduced environmental impact throughout their life cycle^[15].

LCA versus Carbon Footprint - A LCA systematically analyses multiple environmental impacts of a product, activity, or process over its entire life cycle. On the other hand, Carbon Footprint (see Carbon Footprint definition) analysis is a mono-criterion analysis focused on only one environmental impact: climate change by carbon emission (equivalents).

Life Cycle Analysis (LCA) - LCA^[4] is a systematic analysis, a set of procedures for compiling and examining the inputs and outputs of materials and energy, and the associated environmental impacts, such as embodied and operational CO₂eq emissions, directly attributable to a product, activity, or process throughout its lifecycle according to ISO 14040: 2006, EN[1]ISO14044-2006+A2-2020,

EN15804-2012+A2-2019, and EN15978-2011. Please Note: In general the full stage LCA (Product, Use and End of Life stage) is meant. If you look only at certain stages, please be explicit on what system boundaries you use.

Marginal Abatement Costs (MAC) - The DPER updated the Shadow Price of Carbon in 2024 which are the Marginal Abatement Cost (MAC) estimates the cost of reducing emissions by t CO₂ and measures the cost of reducing one more unit of pollution (t CO₂) and is used in carbon trading and reaching set targets. Marginal cost is an economic concept that measures the cost of an additional unit^[8].

Planning for Procurement - It focuses on the organisation's strategy and policies. These components lay the foundation for processes such as procurement, therefore strategy and policy lie within the scope of the DeCarb-Pro project. Note: But Enforcement and Stimulation lie outside the scope of DeCarb-Pro.

Procurement, general def. - Essentially, Procurement is the act of obtaining goods or services, typically for business purposes^[12]. Further in-depth definition: Procurement is the process of locating and agreeing to terms and purchasing goods, services, or other works from an external source, often with the use of a tendering or competitive bidding process. There are different procurement designs established for different scopes of tendering and purchasing^[13].

Procurement Planning - It includes basically everything a governmental organisation does in terms of projects it executes. In general terms this comprises various stages: (pre)feasibility, (investment) decision, design, realisation, monitoring, and maintenance. An organisation can do all of this by itself, or it can outsource (parts of) projects to third parties.

Procurement process - Procurement involves every activity involved in obtaining the goods and services an organisation needs to support its daily operations, including sourcing, negotiating terms, purchasing items, receiving and inspecting goods as necessary and keeping records of all the steps in the process^[16].

Procurement process steps - identifying scope and needs, market research on availability, pre tender process: internal preparation, pre-estimation, defining award criteria, tender process: preparing tender documents, request for tender, evaluate tender, award tender, followed by the purchasing process. The procurement process does not include preliminary measures and circumstances like development of policy and guidelines as a basis for carrying out the procurement process itself and measures after completion, e.g. monitoring and ongoing supplier relationship.

Project specific DeCarb-Pro Carbon Pricing - In simple terms, carbon pricing involves putting a price tag on a certain amount (usually a tonne) of CO₂ or CO₂eq. Currently, environmental costs are often not considered in our market economy – these are so-called 'external costs'. Putting a price on carbon provides a means to start 'internalising' these costs into (financial) decision-making, enabling the decision-maker to better take into account some of the environmental aspects, making socially responsible policy and decisions easier^[10]. There are two main approaches to carbon pricing, coming from different perspectives. The first is that of abatement costs, which specifies the costs of avoiding the emission of a tonne of CO₂(eq). The second goes by several names: damage costs, or social cost of carbon. These assess the costs of (avoided) damages resulting from the emission of a tonne of CO₂(eq)^[11]. Between, but also within these two approaches, the carbon price level can differ

dramatically, depending on which factors you take into account, and how you go about various components of the calculation (e.g. the discount rate you use).

Project specific DeCarb-Pro “Procurement Framework” - The Procurement Framework describes the essential structures of the policies, regulations, legislation and guidelines in addition to the phases of the procurement process that are established and apply to the implementation of procurement.

Public Procurement - The process by which public authorities, such as government departments or local authorities, purchase work, goods or services from companies^[14].

Shadow Price of carbon / Internal Price - Internal carbon price: Governments, firms, and other entities assign their own internal price to carbon use and factor this into their investment decisions. Used as part of a broader decarbonization efforts, this approach encourages investment in low-carbon technologies and prepares institutions to operate under future climate policies and regulations. Internal carbon pricing generally takes two forms.

- The first assigns a shadow price to carbon use—that is, determines its hypothetical cost. Entities calculate this price for their activities with the goal of managing climate risks and identifying opportunities in operations, projects, and supply chains to lower emissions and avoid locking their investments in long-lived high-carbon capital and infrastructure. For example, the World Bank Group has announced plans to apply a shadow carbon price to relevant investment projects using a price consistent with the recommendations of the High-Level Commission on Carbon Prices.
- The second form is an internal carbon fee that companies voluntarily charge their business units for their emissions. Funds generated from this fee are channelled back into cleaner technologies and greener activities that support low-carbon transition^[7].

Significant Energy Users (SEU) - SEU is an energy user that accounts for substantial energy consumption and/or offers considerable potential for energy performance improvement. Similar to a “Carbon Hotspot”.

Social Cost of Carbon (SCC) - Social Cost of Carbon (SCC) count in the social and economic costs (societal) of damages and estimates the costs from emitting 1 additional t CO₂. It represents the real damage resulted from climate change in monetary terms. These costs are not mandatory for public bodies in Ireland and therefore not considered for any investment decision making, yet. The social cost of carbon (SCC) is an estimate, typically expressed in dollars, of the economic damages associated with emitting one additional ton of carbon dioxide into the atmosphere^[9].

Tender - The term Tender usually refers to an invitation to bid for a project. Tendering usually refers to the tender process and is part of the Procurement Process.

Multiple Definitions or interpretations

Some concepts used within DeCarb-Pro have different definitions and interpretations. These definitions may differ from country to country, and from organisation to organisation.

Carbon Footprint^[17] - The carbon footprint describes the carbon emissions caused directly and indirectly by a person, organisation, event, or building. In some cases, a footprint only includes scope

1 and 2 emissions, in some cases scope 3 is also included. Furthermore, sometimes it is only CO₂ related, while in other cases other GHGs are also included (so in that case 'Carbon' is really used as a synonym, as described earlier in this document).

Categorisation of scope 1-3 emission - There are two main perspectives from which to define and calculate scope 1, 2, and 3 emissions: from the organisational perspective (examples: GHG Corporate Standard, CO₂ Performance Ladder) and from the geographical/territorial perspective (example: Covenant of Mayors SECAP). The categorisation of scope 1-3 differs significantly between these two perspectives, which is why both are explained shortly below. Furthermore, there might be slight differences between different methodologies that reason from the same perspective.

Organisational perspective (used by e.g. GHG Corporate Standard and CO₂ Performance Ladder)

Concept of "scope" - To help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of organisations and different types of climate policies and business goals, three "scopes" (scope 1, scope 2, and scope 3) are defined for GHG accounting and reporting purposes. The categorisation of the scopes is based on the degree of financial and/or operational influence the organisation in question has on (sources of) emissions.

Scope 1: Direct GHG emissions - Direct GHG emissions occur from sources that are owned or controlled by the organisation, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. Direct CO₂ emissions from the combustion of biomass shall not be included in scope 1 but reported separately^[18].

Scope 2: Electricity indirect GHG emissions - GHG emissions from the generation of purchased electricity consumed by the organisation. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the organisation. Scope 2 emissions physically occur at the facility where electricity is generated. (Guidance for scope 2, see GHG Protocol Corporate Standard and Scope 2 Guidance Training Webinar^[19]).

Scope 3: Other indirect GHG emissions - The category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the organisation but occur from sources not owned or controlled by the organisation. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services. (Guidance for scope 3^[20] see Technical Guidance for Scope3 Emissions version1.0).

Embodied CO₂eq emissions/embodied Carbon - Embodied CO₂eq emissions associated with materials and construction processes throughout the whole lifecycle of a building. The lifecycle includes sourcing materials, processing them into building materials, transporting them to the site, constructing on-site, using, maintaining, and refurbishing a building, and deconstructing.

Geographical/Territorial perspective (used by e.g. Covenant of Mayors SECAP)^[21]

Extract from "JRC_SECAP_Part 2_BEI_RVA"

The 3 main types of GHG emissions to be potentially included in the BEI/MEI are:

- c) Direct emissions due to final energy consumption. Reducing energy consumption in the local territory should be considered as the priority. The quantification of GHG emissions (mainly CO₂) due to energy consumption is split into the “Buildings, equipment/facilities and industry” and the “Transport” macro-sectors, both of which are mandatory. The direct emissions exclude those from the plants included in the EU Emissions Trading System (ETS).
- c) Indirect emissions related to grid supplied energy (electricity, heat, or cold) that are consumed in the local territory. Production of electricity and heat/cold consumed in the local territory may occur inside or outside the territory. Indirect emissions due to consumption of heat/cold and electricity are included in the BEI/MEI and reported in the “Buildings, equipment/facilities and industry” and the “Transport” macro-sectors (mandatory). Actions to reduce CO₂ emissions in the supply side are accounted for through the local emission factor for electricity and emission factors for heat/cold. Indirect emissions may cover electricity and heat/cold production plants involved in the EU ETS.
- c) Non-energy related direct emissions that occur in the local territory. It is not recommended to include in the BEI/MEI the non-energy related activity sectors unless measures to reduce the associated greenhouse gas (CO₂, CH₄ and N₂O) emissions are included in the SECAP.

Operational CO₂e emissions - The operational CO₂e emissions are associated with energy used to operate a building. This includes the emissions from heating, cooling, powering, and providing hot water. Operational carbon production is dependent on user behaviour and level of understanding regarding building supply systems.

Upfront embodied carbon - It describes the CO₂e emission to construct a building. This includes the sourcing, transport, manufacturing, transport to the site, and installing on-site describing the boundary condition of the LCA modules A1-A5 according to EN15978-2011, called “Cradle to Practical Completion”. In contrast to other categories of emissions listed here, these emissions have already been released into the atmosphere before the building is occupied or the infrastructure begins operation. This CO₂e emission will have an immediate impact on the environment whereas the ratio of operational CO₂e emission will increase gradually during the lifetime of the building. To mitigate Climate-Change there is an urgent need to act within the next 10-20 years. Regarding buildings, there is a factual need to focus on reducing the ratio of the upfront embodied CO₂e emission immediately.

^[1] IPCC_SYR_AR6, Annex 1, Glossary <https://www.ipcc.ch/report/sixth-assessment-report-cycle/> Eurostat glossary: <https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Category:Glossary>

^[2] <https://ghgprotocol.org/corporate-standard>

^[3] SO 14067, 2018: index, based on radiative properties of GHG, measuring the radiative forcing following a pulse emission of a unit mass of a given GHG in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide (CO₂).

^[4] GHG Protocol Definition: Assessment of the sum of a product’s effects (e.g. GHG emissions) at each step in its life cycle, including resource extraction, production, use and waste disposal.

