

Method for the definition of mandatory Green Public Procurement requirements

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Abstract

The Ecodesign for Sustainable Products Regulation (ESPR), which aims to improve the environmental sustainability and circularity of products on the European market, entered into force on 18 July 2024. This report outlines the methodology for defining minimum mandatory Green Public Procurement (GPP) requirements under the ESPR. The ESPR framework sets performance and information requirements through product-specific Delegated Acts, using a scientific approach and considering relevant technical information.

A key feature of the ESPR is the possibility to set minimum mandatory GPP requirements for the purchase of products covered by delegated acts or for works or services where those products are used. These requirements are established through implementing acts in the form of technical specifications (TS), award criteria (AC), contract performance conditions (CPC), or targets. The methodology developed in this report provides a structured approach to determine the advisability of GPP requirements, analyse their feasibility, assess their expected market impacts, and define the specific types of requirements.

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Magrini C., Gama Caldas M. (JRC B.5 – Circular Economy and Sustainable Industry)

Executive summary

Policy context

On 30 March 2022, the European Commission (EC) adopted a proposal for a **Regulation on Ecodesign for Sustainable Products (ESPR)** with the aim of improving the environmental sustainability and the circularity of products on the European market. The ESPR entered into force on 18 July 2024.

The ESPR expands the scope of the Ecodesign Directive¹ to cover almost all products on the European market, including both intermediate and final products, with some exceptions². The ESPR framework not only targets the energy consumption of products, but it expands the focus to cover the full environmental sustainability of products throughout their life cycle, including product circularity aspects. The ESPR envisages the possibility of setting minimum mandatory Green Public Procurement (GPP) requirements under its Article 65. These requirements apply to the purchase of products covered by delegated acts or for works or services where those products are used. The requirements are established through implementing acts in the form of technical specifications (TS), award criteria (AC), contract performance conditions (CPC), or targets. Contracting authorities and entities must follow these criteria to boost demand for products with minimal negative impacts. The Commission's Communication "Ecodesign for Sustainable Products and Energy Labelling Working Plan 2025-2030" highlights that these measures aim to foster lead markets, stimulate investments, and enhance the competitiveness of EU industry. The Delegated Act setting ecodesign requirements and the Implementing Act setting public procurement requirements are closely linked, with the Commission studying and assessing the measures jointly and running the adoption procedures in parallel. The GPP requirements should be minimum requirements, allowing contracting authorities to set additional, more demanding requirements. These requirements must be transparent, objective, and non-discriminatory, considering the value and volume of public contracts and the economic feasibility for contracting authorities. The ESPR states that mandatory GPP requirements will maximise the leverage of public spending to boost demand for better-performing products compared to a voluntary approach.

¹ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, <http://data.europa.eu/eli/dir/2009/125/oj>

² As per Article 1 of the ESPR, "This Regulation applies to any physical goods that are placed on the market or put into service, including components and intermediate products. However, it does not apply to:

- (a), food as defined in Article 2 of Regulation (EC) No 178/2002;
- (b), feed as defined in Article 3(4) of Regulation (EC) No 178/2002;
- (c), medicinal products as defined in Article 1(2) of Directive 2001/83/EC;
- (d), veterinary medicinal products as defined in Article 4(1) of Regulation (EU) 2019/6;
- (e), living plants, animals and micro-organisms;
- (f), products of human origin;
- (g), products of plants and animals relating directly to their future reproduction;
- (h), vehicles as referred to in Article 2(1) of Regulation (EU) No 167/2013, in Article 2(1) of Regulation (EU) No 168/2013 and in Article 2(1) of Regulation (EU) 2018/858, in respect of those product aspects for which requirements are set under sector-specific Union legislative acts applicable to those vehicles."

Key conclusions

The methods developed and presented in this report provide a structured approach to assess the feasibility, impacts and appropriate forms of GPP requirements. The requirements must be set in compliance with Directives 2014/24/EU and 2014/25/EU, and applicable sectoral legislation, as well as with the Union's international commitments. This ensures that the GPP requirements are legally sound and do not create barriers to trade or competition, while contributing to the achievement of ESPR objectives.

Main findings

From literature research, it was found that the main factors influencing the effect of the introduction of GPP on competition are the share of (green) public procurement demand relative to the rest of the product market, the maturity of the green market, the pace at which the demand will increase and the homogeneity among the potential suppliers. The effects on competition are more critical if the market is not mature. At the same time, the positive effect on innovation is more beneficial at the early stage of production and placing on the market, for the emergence or consolidation of production and markets characterised by high growth prospects, where returns on R&D investment are particularly uncertain. In the early stage of production and placing on the market, public procurement can reduce or even remove the market uncertainty of potential suppliers by specifying demand, and promote more interaction among suppliers and buyers and network effects. Moreover, a multiplication effect is expected from the definition of mandatory GPP requirements, i.e. a spillover effect that increases demand for greener goods and services across the whole market, as a result of the creation of lead markets, innovation and example-setting (Sapir et al., 2022). The proposed method includes the following steps:

- **Advisability assessment of GPP requirements:** some indicators are proposed, based on public procurement data, including platforms like TED, PPDS and national databases. For the purposes of this methodology, green products are defined as the ones in the two highest performance classes, achieving the highest scores or, when not available, at the best possible performance levels for the product aspects addressed by the ecodesign requirements. In general, GPP requirements are advisable for specific product groups where public bodies are significant buyers and where GPP can accelerate market uptake of greener products.
- **Feasibility assessment of GPP requirements:** the effect of the GPP requirements on competition should be analysed, with an additional analysis on SMEs. The result of this analysis can feed the following step, in particular the estimated projection of product price over time. Moreover, specific constraints in Member States (e.g. budgetary constraints, constraints related to climate and network infrastructure) should be investigated through consultations with stakeholders and the Ecodesign Forum.
- **Definition of GPP requirements (types and level):** the form of GPP requirements—whether technical specifications, award criteria, contract performance conditions, or targets—should be tailored to the specific context. Technical specifications are suitable when there is no significant price difference between green and standard products, and green products are available on the market. Award criteria are preferable when there are uncertainties about the market availability or cost of the best performing products, or when innovation is needed to reduce costs (materials and/or labour costs). Targets can provide a gradual approach to increase the share of sustainable procurement over time, e.g. when there is a

significant difference in the price of green products and standard products and the difference is due to a low production volume.

- Assessment of the usefulness of setting targets: considering that the legal text proposes a minimum target of 50%, market escalation and consolidation (and not market creation) are the objectives of targets for GPP under the ESPR. When there is a need for flexibility, because of disparities on budgetary constraints or other factors among the different contracting authorities, aggregated targets at national level should be preferred. On the other hand, targets at the level of contracting authority can help distribute the financial burden more evenly across the public sector, ensuring that all entities contribute to achieving the sustainability goals without overburdening any single entity.
- Scenario analysis of GPP requirements: life cycle costing (LCC) methodologies help quantify economic impacts and make projections of the future impacts. This analysis can benefit from the results of Tasks 5 and 6 of the MEErP, and from the stock model developed in Task 7. The study team should develop a baseline scenario (Ecodesign scenario), to be compared with scenarios where mandatory GPP criteria are applied alongside ecodesign requirements (GPP scenarios). Multiple GPP scenarios can be developed, considering synergies and trade-offs between GPP requirements set for different product parameters, market availability of green products which meet the potential GPP requirements, different types of mandatory GPP criteria such as technical specifications (TS), award criteria (AC), contract performance conditions (CPC), or targets, or a combination thereof, for each product parameter under analysis. Key aspects to consider when developing GPP scenarios include the following:
 - Price of best performing (green) products: Estimate the price of products with the best possible performance levels and their evolution over time. If green products are more expensive, identify the reason, whether it is due to material requirements, increased labour requirements, or low production volume leading to higher overhead costs and lack of economies of scale.
 - Existing mandatory GPP requirements: Assess the presence of mandatory GPP requirements at the national level for the product group under consideration, as existing criteria may reduce the economic benefits.
 - Volume of publicly purchased products: consider the volume of products publicly purchased, and its evolution over time.
 - Influence that the adoption of mandatory GPP criteria would have on the environmental performance of products available on the market, in the medium-long term.
 - Expected dates of application of the Delegated Act setting ecodesign requirements and of the Implementing Act setting mandatory GPP requirements.

Dedicated market research is recommended to investigate these aspects.

Related and future JRC work

As part of the update of the existing MEErP, the methods developed under this task and included in this report are planned to be integrated in a final report, alongside other methods developed in

other tasks. The aim of this work and that of other tasks is to provide a guidance document that serves the study teams for the development of ongoing and future Preparatory Studies in line with the mandate of the ESPR.

Extended executive summary

Background

The **Ecodesign for Sustainable Products Regulation (ESPR)**, with the aim of improving the environmental sustainability and the circularity of products on the European market, entered into force in July 2024.

Since the ESPR is a framework regulation, relevant ecodesign requirements will be set in product-specific Delegated Acts. **Product aspects** will be analysed for individual product groups in so-called Preparatory Studies.

The ESPR envisages the possibility of setting **minimum mandatory Green Public Procurement (GPP) requirements** under its Article 65. These requirements apply to the purchase of products covered by delegated acts or for works or services where those products are used. The requirements are established through **implementing acts** in the form of technical specifications (TS), award criteria (AC), contract performance conditions (CPC), or targets. Contracting authorities and entities must follow these criteria to boost demand for products with minimal negative impacts. The Commission's Communication "Ecodesign for Sustainable Products and Energy Labelling Working Plan 2025-2030" (European Commission, 2025) highlights that these measures aim to foster lead markets, stimulate investments, and enhance the competitiveness of EU industry. Given the new nature of GPP requirements under the ESPR, "new approaches might also be needed for the preparation of mandatory public procurement criteria" (recital 23), as stated in the legal text. The Delegated Act setting ecodesign requirements and the Implementing Act setting public procurement requirements are closely linked, with **the Commission studying and assessing the measures jointly and running the adoption procedures in parallel**. Therefore, Task B8 methods will be applied by the team performing the Preparatory Study.

Task B8 methods within the revised MEERP

Taking the MEERP as a starting point, this study focuses on the development of a suggested set of generic and flexible methods applicable to any kind of product group under the scope of the ESPR for the definition of mandatory GPP requirements. The methods proposed in this report are based on the results of Tasks 3, 5 and 6 of the MEERP. Moreover, the model developed under Task 7 can be used to assess the impacts of scenarios entailing mandatory GPP requirements.

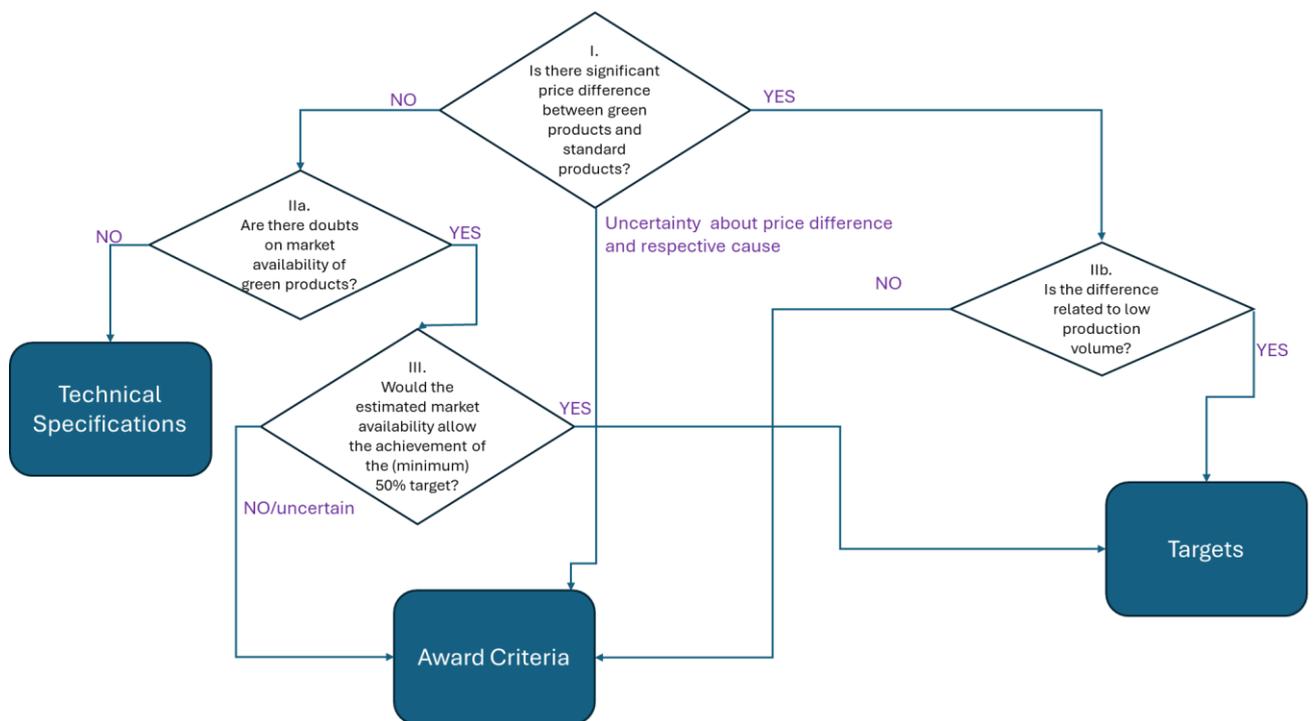
The proposed methods include the following steps:

- Advisability assessment of GPP requirements: some indicators are proposed, based on public procurement data, including platforms like TED, PPDS and national databases. The indicators should be calculated at EU level and, if possible, also at country level. For the purposes of this methodology, green products are defined as the ones in the two highest performance classes, achieving the highest scores or, when not available, at the best possible performance levels for the product aspects addressed by the ecodesign requirements. In general, GPP requirements are advisable for specific product groups where public bodies are significant buyers and where GPP can accelerate market uptake of green products.
- Feasibility assessment of GPP requirements: the effect of the GPP requirements on competition should be analysed, with an additional analysis on SMEs. The result of this analysis can feed the following step, in particular the estimate of the projection of product

price over time. Moreover, specific constraints in Member States (e.g. budgetary constraints, constraints related to climate and network infrastructure) should be investigated through consultations with stakeholders and the Ecodesign Forum.

- Definition of GPP requirements (types and level): the form of GPP requirements—whether technical specifications, award criteria, contract performance conditions, or targets—should be tailored to the specific context. **Figure I** shows the decision flowchart. Technical specifications are suitable when there is no significant price difference between green and standard products, and green products are available on the market. Award criteria are preferable when there are uncertainties about the market availability or cost of the best performing products, or when innovation is needed to reduce costs (materials and/or labour costs). Targets can provide a gradual approach to increase the share of sustainable procurement over time, e.g. when there is a significant difference in the price of green products and standard products and the difference is due to a low production volume.

Figure I. Flowchart of the procedure for the definition of GPP requirements



Source: JRC own elaboration

- Assessment of the usefulness of setting targets: considering that the legal text proposes a minimum target of 50%, market escalation and consolidation (and not market creation) are the objectives of targets for GPP under the ESPR. When there is a need for flexibility, because of disparities on budgetary constraints or other factors among the different contracting authorities, aggregated targets at national level should be preferred. On the other hand, targets at the level of contracting authority can help distribute the financial burden more evenly across the public sector, ensuring that all entities contribute to achieving the sustainability goals without overburdening any single entity.
- Scenario analysis of GPP requirements: life cycle costing (LCC) methodologies help quantify economic impacts and make projections of the future impacts. This analysis can benefit

from the results of Tasks 5 and 6 of the MEErP, and from the stock model developed in Task 7. The study team should develop a baseline scenario (Ecodesign scenario), to be compared with scenarios where mandatory GPP criteria are applied alongside eco-design requirements (GPP scenarios). Multiple GPP scenarios can be developed, considering synergies and trade-offs between GPP requirements set for different product parameters, market availability of green products which meet the potential GPP requirements, different types of mandatory GPP criteria such as technical specifications (TS), award criteria (AC), contract performance conditions (CPC), or targets, or a combination thereof, for each product parameter under analysis. Key aspects to consider when developing GPP scenarios include the following:

- Price of best performing (green) products: Estimate the price of products with the best possible performance levels and their evolution over time. If green products are more expensive, identify the reason, whether it is due to material requirements, increased labour requirements, or low production volume leading to higher overhead costs and lack of economies of scale.
- Existing mandatory GPP requirements: Assess the presence of mandatory GPP requirements at the national level for the product group under consideration, as existing criteria may reduce the economic benefits.
- Volume of publicly purchased products: consider the volume of products publicly purchased, and its evolution over time.
- Influence that the adoption of mandatory GPP criteria would have on the environmental performance of products available on the market, in the medium-long term.
- Expected dates of application of the Delegated Act setting eco-design requirements and of the Implementing Act setting mandatory GPP requirements.

Dedicated market research is recommended to investigate these aspects.

1 Introduction

1.1 Policy context and background

On 30 March 2022, the European Commission (EC) adopted a proposal for a **Regulation on Ecodesign for Sustainable Products (hereafter ESPR)** with the aim of improving the environmental sustainability and the circularity of products in the European market. The ESPR entered into force on 18 July 2024.

