

GREEN PUBLIC PROCUREMENT POLYMIX GUIDE



POLYMIX PROJECT



This document forms part of the activities of the POLYMIX Project, co-funded by the European Commission through the LIFE+ programme. The contents of this document do not necessarily reflect the official opinion of the European Commission. Responsibility for the information and points of view expressed lies entirely with its authors.

JUNE 2014

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INTRODUCTION

What is Green Public Procurement?

The European Commission defines eco-friendly public procurement, or Green Public Procurement (GPP), in the European Communication *Public procurement for a better environment*, COM (2008) 400 as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

Green Public Procurement (GPP) or Sustainable Public Procurement (SPP), including environmental and social criteria, is based, then, on a commitment by Public Administrations to link environmental, ethical and social criteria with practices of transparency and fairness that should be observed, by their very nature, in their selections, taking precedence over technical and economic factors. It is, therefore, a step forward which public authorities take on a voluntary basis, one which materializes in the tangible sphere through contracts for work and services in which they engage with other entities and companies.

Why is GPP important?

Public bodies are one of the major players in terms of national consumption. In Europe public authorities spend some two billion euros per year (equivalent to 19% of the EU's GDP). Thus, the criteria that count in their choice of works, products and services - that will lead, to a greater or lesser extent, to the achievement of local, regional, national and international sustainability goals - are of the utmost importance.

It can be said, then, that the government's commitment to what has been called Green Public Procurement (GPP) is of great importance, serving as a spur to responsibility in the field of private enterprise, thereby influencing the market.

Public authorities are in a position to offer real incentives to companies through their contracting, spotlighting the environmental improvements that they might bring to the table with regards to the works and services requested.

Government administrations may also set an example for consumers and private companies by promoting competitiveness amongst companies through efforts aimed at environmental improvement.

Finally, the economic savings that GPP can bring to the public authorities must be taken into account, especially when considering all the costs involved in the life cycle (LCA) of contracting a construction project, product or service, and not just the economic aspects.

Evolution of GPP regulations in Spain

Since in 1973 Public Procurement was regulated Spain via Law 5/1973, a Modification of the State Contracts Law, administrations have been setting down procedures based on criteria of transparency and equality in public goods and services procurement processes.

Royal Decree Law 931/1986 and 2528/1986 presented modifications to the Law through incorporation into the EEC and the application of European directives, followed by law 13/1995, the Public Administrations Contract Law; Law 53/1999, the Consolidated Text of the Public Administrations Contract Law, and Law 13/2003, the Law Regulating the Concession of Public Works.

It was in 2007 when, after the elaboration of Directive 2004/18 of 31 March on the coordination of public contract awarding procedures for works, provisioning and services, the environmental criteria in the different phases of the contracting procedures were taken into consideration. These

criteria were incorporated into Law 30/2007 of 30 October governing public sector contracts (currently consolidated by Royal Legislative Decree 3/2011 of 14 November).

Regulations in recent years, including Order PRE/116/2008, the Green Public Procurement Plan Law 2/2012, Sustainable Economy, Title III, and Law 14/2013, Support to Entrepreneurs and their internationalisation will continue down the path of preserving environmental aspects in the execution of Public Procurement.

GPP Policies and European Legal Framework

The first initiatives introducing environmental criteria into public procurement appeared in the 1980s, as well as the first certifications of products' environmental quality.

In the following years the first consulting reports were drafted for the monitoring of environmental criteria in the purchasing of products and services, and there appeared research studies such as the European RELIEF project.

In 1997 the EU's Amsterdam Treaty incorporated "sustainable development" as a general objective to be made part of Community policies and actions.

At this point Green Public Procurement projects were initiated by the different local and regional government administrations in the countries, and the first Green Public Procurement Networks were created at the regional, national, European and international levels, as networks for the exchange of information and good practices.

The legal framework for public procurement was defined in accordance with the provisions of the Treaty on the Functioning of the European Union and by the directives on public procurement of the UE10, according to the interpretation of the EU Court of Justice, DIRECTIVE 2014/24/EU OF THE EUROPEAN PARLIAMENT AND COUNCIL of 26 February 2014, on public procurement, by which Directive 2004/18/EC (pertinent text for the purposes of the EEE) was voided, which voided Directive 2004/18/EC on the coordination of the procedures for the awarding of public contracts for goods, supplies and services.

And Directive 2004/17/EC on the coordination of contract awarding procedures for awards in the water, energy, and transport sectors, and for postal services.

From an international perspective, the EU is bound to comply with the conditions of the World Trade Organization's (WTO) Agreement on Public Procurement (APP).

This regulation sets down a series of norms and principles that are to be observed in the awarding of public contracts. There appear a series of new developments such as: awarding through the system of competitive dialogue, project tenders, framework agreements, dynamic systems of acquisition, purchasing centres and electronic auctions.

Also, in order to clarify questions relative to the inclusion of environmental aspects in contracting documents pertaining to the matter, technical specifications, assignment criteria, contract execution clauses and tender selection criteria, in 2001 the EC published COM (2001) 274 on Community ordinances applicable to public contracts and the possibilities of integrating environmental considerations into public procurement.

The EC also proposes, through its Communications COM (2008) 397 and COM (2008) 400, the application of a series of measures designed to improve the energy and environmental performance of products throughout their life expectancy, and bolster demand for and the supply of higher quality products.