^[5] IPCC glossary: <https://www.ipcc.ch/sr15/chapter/glossary/>

^[6] Klimaatverbond.

^[7] <https://www.pmiclimate.org/cplc>

^[8] https://en.wikipedia.org/wiki/Marginal_abatement_cost

^[9] https://en.wikipedia.org/wiki/Social_cost_of_carbon

^[10] <https://klimaatverbond.nl/publicatie/synthesis-2019-accounting-for-the-future-the-price-of-climate/>

^[11] <https://www.umweltbundesamt.de/en/publikationen/methodological-convention-31-for-the-assessment-of>

^[12] Basic definition by Investopedia:

<https://www.investopedia.com/terms/p/procurement.asp#:~:text=Procurement%20is%20the%20process%20of,several%20areas%20of%20a%20company>

^[13] <https://en.wikipedia.org/wiki/Procurement>

^[14] https://single-market-economy.ec.europa.eu/single-market/public-procurement_en#:~:text=Public%20procurement%20refers%20to%20the,goods%20or%20services%20from%20companies

^[15] https://green-forum.ec.europa.eu/green-business/green-public-procurement_en

^[16] <https://www.netsuite.com/portal/resource/articles/accounting/procurement.shtml#:~:text=Procurement%20involves%20every%20activity%20involved,the%20steps%20in%20the%20process>

^[17] (Wiedmann and Minx, 2008), IPCC, Jamie Goggins-NUIG.

^[18] Guidance for scope 1, see GHG Protocol Corporate Standard: <https://ghgprotocol.org/corporate-standard>

^[19] <https://ghgprotocol.org/scope-2-recorded-webinar>

^[20] Guidance for scope 2, see GHG Protocol Corporate Standard and Scope 2 Guidance Training Webinar: <https://ghgprotocol.org/scope-3-calculation-guidance-2>

^[21] <https://publications.jrc.ec.europa.eu/repository/handle/JRC112986>, JRC_SECAP_Part 2_BEI_RVA

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DeCarb-Pro

Decarbonise public procurement in NWE – account for the future

Deliverable 1.5.1

Carbon Pricing into Public Procurement: DeCarb-Pro strategy for local and regional governments – Annex I – Standard pool of methods and instruments for including CO2 pricing in local authorities' procurement

June 2026

DeCarb-Pro partnership

Climate Alliance Netherlands (Lead Partner) | Climate Alliance | South East Energy Agency (SEEA) | Municipality of Amsterdam | City of Essen | City of Paris | Arnhem-Nijmegen Green Metropolitan Region | Foundation HIER Klimaatbureau | Strasbourg Eurometropolis | Climate Agency Wiesbaden | Flux50 | Climate Agency Strasbourg

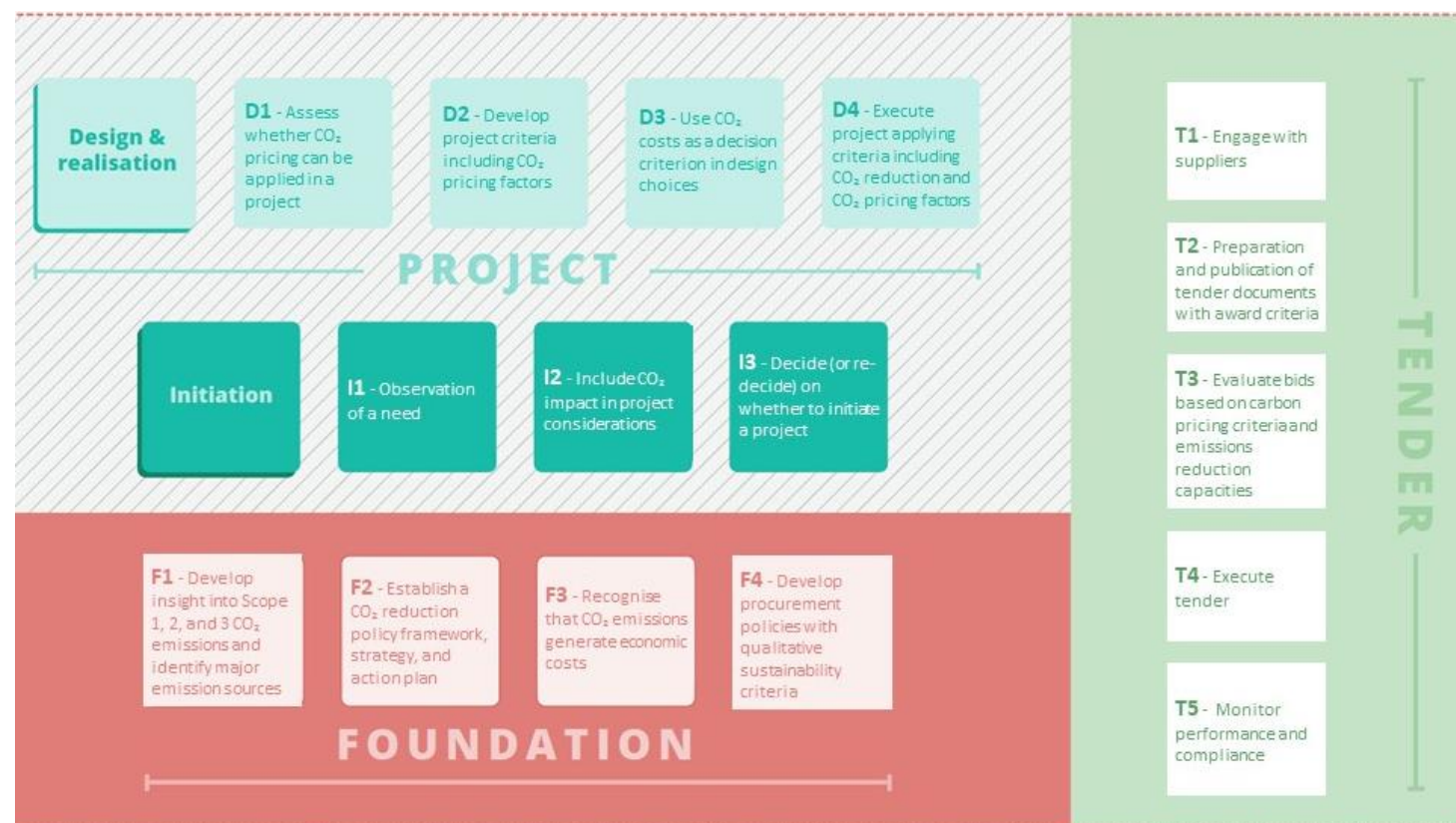
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Introduction

This Annex I to the DeCarb-Pro strategy for the integration of Carbon Pricing into Public Procurement provides local and regional authorities with a **standard pool of methods and instruments useful to implement all the steps foreseen in the strategy**, including basic info needed to approach and start working with them.



The DeCarb-Pro Strategy provides local and regional authorities with a practical framework for integrating CO₂ pricing into public procurement as a tool for reducing greenhouse gas emissions and accelerating the transition towards climate neutrality. It outlines a structured approach that embeds climate considerations throughout policy development, project planning, procurement, and contract implementation. The Strategy is organised around four interconnected phases and several steps as shown in Figure 1.

Figure 1 - Flow diagram CO₂ pricing strategy elaborated within the DeCarb-Pro project

Standard pool of methods and instruments

Foundation phase



F1 - Develop insight into Scope 1, 2, and 3 CO₂ emissions and identify major emission sources

- [Greenhouse Gas \(GHG\) Protocol](#) The Greenhouse Gas (GHG) Protocol provides comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions. The methodology supports the classification of emissions into Scope 1, 2, and 3 categories and is widely used as a reference framework for organisational carbon accounting.
- [ISO 14064](#) ISO 14064 is an internationally recognised standard that defines principles and requirements for the quantification, reporting, monitoring, and verification of greenhouse gas emissions and removals at organisational level. Especially, it requires organisations to identify and quantify all relevant GHG emissions and removals associated with the organisation's operations, to establish procedures for regular monitoring, reporting, and verification of GHG data and to maintain clear documentation and provide accessible information to stakeholders regarding GHG emissions and reduction efforts.
- [Bilan Carbone®](#) The Bilan Carbone® tool is a comprehensive GHG accounting methodology developed by the French Agency for Ecological Transition (ADEME). The methodology supports comprehensive greenhouse gas accounting across organisational activities and sectors. Since 2022, the inclusion of Scope 3 emissions has become mandatory within the methodology. Bilan Carbone® requires detailed activity data but provides a robust and adaptable framework aligned with international standards such as ISO 14064.
- **Bottom-up data inventories** Many European local authorities apply bottom-up emissions inventories based on locally collected activity data. These inventories typically combine collected data on energy consumption and GHG emissions from individual sources within the local boundaries, such as energy consumption data from buildings, vehicle miles travelled, waste generation and/or local economic activities. The aggregated data supports the estimation of local greenhouse gas emissions and helps identify priority areas for emissions reduction measures.
- [CO₂ Performance Ladder \(CO₂PL\)](#) The CO₂ Performance Ladder is a carbon management and certification framework that supports organisations in monitoring and reducing greenhouse gas emissions. The CO₂PL GHG calculation methodology is helpful to define organisational boundaries, categorizing emissions into scopes 1, 2 and 3, collecting accurate activity data, using standardised emission factors, and applying calculation tools. Verification through external audits ensures credibility, and the framework encourages continuous improvement in emissions reduction efforts. This structured approach helps organisations systematically reduce their carbon footprint and achieve higher levels of sustainability certification.
- [Climate Alliance tools](#) and [Bisko methodology](#) Many German local authorities use greenhouse gas emissions monitoring tools developed by Climate Alliance in accordance with the BSKO standard (Bilanzierungs-Systematik Kommunal, the official accounting framework used by German municipalities to measure and compare their greenhouse gas emissions).
The [Climate Protection Planner](#) (Klimaschutz-Planer) is a tool to create energy and greenhouse gas balances based on a systematic and standardised methodology. Thanks to integrated benchmarking, the tool also shows local authorities where they stand in comparison to other cities and towns and contributes to sustainability reporting with municipal monitoring results. With the Climate

Protection Dashboard, municipalities can clearly display and communicate their balance sheet results, energy consumption and greenhouse gas emissions, broken down by the various energy sources and sectors within the local authority. The tool is currently used by local authorities throughout Germany and East Belgium. Since 2024, the Climate Protection Planner has also been in use in Austria as part of the [KlimaBilanz](#) initiative.

The [ESG Cockpit](#) enables local administrations and companies to create their own greenhouse gas emissions balance sheets based on energy and heat consumption data, travel activities and much more. The tool is easy to use and provides clear evaluations to measure the fulfilment of both emissions' reduction targets and sustainability goals. By analysing the emissions of individual organisations, the ESG Cockpit complements the Climate Protection Planner. This enables local authorities, federal and state administrations, non-profit organisations and private companies to develop appropriate measures for continuous emissions reductions.

- **Life Cycle Assessment (LCA) methodologies** Life Cycle Assessment evaluates the environmental impacts associated with products, materials, services, and energy systems throughout their full lifecycle, including extraction of raw materials, production, use, and disposal (or reuse).