The ESPR is based on the success of the Ecodesign Directive, whose main focus is to improve the energy efficiency of products with the potential for the reduction of energy consumption during the use phase. The ESPR expands the scope of the Ecodesign Directive to cover almost all products on the European market, including both intermediate and final products, with the exception of food and feed, living plants, animals and microorganisms, products of human origin, and products of plants and animals relating directly to their future reproduction, medicinal products for human use, veterinary medicinal products, and vehicles as referred to in Article 2(1) of Regulation (EU) 2018/858, Regulation (EU) No 167/2013 and Regulation (EU) No 168/2013, in respect of those product aspects for which requirements are set under sector-specific Union legislative acts applicable to those vehicles³.

The ESPR framework not only targets the energy consumption of products, but it expands the focus to cover the full environmental sustainability of products throughout their life cycle, including product circularity aspects. Since the ESPR is a framework regulation, product-specific Delegated Acts will be published to set performance and information requirements. As explained in recital 22 of the ESPR, *“when preparing ecodesign requirements, the Commission should use a scientific approach and also take into consideration relevant technical information used as a basis for or derived from, in particular, Regulation (EC) No 66/2010, Directive 2010/75/EU of the European Parliament and of the Council (26), technical screening criteria adopted pursuant to Regulation (EU) 2020/852 of the European Parliament and of the Council (27) and EU green public procurement criteria.”* The ESPR envisages the possibility of setting mandatory GPP requirements, as described under Article 65, for the purchase of products covered by delegated acts, or for works or services where those products are used for activities constituting the subject-matter of those contracts. Those requirements should be set in relation to the product aspects addressed in the delegated act regulating the products in question. The Circular Economy Action Plan of 2015 already identified GPP as a key component of the circular economy, highlighting the need to address issues such as durability and reparability in GPP criteria, and for the Commission to support GPP implementation.

The GPP requirements under the ESPR will be established through implementing acts, in the form of technical specifications (TS), award criteria (AC), contract performance conditions (CPC) or targets (Article 65.3 of the ESPR) (see Section 2.5 for definitions and more information on GPP vocabulary). This means that when contracting authorities/entities procure products, works or services that use products with established ecodesign requirements, they will be mandatorily required to follow a set of criteria (TS, AC, CPC or targets, as appropriate) in their procurement procedures in order to ensure that relevant product aspects are considered, with a view to boosting the demand for products with minimal negative impacts. The Communication from the Commission “Ecodesign for Sustainable

³ E-bikes and e-scooters are not excluded from the ESPR scope.

Products and Energy Labelling Working Plan 2025-2030” states that “These measures are designed to foster the creation of lead markets, stimulate investments and help the EU industry improve its competitiveness in line with the Clean Industrial Deal’s objectives”.

As stated in the Regulation (recital 100), “those green public procurement requirements should be **minimum requirements**, meaning that contracting authorities and contracting entities should be able to set additional and more demanding requirements. Those requirements should be transparent, objective and non-discriminatory.” Moreover, “Member States should not be precluded from introducing or maintaining national measures on green public procurement regarding product groups for which public procurement requirements under this Regulation have not yet been set, or from introducing stricter national requirements regarding products which fall within the scope of implementing acts setting out green public procurement requirements, provided such measures and requirements are in line with Union law.” (recital 101).

As stated in Article 65.2 of the ESPR, “the minimum requirements shall be set where appropriate, in order to incentivise the supply of and demand for environmentally sustainable products covered by delegated acts adopted pursuant to Article 4, taking into account the **value and volume** of public contracts awarded for the relevant product groups and the **economic feasibility** for contracting authorities and contracting entities to buy more environmentally sustainable products without entailing disproportionate costs”.

The ESPR states that “compared to a voluntary approach, mandatory green public procurement requirements will ensure that the leverage of public spending to boost demand for better performing products is maximised” (recital 100).

Finally, “the public procurement procedure should be conducted by contracting authorities and contracting entities in compliance with Directives 2014/24/EU⁴ and 2014/25/EU⁵ of the European Parliament and of the Council, and applicable sectoral legislation, as well as with the Union’s international commitments, including the Government Procurement Agreement and other international agreements by which the Union is bound. Those requirements are without prejudice to the possibility for contracting authorities and contracting entities to rely on derogations or exemptions regarding public contracts set out in Union law, in particular Directives 2014/24/EU and 2014/25/EU” (recital 100).

The Communication from the Commission “Ecodesign for Sustainable Products and Energy Labelling Working Plan 2025-2030” states that “the ESPR provides for the possibility to set mandatory minimum requirements for public procurement in ad hoc implementing acts, whenever the products regulated by ESPR delegated acts are relevant for public buyers and it is economically feasible for them to buy the best environmentally sustainable products.” The Communication clarifies that “despite being two separate legal acts, the delegated act setting ecodesign requirements and the implementing act setting public procurement requirements are closely linked because the product aspects covered in both acts must be the same. Therefore, **the Commission will study and assess the measures jointly** and run the two adoption procedures in parallel.” (European Commission, 2025).

⁴ <http://data.europa.eu/eli/dir/2014/24/2024-01-01>

⁵ <http://data.europa.eu/eli/dir/2014/25/oj>

1.2 Purpose of the report

According to the Organisation for Economic Co-operation and Development (OECD) (2025), public procurement is widely recognised as a strategic tool for achieving government policy priorities, such as promoting a green and circular economy, fostering innovation, supporting small and medium-sized businesses (SMEs), and encouraging ethical behaviour and responsible business practices. Indeed, given its significant volume and the role of public buyers as primary purchasers in sectors like construction, health and education, public procurement has the potential to steer business practices and drive economic, social and environmental outcomes. However, the multiple policy objectives which are often linked to the use of public procurement require a cautious, structured approach to ensure that it continues to provide goods, services and works necessary to deliver public services in a timely, economical and efficient manner. In parallel to that, *“the public opinion is rightly interested to know whether the procured solution (...) brings the **best added value in terms of quality, cost-efficiency, environmental and social impact** and whether it brings **opportunities for the suppliers’ market**”* (European Commission, 2021a).

This report includes the development of **Task B8 of the ESPR Methodology** entitled **“Method for the definition of mandatory Green Public Procurement requirements”**.

The main aim of this report is to develop a methodology to assess the conditions under which mandatory GPP requirements are feasible and advisable, how to decide the form(s) these requirements should take (TS, AC, CPC or targets), and what market impacts this would entail beyond performance or information requirements. The report includes a specific assessment of the usefulness of setting targets and guidelines on how to set them.

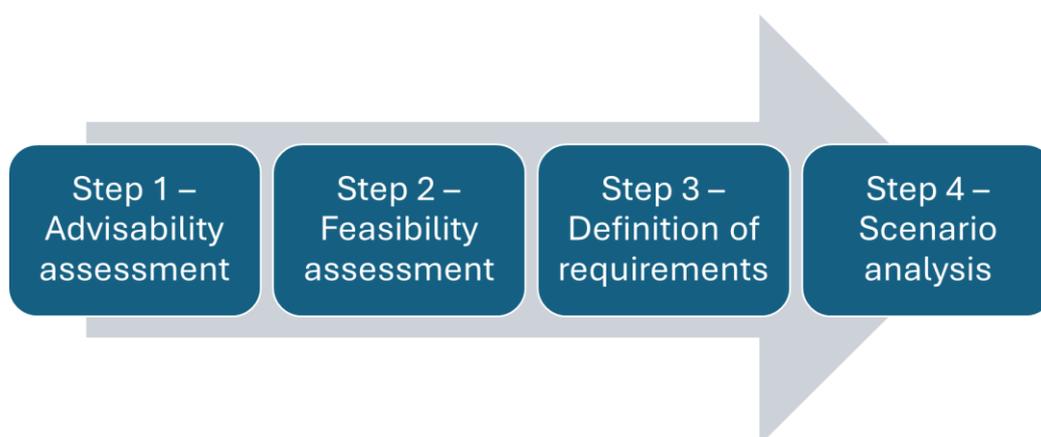
Given that *“the Commission will assess the scope to set those minimum public procurement requirements for the products prioritised in the working plan together with the assessment of the specific ecodesign requirements for the same products.”* (European Commission, 2025), the method will be applied by the team performing the Preparatory Study.

The method takes into account the sequence of the following steps, as shown in **Figure 1**:

- Step 1 – Advisability assessment: Assessment of the (monetary) value and volume of public contracts awarded to determine whether it is advisable to have GPP requirements for a specific product group.
- Step 2 – Feasibility assessment: Consider what is possible based on the two highest performance classes, the highest scores or, when not available, at the best possible performance levels, without entailing disproportionate costs.
- Step 3 – Definition of requirements: Define the appropriate form and levels of requirements: TS, AC, CPC or targets.
- Step 4 – Scenario analysis: Determine the expected market impacts beyond the impacts of ecodesign performance or information requirements.

The four steps are described in Chapters 4, 5, 6 and 7, respectively.

Figure 1. Steps of the proposed method to define GPP requirements



Source: JRC own elaboration

1.3 Policy question addressed

In the past, to identify which product, service and works sectors should be prioritised for the introduction of voluntary GPP, the factors considered were the environmental impact, the budgetary importance, the potential to influence the market, as well as political priorities, market availability of environmentally preferable alternatives, cost considerations, availability of GPP criteria and visibility (European Commission: Directorate-General for Environment & ICLEI- Local Governments for Sustainability, 2016). The European Commission's Joint Research Centre (JRC) led the process to develop voluntary criteria based on an annual GPP work plan which is coordinated with the EU Ecolabel work plan. The JRC works in consultation with the GPP Advisory Group composed of representatives of the Member States (MSs) and various stakeholders⁶. The criteria have been based on existing European and national ecolabel criteria where appropriate, as well as on information collected from stakeholders from industry and civil society. Draft criteria have been discussed with these stakeholders. Approval of criteria has been subject to strict consultation standards.

With the adoption of the ESPR, new policy questions arise. Indeed, given the new nature of GPP requirements under the ESPR, *“new approaches might also be needed for the preparation of mandatory public procurement criteria”* (recital 23), as stated in the legal text.

The priority products to be addressed by ecodesign requirements and potentially by mandatory GPP requirements were identified in the Communication from the Commission “Ecodesign for

⁶ https://green-forum.ec.europa.eu/green-business/green-public-procurement/gpp-criteria-and-requirements_en#process-for-setting-gpp-criteria. The GPP Advisory Group is an expert group composed of representatives of the EU Member States and the following stakeholders: Business Europe, UEAPME (small and medium enterprises association), European Environment Bureau/BEUC (European Consumer Organisation), ICLEI. The role of the group is to provide advice to the European Commission on the development and implementation of GPP policies. ([Advisory Group & National Action Plans - European Commission](#))

Sustainable Products and Energy Labelling Working Plan 2025-2030” (European Commission, 2025).

The methods developed and presented in this report will provide guidance to the study team who will perform the Preparatory Studies, assisting them in the definition of mandatory GPP criteria.

2 Public Procurement and Green Public Procurement: main concepts

2.1 Public Procurement: legislative basis

Public procurement (PP) refers to the process by which public authorities, such as government departments, regional and local authorities or bodies governed by public law, purchase works, goods or services from companies⁷. The main legal instruments that govern public procurement in the EU are the Public Procurement Directives:

- Directive 2014/24/EU on public procurement⁸ ;
- Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors⁹.

These Directives establish, amongst other aspects, the **public procurement principles**, namely (under recitals, Article 18 and others):

- Free movement of goods and services, freedom of establishment
 - An example is what is written in Article 42(4) of Directive 2014/24/EU, i.e. *“technical specifications shall not refer to a specific make or source, or a particular process which characterises the products or services provided by a specific economic operator, or to trade marks, patents, types or a specific origin or production with the effect of favouring or eliminating certain undertakings or certain products.”*
- Non-discrimination and equal treatment
 - It follows directly from the need to ensure free movement of goods and services.
- Transparency
- Proportionality
 - In developing GPP criteria it is important to ask whether the same purpose could be achieved by a requirement which is less likely to be restrictive of trade.
- Mutual recognition
 - As per Article 62 of Directive 2014/24/EU, *“contracting authorities shall, where they require the production of certificates drawn up by independent bodies attesting that the economic operator complies with certain quality assurance standards, including on accessibility for disabled persons, refer to quality assurance systems based on the relevant European standards series certified by accredited bodies. They shall recognise equivalent certificates from bodies established in other Member States.”*

⁷ [Public procurement - European Commission](#)

⁸ <http://data.europa.eu/eli/dir/2014/24/2024-01-01>

⁹ <http://data.europa.eu/eli/dir/2014/25/2026-01-01>

Relevant definitions to understand PP are also included.

The **‘subject-matter’** of a contract is about what product, service or work the contracting authority wants to procure (European Commission: Directorate-General for Environment & ICLEI- Local Governments for Sustainability, 2016). The subject-matter is particularly important because it determines the permissible scope of specifications and other criteria to be applied. This is due to the **‘link to the subject-matter’** of the contract requirement, established by the Directives:

- The link to the subject-matter (LtSM) requirement is a core consideration for Public Procurement. According to Directive 2014/24/EU, most PP criteria (e.g. TS, AC and CPC) must be linked to the subject-matter of the contract (recitals, Article 42, Article 67 and Article 70).
- In Directive 2014/24/EU, this is expressed as meaning that criteria can relate to any stage of the life cycle, including those which are not obvious in the final product/service (e.g. production of food from organic agriculture or electricity from renewable sources), but not to general corporate policy (recital (97), Article 42, Article 67, Annex VII).

The 2014 Procurement Directives provide the scope of possible action for GPP in the EU, even if they do not prescribe GPP. They do mention that environmental considerations may be included in TS, selection and award criteria and CPC. The 2014 Procurement Directives enable public authorities to take environmental considerations into account during the procurement process itself, and in the performance of the contract. As described by Pouikli (2021), the Public Procurement (PP) Directive (2014/24/EU) facilitates the integration of environmental considerations at various stages of the public procurement procedure including allowing for environmental requirements, the use of criteria in environmental labels, and the option to take into account environmental factors in the production process and life-cycle analysis¹⁰. More details are given below:

- As regards the definition of the subject-matter of the contract, contracting authorities as buyers could choose a relevant title, which provides an opportunity to inform the market of their objectives (e.g. energy-efficient computers, energy from renewable sources, sustainable building construction, sustainable cleaning services) (SIGMA, 2016). However, limits to their discretionary power can be found in Article 18(1) stipulating that “the design of the procurement shall not be made with the intention of excluding it from the scope of this Directive or of artificially narrowing competition”.
- The technical specifications, which define the characteristics required of a work, service or supply according to Article 42 of the Directive, may be formulated in terms of performance or functional requirements including environmental aspects.
- Article 43 spells out the conditions under which contracting authorities may purchase works, supplies or services with specific environmental, social or other characteristics requiring – in the TS, the AC or the CPC – a specific label as means of proof that the works, services or supplies at stake correspond to the required characteristics. Labels are much appreciated by procurers given the simplification of the verification procedure that they entail. It is possible under Article 43 of Directive 2014/24/EU to ‘require’ a specific label, provided that the following conditions are met:

¹⁰ *European Commission*, Public Procurement Reform Factsheet No. 7: Green Public Procurement, 2014.

- The label requirements only concern criteria which are linked to the subject-matter of the contract.
- The label requirements comply with the procurement principles (e.g. they are based on non-discriminatory criteria which are objectively verifiable by the contracting authorities). Additionally, the labels must be established in an open and transparent procedure, accessible to all interested parties and set by a third party over which the economic operator cannot exercise a decisive influence.
- If a label also sets out requirements not linked to the subject-matter of the contract, contracting authorities shall not require the label as such but may define the technical specification by reference to those of the detailed specifications of that label that are linked to the subject-matter of the contract. The label can then be used as a means of verification but other means of verification, like test reports or technical dossiers, would have to be accepted as well.
- There is an obligation to accept labels which have equivalent requirements and, if the operator has been unable to obtain the label within the relevant time limits due to factors which are not attributable to it, to accept other (non-third-party) evidence, like test reports or technical dossiers.
- With respect to the phases of selection and award of contracts, the Directives establish the obligation to use the Most Economically Advantageous Tender (MEAT) criterion in order to award the contract, making it possible to procure goods, services and infrastructure based not only on the lowest-cost criterion but also considering other features, such as quality, innovation, social characteristics, and life-cycle costs (best price-quality ratio - BPQR). The BPQR includes a cost element and a wide range of other factors that may influence the value of a tender from the point of view of the contracting authority, including sustainability aspects. According to Article 56(1) of the PP Directive, contracting authorities may not award the contract to the tenderer that has offered the most economically advantageous tender (Article 67) “*where they have established that the tender does not comply with the applicable obligations referred to in Article 18(2)*”¹¹. Hence, making use of this ambitious but optional provision by blocking a tenderer that does not take into account the environmental (and/or social) impacts of their tender lies exclusively in the power of the contracting authorities and the MS. Article 67 gives MS the discretionary power to determine that contracting authorities may not use price only or cost only as the sole award criterion. If MSs determine that contracting authorities cannot use price or cost only, then the contracting authorities are obliged to award a contract in line with the best price-quality ratio assessed on the basis of criteria which may include environmental considerations as well. However, again this discretion is not unrestricted. According to Article 67(3)–(5), award criteria must: have a link to the subject-matter of the contract; be specifically and objectively quantifiable; have been advertised/notified previously; respect

¹¹ Article 18 (2) (Directive 2014/24/EU) states that “*Member States shall take appropriate measures to ensure that in the performance of public contracts economic operators comply with applicable obligations in the fields of environmental, social and labour law established by Union law, national law, collective agreements or by the international environmental, social and labour law provisions listed in Annex X.*”

EU law and comply with the fundamental principles of equal treatment, non-discrimination and transparency.