THE DEFINITION OF CONTRACT REQUIREMENTS

Definition of the Object

The definition of the object of the contract establishes for the first time the product that the government administration wishes to acquire via a certain type of procedure.

The "object" of a contract refers to the product, service or work which a government administration needs to procure. It is a first step to allow those parties interested in the execution of the project, the users and parties affected by said works or services, to understand said need, and its environmental performance.

The POLYMIX practical case:

The object of the contract is defined as bituminous HMA mixtures, with the contribution of recycled materials proceeding from plastic waste (Polypropylene, Polyethylene, Polystyrene, the dust from old tires, etc.) with the objective of improving their mechanical properties.

Environmental technical specifications

Technical specifications

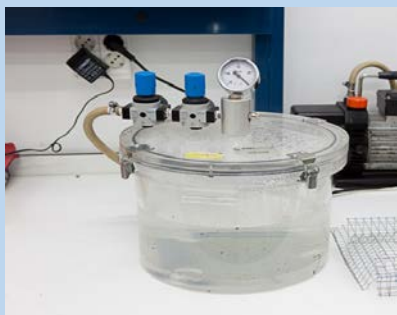
Technical specifications shall be defined in the contracting condition dossiers, and shall be taken into account with regards to compliance with European or national regulations, as well as regulations proceeding from environmental labels. Technical specifications have two functions:

- They allow companies to determine whether the execution of the project is line with their experience
- By means of their knowledge of the specifications companies can make quantitative evaluations that allow them to present competitive offers. They should, therefore, be as clear and transparent as possible, so as to facilitate verification of offers by the contracting bodies.

The POLYMIX practical case:

The bituminous mixtures are to meet the technical specifications set down in Article 542. Bituminous HMA mixtures, from the General Technical Specifications for Roadwork and Bridges (PG-3).

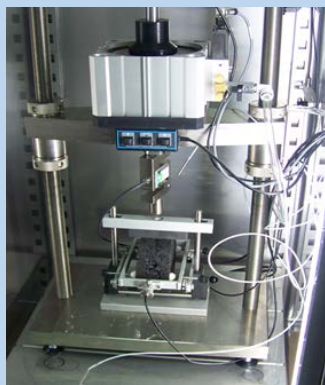
Among the most noteworthy tests of this article are those that determine the effect of water (water sensitivity test, UNE-EN 12697-12) and the bituminous mixtures' susceptibility to plastic deformation (rolling test, UNE-EN 12697-22).



The bituminous mixture forming the object of this contract shall meet the following dynamic module and fatigue resistance values:

Dynamic module

The value of the dynamic module at a temperature of twenty degrees Celsius (20°C), according to the standard set down in UNE-EN 12697-26, Annex C, shall not be inferior to four thousand mega pascals (4,000 MPa). The test pieces will be prepared in accordance with the UNE-EN 12697-30 standard, with seventy and five (75) blows per face.



Dynamic module test



Fatigue resistance test

Fatigue resistance

The fatigue resistance test, carried out at a frequency of thirty hertz (30 Hz) and at twenty degrees Celsius (20°C), in accordance with UNE-EN 12697-24, Annex D, is to obtain a deformation value for a million cycles superior to one hundred microdeformations ($\epsilon_6 \geq 100 \mu\text{m/m}$).

In addition, for the calculation of the layer thickness necessary, and with the objective of objectively evaluating the improvement of the bituminous mixtures' mechanical properties, it will be necessary to previously carry out analytical sizing () based on the results obtained in the aforementioned dynamic module and fatigue resistance tests, indicating in detail the section employed based on its structural yield. The thicknesses of each layer are to be at least those obtained in the calculation.

For the conventional mixtures used in the bituminous layers, and whose dynamic module and resistance to fatigue are not known, as well as for those values necessary for the sizing that have not been characterised, reference values shall be taken from Regulation 6.1-I.C. Roadway sections or from the roadway regulations of the Autonomous Communities, adequately justifying their suitability.

In the case of the use of polymeric materials via dry process for the improvement of the mixtures' properties, the following specifications will be taken into account:

The granulometry of the mixtures will accord with the sizes specified by PG-3, in Table 542.9 on Granulometric gravel sizes. Cumulative sieving (% in mass). The fraction of mineral dust (that passing through the 0.063 mm sieve) will be replaced by an amount equivalent to at least 0.5% the total weight of the mixture. This amount of mineral dust will be replaced by means of waste polymers, and according to the same conditions indicated by this guide.

Applicable Regulations

For the design of products or processes with an environmental component, a potent regulation is needed to govern their definition.

The technical specifications shall include direct references to said regulation, thereby facilitating an enhanced definition of the object of the contract, taking into consideration that European procurement guides indicate that it should always be accompanied by the phrase “or equivalent”, in such a way that when the hiring body examines the documents of the offer it takes into consideration that the equivalent regulation may be evaluated in a manner differing from the habitual one.

The utility of the regulation lies in the great number of bodies interested in its application: political, technical, environmental protection groups, citizen associations, etc., which contribute an ample consensus to its approval and, thus, its development

European regulations are those developed by the following bodies:

- European Committee for Standardization (CEN)
- European Committee for Electrotechnical Standardization (CENELEC)
- European Telecommunications Standards Institute (ETSI).

