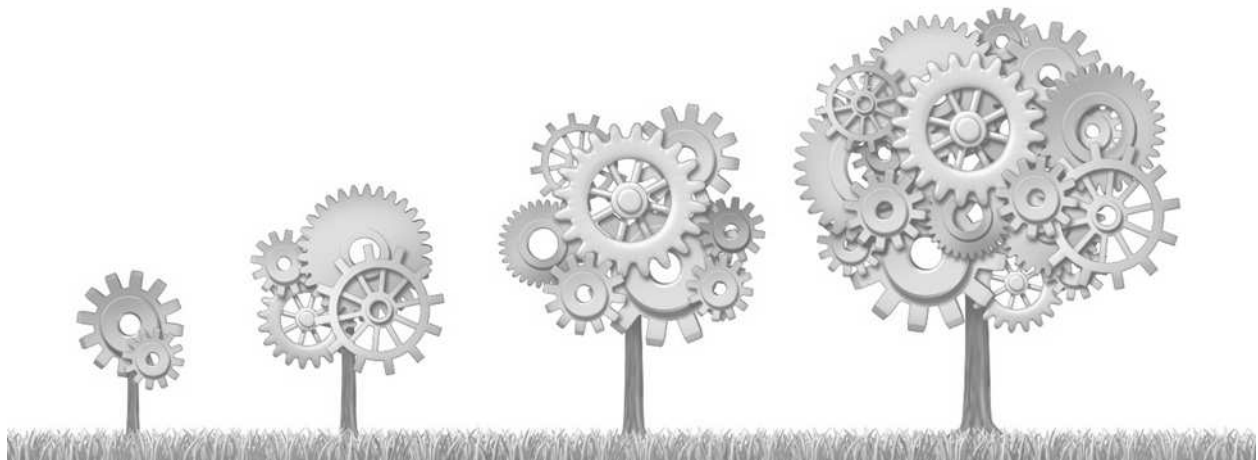


GPP4Growth

Green public procurement for resource efficient regional growth

“Good Practice Guide on successful GPP cases”

A1.2: Identifying successful green public procurement cases



Zemgale Planning Region (ZPR)

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1 Introduction

The new EU public procurement system (2016) creates new opportunities for public authorities to stimulate eco-innovation, resource efficiency and green growth, by using new award criteria in calls and tenders that pay particular attention on environmental considerations. This is particularly important for the local /regional public authorities to achieve regional green growth and respond to current and future environmental and economic challenges, through the adoption of – what is called Green Public Procurement (GPP).

Spending more than 2 trillion euros each year (19 % of the EU's GDP) on goods, supplies, services and works, Europe's public authorities can use their purchasing power to choose environmentally friendly goods and services,, including efficient electronic & electrical equipment, electricity from renewable energy resources, sustainable construction works, low emission public transport vehicles, promoting sustainable consumption and production patterns in their territories.

This document is the final deliverable of GPP4Growth Activity 1.2 entitled “Identifying successful green public procurement cases”. The Good Practice Guide (GPG) presents a number of GPP cases to illustrate how EU public authorities have successfully launched green tenders, providing guidance for others on how to apply environmental and sustainable criteria when making their purchasing decisions.

The case studies provide illustrative and practical examples for the definition of procurement objectives, for the criteria and specifications to be employed for the identification of environmentally-friendly products/services, and highlight the major results and lessons learned during GPP implementation.

The purpose is to provide policy-makers and stakeholders with a tool to identify possible ways to support the implementation of green contracts in their regions and promote improvement of own policy instruments' implementation. The main findings drawn from the analysis will be used by regional authorities to develop territorial action plans and strategies that will promote the adoption of green criteria in public procurement.

The guide is outlined as follows: section 2 provides information about the context of the GPP4Growth project; section 3 describes the methodological framework upon which the collection of cases was realised; section 4 presents the main findings and common issues drawn from the quantitative analysis of GPP cases; section 5 outlines the approach employed for the identification of good practices including the scoring assessment grid; section 6 presents in detail the most successful cases collected by project partners, showcasing the accomplishments achieved; and section 7 summarises the main lessons learned from actual implementation and provides practical guidelines for procurers.

2 The GPP4Growth project

The “Green public procurement for resource efficient regional growth - GPP4Growth” project aims to improve the implementation of policies on resource efficiency in particular the Circular Economy, by incorporating green public procurement (GPP) criteria to support public administrations and businesses to adopt lifecycle cost approaches and improve the overall management of resources and waste. The project will allow the involved public authorities to share practices and experiences relevant to the benefits and methods for implementing GPP, use of common GPP criteria for key sectors and identification of opportunities to apply GPP to achieve green growth based on regional conditions and challenges.

2.1 GPP4Growth activities

GPP4Growth brings together 9 partners from 9 countries, involving the managing authorities & regional bodies influencing regional and national policy instruments, to stimulate eco-innovation, resource efficiency and green growth by promoting Green Public Procurement (GPP). The project also aims to support public administrations and businesses to adopt lifecycle cost approaches and improve the overall management of resources & waste. The project includes a wide range of activities, focusing on promoting the interregional learning process and the exchange of experience among regional authorities. Project activities include:

- Analysing the needs of GPP4Growth regions in Green Public Procurement.
- Identification of successful green public procurement cases.
- Evaluation and analysis of existing policies, plans, and criteria for GPP in the key GPP4Growth sectors.
- Analysis of the factors (barriers and enablers) that influence businesses in key GPP4Growth sectors to get involved in green tenders and contracts.
- Promoting public dialogue and the consultation process to build consensus and ensure the successful implementation of regional action plans, through the support and participation of key regional stakeholders.
- Fostering interregional learning and capacity building through workshops, study visits, and policy learning events.
- Development of transferable tools & resources to promote benchmarking and policy learning, and transfer knowledge and lessons learned beyond the partnership.

- Joint development of action plans to promote the improvement of the policy instruments addressed by the project.
- Increasing awareness, promoting and disseminating the project results and knowledge beyond the partnership.

2.2 GPP4Growth expected results

GPP4Growth will improve 9 policy instruments, relevant to the abovementioned policy areas, targeting to achieve:

- Over 7% increase in the number of businesses in partners' regions, integrating environmental factors and costs when procuring goods and/or providing supplies, services and works.
- Increased capacity of 200 staff of public administrations to effectively implement resource efficiency policies, applying GPP.
- 10 million of Euros investments unlocked to promote new green products and services development.
- Increased knowledge awareness of over 1000 stakeholders on the influence of GPP on the adoption of sustainable consumption and production patterns by businesses.

3 Survey purpose and methodology

3.1 Purpose and research questions

The strategic purpose of this guide is to inform policy makers about possible ways to support the implementation of green contracts in their regions and promote improvement of own policy instruments' implementation through the adoption of environmental and sustainability criteria in public procurement practices.

The collection of empirical evidence on actual GPP implementation has provided valuable insights regarding: a) the definition of procurement objectives and criteria for identifying the more sustainable products, b) the challenges and opportunities associated with the integration of environmental criteria and more effective implementation of GPP in particular sectors of interest (e.g. construction, electricity, transportation, food and catering services), c) the major results and lessons learned from the implementation of green contracts in terms of achieving enhanced environmental performance and promoting sustainable production/consumption, and d) the potential transferability and uptake of GPP practices by public authorities in other geographical contexts and industries.

This study therefore addresses the following research questions:

1. Which have been the most successful GPP approaches in stimulating eco-innovation, resource efficiency and green growth? Why have these cases been effective?
2. Which are the main drivers and limitations when formulating green criteria in public procurement processes?
3. What are the major results from the integration of green award criteria in calls and tenders?
4. What lessons can be learned from adopting green practices in public procurement?
5. How transferable are these GPP approaches in other EU regions and industries?

The scope of the survey is defined in the GPP4Growth Application Form in terms of research method, geographical coverage, and sectors/themes covered, as follows:

- Research method: Desk research
- Geographical coverage: Consortium countries (Greece, Italy, Poland, Belgium, Spain, Latvia, Bulgaria, Ireland and Malta) and neighbouring EU countries (e.g. Cyprus and Germany)

- Sectors/Thematic areas: Good practices on GPP methods that have led to the implementation of green contracts (in EU regions/counties) in particular key sectors, such as sustainable construction and renovation works, environmentally-friendly transport, promotion of sustainable food and catering services, electricity from renewable resources etc.

3.2 Research methodology and documentation tools

Desk research was the main research methodology employed for collecting cases on successful green tendering procedures launched by public authorities to stimulate eco-innovation, resource efficiency and green growth. The reason why secondary research was selected as the primary methodology of this investigation is that it represents an efficient and cost-effective way to capitalise on already existing knowledge, without requiring to invest too much time and resources (e.g. specialised personnel, external consultants) for creating knowledge from scratch. This approach, which focused on retrieving secondary data from different sources, also bears the advantage of providing perspectives based on already analysed and validated evidence.

Information on GPP cases were collected with the contribution of all GPP4Growth partners through external and internal desk research. External desk research involves the exploration of evidence and information for a particular issue outside the organisational boundaries of an entity (e.g. public administrations, enterprises, associations). Actually, this source of data comprises documents available online retrieved from relevant secondary sources of information, such as academic journals, industry reports and similar EU projects. The second approach (i.e. internal desk research) comprised data collection from within GPP4Growth partners' organisations, such as the analysis of regional strategies, calls for tenders and other internal documents.

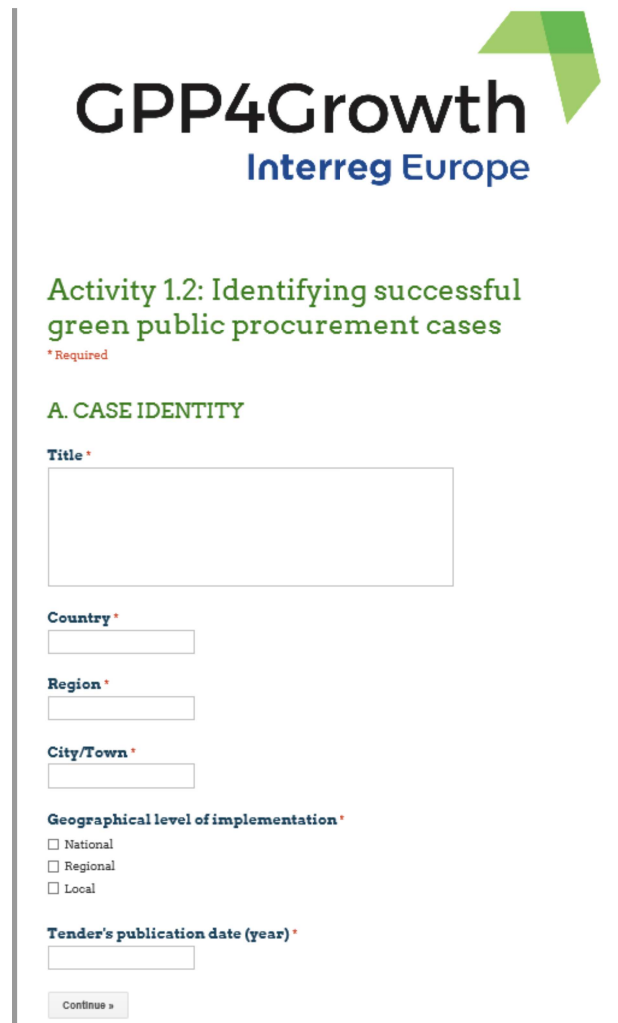
The methodology elaborated on a case documentation sheet to make it easier to document GPP cases, and to ensure that all cases were reported in a consistent and clearly structured manner. The documentation sheet was not a questionnaire addressed to public authorities' representatives, but the main tool/instrument used by project partners for documenting all relevant evidence/information for each case (i.e. GPP approach), identified through desk research.

A web-based approach (Figure 1) was employed for reasons of practicality, and to facilitate the data collection, coding, and analysis process. The case documentation sheet was made up of 4 sections, which were designed to address the research questions and goals of the good practice guide.

- A. Case Identity
- B. Case Description
- C. Needs, Barriers, Success Factors
- D. Results & Prospects

As mentioned above, the documentation sheet was provided as an on-line questionnaire (through Google Forms), which was directly completed by project partners. Notwithstanding this, the great majority preferred to describe and deliver their cases in a separate word or pdf file. The research lasted for more than 3 months, from the end of May 2017 until the mid of September 2017, in order to gather sufficient green procurement cases from across the EU area. ZPR was the partner responsible for coordinating the data collection, informing about delays or shortcomings, and encouraging partners to collect as many cases as possible.

Figure 1: Case documentation sheet (online form)



GPP4Growth
Interreg Europe

Activity 1.2: Identifying successful green public procurement cases
* Required

A. CASE IDENTITY

Title *

Country *

Region *

City/Town *

Geographical level of implementation *

☐ National
☐ Regional
☐ Local

Tender's publication date (year) *

Continue »

4 Main findings (common issues)

This section discusses the main findings drawn from the statistical analysis of all GPP cases, seeking to derive common issues and conclusions related to the successful implementation of green tendering procedures. In total, 29 cases were collected and described by project partners through the online form or a printed copy of the case documentation sheet. The results are representative in terms of geographical distribution and industry breakdown.

Regarding geographical distribution, Spain and Belgium are found to participate with the highest rate, accounting to 41.4% (i.e. 4 cases from each country). Greece, Ireland, and Poland follow with 10.3% rate of participation, whereas the remaining cases come from Malta, Latvia, Bulgaria, Cyprus and Germany (Figure 2). It must be noted that all consortium partners contributed to data collection with cases from their own territory (incl. neighbouring countries), demonstrating a high level of commitment.

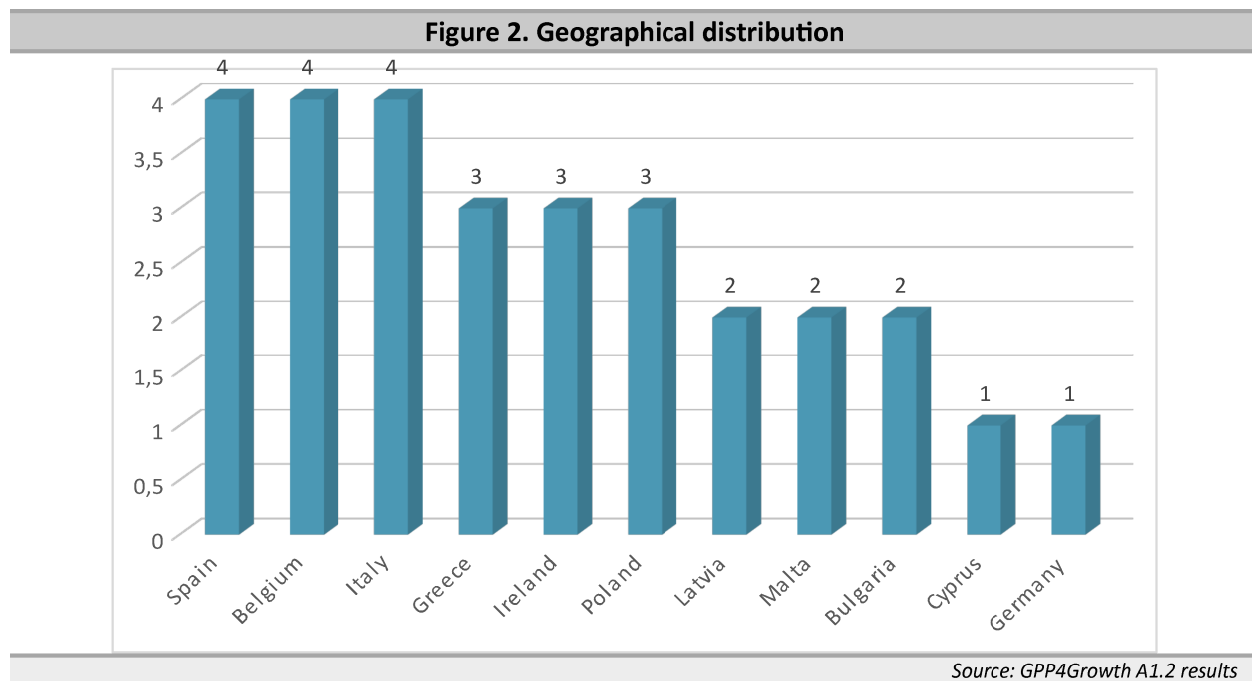
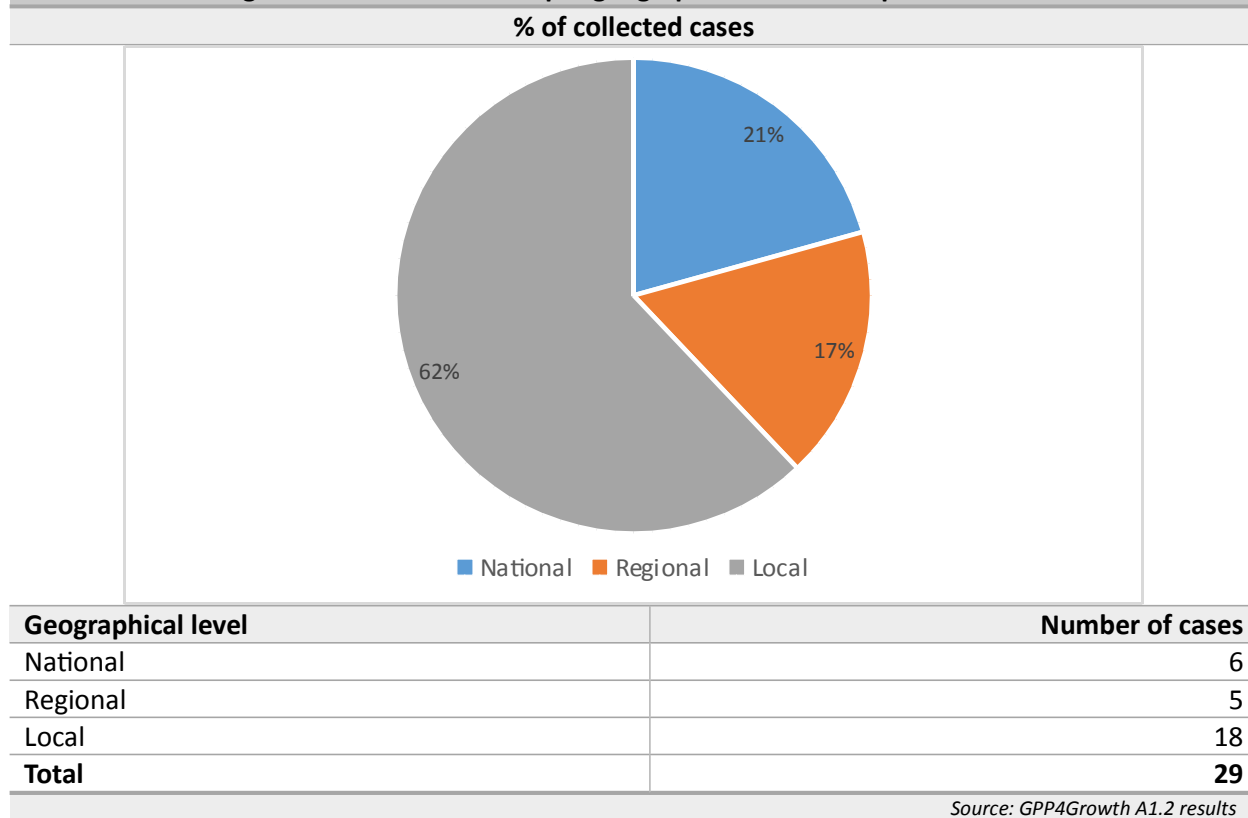


Figure 3 shows the distribution of cases per geographical level of implementation. The great majority describes green tenders launched by local authorities to address local needs and challenges, such as upgrading municipalities' street lighting, refurbishing public buildings and employing sustainable waste management services. This demonstrates that local authorities take seriously the environment and act as

accordingly (by setting GPP targets and promoting sustainable practices), despite the lack of technical expertise and the conflicts of interests that may occur due to employees' resistance to business changes.