- In addition to this, as regards environmental considerations, Article 57(4) of the Directive sets out non-binding grounds on which economic operators may be excluded from participation in a procurement procedure. It is again left to the contracting authorities to make these voluntary exclusions for violation of environmental obligations. In the same vein, but this time based on a compulsory provision enshrined in Article 69(3), “*contracting authorities shall reject the tender, where they have established that the tender is abnormally low because it does not comply with applicable obligations referred to in Article 18(2)*”.
- An additional innovative element of great importance relating to the “greening” of the public procurement process is the codification of the life-cycle costing in Articles 67(2) and 68. In light of this concept, “*the most economically advantageous tender from the point of view of the contracting authority shall be identified on the basis of the price or cost, using a cost-effectiveness approach, such as life-cycle costing*” which “*covers parts or all of the costs over the life cycle of a product, service or works*” including “*costs imputed to environmental externalities linked to the product, service or works during its life cycle, provided their monetary value can be determined and verified; such costs may include the cost of emissions of greenhouse gases and of other pollutant emissions and other climate change mitigation costs*”.

Verification issues are also covered in the Directives:

- Every criterion used in a PP process must be objectively quantifiable and verifiable. This does not mean that it will necessarily be verified, but only that it needs to be verifiable, i.e. the contracting authority does not have the obligation to verify the compliance of the procured products, but must have the possibility to do so if desired. This is intended to be a way to implement the principles of equal treatment and transparency.
- Also, the contracting authority must accept any form of ‘appropriate’ proof of compliance with the requirements set. That is, the contracting authority must determine, on a case-by-case basis, from a technical perspective, whether the proof supplied by the bidder can be considered appropriate. This is another reason why references to specific standards, labels or certifications, when used for verification purposes, must be accompanied by the specific words “*or equivalent*”.

In addition to the procurement directives, EU Public Procurement is also governed by other legal instruments, namely the Government Procurement Agreement (GPA), which is a plurilateral agreement within the framework of the World Trade Organization (WTO). This is a binding international treaty that precludes the use of protectionist practices in public procurement procedures of the signatories, establishing rules requiring that open, transparent and non-discriminatory conditions of competition are ensured in government procurement.

2.2 EU Green Public Procurement: definition, objectives, GPP criteria

The most comprehensive policy document relating to Green Public Procurement (GPP) published by the European Commission was the 2008 “Communication on Public procurement for a better environment” combined with a Commission Staff Working Document establishing specific (but indicative) green public procurement targets. In the document, GPP is defined as:

“A process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured.”¹²

The Communication provides guidance on how to reduce the environmental impact caused by public sector consumption and how to use GPP to stimulate innovation in environmental technologies, products and services.

GPP is within the framework of Strategic Public Procurement, together with Socially Responsible Public Procurement and Innovation Procurement. The basic concept of GPP relies on having clear, verifiable, justifiable and ambitious environmental criteria for products and services, based on a life-cycle approach and scientific evidence base¹³.

Voluntary GPP requirements can be applied to contracts both above and below the threshold for application of the Procurement Directives (European Commission: Directorate-General for Environment & ICLEI- Local Governments for Sustainability, 2016).

The objectives of the EU GPP scheme (from COM(2008)400 "Public procurement for a better environment") are:

- "...to reduce the environmental impact caused by public sector consumption...";
- "...to stimulate innovation in environmental technologies, products and services...".

The EU has developed voluntary GPP criteria to facilitate the inclusion of green requirements into public procurement tenders for a number of product and service groups, which are regularly reviewed and updated. The criteria are formulated for seamless integration into procurement documents, enabling public authorities to adopt them with minimal administrative challenges. This flexibility enables the adaptation of GPP to various local contexts across Member States, promoting a gradual shift towards more sustainable consumption and production practices (Guarini et al., 2025). The criteria include information on verification methods.

Most of the criteria are available in all official EU languages. At time of writing, the product and service groups covered number 14¹⁴.

Many voluntary GPP criteria developed by the European Commission are aligned with the requirements of the EU Ecolabel and EMAS (Eco-Management and Audit Scheme), ensuring not only the simplification of procedures, but also a Europe-wide harmonisation of sustainable procurement

¹² COM(2008) 400, Communication from the Commission to the European Parliament, the Council, the European Economic And Social Committee and the Committee of the Regions. Public procurement for a better environment. [EUR-Lex - 52008DC0400 - EN - EUR-Lex](#)

¹³ [Green Public Procurement - European Commission](#). The European Commission also defines circular public procurement as: “the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimising, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle” (ICLEI, 2017, p. 5).

¹⁴ [GPP Criteria and Requirements - European Commission](#). The products covered are: Computers, monitors, tablets and smartphones; Data centres, server rooms and cloud services; Electricity, Food catering services and vending machines; Furniture, Imaging equipment, consumables and print services; Indoor cleaning services; Office building design, construction and management (under revision); Paints, varnishes and road markings; Public space maintenance; Road design, construction and maintenance; Road lighting and traffic signals; Road transport; and Textile products and services.

practices (Guarini et al., 2025). Indeed, the Commission has been working on the simplification of Green Public Procurement using the already developed EU ecolabel criteria and adapting them to procurement; the Commission has developed EU Ecolabel “Practical Guides” which identify the most relevant “ready-to-use” criteria to be used in calls for tender¹⁵.

The EU GPP criteria include two ‘levels’ for each sector covered:

- The **core criteria** are designed to allow easy application of GPP, focus on the key area(s) of environmental performance of a product or service, and aim to keep administrative costs for companies to a minimum.
- The **comprehensive criteria** take into account more aspects or higher levels of environmental performance and are for use by authorities that want to go further in supporting environmental and innovation goals (European Commission: Directorate-General for Environment & ICLEI- Local Governments for Sustainability, 2016).

Every year, over 250 000 public authorities in the EU spend around 14% of GDP (around EUR 2 trillion per year) on the purchase of goods, services and works¹⁶.

The potential of GPP as a policy instrument has been increasingly recognised, and in recent years there has been growing political commitment at national, EU and international levels. Recently, in EU legislation there has been a trend to move from voluntary to mandatory GPP requirements. Various pieces of sector-specific EU legislation create horizontal or goods-, services- and works-specific mandatory obligations on what contracting authorities can purchase through public procurement. Examples of such legislation are the Clean Vehicles Directive, the Energy Efficiency Directive, the Packaging and Packaging Waste Regulation, the CO₂ Emissions of Heavy-Duty Vehicles Regulation¹⁷, the Corporate Sustainability Due Diligence Directive and the Batteries Regulation¹⁸. These rules are currently being implemented either by EU secondary acts or by the Member States.

The EU’s Net-Zero Industry Act Regulation also includes a set of innovative mandatory provisions that apply to an extensive, yet closed, list of clean technologies. One provision regards mandatory non-price criteria in public procurement, on: i) environmental sustainability (e.g. durability, the ease of repair and maintenance, access to services; environmental and carbon footprint criteria); ii) one criteria, either concerning social and employment considerations, cybersecurity, or time to deliver; iii) a resilience criteria, in the event of significant dependency (of more than 50%, or one quickly reaching 40%) on a single third country not part of international procurement agreements. It diversifies technology supply via a cap – no more than 50% of the value of a technology can be sourced from a single third country.

Recently, the Draghi Report on European competitiveness has extensively addressed public procurement as a strategic tool for enhancing innovation, sustainability and industrial policy across the EU. Firstly, for energy-intensive industries it is proposed to introduce standardised low-carbon and environmental sustainability criteria for public procurement when applying the principle of most

¹⁵ [Green Procurement - Environment - European Commission](#)

¹⁶ https://defence-industry-space.ec.europa.eu/funding-opportunities-0/public-procurement_en

¹⁷ [GPP Criteria and Requirements - European Commission](#)

¹⁸ <http://data.europa.eu/eli/reg/2023/1542/oj>

economically advantageous tender, taking into account that appropriate ‘lead markets’ to raise demand for low-carbon energy-intensive industries’ production are generally downstream industries in which these industries’ input share in total production value is relatively small (diluting the required price premium), but output volumes are high enough to allow for a scaling-up of low-carbon production (e.g. steel and aluminium in the automotive industry). Secondly, PP can be used to strengthen demand for secondary materials (Draghi, 2024). This strategy was taken up in the recent legislative proposal (not adopted at the time of writing) for a Regulation of the European Parliament and of the Council on the Industrial Accelerator Act¹⁹, as part of the Commission’s Communication on the Clean Industrial Deal. The proposal foresees the introduction of sustainability criteria in public (and, in some circumstances, private) procurement in strategic sectors. The Draghi report also recommends that contracting authorities act as a ‘launch customer’ for clean technologies, proposing to create the Net Zero Europe Platform and provide effective support to Member States. For example, the Platform should adopt recommendations for Member States on the public procurement of innovative solutions (Draghi, 2024).

More information on the diffusion of EU GPP is reported in Annex 1, while Annex 2 summarises the main challenges in the implementation of GPP.

2.3 Mandatory GPP criteria

Theoretically, GPP as an environmental policy can work as a **substitution policy**, a **transformation policy**, or a combination of the two. In the first case, the purchasing authority substitutes a “brown” (conventional) product with a less environmentally harmful (green) alternative. The intention of a transformation policy is to encourage potential suppliers to stop producing for the conventional market and to invest in less environmentally harmful technologies and to produce instead for the green market (Lundberg et al., 2015). In order to encourage companies to invest and develop their operations in a greener direction, it is important that a large number of contracting authorities use harmonised green public procurement criteria. Previous research identifies that the effective operation and impact of GPP as a policy instrument is contingent upon the mandatory – binding – nature of the green criteria imposed on potential suppliers (Drake et al., 2024; Lundberg et al., 2015). Moreover, it should be considered that a **multiplication effect** is expected from the definition of mandatory GPP requirements, i.e. a spillover effect that increases demand for greener goods and services across the whole market, as a result of the creation of lead markets, innovation and example-setting (Sapir et al., 2022). Sustainable Public Procurement creates demand for products and services that are more sustainable than the market standard. This new demand will be met by suppliers creating and placing on the market alternatives that are more sustainable than the norm. Having been created in order to meet the demand created by SPP, these alternatives become available on the market and can be chosen by all consumers at large, not only public authorities. As a consequence, the consumption pattern of private sectors becomes environmentally friendly (Yeongjun Yeo et al., 2016). This increased demand will then additionally stimulate the supply of sustainable alternatives, thus creating a virtuous cycle. Another consequence of this effect is the gradual decrease of the price difference between standard products and sustainable products due to competition effects. Yang & Morotomi (2025) highlight the “double externality problem”: this means eco-innovation not only provides the usual knowledge spillovers of innovation but also

¹⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=intcom:Ares%282025%293570423>

environmental externalities due to its green intentions during adoption and diffusion phases. The value generated from the environmental innovation investment of a company is appropriated partly by other firms because of knowledge spillover and additionally by the whole society due to decreased environmental impact (e.g., enhanced citizen well-being by mitigating air and water pollution). As a result, companies do not have enough enthusiasm and motivation to improve eco-innovation. Compared with traditional innovation, more regulatory offset is necessary to reach the social equilibrium of the eco-innovation amount (Yu et al., 2023).

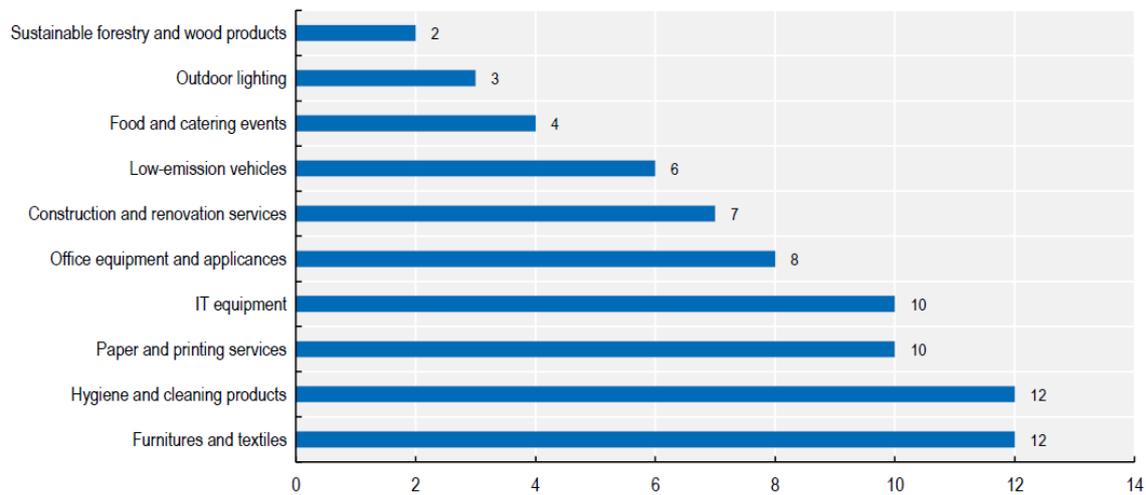
In line with these findings, the ESPR recognises the limitations of setting voluntary GPP criteria – *“instruments such as the EU Ecolabel, introduced by Regulation (EC) No 66/2010 of the European Parliament and of the Council (12), or the EU green public procurement criteria set out in the communication of the Commission of 16 July 2008 on Public procurement for a better environment are broader in scope but have a reduced impact due to the limitations of voluntary approaches”* (recital 11, ESPR) – and it empowers the Commission to set mandatory GPP criteria at EU level. Mandatory GPP promotes the availability of information on the market, further standardisation, and more legally certain and efficient procurement processes for the authorities. Furthermore, a mandatory GPP approach is likely to increase market demand and innovation and lower the costs of environmentally friendly products and services (Mélou, 2020).

According to OECD (2024), which performed a survey among 38 countries²⁰ in 2022, mandatory GPP was initially limited to a few procurement categories with a strong risk-reward rationale. However, the scope has gradually expanded to many different categories of goods and services. In total, 24 of the 38 countries surveyed (63%) have set mandatory requirements for GPP²¹. Moreover, the results from the OECD survey show that countries have adopted different types of targets, such as overall procurement targets, e.g. 80% of procurement (by value and/or by number of tenders) should include GPP criteria by 2025. Targets might concern only certain product/service groups, and can differ across national, regional and local levels. The most common categories for which countries have set mandatory GPP criteria are reported in **Figure 2**.

²⁰ 34 OECD countries and 4 accession candidate countries (Brazil, Bulgaria, Romania and Peru). The 34 OECD countries are: Australia, Austria, Belgium, Canada, Chile, Costa Rica, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Portugal, Poland, Slovak Republic, Slovenia, Spain, Switzerland, Sweden, United Kingdom, United States.

²¹ Out of the 24, 12 are EU MSs: Netherlands (NLD), Sweden (SWE), Latvia (LVA), Italy (ITA), Estonia (EST), Denmark (DNK), Belgium (BEL), Spain (ESP), Germany (DEU), France (FRA), Bulgaria (BUL), Austria (AUT). See Figure 4.1 on page 58 of the OECD report.

Figure 2. Most common categories for which countries have set mandatory GPP criteria



Note: The graph presents the respondents responses to the question “Does the national policy or strategic framework include a mandatory requirement to use GPP in specific instances?”

Source: Survey on Green Public Procurement (2022).

Source: OECD (2024)

However, while 92% of surveyed countries have set mandatory GPP requirements and targets in public procurement, compliance is not always monitored.

To conclude, increasing the uptake of GPP, e.g. through the definition of mandatory criteria, can promote the creation, development and consolidation of green markets, which will contribute to reduce the price of innovative green solutions, while fostering suppliers’ transition towards more sustainable production patterns (Yeongjun Yeo et al., 2016).

2.4 Economic and market impacts of GPP

According to Yeongjun Yeo et al. (2016), economic impacts of GPP include market creation and escalation, reduction of market uncertainty and risk of potential suppliers by specifying demand, and appearance of new products and quality improvement by stimulating innovation. The green attribute is attractive to firms aiming to enhance their reputation and competitiveness. Furthermore, the tendering process itself can stimulate competition among participants, naturally driving innovation (Yang & Morotomi, 2025). Finally, GPP fosters job creation in the green economy (Sönnichsen & Clement, 2020).

The effects of market creation and escalation by the public sector can be divided into three stages. The first stage is market creation, in which the public sector makes a contract for the procurement of green technology not yet commercialised preferentially. This can be considered outside the objectives of the ESPR. The second stage is that the public sector procures green products or services which were commercialised but did not have enough demand, which is the market escalation stage. The final stage is market consolidation, in which the public sector stimulates the competition between suppliers when the green products or services have enough market share to enter and exit (Yeongjun Yeo et al., 2016). Following market creation and escalation, the size and structure of the market are also changed. This is in line with what is stated in the GPP Communication COM(2008) 400: the sheer volume and market power of public purchases can shape production and consumption trends, stimulate innovation and create or enlarge market

sectors. In fact, public procurement has the potential to create demand for specific products with given characteristics outright. This power could be effectively summoned to help induce a significant transformation in the European market, affecting the whole supply chain and stimulating the use of green standards in private procurement.