The POLYMIX practical case:

For the evaluation of plastics and tires removed from circulation, the following national and European waste-related legislation shall be taken into account:

- ❖ *Directive 2008/98/CE of the European Parliament and the Council, of 19 November 2008, governing waste, by which certain Directives were voided*
- ❖ *Law 22/2011 of 28 July governing waste and contaminated lands*

In relation to chemical substances and preparations, the following European and national legislation shall be taken into account:

- ❖ *REGULATION (EC) No. 1907/2006 of the European Parliament and the Council of 18 December 2006 relative to the registration, evaluation, authorization and restriction of chemical substances and preparations (REACH).*

In relation to recycled plastics the following regulation, or its equivalents, shall be observed:

- ❖ *UNE 53972:2008: Plastics. Recycled polypropylene (PP). Characteristics and classification.*
- ❖ *UNE 53978:2008: Plastics. Recycled polyethylene (PE) materials. Characteristics and classification.*
- ❖ *UNE-EN 15342:2008: Plastics. Recycled plastics. Characterization of recycled polystyrene (PS) products.*
- ❖ *UNE-EN 15343:2008: Plastics. Recycled plastics. Traceability and evaluation of compliance by the plastic recycling and recycled content.*
- ❖ *UNE-EN 15344:2008: Plastics. Recycled plastics. Characterization of recycled polyethylene (PE) products.*
- ❖ *UNE-EN 15345:2008: Plastics. Recycled plastics. Characterization of recycled polypropylene (PP) products.*
- ❖ *UNE-EN 15347:2008: Plastics. Recycled plastics. Characterization of plastic waste.*

And, finally, in relation to the production of asphalt mixtures, the following regulations shall apply:

Atmosphere

- ❖ Decree 833/75 of 6 February, regulation implementing Law 38/72 of 22 December on the protection of the atmosphere.
- ❖ Order of 18 October of 1976 on atmospheric contamination, prevention and industrial contamination (EST).
- ❖ Law 34/2007 of 15 November on air quality and the protection of the atmosphere.
- ❖ Resolution of 12 March 2009, setting forth the procedures for the monitoring and oversight of individual atmospheric contamination.
- ❖ Presentation by the Environmental Ministry of the new "Emission Rights Assignment Plan" (2008-2012).
- ❖ Fight against Climate Change (approved by means of Decision 94/69/EC of the Council, 15 December 1993, relative to the celebration of the Convention Framework on Climate Change. Text of the Convention).
- ❖ The Reduction of Emissions in the period from 2008-2012, relative to 1990, as indicated in the Kyoto Protocol (confirmed by Decision 2002/358/EC of the Council, of 25 April 2002, relative to the approval of the Kyoto Protocol, on behalf of the EC).
- ❖ Compliance with Directive 2003/87/EC of the European Parliament and the Council, of 13 October 2003, which establishes a system for commerce in greenhouse effect gas emission rights in the Community, and modifies Directive 96/61/EC of the Council (ECJ 275/L of 25-10-03).

Sounds and Vibrations

- ❖ Royal Decree 212/2002 of 22 February, regulating noise emissions in the surroundings due to the use of certain outdoor machines.
- ❖ Royal Decree 524/2006 of 28 April, modifying Royal Decree 212/2002, regulating noise emissions in the surroundings due to the use of certain outdoor machines.
- ❖ Resolution of 23 January 2002, calling for the publication of a listing of the competent authorities and bodies charged with carrying out certain activities and functions for the application of Directive 96/62/EC on the evaluation and management of air quality.
- ❖ Royal Legislative Decree 1/2008 of 11 January, approving the consolidated text of the Law for the evaluation of projects' environmental impacts.
- ❖ Law 37/2003 of 17 November on noise.
- ❖ Royal Decree 1513/2005 of 16 December, implementing Law 37/2003 on noise, with respect to the evaluation and management of noise affecting the environment.
- ❖ Real Decree 1367/2003 of 17 November on noise, with respect to acoustic zoning, quality objectives, and acoustic emissions.

Visual Impact

- ❖ Law 8/2007 of 28 May governing land.

Specifications of production materials and methods

Specification of materials

This section defines the composition of the product, how it is produced or how the work is carried out and whether, due to its environmental impact, it may be an element meriting special mention.

Both materials and construction or manufacturing methods should be taken into account, implicitly and explicitly, given that in certain cases the manufacture of some elements may involve the use of technologies that do not appear as related to the object of the contract.

The contracting body must guarantee that the basic principles of the Treaty are respected with regards to non-discrimination, equal treatment, transparency and proportionality when specifying production materials and methods.

The POLYMIX practical case:

The materials regularly used in the construction of roadways require a series of minimum specifications that, depending upon the country, are governed by a range of regulations and recommendations. In Spain, the effective standard corresponds to PG-3, which is based on the use and application of the European UNE-EN standard.

Aggregates:

- ❖ *The aggregates in the composition of the mixtures are to comply with the terms of PG-3, as well as the orders issued by the works' technical management.*

In the case of the addition of polymeric waste via dry process the following specifications will be taken into account:

- ❖ *For the manufacture of modified bituminous mixtures with polymeric waste a specific type of aggregate is not necessary; the type of aggregate indicated in the specifications, and by those responsible for the work, may be used. It is only necessary to take into account the main characteristics and working conditions of the aggregates selected, in an effort to define the most suitable type of aggregate, and achieve optimal aggregate/waste and, subsequently, aggregate/binder performance.*

Hydrocarbon binders

- ❖ *The binders employed in the composition of asphaltic mixtures are to comply with the terms of PG-3, as well as the orders issued by the works' technical management.*

In the case of the addition of polymeric waste via dry process, the following specifications are to be taken into account:

- ❖ *It is recommended that the type of binder to be used in the manufacture of asphalt mixtures modified with residual polymers be a conventional bitumen which has not undergone any previous modification. According to the current terms of the UNE-EN 12591 standard, the binders to be used in mixtures with recycled polymers, in accordance with the same conditions set down in PG-3, are the following:*
 - *B 35/50*
 - *B 50/70*
 - *B 70/100*

The use of recycled materials

- ❖ *In cases involving the use of recycled materials, these will be characterized based on adequate parameters, in accordance with the previously specified regulations or their equivalents.*
- ❖ *These materials will be waste-based, but shall have lost their status as waste, thereby capable of being handled without any authorization or additional registration.*
- ❖ *Recycled materials shall have been produced by authorized managers.*



Polymer waste

Production processes and methods

Production processes and methods are set down in a range of directives, and do not necessarily have to be visible. That is, for the execution of a given process certain requirements should be applied that are not a material part of the final product, but are of the intermediate stages.

The guarantee that the processes contribute to the attainment of environmental objectives is of the utmost importance (proportionality principle). Thus, a Life Cycle Analysis (LCA) shall help to establish the adequate specifications.

The POLYMIX practical case:

The design of the HMA mixtures is carried out in accordance with the new UNE standard, and the new requirements and demands derived from the modification of the Dossier of General Technical Specifications for Roadwork and Bridges (PG-3), Articles 542 and 543, via Circular Order 24/2008.

The modification of HMA mixtures is possible by means of polymeric waste via dry process, always in percentages accounting for less than 5% of the aggregate content.

The Use of Variants

Variants departing from the original project plans can imply another point of view on the development of a work, service or provision. It is necessary to study them in depth, since the case could arise that, even though respectful of the environment, they fail to meet certain specifications set for the project, in which case it would be necessary to study the importance of said specifications.

In the announcements of the tender the acceptance of variants should be duly noted, as well as the specifications that they are to meet, and whether they must necessarily be accompanied by a solution without a variant, including the latter's advantages, in such a way that it can be scored in a homogenous way and one can end up at the end of the tender process an awardee with the most economically advantageous offer.

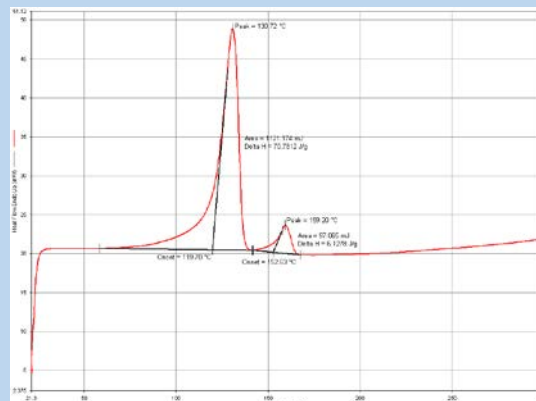
The POLYMIX practical case:

The use of other types of materials may be admitted, pending authorisation from the project manager.

Other waste polymers

The percentage of the gross weight of the test pieces to be replaced with the fraction of the mineral dust will be at least 0.5%. The maximum percentage will be limited by the Project Manager, who shall establish the limitations which the mixture is to observe, assuring in all cases compliance with the technical specifications indicated in this guide.

Another possible variant is the type of waste. Depending upon the type of asphalt mixture, conditions and work temperatures, the type of waste it is possible to use for the manufacture and subsequent installation shall be defined. To this end the technical characteristics shall be analysed, such as granulometric, specific heat, behaviour due to high temperatures, etc.



Other hydrocarbon binders

When using a bituminous binder different from those indicated in the technical specifications, the Project Manager shall establish the specifications that the mixture must meet, guaranteeing in every case compliance with the technical specifications appearing in this guide.

The CE Mark, the use of ecolabels and criteria with regards to GPP

There are two ways to use ecolabels in the technical specifications; on the one hand they serve as a guide for the elaboration of these specifications and, on the other, as an element for verification of the procedures that must be followed in order to obtain the label.

The contracting body may use the specifications of the ecolabels, conscious that they must be in accord with the object of the contract, verified with scientific data, and, following the abovementioned principles, feature equal treatment for all the interested parties.

Technical reports from recognised control bodies, as well as other types of certificates may be required from bidders, as they cannot be obligated to obtain ecolabels.

The POLYMIX practical case:

The certification of the product shall be carried out according to the current ecolabel system. The product will merit the same evaluation if it demonstrates compliance with the requirements of said ecolabel, even though it is not certified.

The ecolabel shall comply with the following standard or its equivalent:

- ❖ *UNE-EN ISO 14020:2002. Ecolabels and environmental declarations. General principles.*
- ❖ *UNE-EN ISO 14021:2002. Ecolabels and environmental declarations. Self-produced environmental declarations. Type II ecolabelling.*
- ❖ *UNE-EN ISO 14024:2001. Ecolabels and environmental declarations. Type I ecolabelling. Principles and procedures.*
- ❖ *UNE ISO 14025:2010. Ecolabelling and environmental declarations. Type III environmental declarations. Principles and procedures.*

Verification of compliance

The verification of contract compliance is defined in the project's Technical Dossier, and, in the event another technical standard, or any type of ecolabel is applied, a section should be included on the control procedure and its inspection program.

The POLYMIX practical case:

During the manufacture and installation of the mixtures, they shall be monitored in accordance with the terms set down in Article 542.9.3, PG-3 execution oversight.