Figure 3. Case distribution per geographical level of implementation

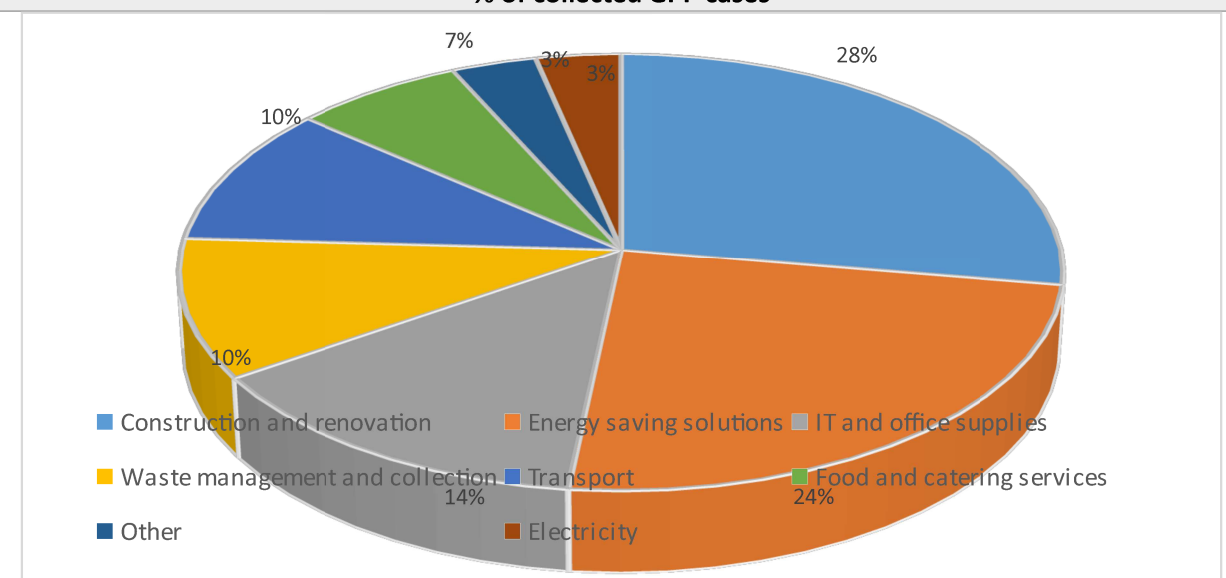


The good practice guide aims to present successful green public procurement cases that have led to the implementation of green contracts in sectors of particular interest for GPP4Growth countries, such as sustainable construction and renovation works, environmentally-friendly transport, promotion of sustainable food and catering services and electricity from renewable resources. Figure 4 illustrates the collected cases per industry / economic sector (industry breakdown). Data collection resulted in a wide range of sector activities, where EU public authorities have successfully launched “green” tenders to promote environmental protection, resource efficiency and sustainable development. The majority of the collected cases (i.e. 8 GPP cases) describe construction and renovation works carried out to promote buildings' energy efficiency (e.g. constructing a nearly-zero energy primary school in Malta). Relevant procured services may include roof sealing and covering, plumbing and electrical works, solar panels, as well as the replacement of old appliances with new energy-efficient ones.

A significant share of cases (i.e. 24%) relates to the integration of energy saving innovative solutions into public infrastructures (e.g. public lighting or educational buildings), followed by green tenders procuring office supplies such as recycled paper and consumables. Waste management services and sustainable transportation are also to the fore of public procurement activities. Public authorities wish to handle municipal waste in a more sustainable, seeking to promote a circular economy pathway based on materials' recyclability and reusability. The procured services cover the entire waste management process, including the handling/collection, storage, transportation, treatment and final disposal of waste. Finally, transportation represents a sector with a big potential for environmental improvements, taking into account that transport activities are associated with growing levels of environmental externalities.

Figure 4. GPP cases per sector of interest

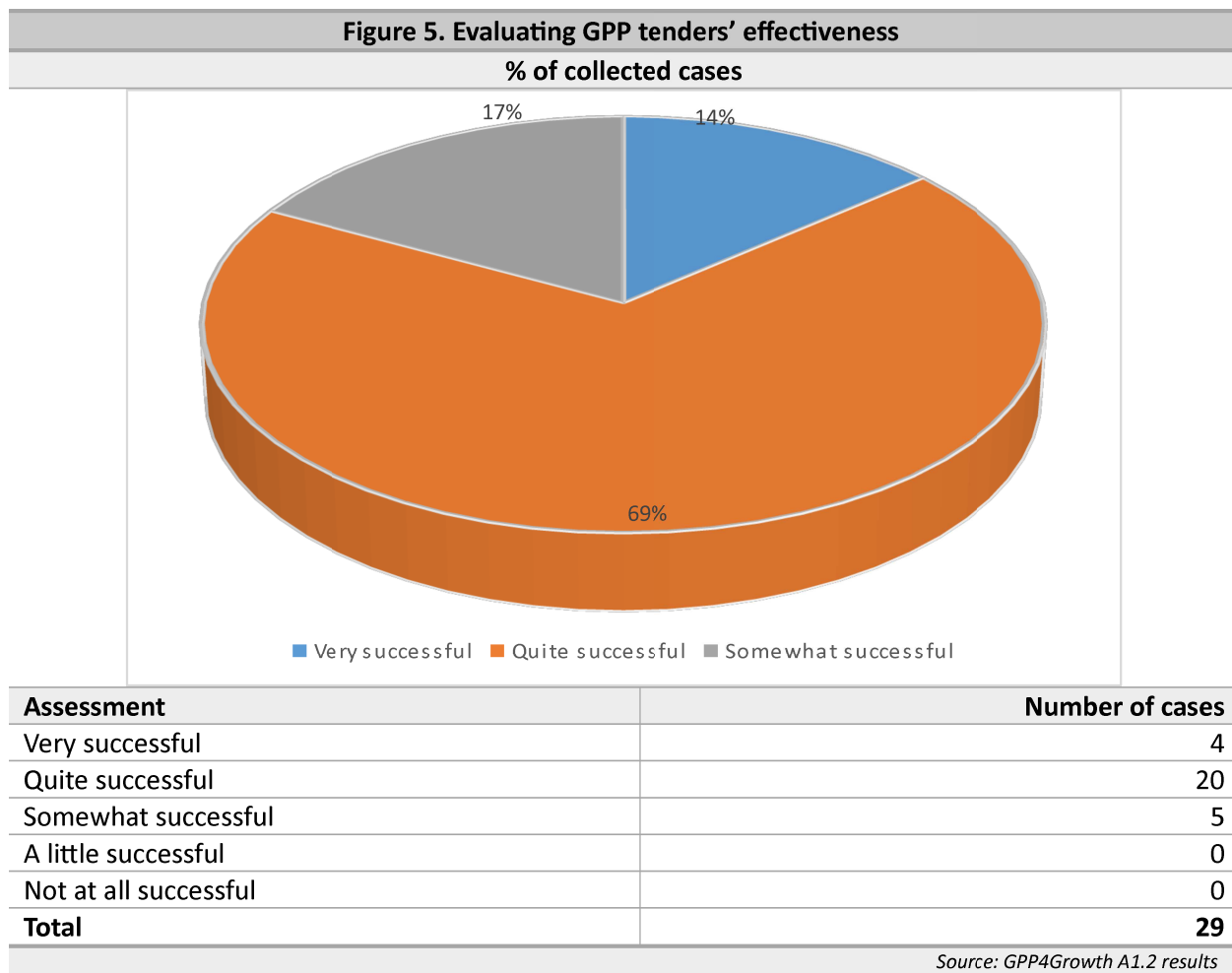
% of collected GPP cases



Assessment	Number of cases
Construction & renovation	8
Energy saving solutions	7
IT and office supplies	4
Waste management	3
Transport	3
Catering services	2
Electricity	1
Other	1
Total	29

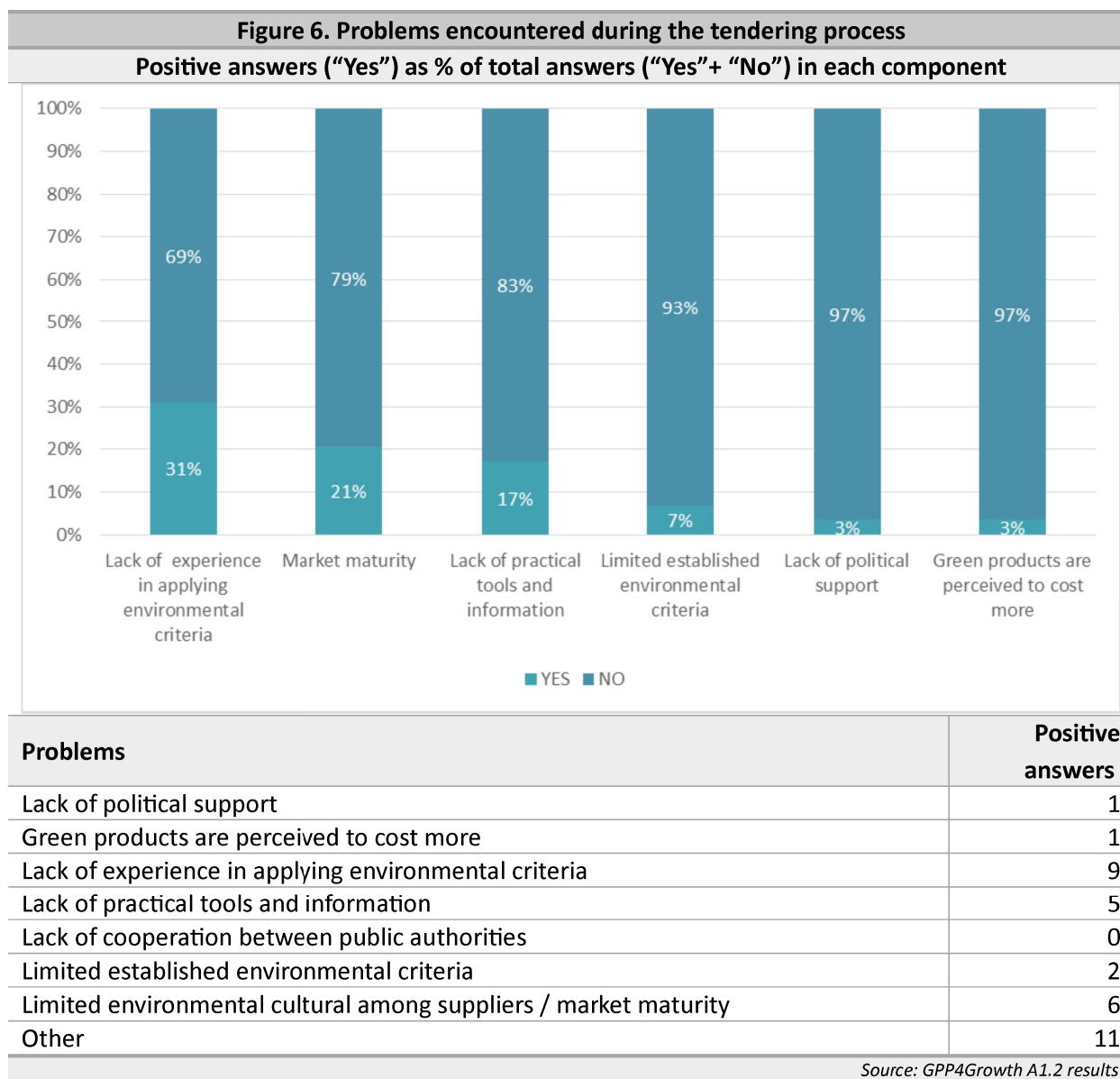
Source: GPP4Growth A1.2 results

At a next stage, project partners were asked to evaluate the cases they identified on the basis of a pre-defined rating scale, responding to the question “How would you describe this GPP approach to tendering?” The 24 out of 29 cases (i.e. 83%) were assessed as very or quite successful, while the remaining 5 as somewhat successful (Figure 5). This can be explained by the fact that most of GPP tenders have reached their procurement objectives, generating tangible and measurable results for the entire community in terms of enhanced environmental performance, higher products’ quality and financial savings.



To foster the integration of environmental criteria into tendering procedures, it is vital to understand the main challenges hindering the implementation of green public procurement. The literature review highlighted key barriers such as the lack of political support, the perception that greener products incur additional costs, the lack of legal expertise in applying environmental criteria, and the lack of training

and financial resources as well as the limited environmental awareness among suppliers. Project partners were asked to describe the problems encountered by procurement authorities during the implementation of the identified tendering procedures, so as to spot the main barriers to green public procurement.



Data analysis highlighted that the lack of experience in applying environmental criteria was the most influential factor in hindering the smooth preparation / implementation of green tenders. In some cases

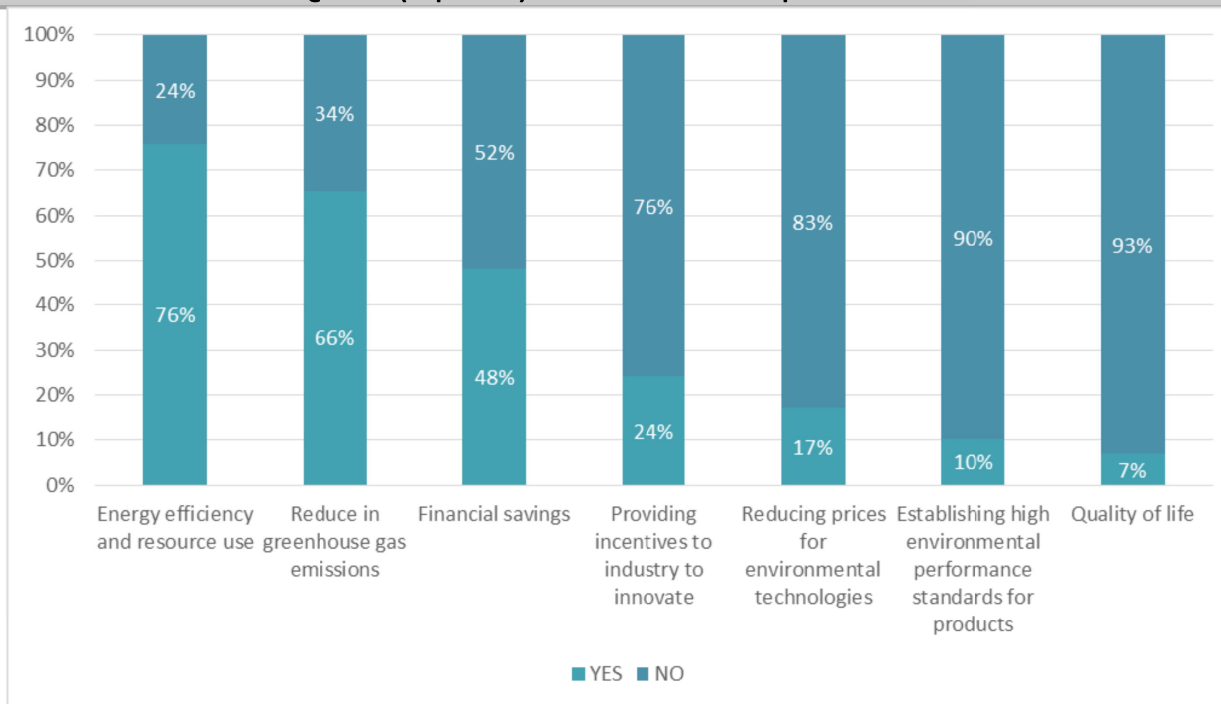
(i.e. 31%), procurement officers appeared to lack adequate experience in preparing calls for green tenders, demonstrating difficulties to define what an environmentally preferable product or service is, and how to include appropriate criteria to identify these in tendering. Another challenge for public authorities is to evaluate and verify the information/documentation submitted by bidders in response to the defined environmental criteria. To overcome the aforementioned challenges, contracting authorities tend to outsource procurement activities by assigning a field expert (e.g. energy agency) to run and administer the entire process. The collected cases also revealed other barriers / problems encountered during GPP implementation such as the limited market maturity and the lack of practical tools and information (Figure 6). For many products/services, public authorities do not have access to market information and verifiable criteria that will allow them to incorporate environmental considerations into their tendering, while the market is not mature enough to supply the procured services.

