



The European construction sector

A global partner



An overview

The construction sector is of strategic importance for many countries across the world. It delivers the buildings and infrastructure needed by the rest of the economy and society.

It generates about 9% of gross domestic product (GDP) in the European Union and provides 18 million direct jobs. The European Union's internal market offers our international partners access to more than 500 million people and approximately EUR 13 trillion in GDP.

The construction value chain includes a wide range of economic activities, going from the extraction of raw materials, the manufacturing and distribution of construction products up to the design, construction, management and control of construction works, their maintenance, renovation and demolition, as well as the recycling of construction and demolition waste.

As such, the construction sector plays an important role in the delivery of the European Union's 'Europe 2020'¹ goals for smart, sustainable and inclusive growth. It has a direct impact on the safety of workers and on the quality of life. Buildings, infrastructure and construction products have an important impact on energy and resource efficiency, the fight against climate change and in the environment in general.

The EU strategy for the sustainable competitiveness of the construction sector² focuses on five objectives: investments, jobs, resource efficiency, regulation and market access.

The European Union has put in place a comprehensive legislative and regulatory framework, including corresponding European standards as well as financial tools, information platforms, labelling schemes and other instruments.

The European Union is a major actor in world trade and supports open markets, clear regulatory frameworks and the removal of barriers to trade.

The EU is engaged internationally to open opportunities for sustainable construction, cooperate with its partners in areas of mutual interest and share its expertise.

¹ http://ec.europa.eu/europe2020/index_en.htm

² Communication from the Commission to the European Parliament and the Council, 'Strategy for the sustainable competitiveness of the construction sector and its enterprises' (COM(2012) 433). <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0433>

Buildings and other construction works

³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 'A Roadmap for moving to a competitive low carbon economy in 2050' (COM(2011) 112). <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52011DC0112>

The EU policies for buildings aim at an integrated approach, covering sustainability, in terms of energy and resource efficiency, health and safety issues. There is a large market to cover, including newly built buildings and renovating the existing building stock.

The EU Member States retain the competency to regulate issues such as safety, indoor air quality, noise and radiation. They also have the responsibility to implement European legislation. Local authorities have an important role to play in the promotion of low-carbon and resource-efficient cities, building on the involvement of stakeholders and citizens.

of materials, building performance as well as interaction with urban and economic development and management. Different approaches may be followed according to the local socio-economic context; in some countries, priority is given to resource use (energy, materials, water, and land use), while in others social inclusion and economic cohesion are the more determining factors.

Sustainable buildings combine improved energy performance and reduced environmental impact throughout their life cycle. Their users enjoy better health and well-being and productivity gains that translate into cost savings. Buildings have the potential to reach a 90% reduction of their greenhouse gas emissions by 2050³.

Sustainable construction

Sustainable construction can be defined as a dynamic between developers of new solutions, investors, the construction industry, professional services, industry suppliers and other relevant parties towards achieving sustainable development. It embraces a number of aspects such as design and management of buildings and constructed assets, choice



Energy efficiency – towards nearly zero-energy buildings

The EU is aiming for a 30% cut in its annual primary energy consumption by 2030. The building sector, together with public transportation, has the greatest potential for savings.

The energy performance of buildings directive (EPBD)⁴ promotes the improvement of the energy performance of buildings, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness. It applies to new buildings and old ones undergoing renovation, and lays down minimum requirements for energy performance and requirements for related framework methodologies and strengthens the role of energy performance certificates and inspections.

According to the EPBD, all new buildings shall be nearly zero-energy buildings by 31 December 2020, and 2 years earlier for buildings occupied and owned by public authorities.

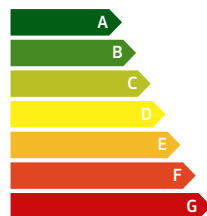
‘Nearly zero-energy building’ means a building that has a very high energy performance. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy produced on site or nearby.

Public authorities should set the example by renovating each year 3% of central government buildings with insufficient energy performances, as required by the energy efficiency directive (EED)⁵. This requirement is complemented by the EED obligation for Member States to put in place longer-term renovation strategies.