In addition, whenever the mixtures do not have a CE Mark, for the T00 to T31 traffic categories the dynamic module and fatigue values will be determined, in accordance with the same conditions established by this guide, when the supply or the origin of any of the materials making up the mixture is changed, or when the Project Manager deems it opportune, or with the minimum testing frequency indicated in Table 542.19. Minimum testing frequency for additional tests of characteristics of the PG-3 mixture.

For the T32 to T42 heavy traffic categories, these tests will be conducted only when the supply changes or the Project Manager deems it advisable.

THE SELECTION OF SUPPLIERS, SERVICES PROVIDERS AND CONTRACTORS

For the selection of companies the following observations shall be taken into account, among others:

- It is possible to exclude companies that have infringed environmental legislation when constituting a professional infraction under national legislation.
- In the technical capacity criteria the previous experience of a company and the professional qualifications of its personnel constitute good opportunities for the inclusion of environmental considerations.
- In order to verify whether companies can carry out the environmental management measures prescribed by the contract, contracting bodies shall be able to ask them to demonstrate their technical capacity to do so.
- Environmental management systems, such as EMAS, can serve as means (non-exclusive) to demonstrate technical capacity. It is prohibited to establish requisites in accordance with a specific environmental management system.

The POLYMIX practical case:

Economic operators who bid on tenders involving HMA with the contribution of recycled materials (proceeding from plastic waste; PP, PE, or PS type; or dust from out-of-circulation tires) recovered via dry process to improve their mechanical properties, are to demonstrate their capacity to execute the work or supply contracts.

To this end, environmental experience in the installation of HMA shall be taken into account, taking advantage of recycled plastics and/or the dust from out-of-circulation tires, or similar, as the object of the contract indicates.

According to Article 60.1.a) of TRLCSP (Consolidated Text of the Public Sector Contracts Law) 3/2011, those operators who have been convicted by means of a final ruling for crimes of illicit association, corruption in international economic transactions, illegal influence peddling, bribery, fraud or illegal exaction, crimes against the Tax Ministry or Social Security Administration, crimes against the rights of the workers, embezzlement, handling stolen goods or conduct related thereto, crimes relative to the protection of the environment, or those giving rise to special incapacitation for the exercise of a profession, trade, industry or commerce, will automatically be excluded.

Criteria for exclusion

European contracting directives and their transpositions to the different member states stipulate the cases in which an operator cannot opt for public contracts.

In general, sentences following final rulings in cases involving the violation of professional ethics or regulations, and for breaches of environmental legislation, entail exclusion from public tender processes.

Moreover, it is common practice for the contracting body to ask operators for written declarations in which they state that they have not committed any of the acts which would thus disqualify them.

The POLYMIX practical case:

Exclusion criteria includes other acts which an operator may commit, such as

- ❖ *Having declared bankruptcy, or being involved in a forced liquidation process*
- ❖ *Having committed a serious professional infraction*
- ❖ *The following articles of Legislative Royal Decree 3/2011, consolidated text of the public sector contracts law:*
 - *- Art. 60.1 a. Prohibition against contracting businesspeople convicted of crimes against the environment*
 - *- Art. 81 Accreditation of compliance with environmental management regulations*
 - *Art.118.1 Special contract execution considerations: environmental, social, employment promotion, gender inequality, education, labour rights, etc.*
 - *- Art. 119 Information on obligations relative to the protection of the environment, the protection of employment, work conditions and occupational hazard prevention.*
 - *Art. 150, evaluation criteria for the offers, environmental characteristics (lesser impact, usage reductions and the efficient use of water and materials, the environmental cost of the life cycle, green production methods, waste management, the use of recycled materials, etc.), social demands, and aid to the underprivileged.*

Contractor selection criteria

As in the previous section, the Directives cover the ways in which companies must demonstrate their technical capacity for the execution of the contract.

Operators must possess sufficient experience for the execution of the contract, to this end having specialised personnel and resources expressly for compliance with environmental contracts.

This is verifiable via the official classification and/or via AENOR-type certificates or seals, or their equivalents, and certifications of similar projects completed.

The POLYMIX practical case:

The TRLCSP (Consolidated Public Sector Contracts Text) in its articles 54 to 59, indicates that: Exclusively eligible to sign public sector contracts shall be those natural or legal persons, whether Spanish or foreign, with full capacity to act, not subject to any contracting prohibitions, and which can certify their economic, financial, technical and professional capacity, or, in cases when so required by this Law, those duly classified.

Also applicable is Art. 76 of Directive 2014/24/EU, which indicates the general principles for the selection of the participants and the awarding of contracts until the approval of the TRLCSP (Consolidated Text of the Public Sector Contracting Law).

The following shall be taken into account as selection criteria at the environmental level:

- 1. Reductions in the generation of waste, preventing polluting agent spills or leakage, reduced fuel consumption, and the minimization of disturbances to natural habitats will be considered as technical capacity criteria, with companies presenting action plans addressing these contingencies.*
- 2. The environmental certifications obtained by the company or joint venture.*
- 3. The presentation of certificates issued by independent bodies certifying that the economic operator respects certain environmental management standards or systems,*

will make reference to the Union's system of environmental management and auditing (EMAS), or to other environmental management systems recognised in accordance with Article 45 of Regulation (EC) No. 1221/2009, or to other environmental management regulations based on European standards, or pertinent international standards from accredited bodies. Equivalent certificates from bodies established in other member states will be recognised.