Positive Sustainable Public Procurement (SPP) impacts are expected to be the following, as depicted in the GPP Communication COM(2008) 400:

- "...public procurement can shape production and consumption trends...";
- "...create or enlarge markets for environmentally friendly products and services...";
- "...provide incentives for companies to develop environmental technologies";
- "...benefit the environment as well as the overall economy, creating opportunities for emerging "green" economies";
- "...stimulating innovation in eco-technologies...";
- "...affect the whole supply chain...".

On the other hand, the negative economic impacts for SPP are:

- increased prices;
- insufficient market availability (decreased volume);
- hike in costs due to verification and legal challenges.

Taking all of these aspects into consideration, the overall economic impacts expected to arise from SPP are the following:

- Competitiveness in internal markets, namely concerning operators' ability to produce more sustainable products/services by affecting their market attractiveness and impacting sales volume, company reputation, adding new product varieties / product differentiation. If carefully done, SPP can also contribute to increase the market access (i.e. the ability to enter and stay in the market) for SMEs and small companies.
- Consumption and production of sustainable products, in particular in relation to the quantity/share of sustainable consumption and production due to both the direct requirements of the SPP purchases and the multiplication effect brought about by the creation of more sustainable alternatives (due to the increased demand generated by SPP), which then become available to all consumers.
- Prices; more specifically, by mainstreaming and increasing the volume of sustainable products demanded, the relative price change between sustainable and less/non-sustainable alternatives is expected to decrease.

The main economic and market effects of GPP are analysed in the following subsections.

2.4.1 Competition

GPP may initially represent an entry barrier, limiting the choices for contracting authorities to a small number of economic operators when green markets are not mature (Directorate-General for Internal Market & PWC, 2015) and causing prices to rise (Leire & Dalhammar, 2018). Competition would increase over time, and the price premium for 'GPP-compliant' products decreases as suppliers begin to offer a larger array of green products (Kahlenborn et al., 2011; Leire & Dalhammar, 2018). Where a well-established green market exists, GPP can attract the entry of new companies into public procurement (Lundberg et al., 2009). Nonetheless, in the long run, if the incentives for entry into the green market are not sustained, GPP may again have a negative impact on competition by reinforcing the market power of incumbents and deterring market entry (Poltoratskaia et al., 2024). Moreover, if GPP practices increase the demand for green products too quickly without suppliers being able to keep and produce the higher quantities of green products demanded in the short term, the price of green products will rise in the private market too (Leire & Dalhammar, 2018).

According to Drake et al. (2024), more explicitly articulated green objectives included in public procurement may affect the number of bidders, resulting in less competition (fewer bidders due to the adaption cost being too high) or higher competition (on the assumption that more explicitly articulated green objectives signal that green performance will be valued by the procuring authorities). Based on detailed data from Swedish internal cleaning service procurements, the same authors verified that the environmental criteria have no significant effect on the number of bidders, bids or winning bids. However, they stated that one potential explanation is that the market studied is mature, in the sense that potential suppliers have already adjusted their production in accordance with the environmental standard asked for in the call for tenders (Drake et al., 2024). As shown by Poltoratskaia et al. (2024), who analysed public procurement in Bulgaria in 2011–19, GPP increased the prevalence of market entrants by 3 to 7 percentage points. When a contracting authority lacks market power, firms may refrain from responding to green expectations in tenders (Lundberg et al., 2009). However, when green public procurement demand is high relative to the rest of the product market, GPP can increase competition (Cheng et al., 2018).

Finally, Econ Report for the Office of Fair Trading (2004) found that the competition to lower price is intensified if there is high homogeneity among the potential suppliers for GPP contracts, and the competition for quality is increased in the case of high heterogeneity among the suppliers. To summarise, GPP has a conditional and context-dependent impact on competition, with largely negative competitive impacts in countries with less developed green markets (Poltoratskaia et al., 2024).

Table 1 summarises the main factors influencing the effect of GPP on competition, and relates them to the step of the proposed method (see Section 4) where the aspect is investigated.

Table 1. Factors influencing the effect of GPP on competition

Factors influencing the effect of GPP on competition	Source	Step of the proposed methodology where the aspect is investigated
Pace at which the demand will increase	Leire & Dalhammar, 2018	Step 2 – Analysis of competition and Step 3 – Definition of requirements

Homogeneity among the potential suppliers	Econ Report for the Office of Fair Trading, 2004	Step 2 – Analysis of competition
Share of (green) public procurement demand relative to the rest of the product market	Cheng et al., 2018	Step 1 – Advisability assessment
Maturity of the green market	Drake et al., 2024	Step 1 – Advisability assessment and Step 2 – Analysis of competition

Source: JRC own elaboration

2.4.2 Innovation and eco-innovation

Public demand may represent an effective tool to stimulate innovative activities, shape the transformation of production systems, and foster industrial renewal: this is confirmed by Crespi & Guarascio (2019), who used industry-level information on patent applications for 24 countries over the period 1995–2012 and proved that the dynamics of patenting is positively affected by PP, while a high degree of import penetration reduces the innovation-enhancing effect exerted by public demand. As showed by Yeongjun Yeo et al. (2016), various previous studies drew the common result that public procurement, or demand-side policy tools, is a more effective way to stimulate innovation than supply-side policy tools from empirical analysis and case studies. Indeed, public procurement induces innovation by specifying new demand. Two main factors on the demand side matter for eco-innovation: market share and consumption consciousness. For market share, GPP can help green products become competitive by leveraging the significant purchasing power of public authorities (Bryngemark et al., 2023), thus directly stimulating eco-innovation. Regarding consumption consciousness, GPP is considered a driver of ‘lead’ low-carbon markets (OECD, 2016), sending signals that guide consumers toward greener consumption habits and thereby creating a need for green innovation.

As clarified by Yu et al. (2023), demand can influence innovation in two logics. One is the “incentive effect”, meaning that a larger demand increases the expected profit from innovation. The other is the “uncertainty effect”, meaning that the demand is a source of information on market needs which reduces the uncertainty of innovation investment. In the early stage of production and placing on the market, potential suppliers have a problem of asymmetric information on potential demand due to the significantly high market uncertainty and small and scattered initial demand. In this situation, public procurement can reduce or even remove the market uncertainty for potential suppliers by specifying demand, and promote more interaction among suppliers and buyers and network effects. In other words, public procurement provides potential suppliers with the chance to profit from innovation, and, as a result, it stimulates the interaction between technology suppliers and users (Yeongjun Yeo et al., 2016). This is a relevant strategy to promote the emergence or consolidation of production and markets characterised by high growth prospects, e.g. high-tech industries, where returns on R&D investment are particularly uncertain (Castelnovo et al., 2023; Crespi & Guarascio, 2019).

According to Yang & Morotomi (2025), existing research reveals somewhat conflicting opinions regarding the relationship between green public procurement and eco-innovation.

The study performed by Yu et al. (2023) with Community Innovation Survey 2014 data (Eurostat) from firms in 15 European countries suggests that companies with a public contract are 5.7% more likely to introduce innovations with environmental benefits. Krieger & Zipperer (2022) demonstrated that winning public procurement contracts with environmental selection criteria increases a firm's likelihood of introducing greener products by an average of 20 percentage points, with this increase driven by small and medium-sized firms.

In contrast, Cheng et al. (2018) argued that procurers often exhibit risk-averse behaviour to minimise the uncertainty associated with varying award criteria or scoring rules. This, in turn, may discourage suppliers from engaging in environmentally relevant innovation projects. Varnäs et al. (2009), who analysed green procurement in the Swedish construction industry, also contended that some commonly used environmental criteria are weak and ineffective in driving green technological innovations. Finally, Yu & Morotomi (2022) investigated the impacts of GPP on eco-innovation by examining contract award notices from 28 European countries (27 Member States and the United Kingdom) during 2010–2018. The article extracted the green contract ratio at the country-year level and applied static and dynamic panel data analyses to estimate its effects on an eco-innovation index published by the EU Eco-Innovation Observatory. The results show that the use of green award criteria in public procurement can improve eco-innovation performance, albeit with a decreasing margin. The study concluded that appropriately designed GPP, by providing incentives of compliance, can effectively drive environmental innovations. However, when green procurement intensity is high, innovations tend to stagnate due to the duplication of operational procedures and an over-reliance on established suppliers. Moreover, Yang & Morotomi (2025) utilised national-level panel data from 29 European countries spanning 2007 to 2019 to empirically test the impact of GPP on eco-innovation. The finding shows that the impact of GPP on eco-innovation is U-shaped, with innovation being stimulated only when the proportion of green contracts in a country exceeds a certain turning point, which ranges from 16% to 50% among studied samples. Western European countries have a lower threshold for GPP policies to take effect, as they are earlier adopters of National Action Plans for green procurement. In contrast, central and eastern European countries benefit from high-intensity procurement activities and enjoy a better innovation outcome once the threshold is surpassed. This threshold ranges from a low of 16% to a high of nearly 50% across all the models estimated by the authors, with most clustered between 25% and 36%. According to the analysis performed by the authors, the average share of green contracts in European countries is only 15.86%, with a median of 11.36%, well below the required value.

Finally, forming an integrated innovation system is particularly helpful in promoting path-dependent incremental innovation. As a form of collective purchasing, GPP offers stable and reliable business opportunities (Yang & Morotomi, 2025).

2.4.3 SMEs

GPP might create barriers between large and small suppliers, as smaller suppliers may not have the resources to meet environmental requirements defined in tender documentation to compete with larger suppliers (OECD, 2024).

The report *SME needs analysis in public procurement* by the European Commission (Directorate-General for Internal Market et al., 2021) highlights that SME participation in PP is still limited compared to their role in Member State national economies. The report claims that public procurement is a major lever to promote both sustainable development and SME growth.

Recently, Deschamps (2025), who assessed the compatibility between SME accessibility and environmental issues in public procurement with a dataset encompassing approximately 10 000

award procedures in France between 2022 and 2023, found that GPP stimulates SME participation. The intensity of this effect may vary between environmental clauses and criteria across sectors, but there is no evidence of a deterrent effect of green public procurement on SMEs.

In conclusion, as recommended by the OECD, governments need to work on providing resources and guidance to boost suppliers' capability when bidding for contracts and create a more robust and competitive environment (OECD, 2024).

2.4.4 Cost savings and price premium

As stated by Ortega Carrasco et al. (2025), beyond environmental benefits, GPP fosters significant economic and social benefits. Most notably, it ensures lower consumption of resources (e.g. energy and water), reduced waste generation, and saved emissions, which translate into cost savings for public entities (OECD, 2024). Studies demonstrate cost savings for public administrations through reduced energy and water consumption, along with improved product durability achieved through GPP implementation (Leire & Dalhammar, 2018; Preuss, 2009). As demonstrated by Orfanidou et al. (2023), who investigated the case of purchase of indoor and outdoor lighting in Greece, although at first glance green products are not economically viable in some cases, a second reading leads to different conclusions. In many cases they turn out to be a streamlined choice, since indirect costs in most cases represent a higher percentage of total costs in non-green products. Indeed, when operating costs constitute a significant share of total life cycle costs, then the purchase price should not be the only selection criterion, as the use of green products leads to savings due to lower consumption costs (Öko-Institut e.V. & ICLEI, 2007). The price premium the public authorities pay for implementing GPP might be low, or even zero (Drake et al., 2024).

Poltoratskaia et al. (2024) show that green public procurement enhanced the efficiency of resource allocation in the Bulgarian economy by helping to channel public resources to more productive firms, for example to those that have 14% higher labour productivity. This effect is at least in part explained by the positive interaction between green public procurement and the lower risk of corruption. Finally, the possibility of achieving a lower price could mainly arise through bulk purchases and public administration negotiations of framework agreements (Orfanidou et al., 2023).

2.4.5 Environmental certifications, standards and labels

As shown by Yang & Morotomi (2025), endorsing certain environmental standards and labels for public procurement can bolster the credibility of these schemes for users throughout the broader economy. This creates another form of positive spillover from procurement into the wider market, supporting other policy instruments, e.g. ecolabels (Leire & Dalhammar, 2018). As actors will rarely innovate alone, this spillover effect of green procurement contributes to the emergence of innovative systems that encompass both the private and public sectors. Moreover, Ma et al. (2021) focused on manufacturing firms in China and three typical environmental certifications; they showed that GPP incentivises companies to obtain environmental certifications, thus providing them with a competitive edge.

2.5 GPP vocabulary

There are a number of different types of criteria that can be applied in public procurement processes, each of which can incorporate some environmental aspects. These criteria differ in terms of when they apply in the evaluation process, in terms of being mandatory or voluntary in nature

and in terms of who or what they apply to. The relative importance of each type of criteria will ultimately depend on how the call for competition is worded and structured by contracting authorities. An illustration of how these criteria potentially come together in a procurement process is provided in **Figure 3**.

Exclusion criteria: These are **mandatory** criteria that are set in European and national procurement law that apply to the **economic operators** who are bidding (the bidders). Additional mandatory exclusion criteria may also be defined. Such criteria will **relate to non-compliance with applicable laws**, grave professional misconduct that could render the integrity of the economic operator questionable or significant/persistent deficiencies in the performance of substantive requirements under prior contracts that led to termination or comparable sanctions. Any bids from bidders failing the exclusion criteria are not evaluated.

Selection criteria: They determine which operators are eligible to have a contract awarded to them. These are **optional** criteria in terms of whether they are used or not, but, when used, they take on a **mandatory** character. It is common that selection criteria are used to set requirements relating to the experience, capacity and professional ability of the **bidders**. Depending on the exact procurement process and the subject-matter of the procurement exercise, SC will be more or less important to the outcome. In all cases, **selection criteria must be proportionate**, linked to the subject-matter of the contract and not end up unnecessarily restricting competition (for example by presenting a barrier to SMEs). They may relate to:

- suitability to pursue the professional activity;
- economic and financial standing;
- technical and professional ability;
- supply chain management and tracking systems;
- environmental management systems (e.g. EMAS, ISO 14001), mainly for services or works contracts;
- experience and educational and professional qualifications of staff, mainly for services or works contracts.

Technical specifications (TS): This is the **mandatory** core of public procurement criteria and defines **the minimum requirements** that all offers must meet. Offers not complying with the technical specifications must be rejected. Technical specifications are not scored for award purposes; they are strictly pass/fail requirements. All TS therefore relate directly to the **subject-matter** of the contract. Care must be taken when setting TS to be sure that there are sufficient products or services on the market that can meet these requirements. If not, then there is a risk that no offers will be received or that only a few offers may be received, which results in less competition.

Award criteria (AC): These criteria are **always present** in one form or another. At the award stage, the contracting authority evaluates the quality of the tenders and compares costs. Everything that is evaluated and scored for award purposes is an award criterion. The most basic AC is that the winning bid will be the one with the lowest cost (i.e. 100% weighting on price). However, AC also provide the opportunity to insert a number of **additional optional requirements** that are related to quality and that can be independent of TS or complimentary to them (if they make reference to

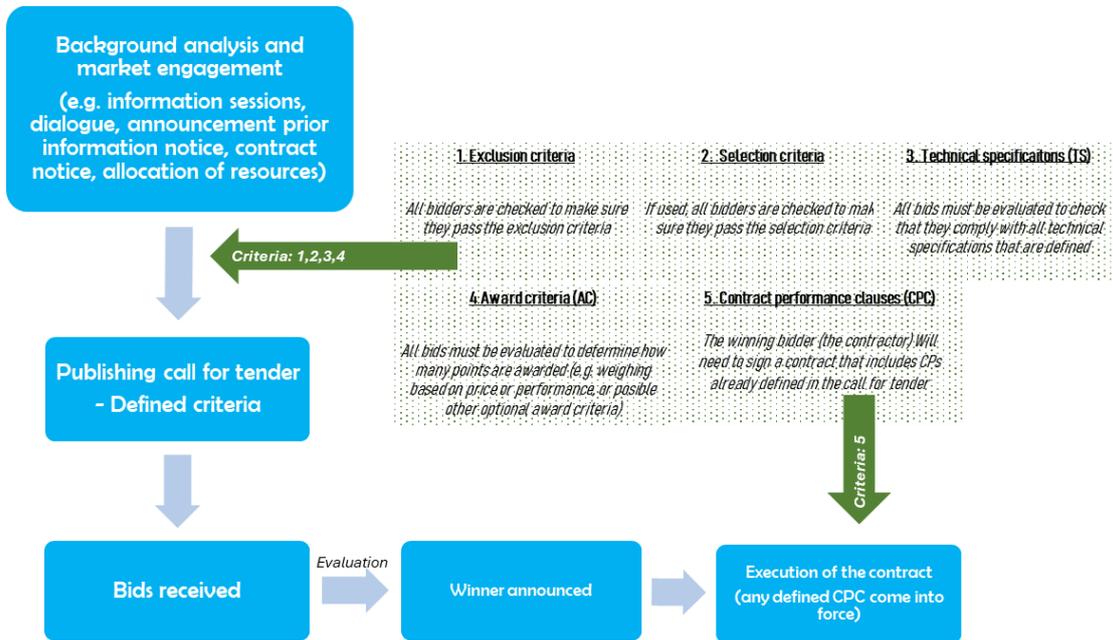
the same aspect). Like TS, they also apply directly to the **subject-matter** of the contract, and thus to offers received. It is a good idea to use AC when contracting authorities wish to “test the market” when they are unsure about the ability of economic operators to meet more ambitious criteria. **The combination of less ambitious TS with more ambitious AC** allows calls for tender to be published that **reward the best products** on the market **without** unnecessarily **restricting** the potential **number of bidders**. Awarding extra points for quality or environmental performance in AC is a way for contracting authorities to make better quality or more environmentally friendly products more competitive with cheaper and less environmentally friendly alternatives. The precise percentage weighting given to AC is for contracting authorities to decide on a case-by-case basis.