LCA methodologies extend beyond greenhouse gas emissions and assess multiple environmental impact categories.

At local level, LCA can support the evaluation of procurement-related emissions and the environmental impacts of goods and services used within municipal activities. Lifecycle assessment factors can also be integrated into procurement databases and calculation tools. There are several tools available on the market⁶.

- **[Covenant of Mayors for Climate and Energy – Europe \(CoM EU\) methodology](#)** The [CoM EU](#) is the largest European initiative for local climate and energy action. Through the CoM EU framework, cities voluntarily commit to tackling climate change, and thus to pursuing and advancing the commitments of national governments at the local scale. The initiative provides methodologies and guidance for developing Sustainable Energy and Climate Action Plans (SECAPs), including detailed guidance for preparing greenhouse gas emissions inventories ([How to prepare a greenhouse gas emission inventory](#)), elaborated and published by the Joint Research Centre (JRC).
- **[CDP-ICLEI Track reporting platform](#)** The [Global Covenant of Mayors](#) supports the [CDP-ICLEI Track](#) reporting platform, which enables cities, regions, and local authorities to measure, manage, and disclose environmental and climate-related data.

The platform supports transparency, benchmarking, and long-term monitoring of climate performance.

F2 - Establish a CO₂ reduction policy framework, strategy, and action plan	• <u>Covenant of Mayors for Climate and Energy – Europe (CoM EU) methodology</u> The <u>EU Covenant of Mayors</u> provides a widely recognised methodological framework for local climate and energy planning across Europe. The initiative supports local authorities in developing Sustainable Energy and Climate Action Plans (SECAPs) through a series of guidance documents and technical methodologies. These include (i) <u>How to develop a Sustainable Energy and Climate Action Plan (SECAP)</u>, (ii) <u>How to plan mitigation, adaptation and energy poverty actions</u>. The framework provides guidance on climate governance, emissions reduction planning, stakeholder engagement, implementation and monitoring processes. • <u>Method for Budget Climate Assessment (BCA)</u> Budget Climate Assessment (BCA) is a methodology developed through collaboration between I4CE, five local authorities, France Urbaine, and the French Mayors’ Association (AMF). The methodology evaluates the climate impact of public expenditure by analysing budget lines according to their contribution to climate mitigation, adaptation, and biodiversity objectives. Budget items are generally classified as highly favourable, favourable, neutral or unfavourable for the climate. The methodology is aligned with the EU Taxonomy framework and supports climate-conscious budget planning and investment prioritisation. A simplified version is mandatory in France for local authorities with more than 3,500 inhabitants under the 2024 Finance Law. • <u>Label TETE</u> (Territoires Engagés pour la Transition Ecologique or Committed Territories for the Ecological Transition in English) It provides a methodology for monitoring and evaluating climate and energy action plans (including SECAPs). The framework supports local authorities in assessing implementation progress, monitoring climate actions, adapting mitigation measures based on observed results, strengthening continuous improvement processes. • <u>EU City Calc</u> Scenario-modelling tool that supports local authorities in developing greenhouse gas reduction pathways. The tool enables users to model emissions reduction scenarios, assess the impact of policy measures, analyse long-term climate trajectories, and support strategic decision-making processes. • <u>CO₂ Performance Ladder (CO₂PL)</u> Carbon management and certification framework that supports continuous improvement in greenhouse gas emissions reduction. The framework follows a Plan–Do–Check–Act approach and focuses on emissions monitoring and reporting, setting reduction objectives, implementing mitigation measures, monitoring progress and organisational improvement. Certification can support local authorities in institutionalising climate governance and sustainable procurement practices. • <u>Carbon Pricing Incidence Calculator</u> Interactive and publicly accessible platform developed by the Potsdam Institute for Climate Impact Research (PIK) in cooperation with GIZ. For over 80 countries, it shows how carbon pricing would affect the population and how governments can design mechanisms that are socially equitable. It is a useful tool for increasing acceptance among the population. The digital calculation tool developed together with MCC models the socioeconomic impact of carbon pricing and various compensation measures on different households. The tool can be used by governments, unions, business associations and both welfare and environmental groups to negotiate a socially equitable approach to climate financing policy.
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	• QuantiGES Methodology designed to quantify the potential greenhouse gas emissions reductions associated with climate actions and projects. The methodology enables detailed assessment of mitigation measures but may require extensive data collection, technical expertise, significant analytical resources. Simplified approaches may also be developed based on the same methodological principles. • France ecological transition agency (ADEME) climate transition scenarios ADEME has developed scenario methodologies that support the localisation of national greenhouse gas reduction strategies. These methodologies help local authorities to align local climate policies with national objectives, to develop locally adapted emissions reduction pathways, to define strategic priorities and action plans, and to account for local territorial and socio-economic characteristics. The approach supports consistency between national climate policy and local implementation.
F3 - Recognise that CO ₂ emissions generate economic costs	• Method for Budget Climate Assessment (BCA) See step F2. • Social cost of greenhouse gas emissions methodologies Methodologies for calculating the social costs of greenhouse gas emissions quantify the broader economic impacts associated with environmental degradation and climate change. For example, the German Environment Agency (UBA) provides methodological guidance and value factors for assessing environmental costs related to greenhouse gas emissions, air pollution, transport, energy production, building materials, agricultural emissions (UBA 2024, Methodological Convention 3.1 for the Assessment of Environmental Costs – Value Factors). These methodologies can support public investment assessment, policy evaluation, economic instrument design, sustainability reporting processes. They also help local authorities translate environmental impacts into measurable economic indicators that support decision-making. • Climate fresk Participatory climate education methodology designed for businesses, educational institutions, NGOs, and public authorities. The tool supports climate awareness, stakeholder engagement, organisational learning, understanding of climate science and emissions impacts. The methodology is designed to be accessible and scalable across organisations and communities. • Responsible purchasing fresk (Fresque des achats responsables) Participatory methodology focused specifically on sustainable and responsible procurement practices. (Fresque des achats responsables in French). Similar to Climate Fresk, the methodology supports awareness-building and organisational learning, with a stronger focus on sustainable procurement, supply chain impacts, purchasing decisions, and environmental and social responsibility.

F3.1 - Introduce CO₂ pricing as a policy instrument for emissions reduction

- **Internal CO₂ pricing guidance and handbooks** Guidance documents developed by local and regional authorities, public institutions, or European organisations can support local authorities in designing internal CO₂ pricing approaches and governance structures. These resources may include implementation methodologies, pricing models, governance procedures, procurement integration examples.
- **Carbon pricing policy guidance** Publications such as [Pricing carbon. An important instrument of ambitious climate policy](#) (Heinrich Böll Foundation, Brussels, 2020), provide analysis and guidance on different carbon pricing systems and implementation approaches. These resources can support local authorities in understanding pricing methodologies, policy implications, governance considerations, and implementation challenges.
- **Shadow price models** Shadow pricing models support the estimation of indirect carbon-related costs associated with activities such as energy consumption, infrastructure development, and procurement decisions. These models can help integrate climate-related externalities into economic assessments and investment evaluations.
- **Decision support tools and templates** Decision-support tools can assist departments in applying CO₂ pricing consistently within procurement, investment, and planning processes. These tools may include procurement templates, investment assessment frameworks, lifecycle costing models, and emissions evaluation tools. Several practical resources are available through organisations such as the European Commission, C40, ICLEI, and [PIANOo](#).
- **[Carbon Pricing Incidence Calculator](#)** See step F2.
- **[Carbon Pricing Dashboard](#)** It provides details about direct carbon pricing instruments and carbon markets around the world. The dashboard includes data published in the World Bank's State and Trends of Carbon Pricing Report and is structured into two main sections: compliance instruments and carbon crediting markets. Data available: (i) details on carbon taxes and emissions trading systems. This includes detailed information and visualizations on design attributes, GHG emissions coverage, price, and revenue; (ii) information and visualizations regarding crediting mechanisms (international, independent, and governmental), including issuances. This section also includes information regarding participation in cooperative approaches under Article 6.2 of the Paris Agreement.

F3.2 - Apply CO ₂ pricing within CO ₂ reduction policies	• Carbon budget tools They support the monitoring of cumulative greenhouse gas emissions in relation to reduction targets and climate objectives. These tools help local authorities assess emissions trajectories, identify deviations from targets, prioritise mitigation measures, and strengthen long-term planning processes. • Policy dashboards and monitoring tools Policy dashboards can visualise the climate impacts of different policy choices and investment scenarios. These tools support evidence-based decision-making, policy evaluation, monitoring and reporting processes, and communication with decision-makers and stakeholders. • CO₂ threshold models Threshold models establish predefined emissions or carbon-cost limits that trigger additional assessment, mitigation requirements, or policy review. Such approaches can support investment screening, procurement evaluation, project prioritisation, and climate-risk management. • Internal carbon cost calculators Internal carbon cost calculators estimate the economic impacts associated with greenhouse gas emissions using methodologies such as social cost of carbon approaches. These tools support investment evaluation, lifecycle costing, policy assessment, and budget planning and prioritisation.
F3.3 - Develop a CO ₂ pricing narrative for stakeholders	• Narrative development frameworks Narrative templates and communication frameworks can help local authorities structure consistent messaging across departments and stakeholder groups. These frameworks support message consistency, stakeholder alignment, communication planning, and institutional coherence. • Storytelling methodologies Storytelling approaches — such as future-oriented scenario narratives or problem–solution frameworks — can support stronger stakeholder engagement and improve the accessibility of climate-related concepts. These methodologies help connect technical policy measures with practical and societal impacts. • Stakeholder mapping tools Stakeholder mapping methodologies help identify relevant stakeholder groups, communication priorities, influence and engagement levels, appropriate communication channels. These tools support targeted and proportionate engagement strategies. • Visual communication tools Visual tools such as infographics, dashboards, and emissions visualisation platforms can help communicate climate impacts and CO₂-related costs more clearly. These tools support public communication, policy transparency, stakeholder understanding, and evidence-based discussions. • Method for Budget Climate Assessment (BCA) See step F2. • Carbon Pricing Incidence Calculator See step F2. • Carbon Pricing Dashboard See step F3.1.