The implementation of the EPBD is supported by a set of European standards⁶, dealing with the thermal performance of buildings and building components, ventilation, light and lighting, heating systems, building automation, controls and building management.

In line with the EPBD, the EU Member States have established systems of certification of the energy performance of buildings. The certificate includes the energy rating and recommendations for the cost-optimal or cost-effective improvement of the energy performance.

The EPBD has already had a positive impact on transaction prices and rents: higher energy-efficiency ratings result in higher sales or rental values of buildings.



⁴ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings. http://ec.europa.eu/energy/efficiency/buildings/buildings_en.htm

EU support initiatives

The European Construction Sector Observatory⁷ provides European policy makers and stakeholders with regular analysis and comparative assessments of the market conditions and policy developments in the EU supporting the exchange of experience between Member States and stakeholders regarding the definition, implementation, monitoring and assessment of the impact of policy measures related to competitiveness of construction enterprises, including the engagement with sustainable development objectives.

The EU Building Stock Observatory helps monitor and steer the improvement of energy efficiency in buildings and supports the implementation of the EPBD. It provides a snapshot of the energy performance of the EU building stock, and good quality data for all Member States in a consistent manner.

⁵ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency - see hyperlink in note 3.

⁶ <http://www.cen.eu/work/areas/pages/default.aspx>

⁷ http://ec.europa.eu/growth/sectors/construction/observatory/index_en.htm



⁸ <http://www.buildup.eu/en>

The European Portal for Energy Efficiency of Buildings⁸ is an on-line platform that allows building professionals as well as other actors finding and sharing of best practices and know-how on energy solutions for buildings.

⁹ <http://ec.europa.eu/environment/eussd/buildings.htm>

¹⁰ http://ec.europa.eu/growth/industry/sustainability/index_en.htm

¹¹ http://ec.europa.eu/environment/gpp/index_en.htm

¹² Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.

<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1440776937463&uri=CELEX:32008L0098>

Resource efficiency

The great challenge faced by economies today is to integrate environmental sustainability with economic growth and welfare and 'doing more with less'.

In parallel to the significant progress being made with regard to energy efficiency, there is a need for a more holistic approach which considers resource efficiency throughout the whole life cycle.

Important for sustainable buildings⁹ is the reduction of the environmental impact of resources such as materials, water and embodied energy, throughout the life cycle of buildings, from the extraction of building materials to demolition and the recycling of materials. More also needs to be done in the area of renovation of existing buildings.

The circular economy¹⁰ provides opportunities for better construction and demolition waste management with pre-demolition waste and pre-renovation audits and the uptake of recycled construction materials by the market.

The specific objectives are to set environmental performance standards, provide incentives for citizens and public authorities to choose resource-efficient products and services and stimulate companies to innovate. Our international partners can also benefit from this.

European legislation and support initiatives



1 Resource, Extration and processing; 2 Design; 3 Manufacturing & Retail; 4 Distribution; 5 Use; 6 Collection; 7 Reuse, Recycling, Energy, Recovery, Disposal

Life-cycle thinking seeks to lower the environmental impacts and reduce the use of resources, beginning with the extraction of raw materials, moving through manufacture, distribution and use, and ending with reuse, recycling and ultimate disposal.

Life-Cycle Assessment and Life Cycle Costing provide the framework for assessing the potential environmental impacts of goods, services and works. The objective is to promote life-cycle thinking in business and in policymaking, including green public procurement (GPP)¹¹.

The waste framework directive¹² — with its objective of reaching 70% of preparation for reuse, recycling and other forms of material recovery of construction and demolition waste — contributes significantly to the European policy towards increased resource efficiency in the construction sector and to treating

waste as a secondary raw material in more general terms.

Improved design, sustainable materials and a higher waste recycling rate, together with fair, flexible and coherent rules ensure the proper functioning of the EU internal market and boost the competitiveness of the construction sector. It also provides an example and ample opportunities for our international partners.

The public sector is an important purchaser of buildings and can drive demand for green buildings significantly. We are striving for this in Europe and encourage our international partners to join in this endeavour.