Contract Performance Clauses (CPC): Although CPC should be defined in the call for competition, this is in order to inform bidders of what conditions would apply to the **winning bidder** (i.e. the contractor). Contract performance clauses are used to specify how a contract must be carried out. The economic operator may not be requested to prove compliance with the contract performance clauses during the procurement procedure. Contract performance clauses are not scored for award purposes. Consequently, CPC are essentially **mandatory** requirements that would be incorporated into a formal contract signed with the eventual contractor. Compliance with contract performance clauses should be monitored during the execution of the contract, therefore after it has been awarded. It may be linked to penalties or bonuses under the contract in order to ensure compliance. According to Article 70 of Directive 2014/24/EU, contract clauses “may include economic, innovation-related, environmental, social or employment-related considerations.” For example - in a food catering contract, a contract clause might require the service provider to reduce food waste against benchmarks set at the start of the contract, in addition to using more sustainable products.

The following definition of target is proposed:

“A target is a percentage of the overall procurement (either by volume – i.e. number of items – or by value) that meets some given requirements. Targets should be time related, e.g. “50% of procurement should meet the requirements by 2028, increasing to 75% by 2030”. According to the ESPR, targets can be set on an annual or multiannual basis (Article 65.3)”.

Figure 3. Illustration of how the main different types of procurement criteria can apply



Source: European Commission: Joint Research Centre (2025).

3 Definition of the scope of mandatory GPP requirements under the ESPR

As specified in Article 65 of the ESPR, “contracting authorities and contracting entities shall, in compliance with Directive 2014/24/EU or 2014/25/EU, award public contracts complying with the minimum requirements set out pursuant to paragraph 2 of this Article for the purchase of products covered by delegated acts adopted pursuant to Article 4, or for works or services where those products are used for activities constituting the subject-matter of those contracts”.

Note that **intermediate products**, defined in the ESPR as products that require further manufacturing or transformation such as mixing, coating or assembling to make them suitable for end-users, can be considered within the scope: even if it is improbable that contracting authorities and contracting entities will purchase intermediate products, they can be used for activities constituting the subject-matter of contracts for works or services, or intermediate products can be embedded in final products which are publicly purchased.

Note that only procurements with a value net of value-added tax (VAT) estimated to be equal to or greater than the thresholds established in Article 4 of Directive 2014/24/EU are in the scope of mandatory GPP requirements under the ESPR.

3.1 Purchase of products covered by delegated acts

The minimum requirements should be applied for the purchase of products covered by delegated acts.

The definition of public supply contracts reported in Article 2 of Directive 2014/24/EU is the following:

“(8) ‘public supply contracts’ means public contracts having as their object the purchase, lease, rental or hire-purchase, with or without an option to buy, of products. A public supply contract may include, as an incidental matter, setting and installation operations”.

Lease, rental or hire-purchase, with or without an option to buy, of products should be considered within the scope of mandatory GPP requirements under the ESPR.

3.2 Works or services where products covered by delegated acts are used

As mentioned before, services are in the scope only if products covered by delegated acts are used for activities constituting the subject-matter of those contracts. The relevant definitions reported in Article 2 of Directive 2014/24/EU are the following:

“(7) ‘a work’ means the outcome of building or civil engineering works taken as a whole which is sufficient in itself to fulfil an economic or technical function;

(9) ‘public service contracts’ means public contracts having as their object the provision of services other than those referred to in point 6” (i.e. public works contracts).

3.3 CPV codes

The common procurement vocabulary (CPV) establishes a single classification system for public procurement aimed at standardising the references used by contracting authorities and entities to

describe procurement contracts²². The CPV, adopted by Regulation (EC) No 213/2008 (amending Regulation (EC) No 2195/2002 of the European Parliament and of the Council on the Common Procurement Vocabulary (CPV) and Directives 2004/17/EC and 2004/18/EC of the European Parliament and of the Council on public procurement procedures), has been in use since 17 September 2008. It consists of a main vocabulary for defining the subject of a contract, and a supplementary vocabulary for adding further qualitative information.

Every tender is identified by one main CPV code (main classification) and optionally by additional CPV codes.

While CPV codes are often used to identify the subject-matter of a contract, they do not always neatly align with the definitions of 'public supply contracts', 'public service contracts', and 'works contracts'.

In general, CPV codes can be categorised into three main groups:

- Supply codes (e.g. 15100000-0: Agricultural products);
- Service codes (e.g. 79900000-0: Miscellaneous business and business-related services);
- Works codes (e.g. 45200000-0: Works for complete or part construction and civil engineering).

However, some CPV codes can be relevant to both 'public supply contracts' and 'public service contracts', or to both 'public service contracts' and 'works contracts'. This is because some contracts may involve a combination of supply, service and/or works elements. Examples include the following:

- CPV code 50300000-0: Repair and maintenance services of building installations covers both services (e.g. maintenance) and potentially supply elements (e.g. replacement parts).
- CPV code 71300000-0: Engineering services covers services (e.g. design consulting), but may also involve supply elements (e.g. software, equipment).

In such cases, the contract's primary objective and the predominant element of the contract will determine whether it is considered a 'public supply contract', 'public service contract', or 'works contract'.

To illustrate this, consider a contract for the provision of IT services, which includes:

- Supply of software and hardware (e.g. CPV code 48200000-8: Software package and information systems);
- Installation and configuration services (e.g. CPV code 50300000-0: Repair and maintenance services of building installations);
- Ongoing maintenance and support services (e.g. CPV code 79900000-0: Miscellaneous business and business-related services).

²² For more information, see: [Common procurement vocabulary | EUR-Lex](#), which provides a summary of Regulation (EC) No 2195/2002 on the EU's Common Procurement Vocabulary.

In this example, the contract could be considered a 'public service contract' if the primary objective is the provision of IT services, even though it involves supply elements (software and hardware).

In conclusion, while CPV codes can provide guidance on the subject-matter of a contract, they should not be relied upon as the sole determinant of whether a contract is a 'public supply contract', 'public service contract' or 'works contract'.

Ideally, the CPV codes in the scope of GPP are the ones covering the same products included in the Preparatory Study (both as the main CPV code of the tender, and as additional CPV codes).

3.4 Link to other EU labels

For energy-labelled products, the Energy Labelling Framework Regulation (ELFR) and the Energy Efficiency Directive together already specify requirements linking public procurement to the energy label class²³.

3.5 GPP requirements under the ESPR

As stated in Article 65 of the ESPR, *“the Commission is empowered to set, by means of implementing acts, the minimum requirements in the form of technical specifications, award criteria, contract performance conditions or targets. The minimum requirements shall be set in relation to the product aspects addressed in the delegated act adopted pursuant to Article 4 applicable to the product groups in question, as relevant for those product groups. The minimum requirements shall be based on the two highest performance classes, the highest scores or, when not available, on the best possible performance levels as set out in the delegated act adopted pursuant to Article 4 applicable to the product groups in question.”*

The ESPR (recital 100, Article 65) clarifies that the Commission might set out the following:

1. **“Minimum mandatory technical specifications** requiring products to comply with the best possible performance levels as set out in the relevant delegated acts, including where available with the **two highest classes of performance or scores**. As a result, for example, it would be mandatory for contracting authorities and contracting entities to require that the tenderers’ products meet specific carbon footprint requirements. In compliance with the public procurement framework, those minimum mandatory technical specifications should avoid artificially restricting competition and avoid favouring a specific economic operator”.
2. **“Minimum mandatory award criteria** including assigning a specific weighting, between 15 % and 30 %, to those criteria for the purpose of ensuring that they can significantly influence the choice of products in favour of those that are the most environmentally sustainable. As a result, for example, it would be mandatory for contracting authorities and contracting entities to give the recycled content of the products in question a minimum weighting between 20 % and 30 %. As a consequence, contracting authorities and contracting entities, in the specific award procedure, would have the possibility of assigning

²³ See Section 6 in Commission Recommendation (EU) 2024/1716 of 19 June 2024 setting out guidelines for the interpretation of Articles 5, 6 and 7 of Directive (EU) 2023/1791 of the European Parliament and of the Council as regards energy consumption in the public sector, renovation of public buildings and public procurement.

a weighting higher than 30 %, but not lower than 20 % to recycled content. Award criteria should be preferred to technical specifications when there are uncertainties about the availability or cost of the best performing products in the Union market.” This means that the implementing act (which sets minimum requirements) sets a minimum weighting between 20% and 30% - imagine it is 26%, for example. Then public contracting authorities would need to use a weight of at least 26% in their evaluation procedure, but could use a higher weight if they wanted to. This means that the actual weighting used could certainly be higher than 30% but could never be lower than 26%.

3. **Contract performance conditions.**

4. **“Targets** according to which, for instance, contracting authorities and contracting entities should award at least 50 % of their annual procurement of certain products to those with more than 70 % of recyclable material. As a result, Member States could still set higher targets for the procurement of those products”. As clarified in article 65, *“targets shall require, on an annual or multiannual basis, a minimum percentage of 50% of procurement conducted at the level of contracting authorities or contracting entities, or at an aggregated national level, of the most environmentally sustainable products”.*

3.6 GPP requirements for products covered by other pieces of legislation

If other pieces of legislation covering the product group under analysis also set minimum public procurement requirements, the study team should ensure that no conflict or contradiction occurs between the existing requirements and the GPP minimum requirements proposed under the ESPR. Having ensured that the requirements set by different pieces of legislation are aligned, ESPR GPP minimum requirements can be safely set, as overlapping requirements are not in opposition (i.e. going beyond the minimum threshold set by one piece of legislation is totally compliant with that legislation). Therefore, the joint application of several pieces of legislation pieces is possible provided that proper alignment has been previously ensured.

4 Step 1 – Advisability assessment

Article 65(2) highlights that the minimum requirements shall be set “*taking into account the value and volume of public contracts awarded for the relevant product groups [...]*”. The objective of this step is to perform an assessment of the value and volume (i.e. number of items) of public contracts awarded in relation to the overall market, for the relevant product groups.

Moreover, an optional assessment of the volume and value of publicly awarded green contracts in relation to the overall public contracts and in relation to overall green purchases is proposed, to complement the analysis and feed the following steps. Finally, the maturity of the green market can be optionally assessed, by analysing the volume and value of green products in relation to the total volume and value of products on the EU market.

4.1 Monitoring PP: TED database, Public Procurement Data Space (PPDS), Opentender and databases at country level

Monitoring the value or volume of public contracts awarded is currently a challenging task. The first reporting and monitoring exercise on this subject (COM(2021) 245 final)²⁴ showed that all Member States submitted more qualitative information than quantitative data.

All public tenders above specific contract values must be published in the Supplement to the Official Journal of the European Union (S series, Official Journal S or OJ S) and published throughout the EU. The Official Journal S is available exclusively in electronic format and is accessible on the Tenders Electronic Daily (TED) website²⁵. Access to TED is free of charge²⁶. The contract value thresholds above which an invitation to tender must be published throughout the EU are reported in **Table 2**. Procedures above the EU thresholds account for approximately 20% of all public procurement contracts²⁷.

Table 2. Types of contract and related thresholds

Type of contract	Threshold
Public works	5 538 000 EUR
Service contracts and supplies contracts	143 000 EUR
All other supplies and services in the sectors of water, energy and transport	443 000 EUR

Source: <https://ted.europa.eu/en/simap/european-public-procurement>

²⁴ Report from the Commission Implementation and best practices of national procurement policies in the Internal Market, [EUR-Lex - 52021DC0245 - EN - EUR-Lex](#)

²⁵ [TED - EU Tenders, the Supplement to the Official Journal - TED](#)

²⁶ [Official publishing services for EU institutions - ted.europa.eu - TED](#)

²⁷ Communication from the Commission Public Procurement: A data space to improve public spending, boost data-driven policy-making and improve access to tenders for SMEs 2023/C 98 I/01. [EUR-Lex - 52023XC0316\(02\) - EN - EUR-Lex](#)

TED publishes 735 000 notices a year, including 258 000 invitations to tender worth around EUR 670 billion, one third of Europe's estimated EUR 2 trillion public-sector contracts (European Court of Auditor, 2023). The platform allows users to search and sort published tender notices by country, date or sector of activity.

Assuming that the EUR 2-trillion estimate is correct, the discrepancy could be due to the fact that:

- low-value public contracts (below thresholds) and those awarded by small public contractors are only published on a voluntary basis and do not appear in the results;
- some data are of poor quality, in particular the fact that currently in around 30% of the contracts values are missing and many have abnormal values;
- public buyers may fail to comply with thresholds (non-publication of tenders);
- public buyers wrongly estimate the contract value (Lermant et al., 2024).

Moreover, the monitoring exercise (COM(2021) 245 final)²⁸ showed that Member States follow different methodologies for data collection, and that in several cases there were discrepancies between figures collected at country level and figures reported on TED.

The Public Procurement Data Space (PPDS) aims at connecting European databases – including TED – with national procurement data sets available on national portals²⁹. The PPDS contains information about public procurement in the EU, aiming to provide access to all information both above and below the thresholds, published in TED and the national procurement portals. It covers information about the announcement phase of public procurement (competition notices) and the award stage (contract award notices). As of July 2025, it includes datasets for TED, covering the complete years from 2021 to 2024; Austria from 2017 to 2024; and Germany, Finland and Norway for 2023 and 2024. The data from all sources are being updated regularly with 2025 data³⁰.

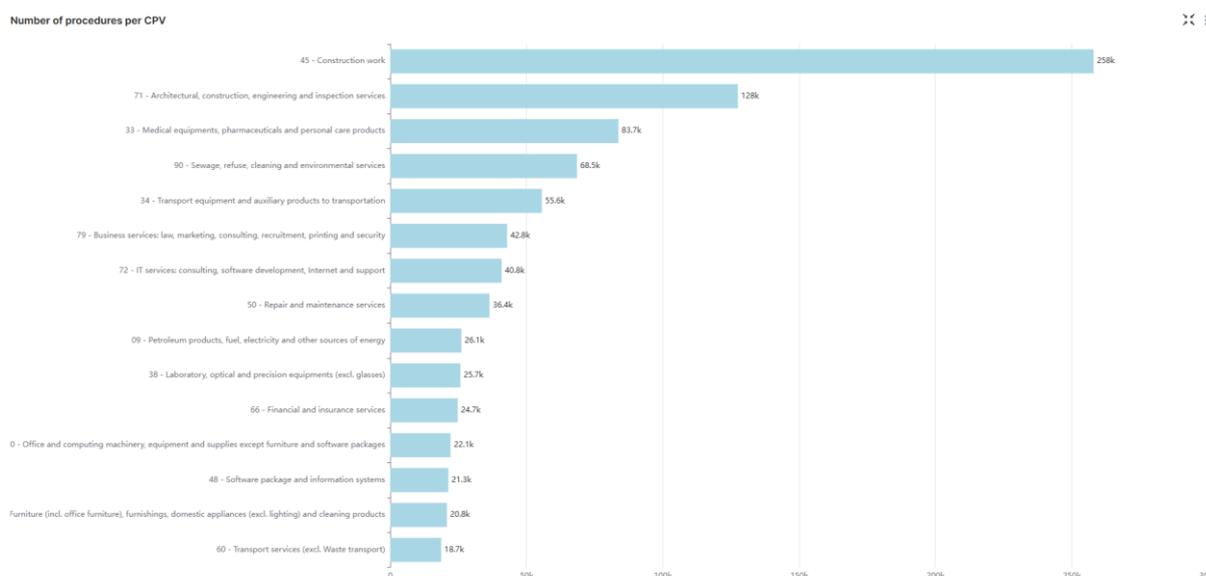
An example of an indicator reported in the PPDS is shown in **Figure 4**.

²⁸ Report from the Commission Implementation and best practices of national procurement policies in the Internal Market, [EUR-Lex - 52021DC0245 - EN - EUR-Lex](#)

²⁹ <https://www.public-procurement-data-space.europa.eu/en/about#what-is-the-ppds->

³⁰ [Dashboards | Public Procurement Data Space](#)

Figure 4. Indicator “Number of procedures per CPV”



Source: [Dashboards | Public Procurement Data Space](#)

Another platform which can be used is Opentender (<https://opentender.eu>). It gathers procurement data from more than 30 different sources including TED and official national public procurement sources. The search function allows the user to see information on the sector, the main CPV code and the supply type, among others.

4.1.1 Monitoring PP and GPP at country level

As reported by Guarini et al. (2025), the monitoring of the implementation of GPP in European countries presents considerable heterogeneity in terms of the tools, methodologies and areas observed. In most cases, monitoring is carried out through electronic procurement platforms, online forms, periodic questionnaires and statistical analyses of public contracts. Some countries, such as Poland, Portugal and Malta, have implemented automated and standardised systems, with mandatory annual reports that include specific indicators on the inclusion of environmental criteria in tenders and contracts.

Monitoring activities generally involve central, regional and local public authorities and concern both calls for tender and contracts as well as organisational and strategic practices within the entities. The criteria monitored vary between European GPP criteria and national criteria, and they affect a plurality of product groups, including ICT products, paper, transport, construction and cleaning and catering services.

Some countries, such as Norway, France and Germany, are adopting multi-level monitoring models, which not only verify the application of green criteria but also assess the environmental, economic and social effects of sustainable procurement. In others, such as Italy or Austria, the monitoring systems are still being consolidated or show critical issues related to data collection and quality.