F3.4 - Formalise policy commitment to CO₂ pricing	• Model policy frameworks and policy templates Existing policy documents developed by municipalities, climate networks, and public-sector organisations can support local authorities in designing CO₂ pricing frameworks and governance structures. These resources may help accelerate policy development, improve consistency, strengthen legal and procedural completeness, and support alignment with existing best practices. • Legal guidance documents Legal guidance materials can support local authorities in assessing compatibility between CO₂ pricing mechanisms and national or European regulatory frameworks. These documents may address procurement law, municipal governance requirements, public finance considerations, and environmental policy obligations. • Internal implementation manuals Implementation manuals and operational guidance documents support the practical integration of CO₂ pricing into organisational procedures. These documents may clarify roles and responsibilities, calculation methodologies, reporting procedures, procurement integration processes, and monitoring requirements. • Existing national and regional policy examples Examples of formal commitment to CO₂ pricing and climate-related economic instruments already exist across several European countries. For example: – The Netherlands integrates environmental cost approaches into national construction-related regulations. – Ireland has introduced national carbon pricing mechanisms. – Germany applies CO₂-related taxation mechanisms to fossil fuels. These examples demonstrate increasing recognition that greenhouse gas emissions generate long-term economic and societal costs that should be reflected within governance and investment systems.
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F4 - Develop procurement policies with qualitative sustainability criteria	• Methodologies and tools introduced in earlier steps — particularly those related to greenhouse gas accounting and climate strategy development They can provide valuable insight into procurement-related emissions and reduction priorities. Frameworks such as the CO₂ Performance Ladder can help identify high-impact procurement activities and support the integration of sustainability criteria into procurement processes. • Local and national procurement policies and frameworks Existing procurement policies, frameworks and guidance documents developed at local, national, and European levels can support local authorities in defining sustainability criteria, governance procedures, and monitoring approaches adapted to their organisational context. – Paris City-hall adopted thematic plans as well as an overarching scheme providing guidelines and objectives on the social and environmental aspects of public procurement (<i>schéma de promotion des achats socialement et environnementalement responsables, SPASER</i>). This pluriannual strategic document highlights primarily the objective of having an environmental component in all public procurement contracts. Additionally, this goal is completed by actions favouring the integration of circular economy within the building sector, targets to reduce car-induced pollution by systematizing the use of EVs/biofuels, and the promotion of offers relying on cleaner delivery methods for the supply chain. Knowledge of this document is widespread across the financial department and other directions, and information is shared to the potential bidders interested. Examples of contracts which were affected by the SPASER include a provision on reused materials for the renovation of a daycare centre (circular economy provision) or on the provision of 100% renewable energy for the city's actions.
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F4.1 - Establish award criteria that support CO₂ reductions through CO₂ pricing	• CO₂ Performance Ladder (CO₂PL) Award Criterion (see Procurement Guide 4.0) The CO₂PL is a third-party certified, multi-level award criterion. Organisations can submit an ambition level for the project (0-3) and are then awarded the respective award advantage, as defined by the procuring authority. This can be a fictitious discount (percentage or fixed amount e.g. 5-10-15% or €50,000, €100,000, €150,000. The winning bidder(s) then has a fixed amount of time, defined by the contracting authority (e.g. one year) to provide proof that they are meeting the offered performance level, either with project-specific or organisation-level (including tendered projects) proof. Step 1 of the CO₂PL focuses on the project/organisation in question, while step 2 also covers up- and downstream emissions. Step 3 further increases the ambition, requiring organisations to have a plan to achieve zero emissions by 2050 at latest. The CO₂PL requires implementing an energy and CO₂ management system at project level, and includes thematic requirements related to insight, reduction, communication and collaboration. • Environmental Cost Indicator (ECI) The ECI - referred to in Dutch as the MKI (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) method based on the European EN 15804 standard. The ECI value can be calculated as an indicator for the environmental impact of the scope of a project, which uses an accumulation of products (and processes). The ECI is expressed in euros. These euros represent a social value, assigned to a number of environmental effects, similar to the monetary values arising from a Social Cost Benefit Analysis (SCBA). These euros are not economical euros in trade (yet). In the Netherlands, calculating the (total) ECI value is facilitated with the nationally used software program Dubocalc. Dubocalc was developed on behalf of Rijkswaterstaat (the Dutch national road authority) and is used as a software instrument when the environmental impacts of different materials need to be added and/or when the National Environmental Database (NMD) needs to be used.
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Project phase – Initiation



I1 - Observation of a need	• Digital reporting platforms and citizen feedback tools (e.g. Fixi, OmgevingsAlert). • Early warning dashboards and monitoring systems used to detect emerging risks or trends. • Internal issue logs and asset-management systems for recording operational or technical observations. • Stakeholder mapping methodologies to identify affected groups and relevant actors. • Basic environmental or emissions-monitoring tools where climate-related issues are involved.
I2 - Include CO ₂ impact in project considerations	• Social Cost of Carbon calculator Used to monetise greenhouse gas emissions through standardised carbon values. • Lifecycle Assessment (LCA) screening tools and estimators Those tools are particularly relevant for infrastructure and construction projects. (e.g. DuboCalc, One Click LCA). • Extended Social Cost–Benefit Analysis methodologies ((S)CBA or MKBA+) Extended social cost-benefit analysis integrating environmental and climate-related impacts into broader investment assessment. • Urban or infrastructure screening tools Those tools are useful to support early-stage sustainability assessment and climate evaluation.
I3 - Decide (or re-decide) on whether to initiate a project	• Structured needs-assessment templates • Project initiation and decision-making frameworks • CO₂ screening and climate-impact assessment tools • Strategic alignment and policy consistency checklists • Feasibility, urgency, and impact assessment matrices

Project phase - Design & Realisation



D1 - Assess whether CO₂ pricing can be applied in a project

- **Shadow pricing methodologies** This is the most common method for evaluating risk, whereby a theoretical carbon price is applied to emissions in order to assess project sensitivity to future climate policies or carbon costs.
- **Carbon financial additionality assessments** Used to determine whether project viability depends on carbon pricing mechanisms, offset revenues, or exposure to carbon taxation.
- **Marginal Abatement Cost Curve (MACCs)** Tool supporting the identification of cost-effective emission reduction measures under different carbon price levels.
- **Scenario analysis methodologies (Low/High carbon pricing)** Testing project robustness against different future carbon price trajectories, typically comparing a "business-as-usual" scenario with regulatory, tax, or market-based pricing scenarios.
- **Lifecycle Assessment (LCA) and Greenhouse Gas (GHG) accounting methodologies** Used to estimate direct and indirect emissions associated with the project lifecycle.
- **Carbon Pricing Incidence Calculator** See step F2.
- **Sector-specific GHG calculation tools and databases** Sector-specific calculation tools (e.g., for cement, iron, and steel) to determine emissions based on fuel and material consumption.
- **National or regional carbon pricing policy analysis** Useful to assess the relevance of existing or future carbon taxes, emissions trading systems, or regulatory instruments affecting the project context.
- **Supporting decision-making indicators**
 - **Net Present Value (NPV) calculations including CO₂-related costs.** Recalculating project return of investment by including the cost of carbon emissions over the economic life of the project.
 - **Break-even carbon price assessments.** Determining the minimum carbon credit price or tax level that makes a mitigation project financially viable, to understand when a less emitting alternative starts to get cheaper.
 - **Carbon intensity indicators per functional unit or project output.** Measuring emissions per unit (e.g., tCO₂/MWh) to assess efficiency relative to industry benchmarks.

D2 - Develop project criteria including CO ₂ pricing factors	• Lifecycle Assessment (LCA) methodologies and whole-life carbon assessment frameworks. • PAS 2080 principles for whole-life carbon management in infrastructure projects. • Shared carbon accounting tools for public works and infrastructure projects. • SEVE-TP (France). Tool designed by the federation of public works and audited externally. It ensures that companies competing in a tender all agree on the method, and it is also designed for public work projects, with the most up-to-date and product-specific emissions factors possible. It is free and can be used quite easily (with training available) for project designers. There is a general database with common types of processes or materials, but it is possible to add more precise data, provided a proof (a datasheet of a low carbon material for example). • The Environmental Cost Indicator (ECI) See step F4.1. • Carbon Pricing Incidence Calculator See step F2. • National or regional environmental product declaration (EPD) databases and emissions databases compliant with EN 15804 or equivalent standards. • Carbon hotspot analysis methodologies. • Comparative lifecycle costing and carbon monetisation approaches. Where product-specific precision is required, project teams may complement general databases with verified Environmental Product Declarations (EPDs), certified emissions data, or supplier-specific information.
D3 - Use CO ₂ costs as a decision criterion in design choices	• Life Cycle Assessment (LCA) methodologies Life Cycle Assessment evaluates the environmental impacts associated with products, materials, services, and energy systems throughout their full lifecycle, including extraction of raw materials, production, use, and disposal (or reuse). At the local level, LCA can be used to assess the carbon footprint of specific goods or services produced or consumed within the community, providing insights into the emissions associated with local economic activities. LCA factors are fundamental for the calculation of the emissions of goods and products at the local level through the local procurement. These factors can be integrated in databases and tools. There are several tools available on the market⁷. • Lifecycle Costing (LCC) approaches combined with CO₂ pricing methodologies Enabling the integration of environmental and financial costs into a single evaluation framework. • CO₂ Performance Ladder Widely applied in NL, it offers structured methodology for CO₂ evaluation in procurement. The CO₂ Performance Ladder's GHG calculation methodology involves defining project-specific boundaries, categorizing emissions into scopes 1, 2 and 3, collecting accurate activity data, using standardised emission factors, and applying calculation tools. Verification through external audits ensures credibility, and the framework encourages continuous improvement in emission reduction efforts. This structured approach helps organisations systematically reduce their carbon footprints and achieve higher levels of sustainability certification.

D4 - Execute project applying criteria including CO ₂ reduction and CO ₂ pricing factors	• Lifecycle Assessment (LCA) tools and whole-life carbon assessment methodologies To compile Material-Environmental Product Declaration (EPDs), useful tools are LCA tools, e.g. one clickLCA, for identifying carbon hotspots and GWP/CO₂eq emissions. See Steps D2 and D3 with further examples of tools. • Greenhouse gas accounting and Global Warming Potential (GWP) calculation tools, such as the Greenhouse Gas Accounting Methodology and CSR Tools. • Carbon management and certification frameworks, such as the CO₂ Performance Ladder. • Sector-specific databases, emissions calculation tools, and procurement-related sustainability instruments.
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Tender phase



T1 - Engage with suppliers	• How to engage the market - a step by step guide for dialogue events The guide is focusing on market engagement events such as “meet the buyer events” which are as much about event organisation and facilitation as they are about dialogue and learning processes. Dialogue events can take various forms, online and in-person. Typically, they last between half a day to a full day. Participants range from the relevant public authority staff to representatives of resellers, suppliers and service providers as well as other relevant stakeholders such as NGOs or other public buyers. • Communicating with the Market for Socially Responsible Sustainable Public Procurement (in German language). The report identifies key needs from procurement officers and bidding companies in order to promote an early dialogue between them and allow efficient exchanges throughout the process.
T2 - Prepare and publish tender documents with award criteria	• CO₂ Performance Ladder ○ CO₂PL Procurement Guide ○ Applying the CO₂ Performance Ladder 4.0 Award Criterion • The Environmental Cost Indicator (ECI) The ECI - referred to in Dutch as the MKI (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) and combines multiple environmental impact categories into one monetary score. This makes it easier to compare design options and material choices on a common basis. The ECI can be calculated at product level and at project level. For projects, the total score is determined by adding up the impacts of all relevant materials and processes within the defined scope. The resulting euro value is a social or shadow cost, not a market price used in commercial transactions. In the Netherlands, these calculations are carried out with validated calculation tools that use data from the National Environmental Database (NMD). For civil engineering and infrastructure works, Dubocalc is the best-known and most widely used tool. It was developed for Rijkswaterstaat (the Dutch national infrastructure authority) and is commonly used in design comparisons and procurement procedures that include MKI-based sustainability criteria. In the Netherlands, the methodology is linked to the EN 15804 framework for construction products, with the sector moving from EN 15804+A1 to EN 15804+A2 datasets in calculation tools.