European standards¹³ provide the tools for assessing and reporting the performance of buildings as regards social, economic and environmental sustainability, covering the whole life cycle. They are used throughout the EU and promoted internationally to set harmonised indicators and methods in the different certification schemes.

Structural design

The safety of buildings and civil engineering works is of utmost importance.

The Eurocodes¹⁴ play an important role in this respect. They are a series of European standards providing a common

approach for the structural design of buildings and other civil-engineering works and are the preferred reference for technical specifications in public contracts. They cover the basis of structural design, actions on structures and the design of concrete, steel, composite, timber, masonry and aluminium structures, together with geotechnical, seismic and structural fire design.

The Eurocodes are implemented and used in the EU and the member states of the European Free Trade Association (EFTA)¹⁵. There is also considerable interest in their use by other countries who want to update their national standards based on technically advanced codes and to trade with the EU and EFTA.

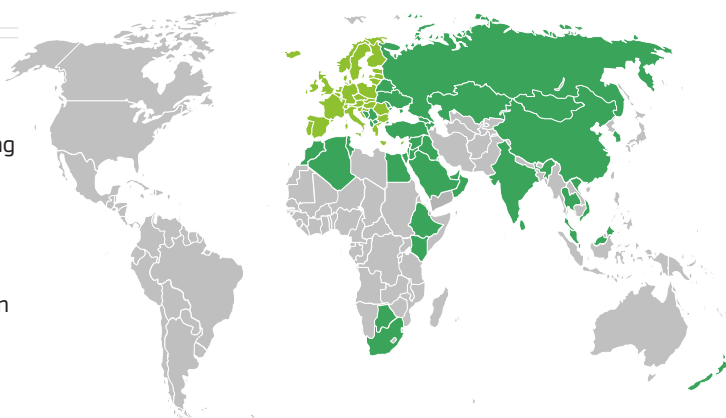
The next generation of Eurocodes shall also cover structural glass, new performance requirements and design methods, and the assessment, reuse and retrofitting of existing structures, as well as enhanced robustness requirements.

¹³ <http://www.cen.eu>

¹⁴ <http://eurocodes.jrc.ec.europa.eu>

¹⁵ Iceland, Liechtenstein, Norway and Switzerland.

- ▶ EU/EFTA
- ▶ Member States
- ▶ Expressed interest in the Eurocodes



Marketing of construction products in the EU



Construction products affect the performance of buildings with respect to safety, health, environmental performance and energy efficiency. Sustainable use of resources relates to recyclability, durability and the use of environmentally compatible materials.

¹⁶ Regulation (EU) N° 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products.

http://ec.europa.eu/growth/sectors/construction/product-regulation/index_en.htm

¹⁷ <https://www.cen.eu/work/areas/construction/Pages/default.aspx>

¹⁸ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1441023756582&uri=CELEX:32009L0125>

The focus of the Construction Products Regulation (CPR)¹⁶ is on the competitiveness of the sector. At EU level there exist more than 450 harmonised standards for construction products developed by the European standardisation bodies¹⁷. Technical standards under the Construction Products Regulation (CPR) cover:

1. Mechanical resistance and stability.
2. Safety in case of fire.
3. Hygiene, health and the environment.
4. Safety and accessibility in use.
5. Protection against noise.
6. Energy economy and heat retention.
7. Sustainable use of natural resources.

Products that comply with European legislation are free to circulate in the market. The CE marking is a declaration that the product conforms to all applicable provisions and that the appropriate conformity assessment procedures have been completed, regardless of whether it has been manufactured within the EU or imported.

Assessment methods have been specified in harmonised European standards for

products. They are to be applied by the manufacturers when declaring the performance of products and the national authorities when specifying requirements. Labelling and classes introduced in the standards help users choose the products most suitable for their intended use in construction works.

A European Assessment Document (EAD) is issued for construction products not covered or not fully covered by a harmonised standard. It includes the performance to be declared and all technical details necessary for verification of the constancy of performance.