According to the International Institute for Sustainable Development (IISD) (2022), countries that seem to have the most robust GPP monitoring systems in place are France, which has mandatory reporting for ministries against standardised sustainable public procurement targets; Germany, with annual GPP monitoring at the federal and state levels; and Croatia, where the Ministry for the Environment must publish CO₂ savings generated by the implementation of GPP annually. These

might be countries to look to for inspiration and good practices on GPP monitoring and reporting, particularly for carbon, moving ahead.

4.1.1.1 National databases

For **France**, this website can be consulted: <https://www.economie.gouv.fr/daj/commande-publique/observatoire-economique-de-la-commande-publique/oeep-le-recensement>. For each year (until 2023), there are data on the number of contracts and value divided by the subject of the contract, as well as information on the application of environmental clauses (in number of contracts and value). From 2023 onwards, data are collected on the national open data portal data.gouv.fr ([Données essentielles de la commande publique - fichiers consolidés](#)).

Poland has a GPP monitoring system, including routine reporting through the Public Procurement Bulletin (part of the electronic procurement system e-Zamowienia) and annual reporting. The existing data systems allow for tracking for procurement processes above the national threshold of PLN 130 000, which should be available to the public for accountability. This website reports the list of contracts awarded before 2021: <https://ezamowienia.gov.pl/bzp-archival-client/archival-bzp/all>. For the most recent tenders, this link - <https://ezamowienia.gov.pl/mo-client-board/bzp/list> - can be used. The data from the Public Procurement Bulletin currently captures the application of environmental criteria in the evaluations of bids through a data field called (4.3.4.) Rodzaj kryterium³¹.

Germany publishes procurement statistics (Vergabestatistik) and these can be found at <https://www.destatis.de/EN/Themes/Government/Public-Finance/Public-procurement/node.html#644516>. The use of sustainability criteria is monitored.

Public authorities in **Belgium** monitor GPP through a digital platform that is linked to the e-Procurement system. Until August 2022 reporting on GPP was voluntary for Belgian public procurement practitioners. Since September 2023, Belgium has used a centralised e-Procurement platform known as e-Procurement Belgium, operated by the Federal Public Service Policy and Support (BOSA - DG Procurement, <https://www.publicprocurement.be/>). This platform serves as a central hub for electronic procurement activities. However, it is not possible to filter by application of environmental clauses (OECD, 2024).

For **Bulgaria**, all tenders and contracts are archived in the historic national e-procurement portal, AOP (<http://www.aop.bg/>). Moreover, a new national e-procurement portal, EOP (<https://app.eop.bg>) has been developed (Poltoratskaia et al., 2024).

³¹ For more information on the Polish GPP monitoring system, see the report 2024/06/01 of the World Bank: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099091924115551690/p1798351244cb8041a76b1756da1cf6d5e>

4.2 Assessment of advisability of GPP requirements

4.2.1 Example of procedure followed by the study on SPP of food, catering services and vending machines

Lermant et al. (2024) conducted a market study to comprehend the current role of public food markets in the European market, as well as the impact of public food contracts, distinguishing between contracts for the procurement of foodstuffs and for procurement of catering services.

The procedure followed the steps within the study (Lermant et al., 2024)

1. Filter using four criteria:
 - The sending date of contract notices.
 - Common Procurement Vocabulary Codes (CPV)³².
 - Buying countries (27 Member States).
 - The appearance of sustainability terms in contract notices, suggesting that these notices contain sustainable development considerations. As contracts are generally written in the language of the purchasing country, all the sustainability terms have been translated into the different languages of the 27 Member States. For each term, the TED platform looked for all the translations in the notices published over a given period. The filter looks for terms written in the description of the notice, in the description of the procedures or in the titles of the notices. The researched terms are listed in **Table 3**.

Table 3. List of sustainable terms used in searches on the TED GAMMA platform to filter contract notices relating to sustainable development or with sustainability criteria

Sustainable terms identified	Terms searched for in published notices. The words are translated into all the languages of EU countries to ensure a comprehensive search of contract notices: translation into German, English, Bulgarian, Croatian, Danish, Spanish, Estonian, Finnish, French, Greek, Hungarian, Irish, Italian, Latvian, Lithuanian, Maltese, Dutch, Polish, Portuguese, Romanian, Slovak, Slovenian, Swedish.
Organic	Bio, Organic, Био, Ekološki, Økologisk, Ecológico, Ökoloogiline, Luomu, Biologique, Βιολογικό, Orgánach, Biologico, Bioloģisks, Ekologinis, Organiku, Biologisch, Ekologiczny, Biológico, Biologic, Biologický, Ekološki, Ekologisk
Label	Label, Етикет, Etiketa, Mærkat, Etiqueta, Silt, Etiketti, Étiquette, Ετικέτα, Címke, Lipéad, Etichetta, Etikete, Etiketë, Etykieta, Rótulo, Etichetă, Štítok, Oznaka, Etikett

³² The search looks not only at the main classification, but also at the additional classification.

Nutrition	Ernährung, Nutrition, Хранене, Prehrana, Ernæring, Nutrición, Toitumine, Ravitsemus, Θρέψη, Táplálkozás, Cothú, Nutrizione, Uzturs, Mityba, Nutrizzjoni, Voeding, Odżywianie, Nutrição, Nutriție, Výchova, Prehrana, Näring
Fair Trade	Fair Trade, Справедлива търговия, Pravedna trgovina, Comercio Justo, Õiglane kaubandus, Reilu kauppa, Commerce équitable, Δίκαιο Εμπόριο, Igazságos kereskedelem, Trádáil Cóir, Commercio equo, Taisnīga tirdzniecība, Teisinga prekyba, Trade Ğust, Eerlijke handel, Sprawiedliwy handel, Comércio justo, Comerç echitabil, Spravodlivý obchod, Pravična trgovina, Rättvis handel
Animal Welfare	Animal Welfare, Защита на животните, Dobrobit životinja, Dyrevelfærd, Bienestar Animal, Loomade heaolu, Eläinten hyvinvointi, Bien-être animal, Προστασία των Ζώων, Állatjólét, Leas an Ainmí, Benessere animale, Dzīvnieku labturība, Gyvūnų gerovė, Welfar tal-Annimali, Dierenwelzijn, Dobrostan zwierząt, Bem-estar animal, Bunăstarea animalelor, Dobročinnost, Dobrobit živali, Djurskydd

Source: Lermant et al. (2024)

2. Download of the results as an Excel file: The TED platform makes it possible to obtain a spreadsheet with all the contract notices obtained during the search online and different categories of information in the columns that can be selected during extraction. For this analysis, the list of categories selected for extracting data relating to EU contract notices is as follows:

- Notice type [notice-type]
- Main classification [classification-cpv]
- Nature of the contract [contract-nature]
- Type of procedure [procedure-type]
- Publication date [publication-date]
- Activity of the contracting authority [main-activity]
- Country [buyer-country]
- Legal type of the buyer [buyer-legal-type]
- Title [notice-title]
- Total value [total value]

The number of categories had to be limited due to the TED platform's limitations in extracting files with many columns and rows. The selected categories were chosen to enable the analysis of the number of notices published by EU country, by type of public authority, and by type of contract.

3. Conversion of economic values into euro: The 'Total value' category (i.e. value of the contract in euro) was utilised to extract the estimated total value from the contract notices. Upon reviewing several contracts, it was observed that the value was often presented in the

currency of the purchasing country. Consequently, these amounts needed to be converted into euro, utilising the exchange rates provided by Eurostat³³.

4.2.2 Proposal of a procedure to assess advisability of GPP requirements

The proposal is to perform a search in **TED**, as well as **other national databases**, and/or in the **PPDS**, to estimate the volume and value of contracts awarded (to be compared with the total volume and value of products put on the European market, which is estimated in the Preparatory Study), for the product groups in the scope of the delegated act, as required by the ESPR legal text.

Furthermore, the study team could investigate the share of GPP in total PP. If information on the total volume and value of green products sold on the European market is available (from the Preparatory Study or from the search in TED and national databases), this can provide information on the maturity of the green market. Finally, the share of publicly procured green products in the total green products can also be estimated, to understand if the public bodies are already boosting demand for better performing products. A summary of the indicators to be calculated is reported in **Table 4** (the definition of green products is provided in the following section). They should be calculated at EU level and, if possible, also at country level, to get an overview of the level of homogeneity in the EU.

Table 4. Indicators to assess the advisability of mandatory GPP

Indicators	Information	Related aspects	Required or optional
Volume of PP in total volume of products on EU market Value of PP in total value of products on EU market	Are public bodies a particularly <u>large buyer</u> of a specific product?		Required by Article 65(2) of the ESPR
Volume of GPP (green products) in total volume of PP Value of GPP (green products) in total value of PP	Do public bodies already prefer green products? Is this percentage enough to stimulate innovation (and reduce uncertainty of demand)?	GPP (mandatory) criteria set at national level (see table summarising the situation of the National Action Plans (NAPs) available in CIRCABC ³⁴). Thresholds set in the study by Yang & Morotomi (2025) (Section 2.4.2).	Optional

³³ [\[ert bil eur a\] Euro/ECU exchange rates - annual data](#)

³⁴ Communication and Information Resource Center for Administrations, Businesses and Citizens (CIRCABC) https://circabc.europa.eu/ui/group/44278090-3fae-4515-bcc2-44fd57c1d0d1/library/3cc219c8-3c11-4aeb-8523-a85d5a6d99be?p=1&n=10&sort=name_ASC

		When setting a target, it should be considered that this value represents the baseline.	
Volume of green products in total volume of products on EU market Value of green products in total value of products on EU market	Is the green market mature?	It provides information on the availability of green products on the market.	Optional. It may be useful to analyse the effect on competition (Section 5.1.1).
Volume or value of GPP (green products) in total value or volume of green products on EU market	What share of green products is publicly purchased?	GPP (mandatory) criteria set at national level (see table summarising the situation of the NAPs available in CIRCABC ³⁵).	Optional

Source: JRC own elaboration

When performing the search in the databases, the relevant CPV codes to be used should be the same as those investigated in the Preparatory Study. In the following sections, the period over which the study team should search and the method to estimate the share of GPP in total PP are further discussed.

Period

Rosell (2023), who explored GPP in the award criteria in contract notices of 27 European countries as recorded in the TED database for the period 2016–2022, found a negative effect of the COVID-19 pandemic on GPP implementation, an effect that became more marked as the number of COVID-19 cases increased. The author showed that countries with better levels of bureaucracy successfully navigated their way through these turbulent times and increased their green procurement. Countries with a higher level of GPP before the pandemic were less susceptible to decreases in their GPP commitment during the pandemic.

It is recommended to take into account the effects of the COVID-19 pandemic when selecting the period of analysis.

Green contracts, green market and green products

There is not yet a harmonised definition about what constitutes a green contract. According to Krieger and Zipperer (2022), Yu and Morotomi (2022) and Yang & Morotomi (2025), green contracts can be identified by whether the award criteria of the contract contain green keywords. The green

³⁵ https://circabc.europa.eu/ui/group/44278090-3fae-4515-bcc2-44fd57c1d0d1/library/3cc219c8-3c11-4aeb-8523-a85d5a6d99be?p=1&n=10&sort=name_ASC

keywords used by the authors are given in **Table 5**. The study team can take inspiration from these keywords, taking into account the objectives of the ESPR.

However, it is worth noting that for the aim of the ESPR methodology “green contracts” can be defined as the ones entailing products in the two highest performance classes, achieving the highest scores or, when not available, at the best possible performance levels for the product aspects addressed by the ecodesign requirements (hereafter “green products”). Therefore, the keywords referring to the identified ecodesign requirements should be included. Indeed, the search should aim to identify the contracts to procure products in the two highest performance classes, achieving the highest scores or, when not available, at the best possible performance levels for the product aspects addressed by the ecodesign requirements. Since the TED database is multilingual, and the national databases can often be searched only in the respective language, these keywords should be translated into 24 official EU languages before screening for green contracts. Moreover, records with the EU or other international authorities as the subject of the procurement should be removed. It is worth noting that this approach misses some green contracts that appear only in the technical clauses, which are not represented in the TED database and in most of the national databases.

Table 5. Green keywords for identifying green procurement contracts

Groups	Keywords
Environment	environment, environmental, environmentally, cleaning, green, greener, aquatic, cleaner, product lifetime, reparability
Technical	rechargeable, endurance, durability, warranty, maintenance, restoration, maintenance and rehabilitation, rehabilitation, soft engineered, LED, dimming, Ratio of Upward Light Output, Tyre pressure monitoring systems, low viscosity engine lubricant oils, lifespan, remanufactured, spare part, disassembly, consumable quality
Energy & Resources	energy, power usage effectiveness, water consumption, water saving, energy efficiency index, fuel consumption, efficiency, efficacy, annual energy consumption indicator, renewable energy factor, energy management system, vegetable fats, vegetable oils
Ecology	ecology, ecological, glare control, biodiversity, compostable, biowaste, waste, wastewater, toxicity, Volatile organic compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), soil, wildlife, star visibility, recovery, recovered, eco-driving, eco-label
Emission	emission, dismantle, dismantling, disassembling, hazardous, global warming, pollutant, pollution, air quality, greenhouse gas (GHG), Global Warming Potential (GWP), CO ₂ , carbon footprint, NO _x , low chemical residue, carbon, particulate matter (PM), PM ₁₀ , PM _{2.5} , chemical oxygen demand (COD), organic gaseous carbon

	(OGC), titanium dioxide (TiO), by-product, noise, sulphur emission, halogenated emission
Sustainability	sustainability, sustainable, seasonal produce, recyclability, refurbishment, recycling, recyclable, recycle, re-use, reuse, reusability, reparability, organic, biological, biodegradable, animal welfare, fair, ethical, cyclelogistics, take-back, take back, upgradeability, restriction, avoidance, reduced, double side printing
Strategy	end-of-life, Life Cycle Costing (LCC), life cycle, Environmental Product Declarations (EPDs), Eco-management and audit scheme (EMAS), Forest Stewardship Council, Life Cycle Assessment (LCA), Continuous Professional Development, intelligent traffic systems, Programme for the Endorsement of Forest Certification, firmware update control, soil management, ISO14001

Source: Yang & Morotomi (2025)

Is GPP advisable?

As stated by the ESPR legal text, the value and volume of public contracts awarded for the relevant product groups are the key factor to decide whether GPP is advisable. Indeed, it is reasonable to assume that GPP policies work best when the public bodies are a particularly large buyer of a specific product (Leire & Dalhammar, 2018).

Other optional considerations can be made. Once the current percentage of indicators in **Table 4** is estimated, the study team could also consider the paper by Yang & Morotomi (2025), which states that innovation is stimulated only when the proportion of green contracts in a country (second indicator in **Table 4**) exceeds a certain threshold, which ranges from 16% to 50% among studied samples (see Section 2.4.2).

While the third indicator in **Table 4** provides information on the maturity of the market and can be used in Step 2, when the effects on competition are analysed, the fourth indicator reveals how strongly environmental criteria are already embedded in government purchasing practices.

GPP can accelerate market uptake of greener products (Leire & Dalhammar, 2018), e.g. when the green market is not fully mature (third indicator) and the share of publicly purchased green products in the total amount of green products available on the market is low (fourth indicator).

Finally, it should be considered that GPP can work in synergy with ecolabels (see Section 2.4.5).

5 Step 2 – Feasibility assessment

Article 65(2) highlights that the minimum requirements shall be set “*taking into account [...] the economic feasibility for contracting authorities and contracting entities to buy more environmentally sustainable products without entailing disproportionate costs*”.

As stated in recital 100, “*when developing implementing acts and in particular when considering the economic feasibility for contracting authorities and contracting entities, the Commission should take into account the best possible environmental products and solutions available on the market, the effects of the requirements on competition and the fact that different contracting authorities and contracting entities in different Member States might have different budgetary capacities or other constraints such as with regard to climate conditions or network infrastructure*”. Moreover, in compliance with the public procurement framework, the minimum mandatory technical specifications should avoid artificially restricting competition and avoid favouring a specific economic operator.

The objective of this step is to analyse the effects of the GPP requirements on competition (see Section 2.4.1 for a theoretical discussion of the effect of GPP on competition), with an additional analysis on SMEs. The result of this analysis can be used to feed the analysis performed in the following step, in particular to project the product price and sales over time.

Moreover, specific constraints in Member States should be investigated. Indeed, different contracting authorities and contracting entities in different Member States might have different budgetary capacities. The high costs associated with sustainable goods and services, coupled with limited availability, may present challenges for institutions seeking to incorporate sustainability criteria into their GPP decisions (Dimand, 2022).

5.1 Proposal of a procedure to assess feasibility of GPP requirements

The proposal is divided into two steps: the analysis of effects on competition and SMEs, and the analysis of budgetary capacities and other constraints at Member State level.

5.1.1 Analysis of effect on competition and on SMEs

From the supply side, in order to assess the potential effect on competition (and consequently on prices, and the feasibility for contracting authorities) of the GPP requirements, it is important to analyse the market (e.g. size, composition, how it is affected by consumer behaviour/use patterns). In particular, based on the results of the literature review presented in Section 2.4, the following aspects should be investigated:

- how competitive the market is, i.e. how many economic operators put green products on the EU market, what their market share is, and the level of homogeneity among the potential suppliers;
- how mature the market is, i.e. how many products on the market meet the GPP requirements (pass rate) and can be defined as green (see third indicator in **Table 4**);
- what the capacity of companies producing green products is (i.e. analysis of whether they could fulfil an increased demand and how much time would they need to adapt to an increased demand).