T3 - Evaluate bids based on carbon pricing criteria and emissions reduction capacities

- CO₂ Performance Ladder (CO₂PL) Award Criterion** (see [Procurement Guide 4.0](#))
 The CO₂PL is a third-party certified, multi-level award criterion.
 Organisations can submit an ambition level for the project (0-3) and are then awarded the respective award advantage, as defined by the procuring authority. This can be a fictitious discount (percentage or fixed amount e.g. 5-10-15% or €50,000, €100,000, €150,000). The winning bidder(s) then has a fixed amount of time, defined by the contracting authority (e.g. one year) to provide proof that they are meeting the offered performance level, either with project-specific or organisation-level (including tendered projects) proof.
 Step 1 of the Ladder focusses on the project/organisation in question, while step 2 also covers up- and downstream emissions. Step 3 further increases the ambition, requiring organisations to have a plan to achieve zero emissions by 2050 at latest. The Ladder requires implementing an energy and CO₂ management system at project level, and includes thematic requirements related to insight, reduction, communication and collaboration.
- The Environmental Cost Indicator (ECI)**
 The ECI - referred to in Dutch as the [MKI](#) (Milieu Kosten Indicator) - is a shadow price to quantify the negative effects that any product will have on the environment. It is derived from the Life Cycle Assessment (LCA) method based on the European EN 15804 standard. The ECI value can be calculated as an indicator for the environmental impact of the scope of a project, which uses an accumulation of products (and processes). The ECI is expressed in euros. These euros represent a social value, assigned to a number of environmental effects, similar to the monetary values arising from a Social Cost Benefit Analysis (SCBA). These euros are not economical euros in trade (yet). In the Netherlands, calculating the (total) ECI value is facilitated with the nationally used software program [Dubocalc](#). Dubocalc was developed on behalf of Rijkswaterstaat (the Dutch national road authority) and is used as a software instrument when the environmental impacts of different materials need to be added and/or when the National Environmental Database (NMD) needs to be used.
- Shadow pricing methodologies**
 This is the most common method for evaluating risk, whereby a theoretical carbon price is applied to emissions in order to assess project sensitivity to future climate policies or carbon costs.
- Life Cycle Assessment (LCA)**
 LCA evaluates the environmental impacts of energy carriers, energy supply and products or services throughout their entire life cycle, including extraction of raw materials, production, use, and disposal (or reuse).
 At the local level, LCA can be used to assess the carbon footprint of specific goods or services produced or consumed within the community, providing insights into the emissions associated with local economic activities.
 LCA factors are fundamental for the calculation of the emissions of goods and products at the local level through the local procurement, these factors can be integrated in databases and tools. There are several tools available on the market⁸.

	• SEVE-TP (France) The tool SEVE-TP was designed by the French federation of public works and audited externally. It ensures that companies competing in a tender will all agree on the method, and it is also designed for public work projects, with the best emissions factors possible. It is free and can be used quite easily (with training available) for project designers. There is a general database with common types of processes or materials, but it is possible to add more precise data, provided a proof (a datasheet of a low carbon material for example).
T4 - Execute tender	• CO₂ Performance Ladder (CO₂PL) Award Criterion (see Procurement Guide 4.0) Contractor and client can also engage in dialogue with one another based on the project monitor of the digital environment my.co2performanceladder.com. In fact, sharing certain information with the procuring authority is a normative requirement in the system. • Energy and environmental management systems Management systems (e.g. ISO 14001 and ISO 50001) • PAS 2080 principles for whole-life carbon management in infrastructure projects. • Other asset related certifications Depending on the focus of the project, there are other asset related certifications, especially in the building sector (eg BREEAM and LEED). • Suggested method ○ Have a precise knowledge of the different phases and provisions of the contract. ○ Clearly define the monitoring process and the necessary documents to gather. ○ Compare the actions pursued with a baseline scenario to assess whether the project met the requirements set in the contract or not. ○ Contractors may rely on a variety of tools to disclose information regarding their emissions reduction. These include product-level information (e.g. environmental product declaration, eco-labels), organisation-level tools and methods (e.g. emissions inventories of scopes 1, 2 and 3), and assessment tools and models (e.g. LCAs, avoided emissions). Relying on all three categories is not mandatory but it allows for a more comprehensive assessment of the environmental impacts. ○ Data on that matter may come from various sources such as surveys or suppliers' reports.

T5 - Monitor performance and compliance	CO₂ Performance Ladder (CO₂PL) Award Criterion (see Procurement Guide 4.0) The CO₂PL is a third-party certified multi-level procurement instrument based on the Best-Price-Quality-Ratio. An external Certification body – accredited to audit the CO₂PL – examines whether project requirements have been met in execution of a Tender. Based on the required project monitor of the digital environment my.co2performanceladder.com contractor and client can engage in dialogue with one another based on the project data. In fact, sharing certain information (such as the project CO₂ & Energy footprint and reduction measures) with the procuring authority is a normative requirement in the system. IISD report on monitoring Green Public Procurement It offers practical tips and a framework to monitor all aspects of the procurement (procedure, output and outcomes). E-procurement platforms Surveys or questionnaires to suppliers Procuring authorities could consider sending surveys or questionnaires to suppliers to collect local data and realise context-specific estimates.
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Interreg Project id. NWE0100092

DeCarb-Pro

Decarbonise public procurement in NWE – account for the future

Deliverable 1.4.2

**Carbon Pricing into Public Procurement:
DeCarb-Pro strategy for local and regional
governments**

**Annex II
Practical examples**

June 2026

DeCarb-Pro partnership

Climate Alliance Netherlands (Lead Partner) | Climate Alliance | South East Energy Agency (SEEA) | Municipality of Amsterdam | City of Essen | City of Paris | Arnhem-Nijmegen Green Metropolitan Region | Foundation HIER Klimaatbureau | Strasbourg Eurometropolis | Climate Agency Wiesbaden | Flux50 | Climate Agency Strasbourg

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Introduction

This Annex II to the DeCarb-Pro strategy provides local and regional authorities with **practical examples** on how to integrate carbon pricing into public procurement.

The DeCarb-Pro Strategy provides local and regional authorities with a practical framework for integrating CO₂ pricing into public procurement as a tool for reducing greenhouse gas emissions and accelerating the transition towards climate neutrality. It outlines a structured approach that embeds climate considerations throughout policy development, project planning, procurement, and contract implementation.

The Strategy is organised around four interconnected phases and several steps as shown in Figure 1.

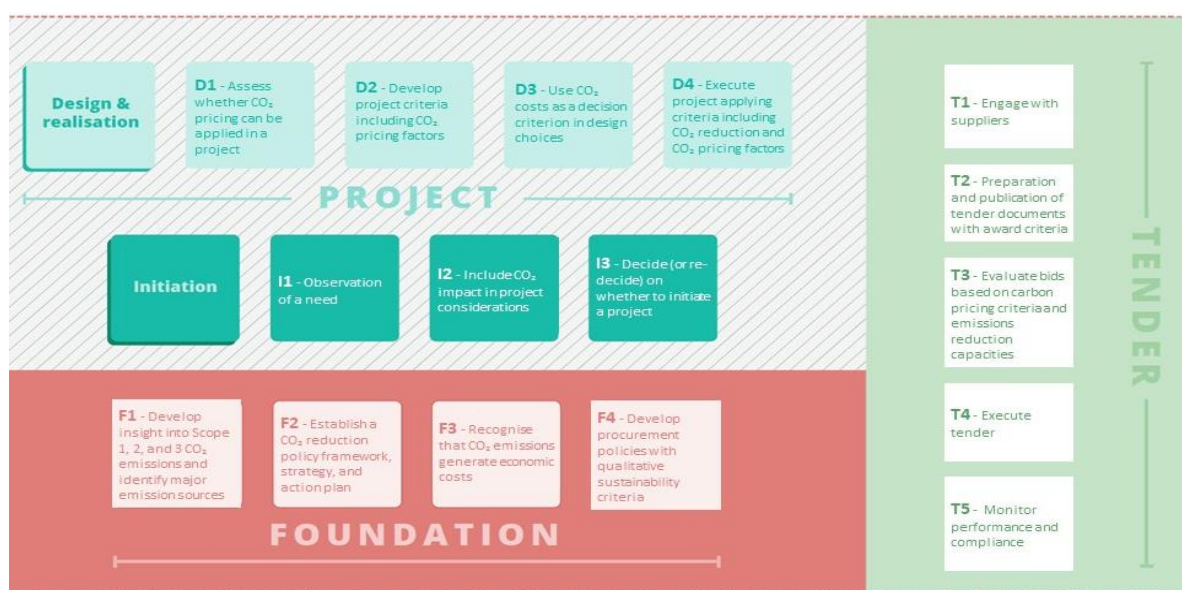


Figure 1 - Flow diagram CO₂ pricing strategy elaborated within the DeCarb-Pro project

Those examples showcase useful insights and practical activities to implement specific steps of the strategy (see Table 1).

Example	Inspiring to implement strategy step(s)
How to monitor municipal emissions with the Climate Protection Planner	F1 – F2 – F4 – T5
How Amsterdam measures CO ₂ -emissions and Environmental Cost Indicator (ECI) for equipment and materials	F1 – F3 – F4.1 – D2 – D3 – T2 – T3
How Amsterdam run tender and contract phase with Most Economically Advantageous Tender (MEAT) criterium	F1 – F3 – F4.1 – D2 – D3 – T2 – T3
How Amsterdam anchors its climate ambitions with the CO ₂ Performance Ladder	F1 – F2
How Amsterdam applies the 'Reuse, unless...' program	F2 – F3 – I3
How Paris and Strasbourg apply the method for Budget Climate Assessment	F2 – F3 – F3.3
Calculation of social costs of climate change in the province of Utrecht	F4.1 - D2 - T3
First CO ₂ Performance Ladder tender in Ireland: 21% CO ₂ reduction	T2 – T3 – T4 – T5

Table 1 - Overview of practical examples showcased and relative steps of the strategy.