Energy-related products used in the sector, such as heaters and ventilation systems, account for a large proportion of the energy consumption in the EU. The ecodesign directive¹⁸ provides a coherent framework of requirements for taking into account all the environmental impacts of a product. As such, ecodesign measures enhance product quality and environmental protection and facilitate the free movement of goods.

Supporting initiatives and related legislation

The NANDO Information System¹⁹ lists the notified bodies designated to carry out conformity assessments.

The EU Ecolabel²⁰ helps identify products and services that have a reduced environmental impact throughout their life cycle, from the extraction of raw materials through to production, use and disposal. Greener, more environmentally friendly, products of high quality available around the world are listed in the Ecolabel catalogue.

The regulation on registration, evaluation, authorisation and restriction of chemicals²¹ (REACH) is relevant for construction products that use recovered substances, such as metals, aggregates and glass. The main objectives of the regulation are to ensure a high level of protection of human health and the environment from the risks that can be posed by chemicals, the free circulation of substances on the internal market and the enhancing of competitiveness and innovation.



Green public procurement

Public authorities have a direct influence on consumption. In the EU, their purchases represent 16% of GDP. Green public procurement enables them to procure goods, services and works with a reduced environmental impact throughout their life cycle. In the EU, criteria have been developed for construction materials, services and works.

Green public procurement can be used to reduce the direct environmental impact of public activities while influencing the market towards the delivery of greener goods, services and works.

Member states are introducing programmes to encourage Building Information Modelling (BIM) as 'digital construction' with the common aim of improving value for public money, quality of the public estate and for the sustainable competitiveness of the industry.

Europe is now host to the largest worldwide regional concentration of government-led BIM programmes. The EU BIM Task Group is a group of public sector representatives, including public estate owners, infrastructure operators, policy advisers and procurers of currently seventeen EU member states.

The EU Eco-Management and Audit Scheme (EMAS)²² is a management instrument developed by the European Commission for use by all types of organisations to evaluate, report and improve environmental performance. It spans all economic and service sectors and is applicable worldwide.



¹⁹ http://ec.europa.eu/growth/tools-databases/nando/index.cfm?fuseaction=directive.notifiedbody&dir_id=33

²⁰ Regulation (EC) N° 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1441023948747&uri=CELEX:32010R0066>

²¹ Regulation (EC) N° 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorisation and restriction of chemicals (REACH), establishing a European Chemicals Agency. http://ec.europa.eu/growth/sectors/chemicals/reach/index_en.htm

²² http://ec.europa.eu/environment/emas/index_en.htm

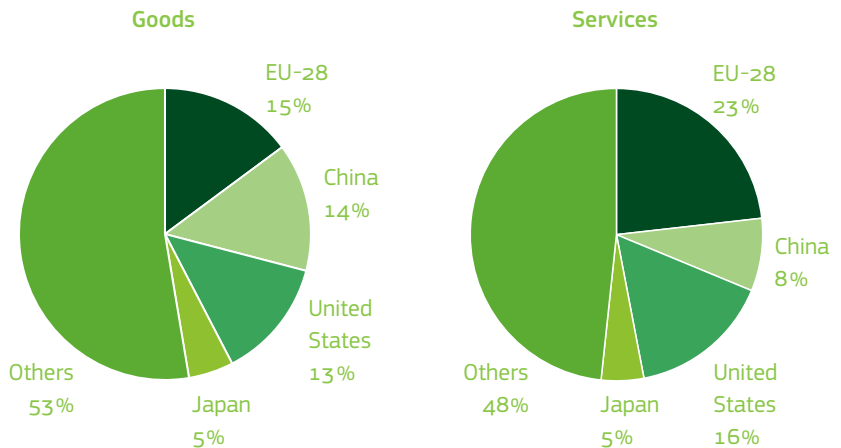
The EU: a global partner

The EU is a major actor in world trade. It promotes open markets, clear regulatory frameworks and the removal of tariff and non-tariff barriers to trade. It supports the conclusion and effective implementation of international agreements that facilitate trade, notably for sustainable and resource-efficient products and services, and undertakes joint initiatives with neighbouring and other partner countries.