- 4. The CVs of the employees participating in the project, with an express indication of their qualifying degrees and demonstrated experience in environmental projects.*
- 5. Company certificates evidencing possession of the technical means for environmental protection, or access to them by means of outsourcing.*
- 6. The company's compliance with CE Marking for binders, an obligatory requirement for their free commercialization in the European Union.*
- 7. Records of contracts executed, duly certified.*
- 8. Having executed work or supplying contracts during the year prior in which bituminous mixtures were used, with the addition of plastics from recycling, or their equivalent.*
- 9. The declaration of the environmental management measures the company is going to adopt in the event it is awarded the contract. This section will take into account not only the management of the work or service, but also the company's internal system.*

EVALUATION OF OFFERS

General Rules for the awarding of a contract

In this phase the evaluation of the offers will be carried out in three parts (multiple criteria), based on costs, the technical proposal, and the environmental proposal. In this way the most economically advantageous offer for the administration will be attained.

For each one of these three parts into which the awarding shall be divided, a selection of criteria and objective and verifiable subcriteria shall be set, in both the awarding phase and in the subsequent work phase.

The POLYMIX practical case:

Awarding criteria

Without prejudice to national legal, regulatory or administrative regulations, awarding entities shall apply the criterion of the most economically advantageous offer when assigning contracts.

The most economically advantageous offer from the point of view of the awarding entity shall be determined on the basis of price or cost, employing an approach that is based on cost-effectiveness, including the Life Cycle Assessment, and may include the best price-quality relationship, which will be evaluated based on criteria that include qualitative, environmental, and/or social aspects related to the object of the contract in question. These criteria include:

- a) quality, including technical value, aesthetic and functional characteristics, accessibility, design for all users; social, environmental and innovative characteristics, commercialization and its conditions*
- b) organization, the qualifications and experience of the personnel in charge of executing the contract, when the quality of personnel employed can significantly affect its execution*
- c) post-sale service and technical assistance; delivery conditions such as the delivery and*

date, delivery process, and date of delivery or execution, and commitments relative to replacement parts and secure access to supplies.

For these recommendations multiple criteria shall be applied, such that the weight assigned to the economic offer is 60%; the technical, 20%; and the environmental, 20%.

Offer evaluation criteria:

❖ **Economic evaluation**

The economic proposal shall be scored in such a way that the most advantageous offer is assigned 60 points, with 0 assigned the offer that equals the budget.

Therefore, the score for an offer O shall be

$$\text{Score } O_i = \frac{\text{Pres. Bid} - O_i}{\text{Pres. Bid} - O_{\min}} \times 60$$

Where O is the minimum offer presented.

An eye will be kept out for out-of-proportion or reckless offers, which, at the judging panel's discretion, may be excluded from the procedure.

❖ **Technical criteria evaluation**

In order to evaluate an offer's technical and environmental quality the following aspects shall be analysed:

1. Up to **40 points**: the bituminous mixtures proposal or Technical Study shall be evaluated, work formulas and the monitoring of works for 5 years (T_1).
2. Up to **25 points**: the description of the equipment, technical means, materials and human resources to be dedicated to the execution of the works, with particular attention to be paid to technological innovations (T_2).
3. Up to **20 points**: the company or joint venture's quality plan shall be evaluated, or the work's quality control program (T_3).
4. Up to **15 points**: the handover date (T_5).

The **evaluation of the overall technical quality** (V_t) of each offer shall be determined by the sum of the scores obtained for its different aspects, according to the aforementioned criteria, rounded to the second decimal.

Note: the awarding criteria shall be verifiable by any company that so requests; though for this purpose the contracting body will publish each bidder's scores, prior to the opening of the economic proposal.

The method to be followed to determine **each offer's technical score** (V_i) shall be as follows:

- a) Offers from bidders admitted after the presentation of the administrative envelopes will be divided into two sets:
 - Offers of unacceptable technical quality: those whose technical evaluation (V_t) is awarded less than 60 points.
 - Offers of sufficient technical quality: those whose technical evaluation (V_t) is equal to or greater than 60 points.
- b) The offers falling in the unacceptable technical quality set shall not be taken into consideration for the calculation of abnormally low offers, nor for the determination of the most advantageous offer, such that, in the event that there is no other set, the procedure will be declared null and void.

Those offers assigned 60 points receive a technical score of 0 points, and the following formula is applied to rest of the offers:

$$\text{Technical Score of each offer (S}_i\text{)} = \frac{20 \times (\text{Technical Evaluation of each offer (V}_i\text{)} - 60)}{(\text{Maximum Technical Evaluation (V}_t\text{ max)} - 60)}$$

The technical score will be rounded off to the second decimal.

❖ **Evaluation of environmental criteria**

In order to evaluate each offer's environmental quality the following aspects shall be analysed:

1. Reduction in the consumption of raw materials (E_1). Up to 25 points.
2. Reductions in energy consumption, water, electricity, combustible fuels, etc. (E_2). Up to 25 points.
3. The use of recycled polymeric materials (E_3). Up to 20 points.
4. The possession of ecolabels and other equivalent environmental quality seals, with the understanding that these have been granted following a procedure similar to that employed for the Community Ecolabel (E_4). Up to 10 points.
5. The application and quality of environmental management measures (E_5). Up to 10 points.
6. Reductions in disposal costs (E_6). Up to 10 points.