Green public procurement entails significant benefits that are not limited to improving environmental performance, but can include societal, economic and political benefits. From an environmental perspective, GPP allows public authorities to address key environmental issues (e.g. deforestation, greenhouse gas emissions, air pollution), providing incentives to the private sector to innovate and produce more sustainable products and services, and acting as a dissemination channel for raising environmental awareness and creating a sustainability culture within the society. In addition, GPP can help to establish high environmental performance standards for products and services and improve the quality of life; for example, the reduced use of hazardous chemicals in cleaning products provides a healthier working environment. Finally, GPP often leads to significant economical savings for the public over the whole life-cycle of a purchase. For example, the procurement of energy efficient luminaires may incur higher up-front costs, but will save money in the long run considering the extended life duration and the decreased cost for maintenance and repair.

Green public procurement has been found by GPP4Growth partners to generate a number of positive environmental, economic, and societal outcomes. Figure 7 presents an overview of the benefits created by the GPP cases listed by GPP4Growth partners. Evidence shows that the most common results drawn from GPP implementation are related to enhanced environmental performance and sustainability, i.e. improving energy efficiency and resource use (76%), reducing greenhouse gas emissions (66%), followed by economic and societal benefits. These include increasing the financial savings associated with the purchase of green products in the long-run (48%), providing incentives for innovation (24%) and decreasing prices for environmental technologies (17%). The least pronounced results relate to the setting of environmental standards for products/services (10%) and improved quality of life (7%).

Figure 7. (Expected) Results from GPP implementation
Positive answers (“Yes”) as % of total answers (“Yes”+ “No”) in each component

Figure 7. (Expected) Results from GPP implementation

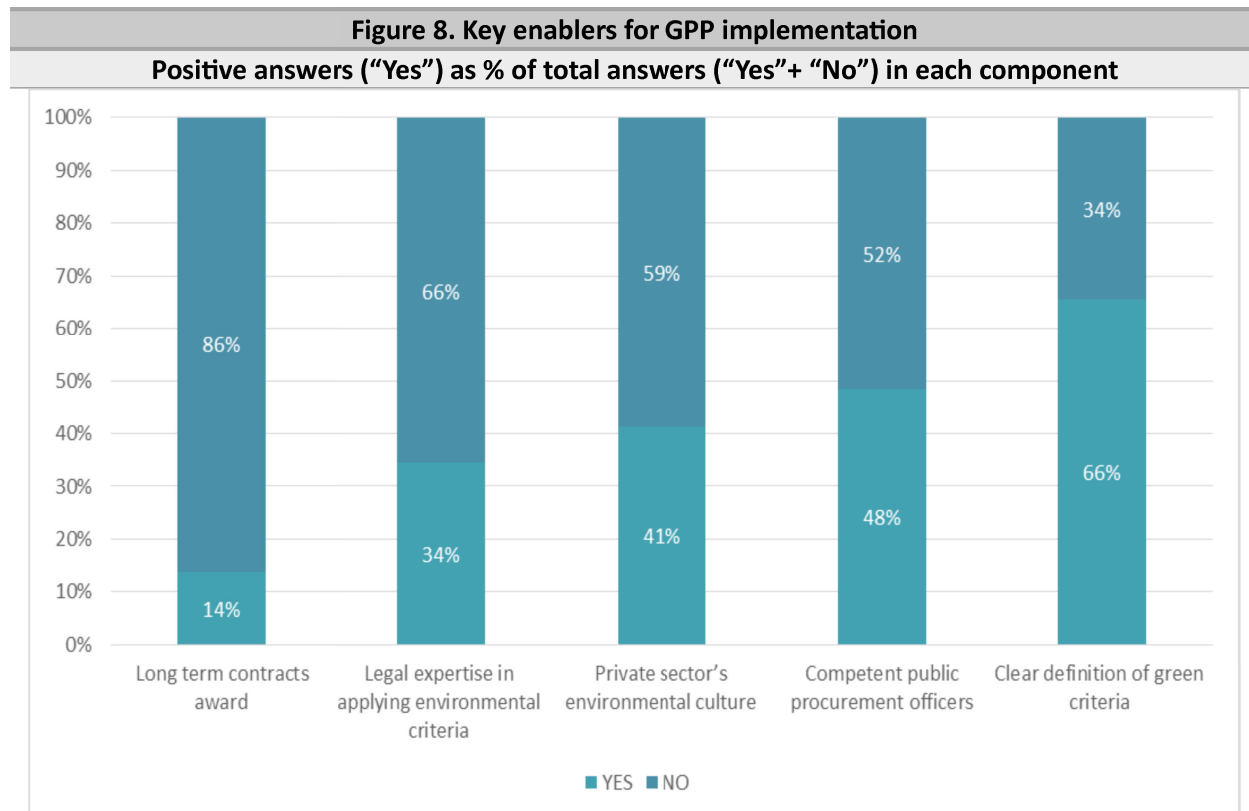


Results	Positive answers
Reduction in greenhouse gas emissions	19
Energy efficiency and resource use	22
Establishing high environmental performance standards for products	3
Financial savings	14
Increase in job opportunities (employment)	0
Better quality of life	2
Providing incentives to industry to innovate	7
Reduced prices for environmental technologies	5
Other	1

Source: GPP4Growth A1.2 results

The literature indicates that there is a great range of factors affecting public authorities to apply green criteria into tendering procedures, ranging from the prevalence of corruption to the availability of an adequately skilled workforce and access to finance. Some of these factors are internal, reflecting public administrations' capability to administer the tendering process or resistance to change procurement practices. Other factors are external and shape the overall regulatory and business environment such as market maturity and readiness to comply with environmental regulations and higher political level commitment to promote environmental sustainability through public procurement. Factors such as the

clear definition of green criteria into calls (66%), the availability of competent public procurement officers (48%) and private sector's environmental awareness (41%) were seen as the key drivers for the successful implementation of the collected green tenders, while the award of long terms contracts (14%) was identified as the least influential driver (Figure 8).



Factors	Positive answers
Legal expertise in applying/integrating environmental criteria into tender procedures	10
Long term contracts award	4
Competent public procurement officers to carry out the tendering process	14
Clear definition of green criteria (within the tendering process)	19
Private sector's environmental culture / Availability of relevant suppliers	12
Other	4

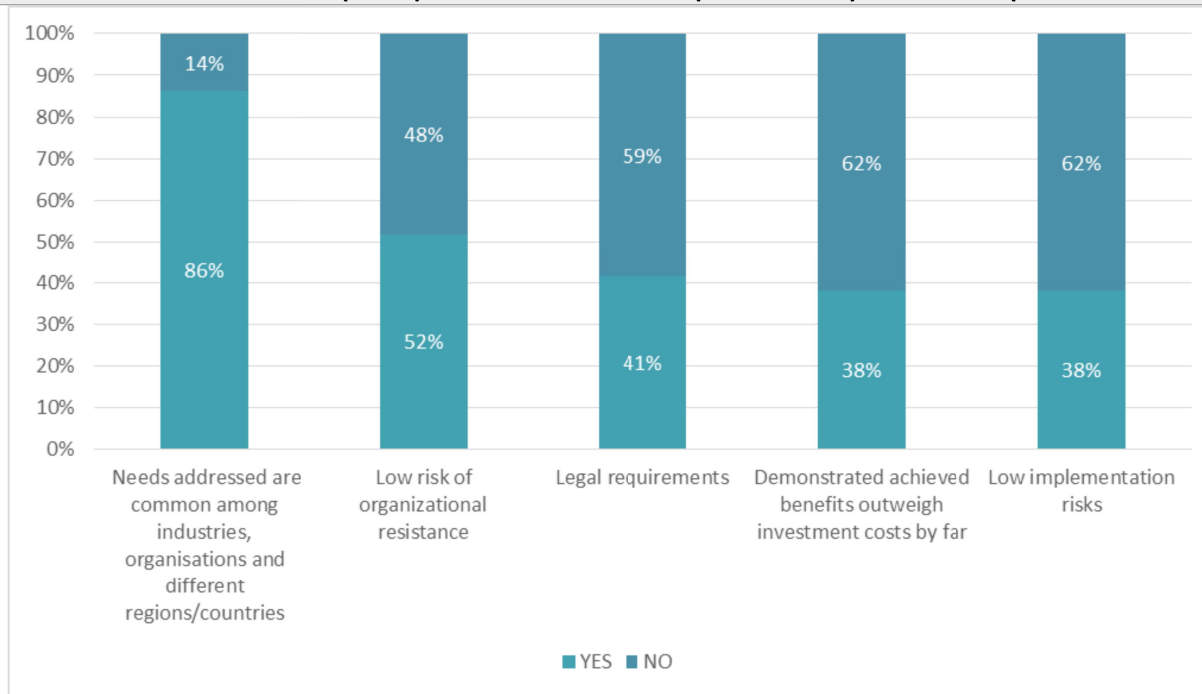
Source: GPP4Growth A1.2 results

Generalizability and transferability are significant elements of any case study intended to act as an example for policy implementation. Generalizability can be defined as the extension of research findings and conclusions from a study carried out on a specific sample to the large population, while transferability refers to the process of applying a particular approach to other similar situations or settings. The main purpose is to identify whether the selected GPP cases include elements that make

them transferable into other regions and settings and to anticipate the expected results (if replicated) based on generalisation principles. The study demonstrates that a GPP practice can be transferable, only if a number of conditions are satisfied. The most important factor in determining a case's transferability is the compatibility of needs addressed by the tendering procedure among the different industries, organisations and regions (86%). Additional key elements have to do with the low risk of organisational resistance within public administrations (52%) and the complexity of legal requirements stemming from EU/national legislation (41%). In addition, scalability is a key component of transferability, as it entails the wide scale participation of suppliers in a tendering procedure. This aspect can be further strengthened if standardised procedures and criteria are embedded in tendering procedures across the EU (in the case of open calls).

Figure 9. Elements that make GPP cases transferable

Positive answers ("Yes") as % of total answers ("Yes" + "No") in each component



Source: GPP4Growth A1.2 results

5 Identification of best practices

The methodology defined a number of quality specifications and evaluation criteria to make easier the assessment of collected cases on a “good practice” basis. Overall, a good GPP practice can be defined as a “green” tender that a) addresses a common problem or issue (e.g. resource efficiency, air pollution, waste management) experienced by different public administrations, regions, and industries, b) makes an original contribution or offers a significant improvement to a shared problem compared to existing practices, c) has been proven successful by providing measurable or demonstrable results or by going through internal or external validation and evaluation, and d) can be easily transferred into other organisational or regional settings.

The selection of good practices was a two stage procedure. The first stage included an initial screening to identify whether the collected cases meet the requirements prescribed in the methodology and whether the accompanied data/information is complete and accurate. The results showed that 23 out of 29 cases satisfied to some extent the following quality characteristics:

- Public tendering procedures carried out by public authorities for procuring environmentally friendly products or services. Cases that describe the policy framework underlying the implementation of GPP measures have not be taken into consideration.
- Cases retrieved from the countries represented in the project consortium (Greece, Italy, Poland, Belgium, Spain, Latvia, Bulgaria, Ireland and Malta), and where relevant / available from neighbouring EU countries.
- GPP approaches to tendering in high-impact sectors such as construction and renovation works, sustainable transport, food and catering services, electricity, waste management, energy saving products, IT and office supplies.
- GPP4Growth partners evaluated the cases as successful or very successful examples of green public procurement
- All selected cases have been replicated in other areas/settings, or demonstrate high transferability potential as they address common needs among public administrations, regions, and industries.

During the second stage, the cases that were compliant with the aforementioned quality specifications, were evaluated on the basis of the good practice criteria (defined in the methodology), with the aim to identify the 20 most successful ones. The cases that stood out as “good” and had the higher score, have been selected to be presented in the good practice guide. Annex A presents the evaluation criteria, together with the grading systems and the scoring thresholds for each evaluation criterion. The following table presents the scoring grid that has led to the identification of the 20 most successful GPP cases.

Table 1: Scoring assessment grid

No	Country	Title	Solution impact	Results	Problems encountered	Scalability	Transferability	Total score
1	Italy	Collection, transportation and disposal of hospital waste in Emilia Romagna	5	4	4	5	5	23
2	Spain	Electricity from renewable energy sources	5	5	5	4	4	23
3	Latvia	Street lighting renovation in Preiļi City	4	5	3	5	5	22
4	Ireland	Environmentally friendly large executive vehicles	5	4	5	5	3	22
5	Italy	Sustainable printing system services in Veneto	5	5	4	3	3	21
6	Ireland	Sustainable waste management services	5	3	5	5	3	21
7	Germany	Energy efficiency solutions for educational buildings	5	5	3	5	3	21
8	Latvia	Improving buildings' energy efficiency in Liepāja	4	4	3	3	5	20
9	Bulgaria	Sustainable in-city transport in Stara Zagora	5	3	5	3	4	20
10	Italy	Refurbishing the ex-INPS building In Genoa	5	5	3	3	3	20
11	Malta	Nearly zero energy primary school in Pembroke	5	4	3	3	5	20
12	Ireland	Sustainable catering services	4	5	5	3	3	20
13	Bulgaria	An automated lighting system for the Thracian University	5	3	5	3	4	20

No	Country	Title	Solution impact	Results	Problems encountered	Scalability	Transferability	Total score
14	Belgium	Energy performance services for “DE NEKKER” sports facilities	5	4	3	3	4	19
15	Greece	Procuring recycled paper through an environmental management system	5	3	3	3	5	19
16	Cyprus	Energy efficient street lightning in Nicosia’s villages	5	4	3	3	4	19
17	Malta	Sustainable waste management in Gozo	4	3	5	3	3	18
18	Belgium	Lighting as a service in Kortrijk	5	3	3	4	3	18
19	Spain	Energy performance contracting for efficient outdoor lighting	5	4	3	3	3	18
20	Poland	Renovating the VIP lodges in Atlas Arena	4	4	3	3	3	17
21	Italy	Catering Services for the University of Cagliari	4	3	4	3	3	16
22	Belgium	Office supplies for the Province of Antwerp	3	3	4	3	3	16
23	Belgium	Paper for the Province of Antwerp	3	3	4	3	3	16
24	Greece	Illumination Solutions for Greek Ministries						
25	Greece	Energy efficient Air Conditions						
26	Poland	Revitalising the Center of Łódź						
27	Poland	Renovation works in the West Stadium in Lodz						

No	Country	Title	Solution impact	Results	Problems encountered	Scalability	Transferability	Total score
28	Spain	Renewing the Fleet of Urban Buses in San Sebastian						
29	Spain	Eco-edition						

* The cases that received a score lower than 17 points are not included in the good practice guide (only the 20 higher ranking GPP cases will be presented), while the remaining cases (24 – 29) either did not satisfy the quality criteria defined in the methodology report or were not accompanied with accurate and concrete information that would allow to evaluate them on the basis of a good practice.

6 GPP: Best practices examples

6.1 Collection, transportation and disposal of hospital waste in Emilia-Romagna (Italy)



Background

The tender procedure was initiated by INTERCENTER, which is the central purchasing authority for all public administrations in the Emilia-Romagna region. Founded in 2005, INTERCENTER provides e-procurement services to health-service institutions and other regional administrations such as municipalities, universities, schools, provinces, and publically owned companies. Up till now, it has awarded more than 300 contracts, involving 850 administrations and hundreds of suppliers. A considerable share of them (approximately 20%) included environmental criteria and social clauses, aiming to promote sustainable consumption and production patterns.

Subject

Provision of safe collection, transportation and disposal of hazardous and non-hazardous hospital waste, for all hospitals and institutions owned by the Department of Health in the Emilia-Romagna region.

Procurement objectives

INTERCENTER identified the need to handle the waste produced by the main regional health institutions in a sustainable manner. This resulted in a call for tenders regarding the sustainable management of healthcare waste. In particular, the procured services covered the entire waste management process, including the handling/collection, storage, transportation, treatment and disposal of non-hazardous waste. INTERCENTER decided to establish a joint procurement initiative, involving the region's health institutions in the tendering process, due to the economic value and the level of complexity of the procured services. The primary objective was to capitalise on financial savings and make a significant contribution to reducing the amount of healthcare waste in the Emilia-Romagna region.