In the context of its international trade negotiations, the EU has been seeking commitments to facilitate the exchange of goods and services for the benefit of both sides. A clear regulatory framework together with transparent and effective common rules and technical standards

for performance assessment are essential to remove trade barriers so that all firms, particularly small and medium-sized enterprises (SMEs), have access to international markets and to the European Union's internal market, with 28 countries and 500 million consumers.

Share of world trade in 2014
(data from Eurostat).



A transparent framework for the assessment of products via technical standards is a vital springboard for the European construction industry to increase its competitiveness in the European market and expand into global markets.

The EU promotes the implementation of policies to reap the rewards of a green economy and greater resource efficiency. Various financial instruments, e.g. development aid and cooperation funds (e.g. the EU-Africa Infrastructure Trust Fund (EU-AITF)²³, support efforts by less-developed countries to improve resource efficiency in the context of sustainable development²⁴ and the implementation of relevant measures.

EU actions aim to benefit the health and well-being of citizens. They are protected from substandard products and enjoy a wider choice of goods and services, better quality, lower prices and higher environmental performance.

The EU supports actions that improve the scientific and technical dialogue with international partners in order to exchange experience and good practice, boost cooperation on research and higher education and encourage innovation in construction products and works, energy and resource efficiency.

²³ <http://www.eu-africa-infrastructure-tf.net>

²⁴ UN High-level Political Forum on Sustainable Development <https://sustainabledevelopment.un.org/index.php?menu=1556>



Public-Private Partnerships

In the European Union, there are a number of instruments at EU and Member State level to speed up the market uptake of new knowledge and technologies for sustainable construction.



The Contractual Public Private Partnership 'Energy-Efficient Building'²⁴ is an industry-driven research and demonstration programme with the vision that all European buildings will be designed, built or renovated to high energy efficiency standards by 2050.

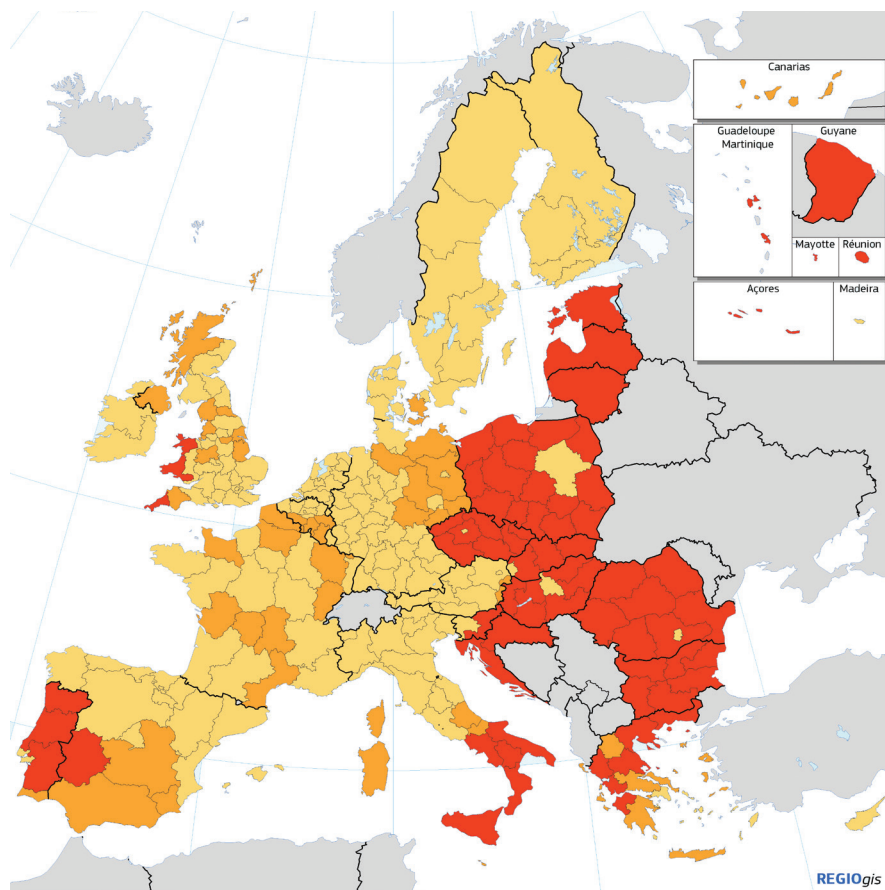
Financing instruments

²⁴ <http://www.ectp.org>
²⁵ http://ec.europa.eu/regional_policy/index_en.cfm
²⁶ <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings/financing-renovations-cohesion-policy-funding>
²⁷ <http://www.eib.org/products/advising/elena/index.htm>
²⁸ <http://www.eib.org/efsi/index.htm>