BOX I | How to monitor municipal emissions with the Climate Protection Planner

Steps
F1 – F2 – F4 – T5

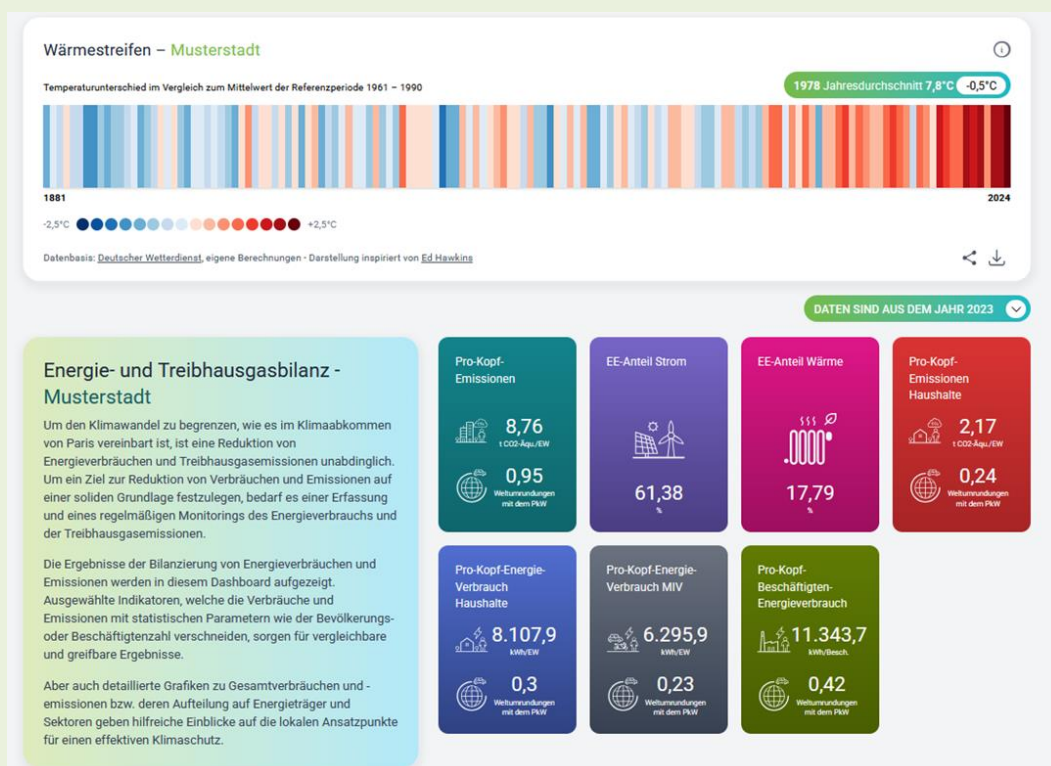
Municipalities and districts alike can use the Climate Protection Planner tool (Klimaschutz-Planer) to create **energy and greenhouse gas balances** based on a systematic and standardised methodology. Thanks to integrated benchmarking, the tool also shows local authorities where they stand in comparison to other cities and towns and contributes to sustainability reporting with municipal monitoring results.

The tool is currently used by local authorities throughout Germany and East Belgium. Since 2024, the Climate Protection Planner has also been in use in Austria as part of the [KlimaBilanz](#) initiative.

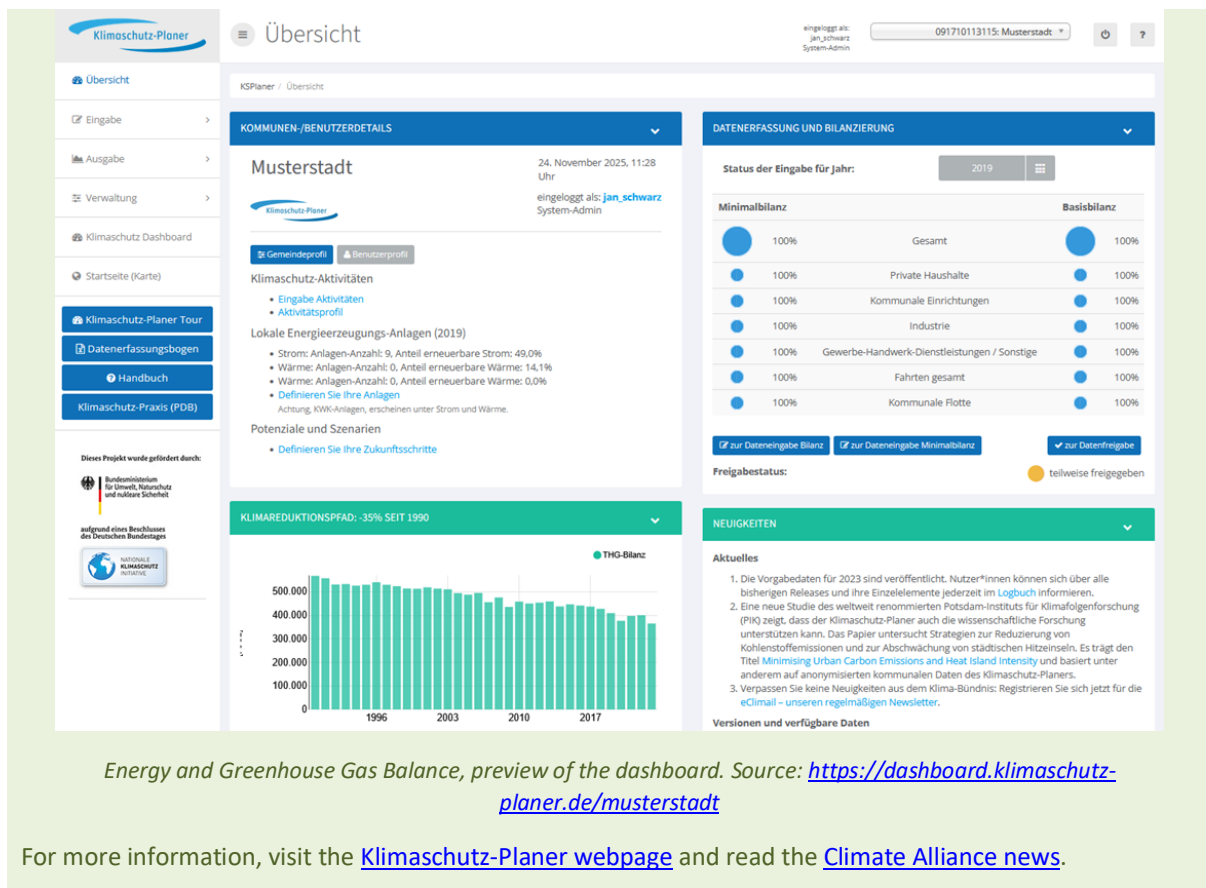
Making climate protection visible

With the Climate Protection Dashboard, municipalities can clearly display and communicate their balance sheet results, energy consumption and greenhouse gas emissions, broken down by the various energy sources and sectors within the local authority. The dashboard even displays municipality-specific climate stripes. The idea: to allow local governments to make the results of their climate protection work accessible to the public. A preview of the dashboard, available free of charge to all Climate Protection Planner users, can be accessed [here](#).

In addition, the supply of renewable electricity and heat is shown in comparison with energy consumption. The results are illustrated using graphs and comparable indicators. Alongside these climate protection-related results, the dashboard displays temperature trends in the local authority over the last 140 years in the form of heat maps.



Energy and Greenhouse Gas Balance, preview of the dashboard. Source: <https://dashboard.klimaschutz-planer.de/musterstadt>



BOX II | How Amsterdam measures CO₂-emissions and Environmental Cost Indicator (ECI) for equipment and materials

Steps
F1 – F3 – F4.1 –
D2 – D3 – T2 –
T3

Measuring CO₂ emissions and Environmental Cost Indicator (ECI) for Paving materials

Objective of the tool: Map the CO₂ emissions and environmental costs indicator (ECI) caused by the use of new and (re)used paving materials. The indirect emissions and environmental impact due to the purchase of these materials by the municipality of Amsterdam can be monitored in this way.

Usage: The tool comes in an Excel workbook (A web version is presently being developed). You will need to know, how much of which type of paving material will be or has been used in the project and whether it concerns new or reused material. You also need to know what happens to the material released from the project. The CO₂ emissions and the ECI of the used materials are calculated and accumulated over the whole project. In many cases this information can be found in the database incorporated with this tool. If the necessary information is not incorporated, it is possible to add your own data - supported by an Environmental Product Declaration (EPD) - in a propriety data sheet.

Calculation: To calculate the CO₂-emissions, data is used from life cycle assessments (LCAs) of the phases A1-A3 with regard to the GWP (Global Warming Potential) category. The LCAs come from:

1. the producer or supplier,
2. scientific reports or
3. from the Dutch National Environmental Database (NMD)

Measuring CO₂ emissions and Environmental Cost Indicator (ECI) for equipment

Objective of the tool: Map the CO₂ emissions and environmental costs caused by the use of equipment on the project site and for the logistics toward and from the project site. The direct emissions and environmental impact due to the use of all equipment by the contractor of the municipality of Amsterdam can be monitored in this way. For the environmental impact also NO_xen and ultra fine particulate emissions (PM₁₀) are being estimated.

Usage: The tool comes in an Excel workbook (A web version is also available nationally¹). You will need to know how much equipment is used and which type of engine or power source will be or has been used for the project. You also need to map all logistic movements from and towards the project and all use of equipment on the project site. The CO₂ emissions (and NO_x) of the used equipment are calculated and accumulated over the whole project. In many cases this information can be found in the database incorporated with this excel tool. Though the web version should provide you with the latest data agreed upon.

Calculation: To calculate the CO₂ emissions, data is used by the Dutch TNO institute. On the Excel sheet a disclaimer is added that the calculations are only indicative, and that actual emission values can only be measured in situ.

¹ <https://www.noxestimator.nl/>

BOX III | How Amsterdam run tender and contract phase with Most Economically Advantageous Tender (MEAT) criterium

Steps
F1 – F3 – F4.1 –
D2 – D3 – T2 – T3

The tender phase with MEAT criterium

The tenderer should be asked to prepare and submit an Environmental Cost Indicator (ECI) calculation as part of the tender, taking into account the following:

Scope: The ECI calculation considers several predetermined parts of the project scope and excludes all other parts of the project scope.

Life Cycle Analysis: The ECI calculation is based on either the entire or on subsequent phase(s) of the life cycle, as indicated by the client.

Lifespan: In the ECI calculation, a predetermined (project) lifespan of the project result is used.

Fill-in sheet: The registration consists of the ECI calculation in the Fill-out sheet ECI calculation, to be completed by the Tenderer. There is an option in the fill-in sheet to register with a different ECI value than the one resulting from the calculation. In that case it must be substantiated why this deviation was chosen.

Reference: The Contracting Authority (client i.e. municipality) has drawn up a reference ECI calculation and added it as Appendix to the tender.

Contract phase after a tender with MEAT criterium

The following requirements are given in the contract regarding the ECI and its usage.