This analysis can be supported and complemented by the market analysis performed in Task 3 of the MEeRP, as well as by **dedicated market research**.

Concentration is considered a proxy for competition and has been used widely in academic and policy circles. The European Commission considers a firm as dominant if its market share exceeds 40% of the relevant market. Besides the consultation of stakeholders and a specific market analysis, the concentration can be derived by the analysis of data existing in literature or in relevant databases³⁶.

An estimate of the **pass rate** should be performed for each GPP scenario. As stated before, the effects on competition are more critical if the market is not mature. At the same time, the positive effect on innovation is more beneficial at the early stage of production and placing on the market, for the emergence or consolidation of production and markets characterised by high growth prospects, where returns on R&D investment are particularly uncertain (see Section 2.4.2). The assessment of the pass rate can be based on previous tenders which included green requirements: a sample of these can be used to estimate the number of companies on the market that meet the requirements (number of bidders), as well as the prices of the respective products. Moreover, high market shares of selected suppliers may indicate that there is insufficient competition in a market, leaving dominant players unchallenged.

As previously stated, if done carefully, GPP can also contribute to increase the market access (i.e. the ability to enter and stay in the market) for **SMEs and small companies**. This aspect deserves specific analysis at this stage. Indeed, according to recital 54 of the ESPR, *“SMEs could greatly benefit from an increase in the demand for sustainable products but could also face costs and difficulties due to some of the requirements.”*

5.1.2 Analysis of budgetary capacities and other constraints at Member State level

As mentioned in Annex 1, there are disparities among MSs in the application of GPP: these are driven by a mix of financial, environmental, infrastructural and regulatory factors. For example, contracting authorities with tight budgets may prioritise short-term savings over long-term sustainability benefits. Besides an analysis of the main budgetary constraints at MS level, the study team should investigate constraints related to climate (e.g. regions with harsh climates may have different sustainability priorities) and network infrastructure (e.g. remote or less developed regions may face challenges in sourcing sustainable materials due to supply chain limitations.). Other socio-economic and cultural factors might also be relevant, e.g. regions with strong partnerships between governments and businesses may implement GPP more effectively.

The analysis can be conducted via consultation with stakeholders and with the Ecodesign Forum.

³⁶ For example, this OECD publication studied concentration across 15 European countries from 2000 to 2019, at a granular industry (mostly 3-digit) level. [Industry concentration in Europe | OECD](#)

6 Step 3 – Definition of requirements

This step proposes guidelines to decide which type of requirements are preferable. For the purpose of this report, green products are defined as the products in the two highest performance classes, achieving the highest scores or, when not available, at the best possible performance levels for the product aspects addressed by the ecodesign requirements.

6.1 Proposal of a procedure to define minimum GPP requirements

The type of requirement to be set depends on two factors, i.e.:

- the price difference between green products and standard products, and the reason behind the difference;
- the market availability of green products.

The price difference between green products and standard products should be compared and referred to the budgetary capacities of the contracting authorities, investigated in Section 5.1.2.

The second indicator in **Table 4** (i.e. Volume of GPP (green products) in total volume of PP, or Value of GPP (green products) in total value of PP) represents the baseline, when it comes to targets.

Dedicated market research could determine whether green products are currently more expensive than standard ones. If so, the reason for the price increase should be identified: is the higher price linked to materials requirements, to increased labour requirements or to a small production volume (caused by reduced demand) which will mean higher overheads cost per item, lack of economy of scale and learning effects? If the case is the latter, then the existing price difference can be eliminated by the creation of demand, namely through the use of mandatory GPP.

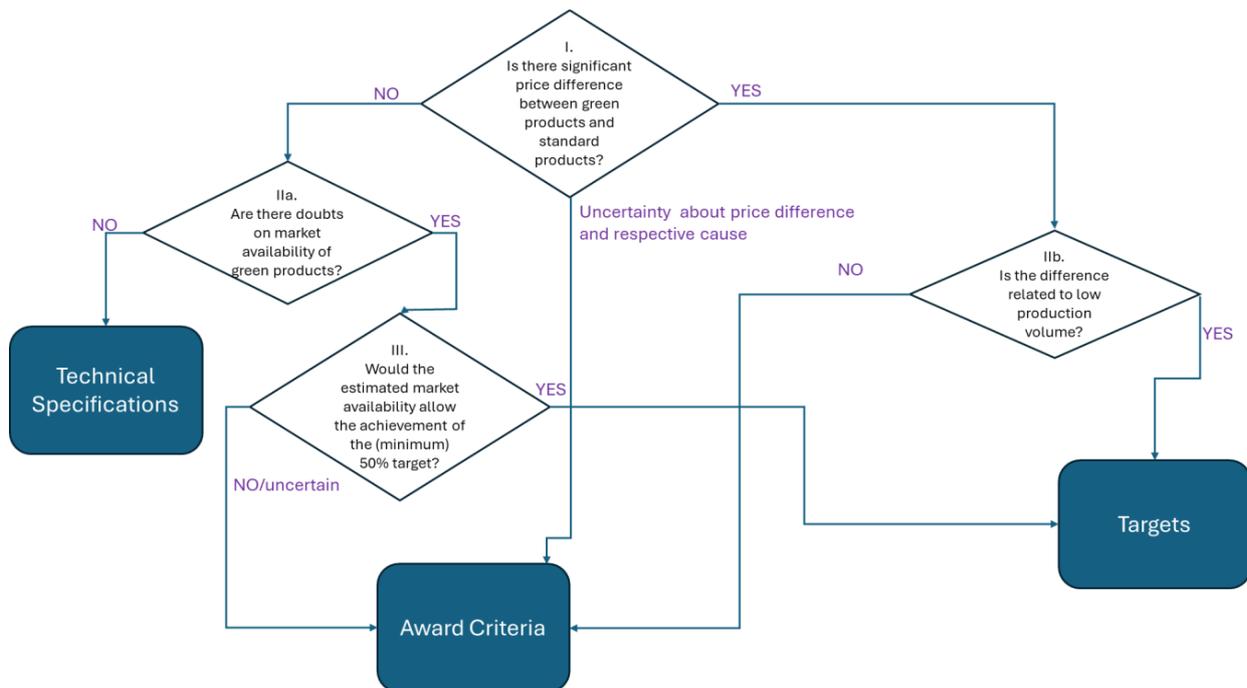
The following decision tree should be used:

- If there is **not a significant price difference between green products and standard products**, the GPP requirements should be set in the form of technical specifications, unless there are doubts about the market availability of the more sustainable options. In this case, it would be wise to resort to targets of increasing ambition levels (e.g. 50% of purchases should be sustainable in the first year, 55% in the second year and so on) or award criteria, if the estimated market availability does not allow the 50% target to be reached. This would allow time for the market to adapt and for suppliers to build capacity on the green product lines.
- If there is a **significant difference in the price of green products and standard products** and **the difference is due to the low production volume problem** described before, then targets are probably the best solution as they allow the suppliers time to build capacity, while creating demand.
- Finally, if there is a **significant difference in the price of green and standard products** and **the difference is due to the materials and/or labour requirements**, then the best solution would probably be to resort to award criteria with a significant weight assigned to them. In this case, the market would be stimulated to come up with innovative solutions to increase the sustainability of product lines without increasing their price, as market players would be aware that if they were to find a solution they would be rewarded with at least 20% (or potentially much more) of the award points.

In the event that the market research is not very solid and uncertainty exists, about price differences and their respective causes, then the most prudent solution would be to resort to award criteria as it is the least restrictive solution of all. This is in line with what is written in the legal text: “award criteria should be preferred to technical specifications when there are uncertainties about the availability or cost of the best performing products in the Union market.” (recital 100, ESPR)

Figure 5 summarises the procedure to be followed.

Figure 5. Flowchart of the procedure for the definition of GPP requirements



Source: JRC own elaboration

6.1.1 Assessment of the usefulness of setting targets

As clarified in Article 65, “*targets shall require, on an annual or multiannual basis, a minimum percentage of 50% of procurement conducted at the level of contracting authorities or contracting entities, or at an aggregated national level, of the most environmentally sustainable products*”. This is in line with the results of the study performed by Yang & Morotomi (2025), who showed that the impact of GPP on eco-innovation is U-shaped, with innovation being stimulated only when the proportion of green contracts in a country exceeds a certain threshold, which ranges from 16% to 50% among the studied samples (see Section 2.4.2).

In general, targets are useful for both of the following:

- Market creation: targets can help create markets for green technologies that are not yet commercialised. This is particularly useful for innovative products that are not yet widely available.
- Market escalation and consolidation: Once green products are commercialised, targets can help escalate their market penetration by ensuring a steady demand, which can encourage suppliers to invest in these products.

However, considering that the legal text proposes a minimum target of 50%, market escalation and consolidation are the objectives of targets for GPP under the ESPR.

Targets can stimulate innovation by providing a clear signal to the market about the demand for environmentally sustainable products. This can incentivise companies to develop and market green technologies. Moreover, targets can help ensure that the market for green products matures over time, reducing the initial price premium associated with green products. This is achieved by increasing the volume of green products demanded, which can lead to economies of scale and reduced costs.

When there is a need for flexibility, because of disparities in budgetary constraints or other factors among the different contracting authorities, aggregated targets at national level should be preferred. On the other hand, targets at the level of the contracting authority can help distribute the financial burden more evenly across the public sector, ensuring that all entities contribute to achieving the sustainability goals without overburdening any single entity.

As highlighted by McLennan (2024), on the one hand, the setting of targets leaves flexibility for each procuring entity to decide how best to apply GPP, e.g. focusing on the most relevant sectors or procedures. However, individual organisations are unlikely to feel responsible for meeting broad targets unless specifically mandated to do so. Similarly, target-based approaches do not directly oblige individual procurers to use GPP in procedures which are otherwise suitable (Semple, 2023), creating loopholes for not applying GPP.

7 Step 4 – Scenario analysis

The objective of this step is to determine the **expected market impacts** of GPP, beyond the impacts of ecodesign performance or information requirements. The impacts should be assessed over a relevant timeframe, considering the timeframe used in Task 7 of the Preparatory Study.

As previously discussed (Section 2.4), the inclusion of environmental considerations at any stage of the procurement process might increase costs as well as benefits. For this reason, it is important to evaluate the costs and benefits associated with green procurement strategies and choices to ensure that value for money is not adversely affected (OECD, 2024). Indeed, green products and services are often perceived to require significant up-front investments, which may result from the use of innovative materials, innovative production methods and management processes for the delivery, distribution, and disposal, as well as for testing and certification. Higher acquisition prices may be linked to a higher degree of innovation contained in green solutions. On the other hand, green solutions can bring economic savings, especially when the whole life cycle is considered (see Section 2.4.4).

The extent to which these positive (or negative) effects materialise depends significantly on the **volume** of new sustainable products and solutions demanded.

- In the case of voluntary programmes, this will be mostly dependent on the uptake of the measure. In turn, the uptake depends on the extent to which public authorities' concerns (e.g. increase in human resources cost related to verification and legal challenges and decrease in completion levels leading to insufficient market availability and increased prices) are addressed.
- In the case of mandatory measures (as under the ESPR), the overall volume of sustainable solutions demanded will depend on whether the requirements are set in terms of mandatory technical specifications and contract performance clauses (all of which would entail the exclusion of non-complying tenders) or award criteria (no exclusion in this case, just competitive disadvantage). In either situation, the volume of green products purchased can reasonably be expected to be much larger than that in the voluntary case. The use of targets (percentage of purchases, understood either as volume or economic value) can also have a modulation effect on the volume.

The factors that will influence the economic impacts of a SPP scheme are as follows:

- **The baseline:** as spelled out in the GPP Communication, the impact will depend on the comparison of the sustainability performance of the products procured under the proposed criteria and the products that “...*would otherwise be procured*.” The definition of the latter is not at all straightforward.
- **The requirements:** for a framework initiative like the ESPR, not even the impacts of the new items to be procured are well defined, as they will be set only further ahead through delegated acts.
- **The uptake:** after quantifying the impact variation associated with the procurement of one unit, the total volume of items that the programme covers needs to be estimated in order to allow for an overall assessment.
 - **Voluntary criteria:** the uptake will depend on the extent to which public authorities' concerns are addressed. Synergies with labelling become very relevant.

- **Mandatory technical specifications:** uptake equal to the total public procurement volume, but if the public authorities' concerns are not properly addressed, the negative economic impacts can be very high, namely with regards to hindered competition and market availability issues.
- **Mandatory amount of award points relating to sustainability criteria:** the estimation or modelling of the uptake is difficult. For example, some tenders may amount to a competition between products that do not comply with said award clauses. Then all tenders would get zero points in the sustainability dimension and would compete on equal terms. In this case, impacts would be null. There is nothing precluding this scenario except for the competition dimension and the potential rewards going to a tenderer that did comply.

7.1 Estimated economic impact in previous GPP voluntary criteria technical reports

As stated, the technical reports should include an estimation of the expected economic impacts of the criteria as a whole.

Some of the most recent technical reports were analysed, to understand which data were gathered and which methodologies were applied to conduct such an assessment.

7.1.1 Computers and monitors (and extension to smartphones) (Alfieri et al., 2021)

Thanks to information shared by a stakeholder, the overall ICT market value, and an estimation of public sector value were available for eight countries, allowing the study team to calculate the public sector value to total value ratio, and the public expenditure on ICT per head. Moreover, the contract notices available on the TED website were screened from mid-May to mid-June 2019 (1 month). It should be noted that, of the 102 tenders identified in TED, only 54 reported their economic value. The value of the remaining tenders was estimated according to the average value of the contracts identified. When it comes to the criterion on energy consumption, the application of LCC is mentioned.

7.1.2 Data centres, server rooms and cloud services (Dodd et al., 2020)

The estimated white space and number of data centres in the EU was provided by a stakeholder, Data Centre Dynamics³⁷. Quantitative estimations of the current number of server rooms in the whole EU do not exist due to issues of nomenclature and classification; however, server rooms have an important share of the total number of data centres in Europe. According to information from data centre experts, such a focus on server rooms is even more relevant for public organisations. The cost range for data centre owners and customers (percentage of total life cycle cost) was assessed. For each criterion, the life cycle cost implications are assessed, taking into account the estimated average pass rate for the proposed core and comprehensive criteria, as well as market implications.

³⁷ <https://www.datacenterdynamics.com/en/>

7.1.3 Imaging equipment (Kaps et al., 2020)

Due to a lack of procurement-specific data, the market analysis was based on different sources: the volumes and future trends were established based on assumptions made on the share of products sold for business-to-business purposes. The annual sales for all imaging equipment products were estimated based on several data sources, including a Survey of the Market Penetration of Energy-Efficient Office Equipment under the EU ENERGY STAR Programme, an online search, and statistical techniques. The values were reviewed and complemented considering input from stakeholders and using also the latest input provided for the revision of the Voluntary Agreement for Imaging Equipment on market trends, lifetime and sales. The estimated annual sales of imaging equipment in the scope of the GPP requirements were estimated for the period from 2015 to 2040. Historic sales were estimated purely to compare trends and be able to apply linear regressions in the event of data gaps. LCC was applied in order to have an overview of the most important costs to consumers. The LCCs were also used as the starting point to identify whether certain criteria would incur significant costs for the procurers.

To conclude, LCC is recognised as a useful methodology to take into account life-cycle costs, as codified also in the PP Directive (see Section 2.1).

7.2 Proposal of a procedure to assess the impacts of scenarios with mandatory GPP

The estimates of the economic impacts of mandatory GPP criteria should be based on LCC results developed in the Preparatory Study, under Tasks 5 and 6 of the MEErP, and on the stock model developed in Task 7 of the MEErP. Indeed, the LCC results reflect the increase/decrease in purchase price caused by the implementation of the ecodesign requirements, as well as other life-cycle cost implications (see Section 2.4.4).

This analysis allows the study team to develop a baseline, i.e. the economic impacts of the ecodesign requirements with a life-cycle perspective over a certain timeframe (**Baseline**, or Ecodesign scenario), multiplying the economic impact of one product by the volume of products purchased and used each year (see Task 7 of the Preparatory Studies). The baseline should be compared with the LCC results (economic impacts) of a (some) scenario(s) in which mandatory GPP criteria are applied, on top of the ecodesign requirements (**GPP scenario(s)**). More than one GPP scenario can be developed, considering the different types of mandatory GPP criteria that can be set (i.e. TS, AC, CPC or targets, or a combination).

The synergies and trade-offs between the various GPP requirements, as well as the availability of products on the market, should be considered. Indeed, a product that is considered green in respect to one parameter may not be considered green in respect to another. Paths (i.e. groups) of mandatory GPP requirements should be created, taking into account the different levels of ambition that can be achieved when more than one mandatory GPP requirement is applied. For example, if there are mandatory GPP requirements both on recycled content and durability, and the outcome of Step 3 was that it would be possible to have TS for both the requirements, there might still be trade-offs between the two requirements, meaning that the products in the best classes for recycled content are not the same products in the best classes for durability. In this case, as an

example, one path could include mandatory technical specifications for recycled content and award criteria for durability. Another path could include mandatory technical specifications for durability and award criteria for recycled content.