The awarding criteria with regards to the environment will be based on a "Life Cycle Cost Analysis" (LCCA) approach.

The **evaluation of environmental quality (E_i)** of each proposal will be calculated in accordance with the following formula:

$$E_i = E_1 + E_2 + E_3 + E_4 + E_5 + E_6 / 100 \times 20$$

Note: the awarding criteria shall be verifiable by any company that so requests; though for this purpose the contracting body will publish each bidder's scores, prior to the opening of the economic proposal.

The overall evaluation of the T_e project shall be determined by the sum of the scores obtained in the economic evaluation, technical evaluation and environmental evaluation.

$$V_t = O_i + P_i + E_i$$

CONTRACT EXECUTION CLAUSES

Regulations governing contract clauses

The contract execution clauses may not contain awarding criteria, as during the contracting procedure the operator may not be asked to demonstrate compliance with the execution clauses.

If a bidder presents commitments to complete activities or processes not included in the Dossier, but which in the opinion of the evaluation committee are acceptable, these commitments are to be added to the project's clauses, and their execution required.

The POLYMIX practical case:

Execution of the contract

Applicable, wherever relevant, as provisions supplemental and complementary to those contained in this Dossier, shall be those listed below, provided that they do not modify or conflict with that specified in it:

- ❖ *Dossier of General Technical Specifications for Roadwork and Bridges PG-3/75, approved by M.O. on February 1976, published in the Official State Gazette on 7 July 1976, with all modifications to date, whether through Ministerial Orders or Circular Orders from the Ministry of Public Works.*
- ❖ *Manual for the manufacturing and control of bituminous mixtures from the Ministry of Public Works' General Highway Administration.*
- ❖ *Recommendations for Quality Control in Roadwork from the Ministry of Public Works' General Highway Administration.*
- ❖ *Royal Decree 1627/1997 of 24 October on Safety and Health studies in construction projects.*
- ❖ *Royal Legislative Decree 3/2011 of 14 November, which approved the Consolidated Text of the Public Sector Contract Law (Official State Gazette of 31 October).*
- ❖ *Recommendations regarding porous bituminous mixtures from the Ministry of Public Works' General Highway Administration.*
- ❖ *Dossier of General Administrative Clauses for the Contracting of State Works, approved by Decree 3584/1970 of 31 December.*
- ❖ *Dossier of Particular Administrative Clauses established for the contracting of these works.*
- ❖ *Royal Legislative Decree 1.302/86 of June and its regulation, approved by Royal Decree 1.131/88 of 30 September on the Environmental Impact Evaluation.*
- ❖ *Instruction 6.1-IC on Sections of Roadways. Approved by M.O. (Official State Gazette 12-12-03)*
- ❖ *Instruction 6.3-IC on the Rehabilitation of Roadways, approved by M.O. (Official State Gazette 12-12-03)*
- ❖ *Visual Identity Manual for Highways of the Community of Madrid (VIAM).*
- ❖ *OC 7/2001 Instructions on aspects to be examined by the General Highway Administration's Project Supervision Offices.*

All these documents shall necessarily, in their original versions and those incorporating subsequent modifications, be already declared of obligatory compliance, or be so declared during the execution of this project's works.

As bidders may not be compelled during the awarding procedure to demonstrate compliance with the contract execution clauses, it will be during the execution of the work when this is overseen, in accordance with that set down in PG-3/1989 and in the Dossier of the project's particular administrative clauses.

If during the bidding specific commitments have been included, these must be honoured during the execution of the work.

Contract execution clauses in relation to work execution

This section indicates how the work shall be executed, in fulfilment of the environmental management measures and the contractual obligations in the Dossiers.

Specific objectives to be observed will be included during the completion of the work, indicating efficient uses of natural resources, etc.

Moreover, emphasis shall be placed on the technical and environmental training of the personnel assigned to the work.

The POLYMIX practical case:

Detailed marking out of works

The project director shall approve the necessary detailed marking out of works for the execution of the works, and shall provide the contractor with all the information he has so that this can be completed.

Machinery

Any modification that the contractor proposes to make to machinery whose employment is obligatory because it was required in the contract, or was committed to during bidding, must be accepted by the Administration, pending a report by the Project Manager.

Tests

It shall be mandatory to conduct the tests specifically mentioned in the technical specification documents, or cited in the generally applicable technical regulations.

In relation to products imported from other EU member states, even when their designation or markings are different from those indicated in the present dossier, the running of new tests shall not be necessary if it is clear from the documents accompanying these products that they are, in fact, identical to those in Europe, which are only designated in another way. To this end the results of any tests carried out by competent authorities in the mentioned states shall be taken into account, in accordance with their own regulations.

When an item is identifiable the contractor shall present a test report endorsed by a laboratory accepted by the Ministry of Public Works and Urban Planning, or a testing lab or control or certification body accredited by a EU member state, on the basis of the corresponding technical specifications; only those tests necessary to verify that the product has not been altered during the processes subsequent to the running of these tests shall be conducted. The maximum limit set in the administrative clause dossiers for expenses arising from tests and the analysis of materials and work units at the Contractor's expense shall not apply to those necessary to verify the alleged existence of hidden construction faults or defects, unless their existence is ultimately confirmed.

Materials

Materials are to comply with the conditions stipulated in the General Technical Specifications Dossier for Roadwork and Bridges, P.G. 3/75 and in this Dossier of Particular Technical Specifications.