Criteria and specifications

The framework agreement was awarded to the bidder offering the most economically advantageous tender (MEAT), whilst ensuring compliance with the technical requirements. The tender was divided into two geographical lots. The two lots had an estimated value of €54.5 million, excluding VAT. The contract was awarded on the basis of the most economically advantageous tender (MEAT). The criteria were split evenly with 50% of the points awarded for quality and the remaining 50% for price. Bidders were required to have an environmental management system certification. The contractor should be able to comply with the following technical requirements:

- Sorting the different waste streams based on their chemical and physical properties, to allow for waste recovery or disposal in the case of hazardous components as appropriate.
- Making use of sustainable containers (e.g. made from recycled materials) and labels for waste disposal
- Transferring waste to plants licensed to dispose and/or recover the relevant waste in accordance with public laws and regulations

Environmental criteria were included in various areas of the tendering procedure:

- Traceability of waste solutions - Guarantee the traceability of each individual load, and each individual container including the final destination of the hazardous waste (e.g. landfills).
- Risk management – Ensure timely and sufficient management of emergency situations that entail significant environmental risks (e.g. air and soil pollution) or threaten the public health.
- Employing environmentally friendly vehicles during the provision of procured services such as hybrid LPG vehicles and electric tracks.

Results

Five companies applied for this tender with two suppliers being awarded a framework agreement (one supplier winning each lot). Both winners were able to fulfil the environmental criteria included in the call. The tendering procedure created several economic and environmental benefits. The final value of the awarded contracts was much lower (€37.2 million) than the initial estimated value (€54.5 million), leading to significant financial savings for the public, amounting to €17.3 million. From an environmental perspective, the sustainable management of hospital waste will help to avoid serious environmental hazards (e.g. air, water, ground pollution) that might occur if hazardous waste ends up in the environment without appropriate treatment/processing.

Conclusions

The procedure did not face any significant problem during its implementation, but for an initial doubt/concern for the integration of sustainability criteria into the call for tenders. This was due to the lack of previous experience in applying green criteria for non-standardised products or services (i.e. waste management). This particular tendering process proved that it is possible not only to get a good price offer but also to ensure that all environmental requirements are fulfilled. INTERCENTER examines to implement a similar contracting approach in other public sectors (e.g. food waste) to further promote sustainable waste management. The main elements that make it transferable is the experience acquired from the healthcare sector and that the needs are common among sectors and organisations.

6.2 Electricity from renewable energy sources (Spain)



Background

Barcelona is the capital of the region of Catalonia and the second largest city in Spain. Barcelona's City Council manages around 2,000 buildings and has about 12,000 employees, organised into a number of departments and divisions, tasked to run procurement processes. The City Council has increasingly started to integrate environmental considerations in its procurements practices, in an effort to reach the targets prescribed in the "City's Local Agenda 21" and the "Sustainable City Council" programme. The

latter is the city council's procurement programme to promote sustainability and environmental protection. Its main objective are to a) reduce the institution's environmental and social impact, b) promote a green economy and production system, using the administration's potential as a responsible consumer, and c) make the city council more coherent environmentally and socially, encouraging behavioural change by leading by example.

Subject

Procuring the supply of electrical energy made 100% from renewable energy sources to accommodate for public facilities' electricity and heating needs.

Procurement objectives

In 2015, the Barcelona City Council decided to renew its contract for the supply of electricity. The main goal was to supply public buildings (incl. public lighting) with electricity, exclusively produced by renewable energy sources, in order to achieve their local and national climate targets. The City Council examined the possibility to extend the existing agreement with the electricity supplier so that all the electricity to be provided will come from renewable sources and/or high-efficiency cogeneration. The

main procurement objectives were to a) decrease CO2 emissions generated by city council buildings and services, b) improve public health and environmental quality, c) secure a vast and inexhaustible energy supply, and d) create a more reliable and sustainable energy system with stable prices for citizens.

Criteria and specifications

The contract has been awarded to the company offering the most economically advantageous tender (MEAT) and demonstrating full compliance with technical and environmental requirements. The Barcelona City Council has adopted the following priorities for electricity supply, in order to comply with the various commitments to environmental protection, climate change, energy savings and sustainable development:

- To use contracts as a tool for supporting energy savings
- To produce as much electricity as possible from renewable energy sources
- To ensure the non-renewable electricity consumed comes from high-efficiency co-generation sites

The following environmental criteria were included in the tendering procedure for the supply of electricity:

- A. **Voltage adjustment:** Regularly monitor deviations in the voltage contracting for each consumption point, and suggest adjustments and regularisations as appropriate.
- B. **Reactive power correction:** Regularly monitor the reactive power at each consumption point and propose relevant measures for improving the installation performance.
- C. **Green electricity:** The electrical energy to supplied should be “green” electricity produced from renewable sources or/and high efficiency co-generation.
- D. **Priority for renewable energy source:** Contractor’s commitment/priority to supply electricity from renewable sources rather than from high-efficiency co-generation sources.

Results

The tender’s result was to extend the existing framework contract so that the contractor (i.e. Electricity Company) will supply the city council with electricity exclusively generated from renewable sources or high-efficiency co-generation sources. The additional cost has been estimated at 0.5 cents per kWh consumed, which implies a 0.3% increase in the total contract value. It is widely known that the production of electricity from fossil fuels has significant environmental impacts (e.g. greenhouse gas emissions, resource scarcity, and biodiversity loss), affecting human health, ecosystem services and

water quality. Producing electricity from renewable or/and co-generation sources has a huge potential to reduce air pollution and soil degradation, whilst contributing to improve ecosystems' resilience from climate change effects. Evidence shows that this particular measure has led to a reduction of 44 thousand tonnes of CO2 equivalents, leading also to a rapid transformation of how electricity is produced.

Conclusions

The strong political commitment to introduce compulsory environmental requirements as regards the supply of electricity was a key driver for the successful implementation of the tendering process, even though this resulted in extending the current agreement. In addition, region's capacity to generate electricity from renewables did not impose additional costs for production, creating substantial economical savings for the public and improving regional environmental performance. This practice demonstrates high transferability potential given that the environmental criteria (embedded in the call for tenders) are in line with the minimum requirements defined by the EU. The use of these criteria can save time and money in the preparation of the tender documents, since the minimum requirements from the GPP criteria can easily be copied into tender documents.

6.3 Street lighting renovation in Preiļi City (Latvia)



Background

The municipality of Preiļi is located in the southeast part of Latvia, in the Latgale Region among three large cities - Daugavpils, Rēzekne and Jēkabpils. In 2013, Preiļi's County Council, aware of environmental and climate challenges, decided to proceed with the modernisation of the street lighting system, seeking to promote energy efficiency and environmental protection. The investment notably comprised the replacement of obsolete (halogen) light bulbs with LEDs that can combine an excellent light quality with an exceptionally long lifetime. In this context, the Council - the contracting authority - announced its first green public procurement. The tender call was prepared based on European Commission's GPP guidelines for street lighting. The procurement process did not complete successfully in 2013 due to lack of financial resources and as a result the tender was postponed for two years. Finally, the municipality managed to receive funding in the form of a conditional grant from the national government and more especially under the National Climate Change Financial Instrument, and moved on with the implementation of green procurement in June 2015.

Subject

The replacement of old luminaries with new, more energy efficient LED light-emitting diodes with intensity control or dimming function contributing to a street lightning renovation.

Procurement objectives

The tender was for the replacement of a total of 64 fixtures that illuminate the city of Preiļi's main streets, cycle paths and pavements. In the past, maintaining these light sources required the replacement of these bulbs at the end of their lifecycle (once per year) while carrying out maintenance and repairing was a really expensive and time consuming task. Therefore, the County Council published a (updated) tender in 2015 for the purchase of LED technology lighting fixtures for municipality's three main streets. The main procurement objectives were to a) reduce greenhouse gas emissions caused by inefficient street lighting, b) create financial savings from reduced electricity bills, and c) improve environmental protection and citizens' quality of life.

Award criteria

The contract was awarded to the bidder offering the most economically advantageous tender (MEAT). Price was the sole criterion; however all the specifications were defined in such a way to ensure that a LED lighting solution will come up. The following technical specifications were employed for the supply of high efficiency lighting fixtures.

- A. **Colour rendering.** This requires lamps with a colour rendering index >75. This index measures the ability to reproduce the colours of various objects faithfully in comparison with an ideal or natural light source. Typically, light sources with a high CRI are the most desirable.
- B. **Watt Efficacy.** The tender prescribed two categories of lighting fixtures (i.e. bulbs) with different lumen/wattage requirements; namely lamps with minimum 90 LED watts and high energy efficiency lamps with minimum 110 LED watts. The higher the lumens or wattage, the more light is produced for the least amount of energy.
- C. **Colour temperature.** The municipality opted for a colour temperature of between 3,000 and 4,000 Kelvin which provides a warm white colour and is best suited for street lighting.
- D. **Lifespan.** The municipality procured the purchase of LED bulbs with a lifespan that should exceed 20,000 hours. This measure indicates the number of hours before light output drops to 70% of the initial output.

- E. **Intensity control or dimming function.** The supply of LED bulbs had to be accompanied with dimmers, which are devices that allows to adjust the brightness of street lighting. By changing the voltage waveform applied to the lamp, it is possible to lower the intensity of the light output.

In addition, bidders had to demonstrate three-year experience in similar works (i.e. renovation of lighting systems) while the personnel to be involved in renovation works should have relevant qualifications (e.g. project management, occupational safety and electrical installation or engineering) and multi-annual working experience (to be demonstrated through certificates and references). What is more, the tenderers had to provide the technical sheet with the specifications of lamps and luminaires, or a written declaration to demonstrate compliance with the aforementioned criteria.

Results

All bidders managed to meet the technical requirements prescribed in the call. The Latvian company “Indigo Būve” was finally awarded the contract for renovating Preili’s street lighting, as it offered the lowest price (€168,736). The company proceeded with the installation of 46 new LED lights with a power output of 91W and 18 LEDs with a power output of 113W. All fixtures were accompanied by a light dimming feature. By changing to a LED lighting solution, the municipality was able to decrease its energy consumption in comparison to the previous street lighting system, where halogen bulbs were used. The primary energy consumption was decreased from 73MWh to 20MWh (i.e. 73% decrease), creating substantial energy savings and reducing greenhouse gas emissions. Financially, the new LED lighting solution is saving the municipality approximately €8,000 per year at today’s energy price (€0.16 per kWh). This figure would be even bigger if we had incorporated the savings from the decreased need to service/maintain lighting fixtures.

Conclusions

The tender encountered some difficulties, which were stemmed from procurement officers’ lack of experience in carrying out green tenders. To address this shortcoming, the contracting authority prepared the tender based on the GPP criteria developed by the European Commission for the Street Lighting and Traffic Signals product group. However, the most significant barrier that hindered the smooth implementation of the tender and led to its delay is related to budget issues. The implementation of green public procurement in low-income municipalities depends on EU funds to a large extent and the available funding for this type of activity. In Preili, the first tender attempt was interrupted in 2013, and got renewed in 2015 when a grant from the government was provided. Finally, this GPP practice demonstrates high transferability potential considering that the needs addressed are common among EU regions and municipalities and the demonstrated achieved benefits outweigh investment costs by far. The Preili County Council acts as a knowledge/dissemination platform for other Latvian municipalities wishing to renovate their street lighting system, by employing a green approach to tendering.



6.4 Environmentally friendly large executive vehicles (Ireland)



Background

The tendering procedure was published in September 2016 by the Office of Government Procurement (OGP). The OGP - the contracting authority - is an office within the Department of Public Expenditure and Reform engaged with setting up tenders for goods and services on behalf of the public service. The OGP acknowledges the importance of green public procurement, and have been stipulating environmental criteria in their contracts for road transport vehicles (especially passenger cars and light duty vehicles) for a number of years now. In this contract, the contracting

authority has gone one step forward, procuring the supply of environmentally friendly heavy goods vehicles for addressing public authorities' transportation needs (e.g. police, schools, and army).

Subject

Single Supplier Framework Contract for Large Executive Vehicles

Procurement objectives

The country has a strong commitment to reducing greenhouse gas (GHG) emissions and to preserving natural resources. The OPG has drawn after extensive market analysis a tender document with specific requirements for the supply of a number of vehicles. The contracting authority has dictated that the expenditure on vehicles to be covered by the proposed Framework Contracts should not exceed €650,000 for each lot.

Criteria and specifications

This single supplier framework was divided into three lots as described below. Each lot would result in a separate contract (i.e. framework agreement), while tenderers were able to submit proposal(s) for one or multiple lot(s).

- Lot 1 – “E” or “Large Executive Saloon” segment class types and fit out.
- Lot 2 – “E” or “Large Executive Estate” segment class types and fit out.
- Lot 3 - ‘J’ or ‘Large Sports Utility Vehicles’ segment class types and fit out.

Framework Agreements have been awarded for each lot on the basis of the most economically advantageous tender (MEAT), as identified in accordance with the following qualitative and cost award criteria.

- A. Tender price per vehicle (excl. VAT)
- B. The cost of the marked fit out
- C. Lifetime service cost calculated by multiplying the tender price for the standard service by the number of each service over the expected lifetime of the vehicle (i.e. 10 years or 500,000kms).
- D. The cost of lifetime energy and environmental impacts in accordance with Directive 2009/33/EC. The lifetime mileage will be 500,000Kms and the fuel prices will be those payable on the closing date for receipt of tenders under the OGP contract for supply of automotive fuels by charge-card.

To comply with environmental requirements, the bidders had to provide the following information, upon which their economical offer cost was to be calculated.

- Fuel consumption litres per 100 km
- CO2 emission kilograms per kilometre (the applicable cost is 0.035€ per kg)
- NOx emission grams per kilometre (the applicable cost is 0.0044€ per g)
- THC emission grams per kilometre (the applicable cost is 0.001€ per g)
- Particulate matter grams per kilometre (the applicable cost is 0.087€ per g)

Results

Due to the very specific tender conditions involving the purchase of large executive vehicles (practically addressed to large enterprises from the automotive sector), only a limited number (i.e. 6 bidders in total) of suppliers participated in the tendering process. Overall, the process was concluded successfully awarding 4 contracts (3 with BMW Group and 1 with Audi Ireland) for the supply of the procured services/goods. The new vehicles are expected to create substantial fuel consumption savings (30-50% compared to the previous ones) and to alleviate the environmental pressures associated with fossil fuel consumption, resulting in a corresponding reduction in CO2 and particulate matter emissions.

Conclusions

The tendering procedure was carried out without significant problems. The contracting authority did not receive any request from interested parties for further information or/and clarifications regarding the

award criteria or the required documentation. This can be mainly attributed to contracting authority's accumulative experience and competence to carry out green procurement processes, as well as its legal expertise in applying environmental criteria. The award criteria used in this particular tendering process can be employed (as a standardised practice) in any other process concerning the procurement of environmentally friendly vehicles for promoting resource efficiency and environmental protection.

6.5 Sustainable printing system services in Veneto (Italy)



Background

The Veneto Region adopted the Regional Green Public Procurement Action Plan (in December 2015) to accelerate the integration of environmental sustainability criteria within public tenders for the procurement of goods and services. The plan seeks to introduce a new “public purchase” approach, based on lifecycle assessment (LCA). This includes the assessment of the environmental impacts (e.g. greenhouse gas emissions, air pollution) underlying the entire products’ lifecycle from raw materials’ extraction to consumption and disposal. The primary objective is to promote environmental protection and sustainable

development, foster the sustainable use of natural resources and encourage environmental sustainability across the regional territory, whilst guaranteeing the best quality/price ratio for the procured products and services.

Subject

Procuring an all-inclusive service that includes the following: a) the delivery of 500 multifunction devices equipped with adequate hardware and software systems, b) the supply of all consumables, c) the provision of hardware and software support services, and d) training delivery for users and system administrators throughout the contract period.

Procurement objectives

The procurement procedure was conducted within the context of the “EU GPP 2020” project. The call for tenders, led by the Veneto Regional Council, was published in 2015 to procure management services regarding the operation/administration of a distributed and monitored system of printing products and related services. The main procurement objectives were to a) reduce the number printers for personal use, b) diminish toner, paper and energy consumption through improved management, c) increase public administrations’ staff capacity on how to use rationally printing services, through the delivery of training sessions and educational material (e.g. manuals).

Award criteria

The contract was awarded to the bidder offering the most economically advantageous tender (MEAT). The quality of the tender was evaluated as follows: maximum 70 points for the technical offer and

maximum 30 points for the economic offer. The threshold value was €3,600,000. The following environmental criteria were included in the call:

- Energy savings determined according to the test procedures described in the “Energy Star Program Requirements for Imaging Equipment” Guidelines or equivalent and expressed in the “Typical Energy Consumption” (TEC) in kWh/week.
- Electro-photographic multi-function ozone emission b/w $\leq 1,5$ mg/h
- Electro-photographic multi-function ozone emission colour ≤ 3 mg/h
- Powder emissions from electrographic printers ≤ 4 mg/h

Bidders had to demonstrate compliance with the TEC requirement by providing a test report from a laboratory accredited to UNI EN ISO 17025. Compliance with the air emission requirements was also to be demonstrated through a test report provided by an accredited laboratory (UNI EN ISO 17025).

Results

This call for tenders has been particularly successful in procuring sustainable printing services towards environmental protection and resource efficiency. It is expected that procured services will result in a significant reduction in CO2 emissions (129.2 tonnes in total) and energy consumption (17.3 tonnes in total) throughout the contract duration. Furthermore, the Veneto Regional Council has been awarded with the “COMPRASVERDE 2015” prize for the best green tender procedure carried out in Italy.

Conclusions

The procedure did not encounter any significant problem that hindered its implementation. The key enablers behind the successful implementation of the green contract was a) regional council's legal expertise in applying environmental criteria into tender procedures, b) the availability of competent public procurement officers to carry out the process, and c) the clear definition of green criteria. Critical to this was the experience gained by the regional authorities' participation in the “EU GPP 2020” project. These practices shows high transferability potential given that the needs addressed are common among sectors, organisations across EU countries, the demonstrated achieved benefits outweigh investment costs by far, while the implementation does not pose any risks to the public authorities' financial sustainability and is consistent with its procurement rules and laws.