- I. The Contractor must not exceed the ECI value offered with its Offer.
- II. The offered ECI value is a contractual requirement and is part of the quality system and work process of the Contractor.
 - a. Each deviation report must indicate whether the deviation has consequences for the ECI value offered in the Offer;
 - b. Each request for change (Dutch: Verzoek tot Wijziging - VTW) must indicate whether the change has consequences for the ECI value offered in the Offer.
- III. The Contractor must notify the client of a partial management plan Environmental Cost Indicator (ECI). This plan may be part of the project management plan. The ECI partial management plan contains at least:
 - a. An overview of the ECI contract requirements with the proposed verification method and planning;
 - b. The deployment of project team members who, in accordance with the quality management system, realize the ECI task and (help) prepare, check and release the ECI calculations, including the tasks and responsibilities of these persons regarding the ECI task;
 - c. The scope of the ECI calculation and its relationship with the context as shown in the Requirement Specification, including an explanation of the interpretation of the scope by the Contractor, including an explanation of parts placed outside of scope or choice of items;
 - d. The method for substantiated demonstration of the quantities and types of materials entered in the ECI calculations during the design and realization phase of the project;
 - e. An overview of supporting documents for the ECI value to be achieved that will be submitted at the reporting moments;
 - f. The LCA experts who will draw up and test any own life cycle analyses;
 - g. A planning of products relating to ECI that are brought to the attention of the Client;
 - h. An approach and planning for activities in the context of contract management, such as interaction, recording agreements, testing and audit;
 - i. A risk analysis and associated control measures to ensure compliance with the ECI value offered with its Offer;
 - j. An approach to how (potential) ECI exceedances is dealt with as a result of Deviations and Changes.

- IV. From the start of realization to delivery, the Contractor periodically brings an ECI progress report to the attention of the Client. This report is in line with the regular progress process and may be part of the general progress report. The ECI progress report contains at least:
 - a. The ECI calculation in both spreadsheet and Dubocalc format, based on the most recently available design and/or realization data;
 - b. Any deviations from the working method as described in the ECI sub-management plan, including substantiation;
 - c. A forecast based on the progress of work carried out, which also discusses any exceedance/undershoot per component and the consequences thereof for the ECI;
 - d. Improvement measures and progress thereon, if the forecast shows that the offered ECI value may not be achieved;
 - e. Substantiation of the ECI value of new or different items (so-called own LCAs) in accordance with the Determination Method;
 - f. An overview of proposed and agreed (scope) changes and their implications for the ECI value to be achieved.
- V. The Contractor must notify the Client of a UO ECI report as part of the Implementation Design (UO). The report must clearly substantiate what the ECI of the Implementation Design is based on the scope used. The UO ECI report contains at least:
 - a. The ECI calculation in both spreadsheet and Dubocalc format, based on the Implementation Design;
 - b. Verified (scenario) LCA reports of new or deviating items (own LCAs) in accordance with the Determination Method;
 - c. A clear overview of the types and quantities of materials and chosen implementation method in the Implementation Design;
 - d. A substantiation that makes clear how the structure of the ECI calculation is representative of the chosen implementation method;
 - e. An overview of proposed and agreed (scope) changes and their implications for the MKI value to be achieved;
 - f. A risk analysis and associated control measures for compliance with the ECI value offered with its Offer based on the Implementation Design.
- VI. The Contractor must notify the Client of a final Environmental Cost Indicator report upon delivery of the Work. The report must clearly substantiate what the ECI of the completed Work is based on the scope used. The ECI final report contains at least:
 - a. An overview of proposed and agreed (scope) changes and their implications for the ECI value to be achieved;
 - b. An overview of the realized types and quantities of materials and implementation method, in which changes compared to the Implementation Design can be clearly traced;
 - c. A file with all supporting documents in accordance with the Environmental Cost Indicator sub-management plan;
 - d. The ECI calculation in both spreadsheet and Dubocalc format;
 - e. Verified (as-built) LCA reports of new or deviating items (own LCAs) in accordance with the Determination Method.

If the ECI value based on the actual realized scope exceeds the offered ECI value, a fine of 1.5 times the difference between the fictitious discount achieved upon tender and the fictitious discount to be converted based on the realized ECI will be imposed. Example: Notional discount achieved upon registration: € 900,000; Calculated fictitious discount based on realized ECI: € 500,000; Difference between fictitious discounts: € 400,000; Fine amount: $(1.5 * € 400,000 =) € 600,000$

BOX IV | How Amsterdam anchors its climate ambitions with the CO₂ Performance Ladder

Steps
F1 – F2

Embedding climate ambitions into procurement policy

The Municipality of Amsterdam uses the [CO₂ Performance Ladder \(CO₂PL\)](#) as a strategic instrument to translate its climate ambitions into everyday procurement practice. Rather than treating climate objectives as separate policy commitments, the city has integrated carbon management into its procurement and contract management processes, creating clear incentives for suppliers to reduce greenhouse gas emissions while supporting the municipality's pathway towards climate neutrality.

The CO₂PL is a certification and procurement instrument that rewards organisations for systematically managing and reducing their CO₂ emissions. Companies are assessed on five maturity levels covering insight into emissions, reduction targets, implementation of measures, transparency, and participation in sector-wide initiatives. In public procurement, contracting authorities can use the Ladder either as an award criterion or as a contract requirement, encouraging suppliers to improve their carbon performance beyond the individual project.

How Amsterdam applies the instrument

Amsterdam has gradually expanded the use of the CO₂PL across infrastructure, civil engineering and public works contracts. The instrument complements other carbon-related procurement tools already used by the municipality, such as Environmental Cost Indicator (ECI) calculations and circular procurement principles.

The municipality follows several key principles:

- Policy integration: the CO₂PL is embedded in municipal procurement policy as one of the preferred instruments for achieving climate objectives.
- Supplier incentives: tenderers receive an advantage when they demonstrate higher levels of certified carbon management, encouraging continuous improvement rather than one-off project measures.
- Continuous monitoring: certified organisations are required to monitor emissions, report progress, and implement verified reduction measures throughout the contract period.
- Market transformation: by consistently requesting carbon management from suppliers, Amsterdam stimulates innovation and encourages companies to invest in low-carbon technologies and organisational improvements.

Benefits for public procurement

Using the CO₂PL enables Amsterdam to move beyond evaluating only the carbon footprint of individual products or projects. Instead, it promotes structural improvements in suppliers' overall carbon management systems. This creates long-term emission reductions that extend beyond a single procurement procedure and strengthens collaboration between the municipality and its supply chain.

The approach also reduces administrative burden for contracting authorities, as the independent certification process provides assurance that suppliers have established credible carbon management systems and are subject to regular external audits.

Lessons learned

Amsterdam's experience demonstrates that carbon pricing and carbon management instruments are most effective when they are embedded within a broader procurement strategy. Combining organisational carbon

management through the CO₂PL with project-level tools such as ECI calculations, lifecycle assessments and circular procurement creates complementary incentives that reinforce each other.

The municipality's long-term commitment has also contributed to widespread market adoption of the CO₂PL in the Netherlands, making carbon performance an increasingly standard element of competition in public procurement. The Amsterdam experience shows that procurement can become a powerful driver of climate action by rewarding continuous organisational improvement alongside low-carbon project delivery.

The CO₂PL demonstrates that organisational carbon management can complement project-based carbon pricing. By rewarding continuous emission reductions across suppliers' operations, contracting authorities can achieve lasting market transformation while improving the climate performance of public procurement.

For more information, read the [CO₂PL News](#).

BOX V| How Amsterdam applies the 'Reuse, unless...' program

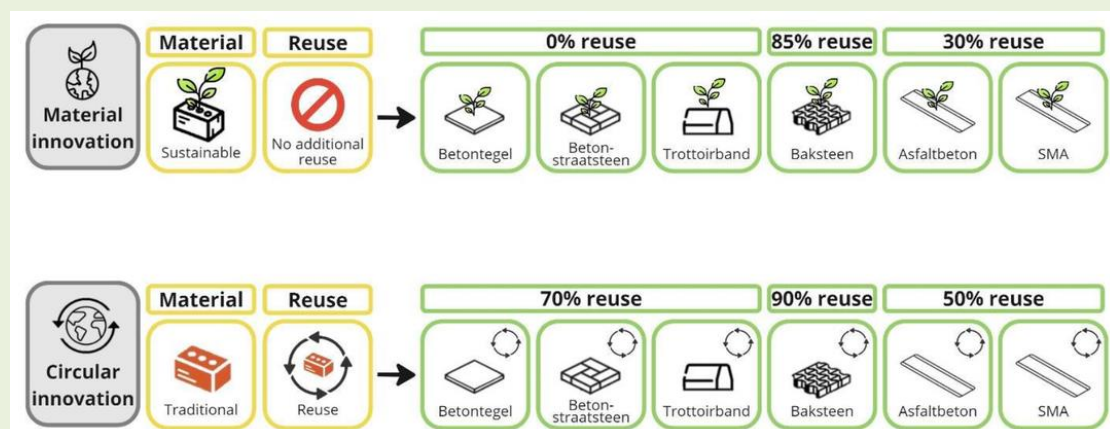
Steps F2 – F3 - I3

'Reuse, unless...' is a program currently in place in the municipality of Amsterdam about a circular work methodology in road pavements (asphalt not included). Whereby, for any road project, project managers have to first use existing material that is technically, environmentally, and aesthetic sufficient to be reused and can only buy new material when such material is not available.

For the road projects using the 'Reuse, unless ...' circular methodology, there are presently four main instruments foreseen in CO₂ and ECI pricing in procurement:

- The first one is the application of the CO₂ Performance ladder.
- The second one is a Net Present Value calculation expressing the social value of the CO₂ and ECI-reduction achieved by a project in the investment decisions preceding the procurement.
- The third instrument is using CO₂ and ECI-pricing as an EMVI- benchmark (Economisch Meest Voordelige Aanbieding - in English: Economically Most Advantageous Offer) in Procurement.

The fourth instrument is using CO₂ and ECI-pricing as a requisite in the tender, for which noncompliance means refusal of the offering made by the respective tenderer.



Some possible circular scenarios for paving projects (source: <https://www.ams-institute.org/reuse-unless-training-policy-makers-to-make-the-circular-economy-actionable/>)

BOX VI | How Paris and Strasbourg apply the method for Budget Climate Assessment

Steps F2 – F3 – F3.3

What is the method for the Budget Climate Assessment?

A budget climate assessment aims to qualify the impact on the climate of each item of expenditure included in a local authority's budget. It involves a line-by-line analysis of the budget, based on a list - or taxonomy - of actions considered to be favourable, neutral or unfavourable for the climate.

The results provide a better understanding of the consistency of spending with the achievement of climate objectives, to inform budgetary decisions.

The complete method can be found here <https://www.i4ce.org/wp-content/uploads/I4CE-Budget-climate-assessment-methodology.pdf>

The I4CE method wishes to answer one question only: is this expenditure going to lower GHG emissions?

If it is, then is it in line with the National Low Carbon Strategy (or more locally with the Eurometropole's climate plan, adopted in December 2019 and revised in March 2023)? Strasbourg has already tested this method on the 2019 administrative accounts of the City and Eurometropole of Strasbourg (investment and operation) during the exploratory work to develop the method in 2020 and during the presentation of the investment section of the 2022 budgets of the City of Strasbourg and the Strasbourg Eurometropole. Here, the method has been applied to the preliminary budget for 2024 of both local authorities.

Experience in Strasbourg

Analysis of the operating section in Strasbourg for 2024

When applying the I4CE method, it is necessary to exclude from the analysis all expenditures corresponding either to human resources costs (including allowances, contributions, pensions, travel expenses, etc.) or to various accounting entries that do not correspond to actual expenses.