The Administration does not assume responsibility for assuring that the Contractor will find in the indicated places of origin adequate or selected materials in sufficient quantity for the work at the time of their execution.

If the dossier of particular technical specifications does not demand a certain origin, the contractor shall notify the Project Manager, with sufficient advance warning, with regards to the origin of the materials he proposes to use, so that the Project Director is able to order the tests necessary to certify their aptness. Approval of the materials proposed and their origins will be an indispensable requisite for their employment, without prejudice to subsequent verifications to confirm, at any time, that they continue to be suitable.

Products imported from other EU member states, even if produced in accordance with technical prescriptions different from those contained in the present dossier, may be used provided that they assure users sufficient safety levels, equivalent to those provided by these.

If the dossier of particular technical specifications designates the origin of the materials, and during the execution of work other suitable ones are found that could be used, providing a technical or economic advantage over the former, the Project Manager shall be able to authorise or, when appropriate, order a change of origin in favour of the latter.

If the contractor obtains from publicly held lands mineral products in amounts in excess of those required one for the work, the Administration may appropriate the surplus amounts, without prejudice to the responsibilities the contractor may bear as a result.

The Project Manager shall authorise the contractor to use materials from demolition, excavation or felling in the work; otherwise he shall indicate to him the locations from which and ways in which said materials are to be obtained, and the contractor will have right to compensation covering the additional transport, surveillance and storage costs resulting therefrom.

All the materials are to be suitable for the uses to which they are put, having been taken into account in the prices appearing in the budgets; it is understood that they will be of the highest quality of their class among those existing ones on the market.

For this reason, and, even when their unique characteristics and those of minor importance did not merit a more explicit definition, their use shall be subject to approval by the Head Engineer, who will be able to determine suitable tests or reception trials for the purpose.

In any case, the materials will be of equal or higher quality than may be deduced from their origins, evaluation or characteristics, as mentioned in a project document, and they shall be required to comply with official regulations and proper manufacturing criteria. The Head Engineer may demand provisioning by a company offering adequate guarantees.

Materials supplied and their storage

The placement of materials on the work site or in surrounding areas which could affect them, as well as any warehouses which might be employed, shall require previous approval by the Project Manager.

If aggregates are left on the ground, the fifteen centimetres (15 cm) at their base will not be used. These storage configurations will feature layers not to exceed one and a half meters (1.5 m), and not conical piles. The layers shall be placed adjacently, taking the opportune measures to prevent their segregation.

If supplying anomalies are detected, the materials shall be stored separately until their acceptability is confirmed. This same measure shall be applied when a change of origins is authorized.

Once materials are used their storage facilities are to be treated and returned to their natural state.

Any expenses or compensation arising from the use of material storage facilities shall be borne by the contractor.

Night work

Night work is to be previously authorized by the Project Manager, and only carried out by the work units he indicates. The contractor is to install lighting equipment, of the type and intensity ordered by the Project Manager, and maintain them in perfect condition for the duration of the project.

Special precautions during the execution of work

Ice: When ice is forecast the contractor will protect all the work areas that could be affected by it. Damaged parts will be lifted and redone, at its cost, in accordance with the present dossier.

Fire: The contractor must observe all regulations in force for the prevention and control of fire, and any complementary instructions issued by the Project Manager.

In any case, he shall adopt the measures necessary to prevent any unnecessary fires, and will be responsible for preventing the spread of any fire which is required for the execution of the work, as well as for any damage it might produce.

Conservation of works executed during the guarantee period.

The Contractor undertakes to conserve, at his cost, all the works making up the project.

He is obligated to conserve the works during the guarantee period of one year. The conservation of the section of the project during the execution of the works shall be the responsibility of the Awarded Contractor assigned the work in question.

Final cleaning of the work site

Once the works have been completed all the facilities, leftover materials, rubbish, and temporary deposits and buildings constructed exclusively for the project, and which are not necessary for its conservation during the guarantee period, are to be removed, and their sites restored to their original states.

Cleaning is to extend to all easements, and also to all land that was temporarily occupied.

Provisional roads are to be handled in a similar manner, including accesses to any pits or ditches, which will be restored as soon as their use is no longer necessary.

All this is to be done in such a way that the areas affected are completely clean and feature aesthetic conditions in accord with the surrounding landscape.

For all applicable purposes the contents of Articles 2, 3, 4, 5 and 6 of the Ministerial Order of 31 August shall be considered an integral part of this Dossier, referring to the signage, defence, cleaning and completion of permanent work on roadways outside urban areas.

Mix variations

The Contractor shall be obliged to modify the mixes stipulated in this Dossier if the Director orders it in light of the tests conducted.

Contract compliance supervision

Environmental contractual clauses are only effective if compliance with them is adequately assured through supervision. To this end the contracting body shall see to it that a competent management team is assigned, in accord with the importance of the work, as well as the support, if necessary, of whatever technical assistance might be needed.

The POLYMIX practical case:

For the environmental supervision of the work the awardee will be required to provide sufficient and verified proof of compliance with them, in accordance with UNE/EMAS or its equivalent.

At any time during the work and, at the discretion of the project manager, the jobs completed and those underway may be reviewed.

The contracting body, exercising its faculties, may organise a tender process for the Work Control service.

The General Technical Specifications Dossier for Roadwork and Bridges, PG-3/75, and all the modifications thereto to date, include the penalties to be applied in the event that the work is not completed or delivered in accordance with the terms of the established Dossier.