6.6 Sustainable waste management services (Ireland)



Background

The tendering procedure was published in December 2016 by the Office of Government Procurement (OGP). OGP - the contracting authority - is an office within the Department of Public Expenditure and Reform engaged with producing tenders for the sourcing of goods and services on behalf of the public service. The requested services include the provision of waste management services, covering the entire waste management process

from waste collection and transportation, to processing, recycling and final disposal. Contract requirements (as outlined in the call for tenders) ranged from routine waste collection to lower volume ad-hoc waste collection.

Subject

Procuring sustainable waste management services to move away from a fixed charge waste collection system towards payment for waste generated in order to promote greater resource efficiency through improved environmental performance.

Procurement objectives

The main procurement objectives were to:

- Establish a cost effective and efficient waste management service to improve overall environmental performance.
- Support the attainment of national objectives to minimise the disposal of waste to landfills.
- Minimise waste and the environmental impact of waste generation treatment and disposal.
- Reduce waste handling and disposal volumes / costs by increased waste segregation.
- Reduce the overall cost of waste management.
- Ensure all waste is stored and disposed of properly so that it will not cause environmental pollution or cause a health, safety or environmental risk.

- Comply with waste segregation principles and promote practical guidelines for waste recovery and reuse.
- Introduce and implement a continuing waste management education programme to raise public sector awareness on sustainable consumption and waste management.

Criteria and specifications

The Services were divided into 13 lots (each a “Lot”) as described below. Lots were based on different geographic areas – there was a separate competition for each Lot (each a “Competition”), resulting in the award of separate Framework Agreements to multiple service providers on each Lot. Tenderers were able to submit proposal(s) for one or multiple lot(s). Framework Agreements have been appointed for each lot on the basis of the most economically advantageous tender (MEAT), as identified in accordance with the following qualitative and cost award criteria. In the event of a tie for a place on the lot, environmental criteria are the second deciding factor.

- A. Contract Management and Support Plan (25%)
- B. Continuity of Service and Contingency Planning (15%)
- C. Environmental Management (12%)
- D. Staff Training / Continuous Improvement (10%)
- E. Quality Control (8%)
- F. Management Information (5%)
- G. Cost (25%)

Results

The framework contracts were appointed to a number of different suppliers across all jurisdictions in Ireland. As regards the achieved results, it’s too soon to discuss as contracts have only recently been awarded (Spring 2017). Notwithstanding, it is expected that diverting waste by effectively implementing the waste hierarchy will reduce waste volume in landfills, including the production of methane and environmental contamination associated with landfill facilities. Through GPP, the department managed to decrease prices for environmental technologies, and establish high environmental performance standards for products.

Conclusions

Public authorities did not experience any substantial problem that could hinder the successful implementation of the tendering process. This is due to contracting authority's accumulative experience and competence to carry out green procurement processes, including its legal expertise in applying environmental criteria. The clear definition of award criteria as well as the detailed description for supporting documentation allowed a panel of bidders to take part in the process; whilst the provision of long-term contract award was proven a strong incentive for relevant companies to get involved. The particular practice demonstrates high transferability potential considering that the needs addressed (i.e. waste management) are common among different regions, the demonstrated achieved benefits outweigh investment/administrative costs by far and the legal requirements can be easily adjusted to regional specificities and priorities.

6.7 Energy efficiency solutions for educational buildings (Germany)



Background

The “Enzkreis” Rural District Office is a district administration located in the German State of Baden-Württemberg (southwest Germany). It covers a population of almost 200,000. The municipality participates as partner in the EU funded “Public Administration Procurement Innovation to Reach Ultimate Sustainability” (PAPIRUS) project that aims to promote, implement and validate innovative solutions for sustainable construction through public procurement pilot actions. In this context, a number of joint purchasing actions were piloted in the four countries to test the efficiency/practicality of green tenders. This practice involved

the procurement of sustainable construction materials (characterised by nearly zero energy consumption) for the repair and construction of selected buildings.

Subject

Procuring construction/building services related to the refurbishment of the “Mühlacker” Vocational School

Procurement objectives

The call for tender was published in 2015 seeking to procure construction services related to the refurbishment of the “Mühlacker” Vocational School. The building houses 16 workshops for apprentices in the metal industry. The procurement placed emphasis on finding product solutions with an innovative character; namely thinner roofs with good insulation properties. The primary objectives were to reduce energy losses through improving the building envelope and to improve energy efficiency through the installation of better energy performance windows systems. Market dissemination activities were carried out before the publication of the call in an effort to inform suppliers about the inclusion of innovation criteria in tenders.

Criteria and specifications

The contract was awarded on the basis of the most economically advantageous tender (MEAT). The procedure included two different lots, for which bidders had to prepare both technical and financial offers, demonstrating full compliance with environmental specifications.

- Lot one: Roof sealing and covering, carpentry and plumbing work (opaque envelope to reduce energy losses).

- Lot two: Metal construction and glazing work (windows with high solar gains in winter and reduced heating gains in summer).

The call included the following energy efficiency criteria:

- **Thermal transmittance coefficient U-value:** Evaluating the capacity of the proposed innovative product or system to reduce energy losses through the external roof and windows of the building.
- **Thermal bridges:** Evaluating the capacity of innovative solutions to reduce thermal bridges, displaying complete continuity of the insulation layer and good treatment of special joints.
- **Solar gains:** Evaluating the capacity of windows to reduce solar gains and to increase them in winter.

Bidders were requested to employ innovative materials and products that have been made either from secondary raw materials or demonstrate high recyclability and reusability capacity. The award criterion for sustainability was based on global warming potential (GWP). This assessed the environmental impact of the proposed innovative solution by calculating the equivalent carbon released during the whole life of the product, with respect to “Cradle to Grave” system boundary conditions.

Results

A total of ten bids were received. Six bids were received for lot one, and four for lot two. Some of the bids were rejected for not meeting all of the requirements and in the end, one proposal was accepted for lot one and three proposals for lot two. The solutions contracted exceeded the demands requested in the tender and overcame the challenge of providing innovative lightweight materials for insulating the roof and glazing the windows, while at the same time, ensuring improvements in energy efficiency. The innovative aspects were not only in the materials supplied, but also in the techniques which were to be employed for the renovation works. The procured services helped to a) decrease greenhouse gas emissions, contributing to reach the national 90% greenhouse gas (GHG) reduction target for 2050, b) promote energy efficiency and resource consumption, and c) create economical savings stemming from the reduced electricity bills and low energy consumption (thermal gas).

Conclusions

The procurement process did not go without problems. Carrying out a joint procurement between different European countries was not possible, due to substantial differences in legal requirements. Difficulties were also encountered in finding consolidated standards that will allow for measuring sustainability parameters in this specific field. What is more, suppliers found difficulties in delivering some of the requested means of proof and supporting documentation (e.g. certifications).

6.8 Improving buildings' energy efficiency in Liepaja (Latvia)



Background

In 2013, the owners of the apartments in the building located in 88 str., Klaipeda in the town of Liepaja decided to begin renovation workings, to construct an energy efficient building. As the building was serviced by a local municipal housing enterprise and Latvia had access to ERDF investments at the time, the owners were given the opportunity to co-finance their renovation project up to approximately 50% of the total cost of works. When the technical project was ready, the housing company started a procurement procedure to find the appropriate construction company, which resulted in a successful tender of 240.000 EUR. The renovation, which was finished within 2015, included building walls heat insulation, basement and attic insulation, old windows and doors replacement for new ones with greater heat savings, modernisation of house heating with heat regulation systems, natural ventilation system and renewal of facade. The installations gave the house with excellent energy saving indicators. Not only the apartments' owners highly evaluated the renovation project, but the renovated building was awarded as a one of the most energy efficient renovated building in Latvia.

Subject

The establishment of energy efficiency improvement measures through the renovation process in the house apartments located in 88, Klaipeda Street in the town of Liepaja.

Procurement objectives

The main procurement objectives were to achieve high energy efficiency indicators, as well as low carbon dioxide footprint for the house. The most important objectives were to a) lower the building heating energy consumption, b) decrease CO2 emissions of the building and c) extend the building operating period and e) renew the building facade.

Award criteria

The contract was awarded to the bidder offering the most economically advantageous tender, taking into consideration the price of architectural services (75%), a bid for security in case of unforeseen costs due to incompliance (10%) and the integration of green public procurement, sustainable building and energy efficiency principles in the building design solutions (15%). The bidders had to show sufficient turnover, one reference for comparable buildings, constructed within the last three years. The personnel

responsible for projecting specific parts (energy efficiency, electricity, ventilation, heating, water supply) shall have corresponding qualification and at least experience with renovation or reconstruction (verification: list, contacts, education certificates).

Results

The tender was won by the bidder [SIA "MK Būvniecība"](#), who had offered the lowest price 239.585,44 EUR and had observed all tender requirements, as well as sophisticated energy savings requirements for the construction materials. Six local/national construction companies took part in the tender, even though one was disqualified from the tender due to the absence of the requested national certification for the ventilation engineer. The participation in the tender procedure has as a result: the reduction in greenhouse gas emissions, energy efficiency and resources use, high financial savings and incentives to the industry to innovate.

Conclusions

Such renovation works require a high level of technical/engineering knowledge and data regarding the renovation object, which requires the involvement of environmental specialists, construction engineers, technical coordinators and procurement professionals. The associated reviews for the specific tender meant that the process took several months. This particular case was inherently successful due to the ability to engage in co-financing. It is hardly ever possible for property owners to fully finance their renovation plans by themselves. The implementation of building renovations depends to a large extent on EU funds and available funding for these types of activities, as such activities cannot carry out ambitious projects with the local resources even if the project is economically viable and pays off in the long term. Local authorities are often hesitant to implement green procurement due to high costs. The inclusion of green procurement criteria as a mandatory requirement for co-financing is highly desirable and yields the expected result.

6.9 Sustainable in-city transport in Stara Zagora (Bulgaria)



Background

The current transport conditions in Stara Zagora, evaluated by different sources, through field surveys and other information sources, showcased the need for the modernization of transport. The current needs of the Stara Zagora urban environment (in terms of public transportation, as well as in terms of road network infrastructure) were identified and alternative scenarios that would contribute to the modernisation and development of a sustainable urban

environment for the city, were proposed.

Subject

Promotion of sustainable environment-friendly modes of transport, including the development of a bicycle network, as well as the purchase of new, safer, public transport vehicles.

Procurement objectives

In 2013, the municipality published an (international) open call for tenders for the supply of 55 new high class diesel buses, seeking to address municipality's transportation needs. The tender aimed to supply environmentally friendly means of in-city transport, in an effort to reduce greenhouse gas emissions and promote environmental protection. In addition, this intervention also sought to improve the transport functions within the municipality via the improvement of mobility for the employed and the general population.

Award criteria

To encourage widespread participation in the tendering process, the tender was divided into two lots; namely LOT 1 for diesel articulated buses (5 units), and LOT 2 for diesel solo buses for mass public transportation (50 units). The option for bidding for one or both lots was also available. The framework agreement was awarded, following a best-value-for-money approach. The criteria used were in line with Directive 2004/17/EC. The quality of tenders was evaluated based on the following criteria:

- Methodological quality
- Operational lifetime cost
- Organisation of work, incl. the timely delivery of the procured services

- Warranty period
- Safety and environmental equipment
- Quality control measures

Results

The tendering procedure was successfully implemented. All bidders (9 in total) managed to fulfil the sustainability criteria prescribed in the call. The Polish company “Solaris Bus & Coach S.A.” was awarded the contract for the provision of environmentally-friendly buses; while the total value was €13.5 million. The application of Life-Cycle Costing (LCC) as a part of the award criteria on one hand, and setting requirements for maximum levels of CO₂ released on the other, led contractors to submit offers for vehicles with lower CO₂ emissions. Overall, this particular tendering process is expected to a) cut-off greenhouse gas emissions, b) establish high environmental performance standards for products, and c) increase the quality of life in the city of Stara Zagora. By giving priority to environmentally friendly passenger transport (urban transport, bicycle and pedestrian lanes), the traffic jam will be reduced as well as several harmful emissions and the overall transport safety will be increased.

Conclusions

Similar tendering practices have already been adopted in the largest Bulgarian cities (e.g. Sofia, Plovdiv, Varna and Burgas), to facilitate the procurement of sustainable and environmentally-friendly vehicles. A key factor behind Stara Zagora’s success story was public authorities’ expertise in applying environmental criteria into tendering procedures, and the award of long term and high value contracts (i.e. 55 buses). The latter encouraged substantial participation in the tendering process, helping to attract the interest of automotive companies from across the EU area. To conclude, this intervention will essentially equip the transport network with up-to-date technical equipment and energy efficient solutions to ensure high quality transportation services and an improved living environment for citizens.

6.10 Refurbishing the ex-INPS building in Genoa (Italy)



Background

“AGENZIA DEL DEMANIO” – the contracting authority - is the public entity tasked with the management of region’s public property. In this context, the agency has a strong focus on developing the energy efficiency of public facilities and their environmental sustainability by employing green public procurement for renovation and construction services. Various initiatives have been in place to reduce and rationalize energy-related spending, both by planning energy efficiency measures and by promoting responsible behaviour

in the use of public goods. This particular tendering process includes renovating the ex-INPS building in Genoa to reduce greenhouse gas emissions and improve energy efficiency.

Subject

Work design and management service for the energy efficiency renovation of the ex-INPS building in Genoa.

Procurement objectives

The tendering procedure was carried out in the context of the “GPP2020” project. The project aims to reduce greenhouse gas emissions by 20%, increase the contribution of renewable energy sources to energy production by 20% and increase energy efficiency by 20%.

Award criteria

An open procedure was put in place, with two lots to encourage wide scale participation. The first lot had an estimated value of €387,410 for building’s design plans while the second lot was to provide more than €3,500,000 for construction and renovation works. The contract was awarded on the basis of the most economically advantageous tender (MEAT), whilst evaluating a number of other aspects such as proposal’s overall quality, the suggested methodological and environmental sustainability approach, the total percentage of reduction in total cost, and time delivery. The weighting of the aforementioned award criteria was as follows:

- Proposal quality (25 points)
- Methodological and sustainability approach (40 points)

- (%) Reduction in total cost (30 points)
- (%) Reduction with reference to time delivery (5 points)

The contracting authority applied the following environmental criteria into the tendering process.

- Use of building materials and components with non-harmful substances
- Use of certified FSC, PEFC wood
- Use of building materials and components with low environmental impact through their lifecycle
- Provision of an “environmental management system” to promote energy efficiency and reduce ecological footprints
- Regular maintenance

Results

The winning supplier pledged to carry out a building audit to evaluate the current state of technological installations and gather data on consumption performance. The systems to be employed to increase the building’s energy efficiency were deactivating latent loads, variable speed pump system, new isolated piping, heat pumps, LED lighting, fan coil with inverter technology, flow regulators, and an integrated building management system. Installation or implementation of these new systems will be complemented with environmentally-friendly materials such as thermo-acoustic panels made from PET bottles, recycled plasterboard with photo thermic panel in wood fibre, ecological plasters with cork, paint and photo catalytic floors. This practice is expected to reduce CO2 emissions by 312 tonnes, and diminish energy consumption by 82 tonnes throughout the contract duration. What is more, the contracting authority has been awarded with the “COMPRVERDE 2016” prize for the best green announcement and the best green public procurement policy.

Conclusions

The contracting authority faced a number of difficulties during the tendering process, as it was its first endeavour to implement a green process. The main problems encountered had to do with public officers’ capacity to apply environmental criteria and appreciate/evaluate the differences between technical proposal, lack of experience in responding to suppliers’ inquiries about the environmental criteria and the supporting documentation, and the limited information about the availability of relevant suppliers in terms of adequately providing the requested energy efficient solutions. All the knowledge gained during the GPP tender has been transferred to several other important building reconstruction projects across Italy. This low-carbon tender was published before the Italian Ministry for the

Environment enacts the “Minimum Environmental Criteria” for building construction and renovation works, which now constitute the basis upon which public procurement is implemented.

6.11 Nearly zero energy primary school in Pembroke (Malta)



Background

The national Foundation for Tomorrow's Schools has been at the forefront of design of this tender with respect to sustainable energy efficiency in school buildings in Malta. The construction of a new primary school in Pembroke in 2009 was a project designed as the first energy self-sufficient school in Malta. The construction began in March 2008 and was completed in September 2009, while today more than 250 children attend the facility and a tender is under review for the extension of the school using Environmentally Friendly Products and Materials.

Subject

The construction of a new government primary school in Pembroke, designed as the first energy-sufficient school in Malta. The school should rely solely on solar and wind energy produced on site, to accommodate for its electricity and hot water demands.

Procurement objectives

The Foundation for Tomorrow's Schools (FTS) is the national body in Malta responsible for schools. The primary school in Pembroke was a new build project and the goal was to construct the first energy self-sufficient school in Malta that relied only on solar and wind energy produced on site for electricity and warm water. The school, which is two storeys high, is fully accessible for students with special needs. The tender was published in 2007 and the construction started in March 2008 and was completed in September 2009. The primary objective was to proceed with the construction of a new primary school, using environmentally friendly products and materials. This includes the production of own energy from renewable energy sources to make the building energy self-sufficient, and the installation of intelligent lighting systems to reduce lighting requirements, where possible. Another goal was to protect the surrounding fauna and flora and instil an environmental awareness culture in pupils through attitudes and environmental training delivery.