Very favourable expenses amount to 2.4 million, or 0.9% of the total. This includes funding for the Climate Agency and subsidies paid to associations involved in education for sustainable development.

Expenditure considered as **conditionally favourable** amounts to 73.2 M€, i.e. 28.1% of the total. Most of this relates to the financing of the active mobility budget for public transport and cycling policies. In addition, there is the collection, sorting and reduction of waste, tree-lining, support for recycling and re-use, and changes to agricultural and food practices and local ecology.

Expenditure considered as **neutral** amounted to 150.3 M€, i.e. 57.8 % of the total. This expenditure accounts for the majority of the Eurometropole's operating expenditure and corresponds to the major public policies for which the metropolitan authority is responsible (urban waste management, public heritage, prevention, town planning, social economy, sport, etc.). These operations are "neutral" overall, as they have no significant impact on the climate.

Unfavourable expenses represent 34.3 M€, or 13.2% of the total. This mainly concerns fossil fuel purchases (including the sharp rise in the price of gas and petrol), bins for the non-recoverable part of household waste, management of roads and motorways (they are now under our jurisdiction due to a state transfer) or car parks. They also cover the subsidy to the tourist office and the airport, as well as various expenses such as communication (printing, newspapers, servers, etc.) and logistics. These expenses are not in line with the National Low Carbon Strategy (and therefore to the Strasbourg Eurometropole's climate plan).

Analysis of the investment section in Strasbourg for 2024

Investments in BP 2024 amounts to 320.3 M€. The breakdown using the I4CE method gives the following results.

Expenditure considered to be **very favourable** amounted to 63.6 M€, or 19.9% of total investment. This relates primarily to mobility, tram-related developments and the cycling master plan. This is followed by the acquisition of electric vehicles and energy-efficient renovation of the city's buildings.

Expenditure considered to be **conditionally favourable** amounted to 33.8 M€, or 10.5% of total investment. This includes the TSPO (transport in proper site in Strasbourg's West wing) project, the redevelopment of outdoor spaces, the installation of bio-waste collection bins, the upgrading of the A35 motorway and aid to private individuals as part of the Low Emissions Zone.

Neutral expenditures amount to 187.1 M€, or 58.4% of total capital expenditure. This expenditure accounts for the majority of the Eurometropole's capital expenditure. It concerns, for example expenditure on construction projects or functional improvements to buildings, land reserves, expenditure on road maintenance or the development of outdoor public spaces (roads, public spaces in municipalities) and the upkeep and maintenance of buildings.

Unfavourable expenses amount to 29.5 M€, or 9.2% of total capital expenditure. This mainly concerned road projects and the acquisition of diesel, petrol or low-efficiency vehicles (only for special vehicles). Digital projects and blue bins (for the non-recyclable part of household waste) complete this section. These expenditures are not in line with the National Low Carbon Strategy (and therefore the Strasbourg Eurometropole climate plan).

Expenditure considered to be **undefined** amounted to 6.2M€, or 1.9% of total investment. From a methodological point of view, some of this expenditure is classified as "undefined" when its impact on the climate cannot be assessed. This includes, for example, expenditure on IT infrastructures and comprehensive urban renewal projects that bring together a wide variety of projects that are difficult to classify.

Focus on analysis of expenditure on building works in Strasbourg

In conjunction with the Architecture and Heritage Department, an I4CE assessment of each type of work was carried out. It was decided to allocate to each a percentage of expenditure considered to be **neutral** and **very favourable** as described in Table 3.

There are ranges in this rating because, regardless of the type of work involved, a case-by-case analysis is carried out to determine the climate impact of the expenditure.

Type of work	Neutral	Very favourable
Construction of a new building	80-90%	10-20%
Global renovation (energy, accessibility, safety)	50-70%	30-50%
Global renovation with extension	70-100%	0-30%
Energy renovation	10-30%	70-90%
Heritage renovation including energy renovation	50%	50%
Other (multiple renovations, compliance with standards)	80-90%	10-20%

Table 3 – CBA for each type of work carried out by the Strasbourg Eurometropole

Overall, for 2024, 86% of work expenditures were considered **neutral** and 14% **highly favourable**. The scale of the work to expand a sports stadium, a vast operation that cannot fit into a single category, can explain this preponderance.

The construction of new buildings amount to 15% of the total expenditures, with 10% of **favourable expenses** due to the high standards of insulation used in new buildings to save energy.

30% of the global restructuring is considered **highly favourable**, corresponding to emissions not generated by the decision to renovate rather than construct a new building.

93% of the energy renovation work is considered **highly favourable**.

Experience in Paris

Since 2020, the City of Paris has carried out an annual climate assessment of its main budget to highlight the extra-budgetary impacts of the expenditure incurred and reinforce the coherence and transparency of municipal action. This analysis of administrative accounts is based on the Institut de l'Économie pour le Climat (I4CE)'s methodology. It provides an annual assessment of the impact of the local authority's operating and capital expenditure in terms of greenhouse gas (GHG) mitigation, using a rating system that categorizes expenditure as very favourable, favourable, neutral, unfavourable or undefined. The constant evolution of our internal processes ensures more reliable results, saves time and increases the proportion of expenditure analysed.

Within the scope of analysis of the 2022 financial records, the carbon impact of 94,7% of expenditures has been assessed thanks to a continuous process of in-depth analysis of expenditure lines carried out prior to the analysis, and the involvement of the City's various departments. Dialoguing with these departments enables us to assess the content of each budget line in greater detail, to better qualify the impact of the various items of expenditure, and to raise their awareness of the approach and the carbon impact of their departments' expenditure.

The results obtained in 2022 confirm the trends observed in previous years, as well as the robustness of the method used. They highlight a high proportion of "neutral" expenditure in terms of greenhouse gas mitigation (65,2%). These are mainly cultural and social expenses, but also property management expenses and expenses linked to security, upkeep and maintenance.

BOX VII | Calculation of social costs of climate change in the province of Utrecht

Steps
F4.1 - D2 - T3

In the Netherlands, the **social cost benefit analysis (SCBA)** is a well-established method to inform decision-making processes for national, regional, and local governments. SCBAs are often done for infrastructural or area development projects. The idea behind an SCBA is to analyse the broad societal benefits and costs of different scenarios, ranging from effects on area accessibility and travel time to impact on air quality and GHG emissions.

The province of Utrecht conducts SCBAs for infrastructure projects. Questions were raised in the provincial council about the **carbon price level** used in SCBAs, namely that they seemed quite low – €20-80 per tonne CO₂eq – compared to higher price levels suggested in the literature at the time. This resulted in a **decision made by the administration to recalibrate the carbon price level used in SCBAs**. The province commissioned Klimaatverbond to draft recommendations on a new carbon price level, considering several aspects: price level in line with 1,5°C target, references used to establish the carbon price level needed to consider future developments, needed to include a comprehensive description on the various approaches to carbon pricing and the impact of certain choices on the final price level. Klimaatverbond wrote an extensive report on this, based on scientific and governmental documents and interviews with provincial employees. This resulted in the **recommendation: a carbon price level of € 875,- per tonne for the year 2022 to be applied in SCBAs, rising linearly to nearly € 980 in 2050**. Several key choices led to this price level.

The **first** was the choice for the general approach: either prevention costs (only taking into account what is needed to reach the mitigation target(s)) or the social costs (also looking at the damages caused by carbon emissions and the impact on the environment and society). As the application in the province of Utrecht explicitly focuses on the social costs and benefits of certain developments, the social costs approach was viewed as the right fit. Within this approach, Klimaatverbond chose to use the model developed by the German Environmental Agency (Umweltbundesamt) as the baseline (see chapter 5.3).

The **second** key choice was how to weigh the welfare of current generations as compared to the welfare of future ones: either prioritise the welfare of current generations over that of future ones, or give equal weighting. The recommendation was to give equal weighting, on the basis of intergenerational equality.

The **third** important matter was that of so-called tipping points, which are not included in the German model. Tipping points are certain critical points of no return in our global ecological systems, leading to further exacerbate climate change (for example the melting of permafrost because of rising temperatures, resulting in massive methane emissions which contribute to further warming).

Based on the hefty risks related to these tipping points and scientific literature on this, the recommendation was to add a risk premium of 25% to the price level in the German model. All these choices combined led to the final recommendation of € 875,- per tonne CO₂-eq.

This recommendation also included the proposal to update the carbon price level every two years, as to keep it up to date. The province adopted both parts of the recommendation.

This carbon price is currently only used in SCBAs. The province of Utrecht and Klimaatverbond are presently looking into how carbon pricing could also be integrated in other levels and processes of decision-making, including actual procurement and tenders.

BOX VIII | First CO₂ Performance Ladder tender in Ireland: 21% CO₂ reduction

Steps
T2 – T3 – T4 – T5

In 2024, Transport Infrastructure Ireland (TII) became the first contracting authority outside the Netherlands and Belgium to successfully apply the [CO₂ Performance Ladder \(CO₂PL\)](#) in a public infrastructure tender. The pilot project concerned the resurfacing of an 11.5 km section of the M7 Kildare Bypass, with an estimated contract value of approximately €4 million. The initiative was developed in cooperation with the Irish Green Building Council (IGBC), the Transport Infrastructure Ireland (TII) and the Foundation for Climate-Friendly Procurement and Business (SKAO), the owner of the CO₂ Performance Ladder.



Source: <https://www.co2performanceladder.com/news/first-ladder-tender-in-ireland-21-percent-co2-reduction/>. For more information, read the [CO₂PL News](#) and the [IGBC Case study](#).

Implementation of the tender

The CO₂PL was included as an award criterion in the procurement process. Tenderers could obtain a fictitious discount on their tender price depending on the CO₂PL ambition level they committed to achieve. As no Irish companies were certified at the time, bidders committed to obtaining certification within three months after project completion. Prior to launching the tender, TII organised dedicated information sessions to ensure that all potential suppliers understood the methodology, requirements and benefits of the instrument. Five contractors participated in the competition and all expressed ambitions to achieve certification at Level 3 or Level 4.

Results achieved

The contract was awarded to Jons Civil Engineering, which committed to Level 4 (out of 5) certification on the CO₂ Performance Ladder. During project implementation, the contractor introduced a range of carbon reduction measures, including the use of more sustainable asphalt mixtures, optimisation of construction activities and reduced emissions from equipment and materials. The project achieved a total CO₂ reduction of 21% compared with expected emissions. Overall savings amounted to approximately 311 tonnes CO₂ emissions. The project also demonstrated the feasibility of integrating carbon management requirements into Irish public procurement and stimulated wider market interest in CO₂PL certification.

Lessons learned

The Irish pilot demonstrated that the CO₂PL – initiated and used by over 300 public authorities in the Netherlands – can be successfully transferred to new national contexts and can deliver measurable carbon reductions through public procurement. Following the success of the pilot, TII decided to expand the use of the CO₂PL to additional infrastructure contracts and framework agreements. The case illustrates how procurement incentives can encourage suppliers to systematically reduce emissions and accelerate market uptake of low-carbon practices.