European funding for energy efficiency and renewable energy in buildings is available from the European Structural and Investments Funds²⁵, through grants and financial instruments, e.g. the renovation loan²⁶. A guide on 'Financing the energy renovation of buildings with Cohesion Policy funding' has been published recently²⁶. Other sources of funding exist in the form of loans and other instruments from the European Investment Bank, the European Bank for Reconstruction and Development and the European Energy Efficiency Fund. The ELENA programme²⁷ provides also funding for project development assistance in order to help project promoters launch ambitious sustainable energy investment programmes.

A specific Investment Plan for Europe (also called Juncker Plan or European Fund for Strategic Investments) has been put in place in 2015 with important financing opportunities for the construction sector²⁸.





Structural Funds eligibility 2014-2020

- ▶ Less developed regions
- ▶ Transition regions
- ▶ More developed regions

With COSME²⁹, European SMEs can benefit of equity, debt and micro-finance instruments available under the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises.

LIFE³⁰ is an instrument for co-financing pilot or demonstration projects that contribute to the implementation, updating and development of EU environmental policy and legislation. Environment and resource efficiency are priority areas of the new LIFE regulation³¹.

The transition to a resource-efficient and low-carbon economy will bring important structural changes in the construction sector: on-site construction and product manufacturers will be confronted with the need for skilled labour, especially regarding near zero-energy buildings. The European Social Fund provides funding for training and education schemes.

²⁹ http://ec.europa.eu/growth/smes/cosme/index_en.htm

³⁰ <http://ec.europa.eu/environment/life/index.htm>

³¹ Regulation (EU) N° 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a programme for the environment and climate action (LIFE) - see hyperlink in note 30.



³² <http://ec.europa.eu/social/main.jsp?langId=en&catId=822>

³³ <http://ec.europa.eu/social/main.jsp?catId=89&langId=en&newsId=2090&furtherNews=yes>

³⁴ http://ec.europa.eu/growth/smes/business-friendly-environment/green-action-plan/index_en.htm

³⁵ <http://www.buildupskills.eu>

The 'New skills for new jobs'³² agenda, the 'Green Employment Initiative: Tapping into the job creation potential of the green economy'³³ and the 'Green Action Plan for SMEs - Enabling SMEs to turn environmental challenges into business opportunities' address skills gaps, anticipate future labour market needs and help people to better exploit job opportunities provided by the green economy³⁴. The 'BUILD UP skills'³⁵ initiative also focuses on continuing education and training of on-site construction workers on energy efficiency.

breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. The Horizon 2020 Strategy is designed to focus on a range of topics such as Energy Challenge, designed to support the transition to a 'secure, clean and efficient energy' which is split into three focus areas: Energy-efficiency; low-carbon technologies and Smart Cities & Communities.

Horizon 2020³⁶ also features resource efficiency as a key priority and thus will provide funding for projects aiming at improving the resource efficiency of buildings. Horizon 2020 will also address climate-change adaptation through its societal challenges priority.

³⁶ <http://ec.europa.eu/programmes/horizon2020>

H2020 instruments

The transition to a green and low-carbon economy will require significant innovation, from small incremental changes to major technological breakthroughs. Basic and applied research should identify challenges and guide actions. In order to address these challenges, the Horizon 2020 programme is the biggest EU Research and Innovation programme with about EUR 80 billion of funding available between 2014-2020, supporting more



For more information

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Energy Directorate General
Joint Research Centre (JRC)

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http://ec.europa.eu/growth/sectors/construction/product-regulation/index_en.htm

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