Award criteria

The contracting authority (i.e. FTS) included the following criteria in the open public tendering process:

- Bidders were asked to demonstrate their technical capacity to carry out the project, either by having the expertise within the company or through co-operation with experts, to ensure an overall high environmental performance

- Effective protection of fauna and flora in the building area and its surroundings, particularly in demolition phase
- Production of own energy from renewable energy sources to become energy self-sufficient
- Measures to ensure energy and water efficiency
- Intelligent lighting system that utilised natural light
- Additional points were awarded for use of construction materials and products complying with certain environmental criteria, such as lower energy consumption than what was required in the technical specifications, based on the overall (net/final/primary) energy demand of the building (including heating, cooling, hot water, ventilation and electricity).

Results

The tender resulted in the construction of a nearly-zero energy school in the town of Pembroke in Northern Malta. The school has been fitted with 96 Conergy PowerPlus PV panels of 230W with the potential of producing 22.08 kilowatt peak each. The energy produced on site through the PV installation and the double helix wind turbine was estimated to be around 36,500 Kilowatt hours per year of electricity and savings of 32 tons per year on Co2 emissions. In addition, the solar water heater installations were placed on site to reduce the energy requirements for hot water supply. The construction materials used were safe and non-hazardous and complied with international safety limits.

Conclusions

The main difficulties encountered, during the tender design phase, are connected to the specification of the exact requirements of energy generation on site. However, the competent public procurement officers to carry out the tendering process, the clear definition of green criteria and the private's sector environmental culture facilitated the tendering process. The tender has been successfully implemented and it has been replicated in various other locations by the Foundation of Tomorrow's Schools, in projects such as the New Mosta Secondary School in Taz-Zokrija and the Gozo Secondary School in Victoria. The experience from this tender increased the knowledge on how to minimise the environmental impact of future school construction projects, set clearly defined environmental standards and energy requirements and heightened transparency in the procurement process.

6.12 Sustainable catering services (Ireland)



Background

In February 2017, the procurement of Catering Consumable and Disposable Products by several public sector bodies began. During the research phase, it became clear that the product specifications should focus on altering the current state of non-recyclable, non-biodegradable and non-compostable product nature. Based on the new green targets, the Facilities Management Portfolio of the OGP formulated an RFT Strategy that encouraged tenderers to submit an alternative compostable product for each and every item on the tender pricing schedule.

Subject

Single Supplier Framework Contracts for the supply and delivery of Catering Consumable and Disposable Products

Procurement objectives

The objective of this tender was to introduce compostable alternatives to plastic products, where possible, to begin preparation for a possible legislative change, to reduce the usage of plastic-based products, particularly the enormous usage of “coffee” cups by encouraging re-use or replacement of products with compostable alternatives, and finally setting up a system of information gathering over the life of this contract that would enable us to run a standalone competition for compostable products only in the future.

Award criteria

The National Framework Contract for each lot was awarded on the basis of the most economically advantageous tender (MEAT), as identified in accordance with the following award criteria:

- Contract Mobilization, Delivery and Management Plan;
- Proposed methodology for ensuring continuity of supply and proposals for reliable deliveries;
- Proposals for Environmental and Sustainability Efficiencies and
- Proposals in respect of product recalls/ replacements and customer complaints procedure
- Product cost over the tender term, as well as available discounts on non-core products.

Results

Manufacturing compostable products generally require 50% less energy (corn-based bio-plastics), 40% less water (bio based plastics) and emit up to 73% less CO² (compared to the production of Styrofoam), the public sector bodies that are engaged in the OGP contract now have direct access to compostable products, while prior to this their procurement was in the context of non-core products and as such was unstructured. Therefore, the cost price of the compostable products is now significantly lower. Ultimately, the award works as an incentive for the industry to innovate.

Conclusions

Engaging with suppliers early in the research phase of the project gives valuable insight into market trends and product development that may not be publicly known otherwise. In the case of this tender, the legal expertise during the application phase and regarding the integration of environmental criteria into the tender procedures, the competent public procurement officers, who carried out the tendering process and the private sector's environmental culture, as well as the availability of relevant suppliers facilitated the process.

6.13 An automated lighting system for the Trakia University (Bulgaria)



Background

Trakia or Thrace University – the contracting authority – is a higher education institute located in Stara Zagora, Bulgaria. The University comprises 6 faculties and 8 laboratories to provide hands-on training in a wide range of disciplines such as agriculture, health and medicines, economics, information and technology, and engineering. The University is home to 9000 students and 1000 administrative personnel, academic staff and researchers.

Subject

Procuring energy efficient lighting solutions to minimise the consumption of energy in the Trakia University. This includes the substitution of 5308 lighting fixtures and the establishment of an automated lighting system.

Procurement objectives

The University published a call for tenders in 2013, for the supply of innovative, energy efficient LED replacement light bulbs, for indoor and outdoor use, to accommodate for the lighting needs of university's facilities. The supply of lighting bulbs was to be complemented with the development an automated lighting system that will be designed and configured to meet any lighting specification or requirement, enabling thus to minimise energy consumption. The primary objective was not simply to replace existing luminaires with newer generations, but to meet modern technologies and standards for energy efficiency.

Criteria and specifications

The contract was awarded to the bidder offering the most economically advantageous tender (MEAT) and demonstrating full compliance with technical requirements. To facilitate SMEs' participation in the tendering process, the tender was divided into two lots: a) the supply of light bulbs and b) the development of an automated lighting system. The option for bidding for one or both lots was also available. The criteria used for evaluating tenders' environmental performance were a) products' energy efficiency according CELMA - A2, b) light quality and brightness, c) products' life span and lifecycle costs, and d) recycling technologies and materials reusability. Bidders had to retain guarantee and warranty obligations for five years, being also responsible to undertake any maintenance, repair and replacement activity as foreseen by the contract.

Results

The tendering process was driven by the need to increase energy efficiency and create electricity bill savings. To begin with, replacing conventional bulbs with LED ones entails a significant reduction in energy consumption. The rationale is that bulbs' environmental impact stems mostly from the in-use phase through energy consumption and associated greenhouse gas emissions. The LED technology allows to minimise negative environmental effects provided that LED bulbs require significantly less energy to produce the same level of lumens and have a general life expectancy of 50000 hours (much longer than halogen bulbs). From an economic perspective, evidence shows that the purchase/use of an LED bulb is approximately six times cheaper than a halogen bulb over a period of 15 years. This allows contracting authorities to prioritise these technologies (when procuring lighting products) despite higher upfront costs.

Conclusions

This particular tendering process demonstrates high transferability potential. In fact, this green practice has already been transferred in other public bodies/organisations in Stara Zagora; namely schools, hospitals and other public buildings. The reason why Trakia University's initiative acts as an example for other organisations (seeking to promote energy efficiency) has to do with the fact that the needs addressed (incl. legal requirements) are common among different sectors and regions, the process entails low implementation risks, and the risk for organisational resistance is rather limited.

6.14 Energy performance services for “DE NEKKER” sports facilities (Belgium)



Background

The provincial domain “De Nekker” is a complex for sports and recreation, located near Mechelen. There are facilities for both indoor and outdoor sports. There is a large swimming pond and a newly built indoor swimming pool “The Nekkerpool”. The owner, the province of Antwerp, wants a long-term contract for the maintenance of the technical installations of “De Nekker” with a guaranteed reduced energy and water

consumption.

Subject

Procuring energy performance services for “DE NEKKER” sports facilities

Procurement objectives

The main procurement objectives in this case were to reduce CO2 emissions and water consumption by improving the management and maintenance of the sports site, to retain sufficient comfort and lessen the private investment; the lower consumption of water and energy decreases the energy and water saving investment paid directly to the energy contractor.

Award criteria

The contract was awarded on the basis of the most economically advantageous tender (MEAT), founded on the aspects of energy saving and water conservation, low maintenance costs, the plan of action for energy saving and water conservation, the plan for action maintenance and sustainability action plan. More specifically, the tenders were marked on the basis of the price, the renewable energy supply, the availability of a web-based energy management facility to include energy usage history and analysis and the ability to provide billing information in an electronic format compatible with the one already used by the centre. The last two criteria were included to enable improved management of the energy supply processes.

Results

This 12-year contract was awarded, in November 2016, and for the saving energy aspect, a cogeneration installation (2 x 20 kWe) was installed on the ‘De Nekker’ site. Electricity was generated with photovoltaic cells (120 kWp) and plenty of small energy-saving measures were included in the

maintenance program. The installation is expected to save energy of up to 24%, to reduce gas consumption by 4% by reducing greenhouse gas emissions, to save water for the contractor via the placement of an osmosis plant (capacity 2.1 m³/hour), which purifies the rinse water of the filters of the pool so that this rinse water can be reused and saving water of up to 30 %. The total savings will produce significant financial savings.

Conclusions

Several difficulties incommoded the implementation of the tender. The inventory of existing technical facilities was not complete, therefore the required information for the tender were not readily available. During the term of the contract, a number of buildings would be renovated, expanded, demolished and used more intensively. All this affected the energy and water consumption. While the preparation phase for this tender took longer than anticipated, the overall performance of the contract was quite successful, mainly due to the legal expertise in the application process, the long term contracts award and the competent procurement officers that carried out the tendering process. It did, however, require special attention, among others the payments related to the energy profits realized. Additionally, the OEPC guarantees an annual CO₂ reduction of 174 tonnes and an annual reduction in the consumption of drinking water of 4.825 m³. The owner was not involved in the investment and the contractor was paid for the energy and water saving investments by his return on consuming less energy and less water. The fact that other governments work with OEPC-contracts with service providers increased the transferability potential of the measure.

6.15 Procuring recycled paper through an environmental management system (Greece)



Background

Amaroussion is a suburban city with more than 100,000 inhabitants, located in the north-eastern part of the Athens agglomeration (Greece). Amaroussion's procurement activities are driven by municipality's commitment to improve environmental performance and sustainability. To this end, all tendering procedures are being carried out through an Environmental Management System (EMAS), which prescribes the technical specifications for procuring environmentally friendly products and services. Amaroussion was the first municipality in Greece to be registered under the EMAS scheme in 2006. In addition, the municipality has received the National EMAS Award (2009) for applying green criteria in its purchasing practices.

Subject

Procuring sustainable paper to cover municipality's office needs

Procurement objectives

The municipality published in 2006 a request for tenders, inviting suppliers to submit a bid to supply the municipality with recycled paper (A4 sized). The quantity requested was 430 packets in total. Each packet had to include 5 units with 500 pieces of multi-purpose copier paper each. The primary objective was to cover municipality's needs for paper by implementing a public procurement process that will assist in a) reducing the demand for natural resources to be used as raw materials during the production, b) excluding dangerous substances as ingredients, c) favouring products that are re-useable and recyclable, and d) promoting packaging material made from recycled material.

Criteria and specifications

The contract was to be awarded to the supplier offering the most economically advantageous tender (MEAT) and complying with a number of technical and environmental criteria. Before publishing the call, the municipality conducted a research to evaluate the availability of recycled paper (A4 sized) in the Greek market and to define the quality specifications that can be satisfied by local suppliers, whilst ensuring the least negative impact on the environment. Based on the research, the following sustainability award criteria were applied:

- At least 80% of the paper's raw material should be from recycled paper fibre.

- No chlorine substances during the manufacturing process (TCF – Totally Chlorine Free)
- The level of paper brightness should be greater than 80 according to ISO 2470
- Their compatibility should be according to the DIN 19309, AFNOR Q11-012

Results

The tendering procedure was successfully implemented, even though only one supplier managed to comply with the environmental requirements prescribed in the call. Prioritising environmentally friendly products (such as recycled paper) has contributed in lessening municipality's reliance on natural resources, minimising health risk associated with the use of chemical substances and preventing hazardous effects on water ecosystems and soil degradation. As the Municipality of Amaroussion is registered under ISO 14001, all suppliers are now acquainted with its environmental policy concerning GPP. Furthermore, this practice paved the way to include environmental and sustainability criteria in all municipal tenders.

Conclusions

The procurement process did not go without problems. Public authorities experienced difficulties in identifying suppliers that were able to fulfil the defined environmental criteria. The results showed that the market was not mature enough to adopt green business practices. This was also due to the limited demand for environmentally friendly products and services, resulting from the lack of environmental culture within the society. Another problem encountered during the implementation was that the price for recycled material was 25% higher, compared to the typical paper. To overcome this barrier, the municipality collaborated with 6 other Greek public entities to increase the amount of purchased paper and therefore achieve a better price. Indeed, this approach managed to reduce the price significantly, resulting in paying only 6% more for the recycled paper. There have been many municipalities that have applied the same tender requirements to procure recycled (A4 sized) paper for covering their office needs. Therefore, this practice demonstrates high transferability potential as the needs addressed are common among public administrations across the EU, and the tendering procedure does not entail significant implementation risks nor organisational resistance.

6.16 Energy efficient street lightning in Nicosia's villages (Cyprus)



Background

The municipalities of “Alonas” and “Polystipos” decided to adopt a GPP practice to provide benefits for the environment in terms of decreased greenhouse emissions, improved energy efficiency and environmental protection. They assigned to the national energy agency to evaluate the current state in street lighting, and prepare the technical specifications for the tendering procedure. The Cyprus Energy Agency is a non-profit organisation engaged to promote the use of renewable energy sources

and innovative technologies, the rational consumption of natural resources creating energy savings, and sustainable modes of transport. To this end, the Agency works closely with public administrations to provide technical advice on how to promote energy efficiency via green public procurement.

Subject

Upgrading the street lighting in the two municipalities, by purchasing environmentally-friendly solutions to promote energy efficiency.

Procurement objectives

A public tender was published in 2016 at the national level by the Municipalities of Alonas and Polystipos to cover the electricity requirements in municipalities’ street lights by employing energy-efficient solutions. The contract was to replace 195 conventional street lighting bulbs (101 HPS/70W and 94CFL20/21W) with LED lighting technologies (43W and 10W). The total approximate cost was €100,000 while the contractor should undertake the obligation to carry out all the maintenance and repair works for a time period of 10 years. The main procurement objectives were to reduce the electricity cost for both municipalities by diminishing energy consumption and increasing the street lights’ lifecycle, and to adapt a greener approach by prioritising energy efficient solutions.

Criteria and specifications

Market research was carried out prior to publishing the tender. The Energy Agency made discussions with potential suppliers and governmental authorities to evaluate tender’s feasibility and conclude with the technical requirements. The contract was to be awarded to the bidder offering the most economically advantageous tender (MEAT) and demonstrating full compliance with the technical specifications asking for high energy efficiency and extended products’ life duration.

The award criteria used are as follows:

- Light output
- Input power
- Annual energy use
- Annual energy cost
- Lifetime energy cost
- Lifetime cost savings

Results

The tendering procedure was successfully completed and the contract with the supplier was signed in August 2016. The offers received met the requirements of the tender, while a number of companies made inquiries concerning the technical requirements, award criteria and supporting documentation. The replacement of all street lighting bulbs was expected to complete before the end of 2016. The total cost was €93,365. The lighting generated by halogen bulbs is associated with high greenhouse gas emissions. The use of energy efficient solutions for lighting public infrastructures (such as streets or public buildings) can be an effective measure to reduce energy consumption and achieve climate protection goals. In addition, there are significant cost savings associated with LED technologies bulbs due to their long average life cycle. As they are functional for much longer than the halogen ones, the labour cost of repairing or replacing is much lower. In our case, the replacement of existing luminaires with LED bulbs will result in a 44% reduction in electricity bills for both municipalities, improve the quality of illumination in streets (reducing the danger for accidents) and promote energy efficiency in the area.

Conclusions

The main problem encountered was public authorities' limited experience in applying environmental criteria for procuring services, and to respond to interested companies' inquiries regarding technical specifications and the procedure as a whole. To address this issue, the municipalities assigned the national energy agency to lead the development of the tenders' call. This arrangement foresaw the evaluation of the current state in the national market (as regards the availability of energy efficient products), the identification of relevant companies and the administration of all tendering procedures. All in all, the tendering process was particularly successful in achieving its goals. What is more, the practice demonstrates high transferability potential given that the needs addressed are common among the great majority of municipalities across Europe.

6.17 Sustainable waste management in Gozo (Malta)



Background

The subject of this tender is the management of Fridges and Freezers Units (WEEE) from Civic Amenity Sites in Gozo. The tender was published by WASTESERV, which is the country's main stakeholder in waste management and collection. Amongst other responsibilities, the state-owned company collects various items of waste electrical and electronic equipment (WEEE) at civic amenity sites across the Islands.

Subject

In order to ensure sustainable management of waste streams, WASTESERV routinely procures specialised waste transport and management services. This tender is related to the collection and transportation of fridges and freezers units (WEEE) from Civic Amenity Sites in Gozo.

Procurement objectives

The tender was published on the October 2016 by the Fridges and Freezers Units (WEEE) from Civic Amenity Sites in Gozo. The main procurement objective is to ensure sustainable management of waste streams (improved recycling of hazardous waste streams, and reduction in the quantity of waste sent to landfill) while reducing emissions caused by waste collection processes, in order to lower the significant impact on local air quality.

Award criteria

First and foremost, the contract was awarded on the basis of the cheapest compliant offer. Bidders were asked to ensure that all vehicles used for the transportation of WEEE are equipped with engines meeting EURO IV or better according to the National Green Public Procurement Guidelines. Secondly, the proportion of vehicles to be used in carrying out the service had to comply with stricter EURO standards (EURO V or VI, where applicable). The bidder should present a list of all the vehicles to be used in the service with their EURO standard and their respective technical sheets, where emission standards were defined. Thirdly, the capability to use renewable energy was evaluated (biofuels, renewable electricity or hydrogen from renewable energy sources). The bidder must provide the technical sheet of the vehicle where these technical or fuel technology specifications are displayed. Finally, the average noise level of the vehicles to be used in carrying out the service was measured according to Directive 2000/14/EC.