To develop the GPP scenario(s), certain aspects should be considered:

- The price of products with the best possible performance levels, including where available with the two highest classes of performance or scores, and an estimate of their evolution over time; in the event that performance classes are not defined, the procedure depicted in Senatore et al. (2025) can be applied to estimate them on the basis of performance levels. If more sustainable products are more expensive than standard ones, the reason for the price increase should be identified: the higher price could be linked to materials requirements, to increased labour requirements or to a small production volume (caused by reduced demand), which will mean higher overhead costs per item and difficulties in fully exploiting the price reduction possibilities associated with economies of scales and learning curves. If the case is the latter, then the creation of demand through mandatory GPP requirements could induce a reduction in prices over time.
- The presence of mandatory GPP requirements at national level, for the product group under consideration. Indeed, if there are already mandatory GPP criteria in some MSs, the economic benefits will be reduced. The analysis of this aspect can be supported by the table summarising the situation of the National Action Plans (NAPs) available in CIRCABC.
- The volume of publicly purchased products (split into green products and standard products) and an estimate of its evolution over time.
- The influence that the adoption of mandatory GPP criteria would have on the environmental performance of products available on the market, in the medium-long term.
- The expected dates of application of the Delegated Act setting the ecodesign requirements and of the Implementing Act setting mandatory GPP requirements.

Then, the economic impacts of the stock should be projected (e.g. to 2030, 2040), for the two scenarios. It is recommended to make projections until the same years used in Task 7 of the Preparatory Study. Particular attention should be devoted to the estimation of the evolution of the price and volume of the best performing products (i.e. the products promoted by the application of mandatory GPP criteria). This assessment can be supported by **dedicated market research**, as well as by the involvement of stakeholders. The market study should discriminate between the products that would be covered by mandatory GPP requirements (i.e. the two highest performance classes, the highest scores, or, when not available, the best possible performance levels) and those that would not.

This analysis can be used as an input for the dedicated impact assessment that the implementing act will undergo.

8 Conclusions

This report depicts the proposed methodology to set, or not, GPP minimum requirements in accordance with Article 65 of the ESPR.

The methodology developed provides a structured approach to assess the feasibility, impacts and appropriate forms of these requirements. Key findings include the following:

- **Advisability** assessment of GPP requirements: the analysis of public procurement data, including the use of platforms like TED, PPDS and national databases, indicates that GPP requirements are advisable for specific product groups where public bodies are significant buyers.
- **Feasibility** assessment of GPP requirements: GPP can stimulate innovation and create new market opportunities, but it must be carefully designed to avoid artificially restricting competition. Analysing the market concentration, maturity of the market and the capacity of suppliers to meet increased demand is crucial. Moreover, a specific assessment of the impact of GPP on SMEs should be performed. Finally, it should be considered that different Member States face varying budgetary capacities, climate conditions and infrastructural constraints, which influence their ability to implement GPP.
- **Definition of requirements:** the form of GPP requirements—whether technical specifications, award criteria, contract performance conditions, or targets—should be tailored to the specific context. Technical specifications are suitable when there is no significant price difference between green and standard products. Award criteria are preferable when there are uncertainties about market availability, price difference between green and standard products and the cause, or when innovation is needed to reduce costs. Targets can provide a gradual approach to increase the share of sustainable procurement over time, supporting market escalation and consolidation.
- **Scenario analysis** of GPP requirements: while green products may initially be more expensive due to higher up-front costs, they can bring long-term savings through reduced resource consumption and waste generation. The use of life cycle costing (LCC) methodologies helps quantify these impacts and supports informed decision-making.

In conclusion, the ESPR and the methodology for defining mandatory GPP requirements provide a robust framework to boost demand for better performing products and therefore enhance the sustainability of public procurement in the EU. By promoting the procurement of greener products and services, the ESPR can contribute to foster market transformation, stimulate innovation and contribute to the achievement of the European Green Deal objectives. Continuous monitoring, stakeholder engagement and adaptive policy measures will be essential to ensure the successful implementation of these requirements and the realisation of their environmental and economic benefits.

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List of abbreviations and definitions

AC	Award Criteria
BPQR	Best price-quality ratio
COD	Chemical oxygen demand
CIRCABC	Communication and Information Resource Center for Administrations, Businesses and Citizens
CPC	Contract Performance Conditions
CPV	Common Procurement Vocabulary
EC	European Commission
EMAS	Eco-management and audit scheme
EPD	Environmental Product Declaration
ESPR	Ecodesign for Sustainable Products Regulation
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GPA	Government Procurement Agreement
GPP	Green Public Procurement
GWP	Global Warming Potential
IISD	International Institute for Sustainable Development
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
LtSM	Link to the Subject-Matter
MEAT	Most Economically Advantageous Tender
MEErP	Methodology for the Ecodesign of Energy-related Products
MS	Member State
NAP	National Action Plan
OECD	Organisation for Economic Co-operation and Development
OGC	Organic Gaseous Carbon
PM	Particulate matter
PP	Public Procurement
PPDS	Public Procurement Data Space

R&D	Research and Development
SME	Small-Medium Enterprise
SPP	Sustainable Public Procurement
TED	Tenders Electronic Daily
TS	Technical Specification
VOCs	Volatile organic compounds
SVOCs	Semi-Volatile Organic Compounds
WTO	World Trade Organization

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Annexes

Annex 1. Diffusion of EU GPP

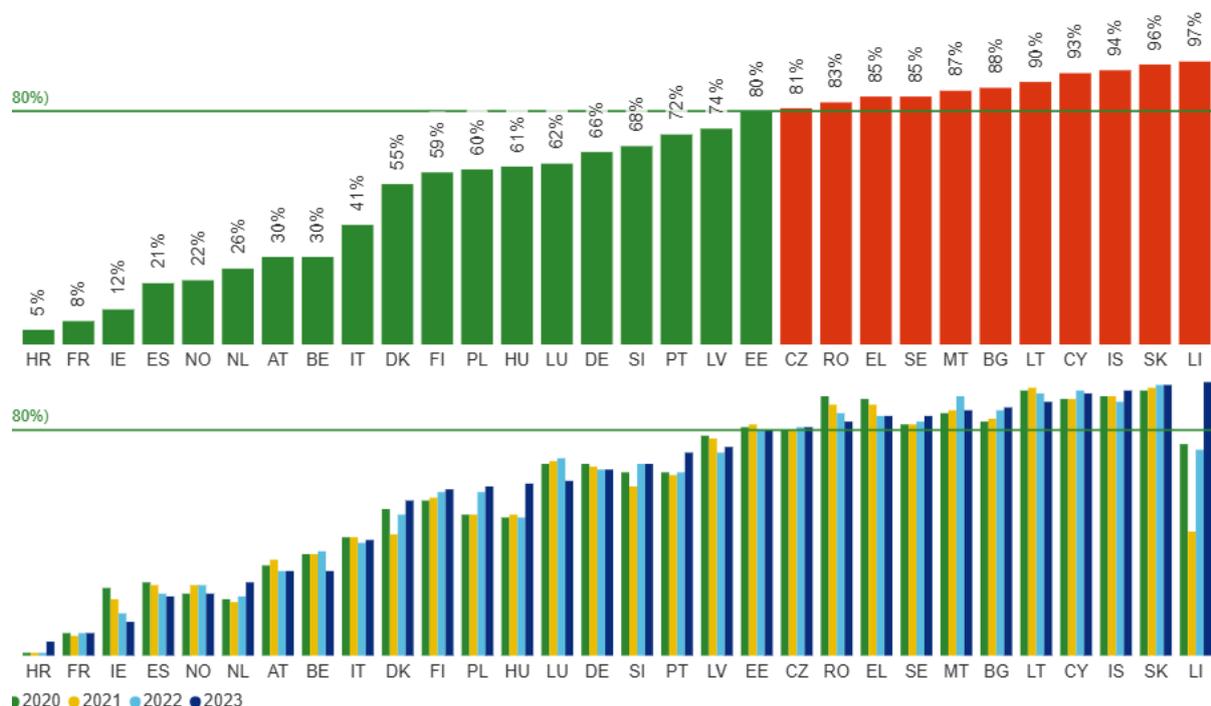
EU research has shown that GPP adoption rates vary significantly between product groups. For instance, the transportation sector had a high GPP adoption rate of 50%, while sectors such as textiles and furniture had less than 20% in 2012 (Turner, 2012).

Rosell (2021) estimated the average proportion of green public procurement relative to all public procurement from 2006 to 2017, based on the award criteria for 25 European countries as reported in TED³⁸. Results show that there are major differences between countries, with the proportion ranging from less than 0.5% in Malta to more than 15% in Denmark and France. Moreover, most countries only apply GPP to procure less than 5% of their contracts.

As explained by Sapir et al. (2022), another approach to estimating the extent of GPP is to look at the award criteria used in public procurement tenders. **Figure 6** shows the proportion of procedures awarded solely because the offer was the cheapest one available. The alternative procedure is to award contracts following the best price-quality ratio (BPQR) principle, which allows contracting authorities to award the contract to bidders based on criteria, including green criteria, beyond only price. The choice of criteria depends on what is being purchased, but an over-reliance on price suggests that better criteria could have been applied, resulting in a better purchase. Note that the use of the BPQR principle does not necessarily imply that green criteria have been used. A non-exhaustive list of other criteria could include quality, price, technical merit, aesthetic and functional characteristics, running cost, cost-effectiveness, after-sales service and technical assistance, delivery date and delivery period.

³⁸ [TED - EU Tenders, the Supplement to the Official Journal - TED](#). See Section 4.1 for further information.

Figure 6. Proportion of procedures awarded to the cheapest offer available, by MS, in 2023 (upper chart) and 2020-2023 (lower chart)



Source: https://single-market-scoreboard.ec.europa.eu/business-framework-conditions/public-procurement_en

Please note that there are other sources reporting higher numbers, when it comes to the diffusion of GPP. The reason is the methodology followed (e.g. TenderAlpha includes in the definition of GPP all the contracts to purchase green products and services as per the industry classification, as well as tenders including some keywords related to environmental sustainability and tenders compliant with specific green procurement regulations).

According to TenderAlpha (2023), the percentage of money spent on GPP out of the total amount spent on public procurement in the first 6 months of 2022 is reported in **Table 6**.

Table 6. Percentage of money spent on GPP out of the total amount spent on public procurement in the first 6 months of 2022

Country	% of money spent on GPP out of the total amount spent on public procurement in the first 6 months of 2022
Denmark	36.45
Malta	31.15
Croatia	29.06
The Netherlands	29.02

Iceland	27.68
Hungary	27.40
Greece	24.99
Poland	24.13
Belgium	21.15
Ireland	19.92

Source: *TenderAlpha (2023)*

This study by Guarini et al. (2025) highlights significant variations among EU Member States in the adoption, scope and enforcement of GPP. According to the findings, there is significant variation among European countries with regard to the date of the implementation of their National Action Plan (NAP), the obligatory nature of environmental standards, the demarcation of priority sectors and the effectiveness of monitoring mechanisms.

As reported by the European Commission (2021b), MSs have implemented GPP to different degrees. The main factor is whether there is a legal obligation for contracting authorities to include environmental considerations in their procurement procedures. Increasingly, European countries and subnational governments are making GPP mandatory. Approximately one third of MSs have introduced a legal obligation for specific sectors, product groups, or if the value of the contract is above specified thresholds. Some MSs have specific rules which create mandatory GPP standards for particular sectors or types of contracts. The others have opted for the voluntary inclusion of GPP.

In Austria, Finland, Germany, Norway, the Czech Republic, Italy, Spain, Cyprus and the United Kingdom, GPP is mandatory for central government procurement. In a subset of this group—Norway, the Czech Republic, Cyprus and Italy—GPP is mandatory for all levels of government. Mandatory GPP is implemented in different ways but could oblige the procuring authority to use minimum GPP criteria in all tenders, oblige procurers to give preference to the most environmentally friendly bid, or mandate the incorporation of life-cycle analysis and/or quality considerations (IISD, 2022). The Greek NAP for GPP, which was phased in from 2023, determined the rationale for changing the green rules from discretionary to mandatory (Orfanidou et al., 2023).

Indeed, in 2003, the European Commission in its Communication on Integrated Product Policy encouraged Member States to draw up publicly available NAPs for greening their public procurement.

The NAPs should contain an assessment of the existing situation and ambitious targets for the next 3 years, specifying what measures will be taken to achieve them. The NAPs are not legally binding but provide political impetus to the process of implementing and raising awareness of greener

public procurement. They allow Member States to choose the options that best suit their political framework and the level they have reached³⁹.

A table summarising the situation of the NAPs is available in CIRCABC⁴⁰ (updated in May 2025).

Annex 2. Challenges in the implementation of GPP

In an analysis performed several years ago, many Member States reported the absence of data on the use of GPP. While many Member States have included guidance on how to incorporate green criteria into procurement procedures, only some of them have explained how to assess those criteria in the evaluation stages (European Commission, 2021b).

The same document (European Commission, 2021b) reports some of the main challenges they encountered by Member States in the implementation of GPP, such as:

- the difficulty to foster GPP practices due to the lack of legal obligation for contracting authorities to use environmental criteria in tendering procedures;
- the lack of legal certainty on the correct interpretation of the requirement on the 'link to the subject-matter of the contract' and the general fear of litigation;
- the lack of data on the effectiveness and economic benefits of applying GPP criteria and the difficulty to monitor their application;
- the lack of specific knowledge and skills of the public servants engaged in tendering procedures and the fact that GPP may be perceived as an obstacle to competition, specifically restricting SME participation in public tendering.

The main concerns of public authorities that act as barriers to the uptake of green or sustainable public procurement⁴¹ schemes are the following:

- public authorities fear that the tendering procedure might be subject to legal challenges from tenderers that were excluded based on sustainability criteria, which may not be sufficiently well defined or may be difficult to verify.
- public authorities fear that verification difficulties will increase the HR labour burden associated with the tendering procedure.
- public authorities fear that the inclusion of sustainable criteria might increase the price of the offers.
- public authorities fear that the inclusion of sustainability criteria will decrease the number of offers received and hurt competition due to lack of market availability.

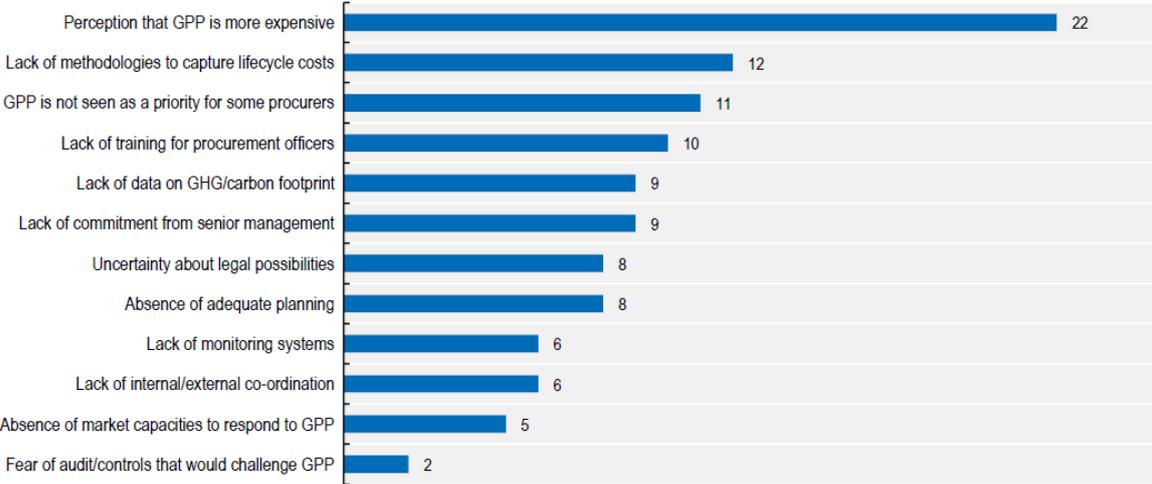
³⁹ [Advisory Group & National Action Plans - European Commission](#)

⁴⁰ https://circabc.europa.eu/ui/group/44278090-3fae-4515-bcc2-44fd57c1d0d1/library/3cc219c8-3c11-4aeb-8523-a85d5a6d99be?p=1&n=10&sort=name_ASC

⁴¹ Sustainable public procurement (SPP) is defined as: "a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only for the organisation, but also for the society and the economy, whilst minimising damage to the environment" (UNEP, 2013, p. 11).

The analysis performed by OECD (2024) identified the main obstacles to increasing the uptake of GPP (**Figure 7**).

Figure 7. Main obstacles to increasing the uptake of GPP



Note: Graph shows respondents responses to the question "Based on experiences from practitioners in your country, what do you think are the three main obstacles to increase the uptake of GPP?"

Source: OECD (2024)

Most countries do not consider the impact that environmental sustainability features of purchased goods and services might have on the price offered by tenderers. In addition, some respondents recognised that the use of GPP can increase the overall costs of public contracts as economic operators are often asked to develop and use innovative technologies and production systems to meet the green requirements of public tenders - and this carries some costs. Another key issue concerns the capacity of the market to respond to the green criteria used in public tendering, as it is often the case that there are just a few suppliers that can meet these sustainability requirements. This also contributes to increasing prices as competition is reduced. (OECD, 2024)

However, these concerns can be addressed through measures that would improve the skills required for GPP and knowledge of it (this would address concerns relating to verification and legal challenges), and measures that would build capacity and invigorate the use of strategic procurement (this would address concerns relating to market availability, competition and price increase

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