Results

According to WASTESERV (i.e. contracting authority), the inclusion of Green Public Procurement criteria in the procurement of waste transport and management services for WEEE have been proven successful with more and more bidders proposing the use of vehicles above the minimum EURO IV standard, while others offer to upgrade their fleets to be eligible for the contract award. Furthermore, in order to qualify with requirements, bidders should also submit permits for the loading and exportation of WEEE. And once a contract has been awarded contractors needed to regularly submit the corresponding WEEE data collection template, and recovery, recycling and reuse template. The particular tender showcased how to achieve a high reduction of greenhouse gas emissions.

Conclusions

The specific tender did not encounter any major difficulties, during its implementation. Due to the private sector's environmental culture and the availability of relevant suppliers, the tendering process was successful. The approach adopted in this tender has been common and it is likely that similar tenders will keep replicating the approach for other waste collection services, as the needs addressed are common among sectors, organisations and different regions/countries, as are the Legal requirements. As from 1st September 2016, there is a new procedure implemented for all Civic Amenity Sites. The scope of this reform was to ensure that the CA sites only receive household waste given that these sites were set up to accept domestic waste.

6.18 Lighting as a service in Kortrijk (Belgium)



Background

Kortrijk is a Belgian city and municipality in the Flemish province of West Flanders. It is the capital and largest city of the judicial and administrative arrondissement of Kortrijk. Lighting as a service (LaaS) refers to a service delivery model, which allows light and luminaires to be charged on a subscription basis rather than via a one-time payment. This business model has become increasingly popular for commercial and citywide installations of LED

lights, especially in retrofitting buildings and outdoor facilities.

Subject

Procuring lighting as a service to accommodate for the lighting needs of the city library, seeking to reduce energy consumption and decrease installation and maintenance costs.

Procurement objectives

In 2016, the municipality of Kortrijk decided to employ an alternative approach for lighting the city library. They chose to rent the lighting instead of buying the products. The main procurement objectives were to a) avoid the installation costs associated with the purchase of energy-efficient luminaires for re-lighting the library, b) decrease the amount paid every month for maintenance and service, and c) decrease greenhouse gas emissions and promote energy efficiency. This is because the Lighting as a Service (LaaS) business model offers several advantages such as:

- No upfront capital investments
- The term payments can be completely funded by energy savings
- The customer can return the equipment upon the completion of the contract, facilitating thus the transition to modern technologies
- The provider assumes the whole risk (performance, technical, financial)
- The provider undertakes all the maintenance and repair work, including the conduct of regular inspections to identify malfunctions in equipment (e.g. energy leaks)

Criteria and specifications

The contract has been awarded to the supplier offering the most economically advantageous tender (MEAT) and demonstrating full compliance with technical and environmental requirements. Tenders were evaluated on the basis of the following criteria:

- Cost
- Contract duration
- Integrated lighting design and planning
- Aesthetics elements
- Reverse logistics and circular economy aspects (incl. the use of products made from secondary raw materials or with high reusability and recyclability potential)
- Possibility to use the lighting products beyond the project duration

Results

The very difficult nature of the tendering process allowed only a limited number of suppliers (mostly large enterprises) to take part in the tendering process. Notwithstanding, all bidders managed to fulfil the sustainability criteria prescribed in the call for tenders. The contract was awarded to Philips, a leading technology company, which has developed an innovative lighting circular business model based on service. The Light as a Service project at Philips has been running for a number of years, helping the company to provide high quality electricity services for both the private and public sector. As regards the lighting at Kortrijk, Philips remains the owner of the lighting systems and the municipality pays for the amount of light consumed.

Conclusions

The main problem encountered during the implementation of the tendering process was the difficulty to attract suppliers' interest to participate in the process, given that only a small share of electricity suppliers could provide electricity as a service and get guarantees from the suppliers that the materials to be used for lighting the building (e.g. LED bulbs) will remain at the disposal of the library beyond the contract duration. What is more, the preparation of the call required a lot of effort and time as it was something new for public procurements' officers. The municipality managed to overcome these challenges due to a) the provision of long term awards for securing private sector's involvement in the process, b) public procurement officers' experience in applying environmental criteria in tendering procedures, and c) private sector's readiness to provide up-to-date electricity services. A similar tendering approach was employed in the Schiphol airport for the supply of lighting services, which proves that the practice shows high transferability potential. In this case as well, Philips was awarded the framework agreement.

6.19 Energy performance contracting for efficient outdoor lighting (Spain)



Background

Jimena de la Frontera is a historic town located in the province of Cadiz, in the southern region of Andalusia, Spain, and has a population of approximately 10,000 inhabitants. In July 2009, the Municipality expressed its commitment to sustainable development, declaring the creation of a new local energy model. To this end, local authorities elaborated on a Sustainable Energy Action Plan (SEAP) to reduce greenhouse gas emissions by minimum 21% until 2020 (compared to 2007 levels). The action plan

was developed with the support of the Provincial Energy Agency of Cadiz; a non-profit organisation engaged to promote, develop, manage and coordinate actions to increase energy efficiency. Local authorities was based on the main conclusions and results obtained in an Emissions Analysis carried out in Andalusia in 2009 to define the main priority fields. These include the residential and public sector (including energy efficiency measures in buildings and changing user behaviour) as well as transport and mobility (with actions to promote pedestrian and cyclist mobility). The aforementioned actions have been accompanied by others aimed at harnessing solar energy and particularly wind as the main renewable energy resources.

Subject

Supply and service management of outdoor public lighting in Jimena de la Frontera (Spain).

Procurement objectives

An improvement in the energy efficiency of public outdoor lighting was included in the action plan (i.e. SEAP), as a priority field, where targeted interventions should be made. The existing facilities has to be modernised in order to comply with the latest environmental regulations and to achieve significant energy savings towards resource efficiency. In 2008, a municipal energy audit was carried out to determine facilities' technical and economic potential. The results allowed to define potential improvements in the mode of operation, the overall performance of lighting installations and the standing of components. The municipality published a call for tenders (December 2012) to procure technical services for modernising its outdoor public lighting facilities, through an energy performance contract. The requested services included also the operation and administration of the following installations for a time period of ten years.

- Measurement Modules

- Operation centres
- Points of light (luminaires and crosiers)
- Connection and ground lines

Criteria and specifications

The contract to be awarded was for ten years and included the following requirements from the services, described in the form of work packages.

- P1: Energy Management
- P2: Preventive Maintenance and Inspection
- P3: Corrective Maintenance
- P4: Improvement Works and Facilities' Renovation
- P5: Investments in Energy Efficiency and Savings

The primary goal of the contract was to guarantee minimum 10% energy savings as regards the final energy consumption of the current public lighting installations. The following environmental requirements were integrated into the call.

- Replacement of all lamps using low-efficiency technology (e.g. mercury vapour lamps) by more efficient ones. All lamps in the installations should be able to regulate luminous flux, replacing those which were incapable.
- Replacement of all damaged elements of the luminaires and, if necessary, replacement of the whole luminaire
- Implementation and operation of the remote management system and control system defined in P1 in at least 60% of the lighting points.

The offers were evaluated on the basis of the most economically advantageous tender (MEAT) with the contract awarded to the bid obtaining the highest score according to the following categories:

- A. Reduction of the estimated maximum value of the contract (15 points). 0.6 points were awarded for every percentage point reduction, compared to the estimated maximum value given in the technical specifications
- B. Assessment of the Technical Report submitted for work package P4 (maximum of 60 points)
- C. Assessment of the Technical Report submitted for work package P5 (maximum of 20 points)
- D. Method for conducting information and awareness campaigns (maximum of 5 points), which should describe the procedure to conduct awareness raising campaigns, to produce a change in behaviour for certain target groups: using existing and new facilities, and their associated environmental impacts

Results

The call for tenders was published in December 2012 and three bidders submitted proposals. The contract was finally awarded to the Energy Service Company (ESCO) for €1,315,555. According to the energy performance contract, the supplier is responsible to deal with the payments of the public electricity bill. As described in the call for tenders, the ESCO has guaranteed energy savings of 65%, which are being used by the ESCO to carry out the contracted services. Savings over this amount are shared between the Municipality (40%) and the company (60%). The Municipality pays a monthly fixed fee to the ESCO during the contract period. This amount is 20% lower than the quantity previously paid for electricity supply. Less than a year after the contract was awarded, most of the corrective and maintenance actions planned had been carried out, with achievements of 65% savings in total energy consumption. As of July 2016, the following improvements have been carried out:

- Review and renewal of all operation centres included in the contract and introduction of remote control and management systems.
- Replacement of 1,412 low-power compact fluorescent lamps for light emitting diodes (LEDs) integrated into the remote control system. 1,569 lighting points are managed under the remote control system
- Planning of short and mid-term awareness raising campaigns, consisting of regularly publishing information on the Municipality's website and the organisation of information days for citizens.

Conclusions

The main difficulty faced during the tendering process was the one of trying to implement a business change process within the contracting authority. Staff were initially reluctant to implement a new

approach in the field of energy service management. To overcome this barrier, the municipality had to raise public servants' awareness about the benefits and advantages of green public procurement. This was realised through dissemination materials, seminars and workshops. In addition, throughout the procurement, the Provincial Energy Agency of Cadiz provided technical advice to prepare the call for tenders and check the documentation. The Agency carried out several technical tasks, such as identifying the targeted facilities, analysing documentation and inventory, writing technical specifications and assessing the quality of the bids received. Finally, the key factors behind the successful implementation of the tender was the clear definition of green criteria, and private sector's environmental culture, which was proven market-ready to provide high quality environmental services.

6.20 Renovating the VIP lodges in Atlas Arena (Poland)



Background

Lodz is the third largest city in Poland. The city has a population of almost 700 thousand inhabitants. Lodz, the former textile industry empire, is a city of modern technologies, creative enterprises and grand events. It is a metropolis where a landscape of industrial architecture mixes with silhouettes of office buildings, production halls, culture and sports buildings (such as the Atlas Arena). The Atlas Arena is the biggest sports and entertainment venue

in Poland. It has been launched in June 2009. The centre provides a complex set of services as regards the organisation of both sporting and entertainment events. The Arena includes seven VIP lodges that can host up to 6 guests and are situated on the third level of the stadium. They are made from glass and offer excellent visibility.

Subject

Renovating the VIP lodges and food stands in the Atlas Arena to promote energy efficiency and increase audience comfort

Procurement objectives

The Lodz City Council – the contracting authority - published in 2017 a call for tenders concerning the provision of technical services for the renovation of the VIP lodges and food stands in the Atlas Arena. The main procurement objectives includes remodelling lodges (at level P3) to improve ergonomics and increase the total number of seats, and establishing permanent catering establishments with sanitary nodes (at level P2). All execution works (incl. the materials to be used) had to be compliant with the national environmental requirements, towards promoting energy efficiency and reducing negative environmental impacts.

Criteria and specifications

The contract was awarded on the basis of the most advantageous tender, not necessarily the one with the lowest price. This was based on the following criteria and weightings:

- A. Price (60 points)

B. Guarantee period and warranty (20 points)

C. Quality – carpeting (10 points)

D. Quality – paint (10 points)

The evaluation of bids for the last two categories took into account environmental and sustainability considerations as described below. The contracting authority stated that all proposals should be consistent with the technical specifications (i.e. classes); otherwise they will be considered as ineligible.

Quality – carpeting:

- Resilient textile for carpets (class 33), according to PN-EN: 685 ISO standard (10 points)
- Resilient textile for carpets (class 32) according to PN-EN: 685 ISO standard (0 points)

Quality – paints:

- Abrasion Class 1 for paints and varnishes according to PN-EN 13300 ISO standard (10 points)
- Abrasion Class 2 for paints and varnishes according to PN-EN 13300 ISO standard (5 points)
- Abrasion Class 3 for paints and varnishes according to PN-EN 13300 ISO standard (0 points)

Results

A total of two offers were received for the call; both of which achieved to satisfy the technical specifications. The successful supplier appointed to the framework on the basis of the award criteria was a construction company based in Lodz. The contract was awarded in May 2017 and the total value is estimated at 1.95 million PLN. The contractor offered an extended warranty period for all construction works up to 72 months, including abrasion class 1 for paints and varnishes and class 33 for carpets. The renovation of stadium VIP lodges with sustainable practices and environmentally-friendly materials will essentially create considerable environmental and economic benefits. It is expected that the tendering process will contribute in a) reducing greenhouse gas emission, b) promoting energy efficiency and sustainable resource consumption, and c) creating significant financial savings (in the long run) to be drawn from decreased electricity consumption and less expenses for maintenance and repair works.



Conclusions

The procurement process did not go without problems. In particular, the contracting authority faced significant difficulties in drawing up the call for tenders, integrating environmental criteria for the procured services. This was due to employees' lack of previous experience in GPP implementation, including limited knowledge about market's potential (i.e. availability of relevant suppliers). What is more, the contracting authority noticed that the environmental clauses put restrictions on contractors




that have not adjusted their offerings to comply with the latest environmental requirements. The result was only two companies to submit technical and financial proposals. Finally, as the call was based on the most advantageous tender (not the cheapest one), the contracting authority had to allocate more funds (than the initial planning) to cover the price offered by the supplier.



7 Lessons learned and recommendations

This section summarises the key conclusions drawn from the implementation of GPP tenders in partnership countries and provides guidelines on how to utilise the main lessons learned to apply environmental and sustainability criteria in future tenders. The following table presents the main conclusions per consortium country.

Country	Lessons learned
	<ul style="list-style-type: none"> - The implementation of green public procurement in low-income municipalities depends to a large extent on EU funds and the available funding for these types of activities. Experience shows that Latvian municipalities do not possess the necessary resources (financial, human capital) for launching green tenders even though they are economically viable in the long term and GPP entails significant benefits for the entire society. - Local authorities are hesitant to implement green procurement due to the high upfront costs. The inclusion of green criteria into tendering procedures should become a mandatory requirement for all public authorities. - Public authorities should raise awareness about the benefits of green public procurement across all administrative levels, and demonstrate that green practices do not entail only environmental benefits but they have the potential to create substantial financial savings.
	<ul style="list-style-type: none"> - The low-carbon tender was published before the approval of the Minimum Environmental Criteria (CAM) about building construction and renovation by the Italian Ministry of the Environment and represents the first decisive step towards the adoption of environmental criteria for public works that are currently being required by the national law (since December 2015). This means that a decentralised initiative can act as an example for other regions facing common challenges, whilst triggering policy changes towards greener practices. - GPP policies and criteria can be successfully applied not only when purchasing standardised goods, but also when purchasing complex and customised services such as waste management services. - Joint procurement can be a very useful approach to GPP. Joint procurement can take different forms. This may include elaborating on common technical specifications for products and services that will be procured by a number of contracting entities through separate procurement procedures or situations where the contracting entities jointly conduct one procurement procedure. In any case, the use of such

Country	Lessons learned
	<p>schemes could help public authorities to achieve lower prices and economies of scale.</p> <ul style="list-style-type: none"> - One of the main difficulties in implementing green procurement is to change attitudes and carry out a business change process within contracting authorities. Staff is usually reluctant to implement a more sustainable approach in procurement practices. To overcome this barrier, it is necessary for public authorities to make an additional effort in raising awareness and explaining in detail the advantages of green public procurement. - Spanish cases demonstrate that local authorities need to collaborate with external experts for the preparation and administration of green tenders, especially in fields where they do not have previous experience or capacity. For example, the Municipality of Jimena de la Frontera and the Provincial Energy Agency of Cadiz signed a collaboration agreement to provide technical assistance for the preparation and development of the procedure. Without the specialised support of the Agency, this procedure may not have been as successful, as the Municipality lacked the necessary experience. The Agency carried out several technical tasks, such as identifying the targeted facilities, analysing documentation and inventory, writing technical specifications and assessing the quality of the bids received. - A strong political commitment reflected in regional action plans or strategies is a prerequisite for the successful implementation of GPP policies. In the case of Barcelona City Council, the political commitment channeled through the definition of compulsory technical instructions for the City Council has been a key driver behind the improvement of environmental conditions for electricity supply.
	<ul style="list-style-type: none"> - Monitoring and control procedures (e.g. checking the contents of the orders made by procurers, checking products delivered meet all requirements) are very difficult to set up and implement for such large contracts. Applying different lots for different qualities of products and services can essentially increase suppliers' participation in tenders, and cut down the costs. - As regards the delivery of services (e.g. lighting, electricity, and waste management), contracts should include clauses that will describe follow-up actions that are critical for maintaining services viable even beyond contract duration. - Setting up start-up meetings with selected suppliers are strongly encouraged, followed by active management of contracts. This will help to determine the different stages of services' implementation and to ensure the quality of the provided services. - Public authorities should investigate local markets very carefully before drafting the

Country	Lessons learned
	technical specifications and setting the prices for the procured services. Experience shows that if the predictions had been more realistically estimated, better prices could have been offered by suppliers.
	<ul style="list-style-type: none"> - The successful implementation of green procurement practices requires top management support and high political commitment in the government. Actual experience from Greece demonstrates that the existence of a unified framework (e.g. action plan) can essentially facilitate the implementation of green tenders, providing administrations with guidelines and instructions on how to apply environmental criteria, and setting specific GPP targets to be reached at national, regional, and local level. - Procurement officers should investigate the market landscape to identify whether suppliers are able to comply with environmental and sustainability requirements, and determine the available supply. This will determine whether contracting authorities should launch an international open tender or the demand for products/services can be served by local suppliers. What is more, public authorities should take measures (through the provision of incentives) to stimulate private sector's investment in new innovative products. - All procurement procedures should include clear and verifiable environmental criteria for products and services, whilst providing suppliers the possibility to demonstrate compliance through certificates and standards.
	<ul style="list-style-type: none"> - In 2012, GPP became a national priority for Malta. Since then all tendering procedures have been compliant with the requirements set by the Maltese national government towards resource efficiency and sustainable development. Support from "above" is required to change procurement practices. - The introduction of minimum emissions criteria for waste collection and transportation services has prompted more and more suppliers to invest in upgrading their fleets, in order to provide cleaner and more environmentally-friendly waste collection services. What is more, transportation-based service contracts should only be set up/extended for period's equivalent to the length of the reasonable economic lifespan of the vehicle fleet.
	<ul style="list-style-type: none"> - Public authorities can rely on EU regulations to apply environmental requirements for procuring products and services. The EU, seeking to help contracting authorities identify greener products, has developed environmental procurement criteria for 20 product/service categories, which can be directly inserted into tender documents. In any case, local authorities should regularly review and update them to take into account not only the local specificities but also the latest technological trends,

Country	Lessons learned
	<p>market developments and changes in environmental legislation.</p> <ul style="list-style-type: none"> - Public authorities should ensure high visibility by publicising the call for tenders as broadly as possible, ensuring that enough bids/offers will be submitted.
	<ul style="list-style-type: none"> - Public authorities should take into account the entire products' life cycle when creating green contracts. It is highly recommended that they should employ a lifecycle assessment (LCA) to evaluate all the environmental impacts underlying the stages of a product's lifecycle from raw material extraction to materials processing, distribution, consumption, and final disposal. - A key barrier to GPP implementation is local authorities' limited financial resources. The great majority is reluctant to invest in green products that may incur higher upfront costs but provide several benefits in the long run, due to strict budget constraints. - There must be a shift from awarding framework agreements to the supplier offering the lowest price towards the most advantageous tender in terms of sustainability and environmental performance.
	<ul style="list-style-type: none"> - Engaging with suppliers early in the research phase of the project gives valuable insights into market trends and product development that may not be publicly known otherwise. - The Directive 2009/33/EC - Fuel and Emissions (upon which the procurement for environmentally-friendly vehicles based) requires that environmental impacts (in the form of fuel consumption per kilometer and emissions) should be taken into account during the assessment stage. However, during the course of recent tender competitions, it has become apparent that there is an anomaly between the requirements of the directive and what the market can actually provide.

7.1 General recommendations on how to promote GPP and apply green criteria in tenders

- Create a national/regional action plan to outline key actions and measures to promote green public procurement. A basic prerequisite for successful GPP implementation is to secure political support from government or regional authorities. This can be realised by adopting a GPP policy with clear definitions and targets. A concrete GPP action plan should prescribe quantitative targets to be achieved either in terms of overall procurement or for individual product and service groups, set priorities for the product and service groups, elaborate on specific GPP criteria, and put in place information, training and networking activities. In any case, the plan should make the integration of environmental criteria mandatory in all procurement practices.
- Organise training programs to increase procurement officers' capacity to a) integrate environmental considerations into tender procedures, b) administer the entire tendering process by ensuring tender's visibility and timely implementation, c) respond to tenderers' inquiries and verify environmental claims, d) evaluate life-cycle costs in tendering and select the most advantageous tender based on technical specifications and award criteria.
- Raise awareness about the benefits of green public procurement across all administrative levels, and demonstrate that green practices do not entail only environmental benefits but they have the potential to create substantial financial savings.
- Refer to EU platforms and tools to retrieve information on the practical and policy aspects of GPP implementation. The European Commission has established a helpdesk to provide answers to stakeholders' enquiries (incl. procurement authorities and potential suppliers) while the GPP website acts as a dissemination platform providing links to a wide range of resources related to sustainability issues as well as local, national and international information on green procurement practices.

- Prior publishing a call for tenders, contracting authorities should conduct a market analysis to evaluate market trends and identify the availability of environmentally preferable alternatives. This will help to determine the type of tenders to be launched (open or restricted, international or national) and decide upon the technical requirements to be applied.
- Check the availability of criteria. For many product and service groups, green procurement criteria have been developed by other EU public authorities, thus offering the opportunity to insert them directly into new tenders. Notwithstanding, this is not a straightforward process. Procurement authorities should take into account their own political priorities and procurement objectives, assess the transferability potential of the established criteria, and proceed with the necessary adjustments to accommodate for their distinct needs, based on local specificities. To facilitate the role of national/regional authorities, the EU has defined voluntary GPP criteria for 21 product and service groups (e.g. furniture, textiles, IT equipment, food and catering).
- Encourage joint procurement initiatives by collaborating with other public administrations for purchasing goods and services. The joint procurement approach can essentially reduce administrative costs for the participating organisations, achieve lower prices and economies of scale, stimulate the demand towards environmentally-friendly purchases, provide a strong incentive to suppliers to innovate and provide sustainable solutions, and ensure that smaller municipalities will have access to high quality products/services.
- Employ a comprehensive approach for defining contract's technical requirements based on the following steps:
 - a. Define the subject-matter. This will help to precise the scope of specifications and criteria that will be applied.
 - b. Assess your actual needs in terms of what your political priorities are (e.g. reduce greenhouse gas emissions or improve air quality) and what you want to achieve by employing a green procurement.
 - c. Develop technical specifications in terms of the environmental performance level of a product, service or work. Technical specifications should reflect the procurement objectives, the characteristics of the service/goods to be purchased and the general capacities of the contractor. They may specify materials and production methods to be employed and can be

- formulated by reference to recognised standards and labels. It is highly recommended that contracting authorities should consult sectoral departments/agencies or external experts on technical details and market trends.
- d. Set award criteria which encourage tenderers to deliver even higher levels of environmental performance, while the weightings should be defined in a way to guarantee that the contract will be awarded to the bidder offering the most advantageous tender (in terms of environmental performance and impact), not necessarily with the lowest price.
 - e. Set contract performance clauses which underline the environmental commitments made by contractors, and provide appropriate remedies where they fall short. Ensure that there exists a system for monitoring where these commitments are satisfied by contractors
 - f. Evaluate lifecycle costs when comparing tenders and reject tenders that fail to comply with technical specifications and national environmental laws.

7.2 Recommendations for each procurement category

Procurement category	Recommendations
Construction & renovation	<ul style="list-style-type: none"> - Key environmental areas in construction and renovation works include a) primary energy consumption and associated greenhouse gas emissions, b) depletion of natural resources, c) waste generation, d) indoor air quality due to emissions of hazardous substances from building products, d) pollution of the local environment and deterioration of local air quality, and e) water consumption during use of the building. - Additional environmental impacts that can be taken into account when defining the technical specifications for construction services/works may be health and safety, climate change, biodiversity as well as the sourcing (e.g. secondary raw materials) and transportation (e.g. green vehicles) of materials to the construction site. - This type of procurement requires personnel with technical expertise and environmental awareness. Therefore, the call for tenders should ensure that the project manager and the design team have all the relevant competencies and experience to execute contract requirements, as appropriate. These may include the management of building contracts, the design of energy and water efficient services, the specification, procurement and installation of environmentally friendly construction products, as well as the monitoring of environmental results. - A range of works contracts may be required to prepare a building for renovation or a site for new construction. In both cases the GPP criteria require that contractors carry out a pre-demolition/strip-out audit in order to determine what can be re-used, recycled or recovered. - The contract should include clauses for non-conformity with the environmental targets indicated in the call for tenders and contract, to ensure that the beneficiary will prepare a comprehensive plan with targeted measures to correct the non-conformity and execute all the remedial actions with own resources. If the non-conformity of results continues, the responsible authority should be able to take a decision regarding the designation of resources disbursed for the project as ineligible, and to recover those funds. - Procurement services should not only focus on increasing buildings' energy efficiency or reducing greenhouse gas emissions, but also care about residents' quality of life and comfort. - Procurement authorities should comply with legal requirements and

Procurement category	Recommendations
	<p>minimum energy/environmental standards for buildings and houses, as outlined in national legislation.</p> <ul style="list-style-type: none"> - It has been acknowledged that performance monitoring systems should be considered an essential feature to be included in the design phase of construction and renovation works. The inclusion of such systems provides a good understanding of how measures and methods are performing, whilst allowing for clear reporting of results. - It is highly recommended that procurers should organise a “supplier information day” to explain to suppliers (i.e. potential beneficiaries) tender’s background, technical requirements, award criteria and associated procurement process. This will also allow to identify market potential and the availability of relevant materials and services.
<p>Energy saving solutions (lighting & electricity)</p>	<ul style="list-style-type: none"> - Contracting authorities need to perform a lifecycle cost analysis to define the technical specifications for procuring energy saving solutions regarding public or indoor lighting. The rationale is that lighting can have environmental impacts across all stages of its lifecycle: <ul style="list-style-type: none"> o Manufacturing (extraction of natural resources to be used as raw material for the production of lamps and luminaire) o Distribution (greenhouse gas emissions caused by the transportation of products) o Consumption (carbon emissions from the energy used by the lighting) o Disposal (release of hazardous substances such as mercury stemming from the disposal of lamps and waste management) - This type of procurement requires a cross-department approach that will enable to retrieve information/data from all relevant units and departments, for determining region’s lighting needs. This is a time-consuming process, so public authorities have to allow sufficient time to collect this knowledge and transfer it into a quality tender. - Procurers may consider collaborating with a field expert that will undertake to run several technical tasks, such as identifying the targeted facilities, analysing documentation and inventory, writing technical

Procurement category	Recommendations
	<p>specifications and assessing the quality of the bids received.</p> <ul style="list-style-type: none"> - Contracts should include clauses that will describe follow-up actions that are essential for maintaining services (e.g. public lighting or traffic signals) viable even beyond contract duration. - Performance monitoring should be an integral part of the contractual agreement to ensure that the terms are continuously respected. - An alternative solution is to procure lighting as a service instead of buying energy efficient products (e.g. LED bulbs). This model has several advantages for public authorities such as avoiding the installation costs associated with the purchase of energy-efficient luminaires for re-lighting the library and minimising the amount paid every month for maintenance and repairing. - The contracting authority should regard to local conditions and specificities (e.g. road type, usage, average climatic conditions) and different availability of street lighting technology on the markets to determine the best available technology for the need identified. - When purchasing lamps and luminaires, it is important not only to take into account the initial cost of the lamps (up-front investment cost), but also their efficacy. Although conventional lamps may appear to be cheaper, these types of lamps have a lower lumen efficacy thus requiring more watts to give the same lumen output as a LED technology.
IT and office supplies	<ul style="list-style-type: none"> - Procurers should ensure that any IT equipment (e.g. monitors, computers) purchased is assessed on a life-cycle cost basis. Indicative evaluation fields can be a) energy consumption, b) hazardous substances, c) product lifetime extension, d) end-of-life management and e) ergonomics and usability. - The application of the latest Energy Star criteria achieves energy savings during the use phase over older, less efficient models. - The procurement of energy-efficient IT equipment should be accompanied by providing direct training to staff on the efficient use of computers.

Procurement category	Recommendations
	<ul style="list-style-type: none"> - Procurers should ensure that all IT equipment must meet the standards set out in the updated Directives 2002/95/EC (on hazardous substances for electrical and electronic equipment and 2002/96/EC (on electrical and electronic waste). - To further reduce the amount of paper and other materials (such as toner cartridges) used, there must be a conscious shift from procuring goods to procuring services. - Contracting authorities should communicate the nature of the tender a long time prior publishing the call, to let suppliers adjust their offerings, thus accommodating for environmental requirements. - Aggregated purchasing allows to achieve greater financial savings while reducing the need for investing time and human resources; which is the case for individual tenders. This can also help to overcome the difficulty of public authorities to justify purchasing more costly green products (e.g. recycled paper) - As regards paper, procurers should employ a GPP approach focused on procuring paper based on post-consumer recovered paper fibres (i.e. 100% recycled paper), produced through processes characterised by low energy consumption and emissions, and free of hazardous substances. - To avoid wasting time for defining technical specifications for paper, contracting authorities may apply the criteria defined in the context of European Eco label or/and Nordic Swan.
Food & Catering services	<ul style="list-style-type: none"> - The main environmental impacts related to food and catering services are a) eutrophication, acidification and toxic impacts on human health and the environment, b) soil erosion, forest destruction and loss of biodiversity, c) animal cruelty, d) high energy/water consumption in food production and processing, and e) packaging waste. - Contracting authorities should take into consideration all the dimensions of catering services that may have a negative impact on the environment. These include the amount of packaging, the management of food and packaging waste, the machinery and vehicles used to perform the catering services and cleaning products. - Provided that organic products are more expensive than conventional ones, contracting authorities should apply life-cycle costing considerations into procurement process, to enable the evaluation of the different bids

Procurement category	Recommendations
	<p>on the basis of the most economically advantageous tender.</p> <ul style="list-style-type: none"> - Procurement authorities are encouraged to use recognised standards and labels (e.g. organic labels) that set certain minimum environmental standards for products and services, to make easier the verification of bidders' conformity to technical specifications. - The contract should foresee quality checks of the food on a regular basis, so as to ensure that the terms of the contract are continuously respected. Fines such as contract releases for non-conformity can be also included to act as a preventing factor for low quality services. - A wide range of experts (e.g. dieticians, food technologists) is needed to provide input on market maturity and the availability of food products that meet certain minimum environmental and health and safety standards. In all cases, technical specifications should comply in all respects with the current national legislation on health and safety.
Waste management	<ul style="list-style-type: none"> - The contracting authority should evaluate local needs/priorities and select the most appropriate waste processing method, while adhering to the waste hierarchy. Choosing the right options/methods can maximise economic benefits to an organisation, as well as managing the environmental impacts, through re-sale programmes. - Procuring waste management services require multi-disciplinary expertise, including legal, financial, engineering and environmental professionals. To this end, the contracting authority should engage all relevant departments into tendering process, to contribute to the definition of technical specifications and evaluate the different bids on the basis of the most advantageous tender in terms of cost and environmental impact. - Joint procurement can be a very useful approach for waste management services. It can essentially reduce administrative costs for the participating organisations, achieve lower prices and economies of scale, provide a strong incentive to suppliers to innovate and provide sustainable solutions, and ensure that smaller municipalities will enjoy high quality services.

Procurement category	Recommendations
	<ul style="list-style-type: none"> - Procurers need to investigate the market landscape so as to identify whether suppliers are ready and capable of meeting environmental requirements. - Employing a holistic approach in waste management (i.e. waste collection, transportation, processing, recycling, disposal or reuse) can result in greater financial savings and enhanced environmental performance.
Transport	<ul style="list-style-type: none"> - The main environmental impacts associated with transport are a) contribution to climate change through the emission of greenhouse gases, b) depletion of resources, air pollution, noise pollution, generation of waste lubricant, oils and tires, and c) generation of waste parts and materials at end of vehicle life. Accordingly, procurement authorities should employ a GPP approach to purchase low emission vehicles, reduce fuel consumption through eco-driving, tire pressure monitoring systems and gear shift indicators and encourage vehicles made with recycled materials. - All environmental performance parameters (e.g. fuel consumption) should be detailed in the technical sheets accompanying the vehicles. Procurement authorities are encouraged to use recognised standards and labels (e.g. Blue Angel) to facilitate verification. - Procurers should engage suppliers early in the research phase to get valuable insights into market trends and identify the availability of environmentally preferable alternatives, before publishing the call. This will also help to determine the type of tenders to be launched (open or restricted, international or national) and decide upon the technical requirements to be applied. - All technical specifications should be compliant with European legislation and policies such as Clean Vehicles Directive, EURO Standards, Directive 2007/34/EEC46 on noise emission standards and Regulation 1222/2009 on tires.



8 Annex A: Evaluation criteria, scoring grid and thresholds

CRITERIA	SCORE					THRESHOLD
	1	2	3	4	5	
Level of solution impact	The GPP tender addresses a unique problem within the boundaries of a specific sector and geographical scope	The GPP tender relates to more than one problem encountered within the boundaries of the specific sector/geographical scope.	The GPP tender relates to a unique problem encountered by more than one sector or sector in the area.	The GPP tender relates to more than one problem encountered by more than one sector and broader geographical scope	The GPP tender addresses a widespread issue that is relevant to all sectors and geographical contexts	2
Number / type of achieved objectives and produced results	The GPP tender has not produced tangible results or measurable benefits for the community (e.g. resource efficiency)	The GPP tender has reached some procurement objectives but not produced measureable results	The GPP tender has reached most of the procurement objectives but not produced measureable results	The GPP tender has reached most of the procurement objectives and produced measurable results	The tender has resulted in significant and measurable results for the community. All planned objectives were met and tangible results were produced	3
Extent of problems encountered in implementation	Significant problems were encountered during the implementation of the tendering process	The tendering process had some problems that hindered its implementation	The tendering process had only occasional problems that have not hindered its implementation	Participating organisations faced minor difficulties considering their participation in the tendering process	The implementation of the tendering process had no problems or difficulties whatsoever	3

CRITERIA	SCORE					THRESHOLD
	1	2	3	4	5	
Scalability of practice	The tendering process has been implemented with the involvement of a limited number of companies (as bidders)	The process had limited scope affecting a limited number of companies	The process was implemented in a low impact sector or rural area, involving a limited number of companies (as bidders)	The process was implemented in a high impact sector, involving a significant number of companies (as bidders)	Practice has been implemented in a high impact sector / urban context, involving most of the companies operating in the area/sector	3
Level of transferability	Practice has not shown any indications of transferability to different settings/sectors	Practice has shown indications of possible replication in a limited number of sector / geographical contexts	Practice has demonstrated strong potential of being replicated in different settings	Practice has been transferred to other sectors	Practice has been transferred to more than one sectors and geographical contexts	2