

Eco-innovation

EN ECO-INNOVATION

Eco-innovation – the key to Europe’s future competitiveness

Eco-innovation is any innovation (new technology, product, process or service) that can contribute to environmental protection or a more efficient use of resources.

Environmental technologies are a central element of the European Union’s approach to major environmental challenges such as climate change, natural resource scarcity and dwindling biodiversity.

Viable technological solutions are already available to remedy many of the environmental challenges we face, but their commercial take-up can be hampered by numerous obstacles.

If environmental technologies are to be adopted widely, economic and regulatory barriers must be removed and research, investments and awareness must be promoted.

Opportunities for environmental technologies are greater in the European single market than in smaller national markets.

Research is crucial to realising the full potential of the fast-growing eco-industries sector and to triggering a wave of innovation and job creation.



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What are environmental technologies?

Environmental technologies are technologies that are less environmentally harmful than the alternatives. They include technologies and processes to manage pollution, products which are less resource-intensive, and services and processes that manage resources more efficiently. Environmental technologies can be found in nearly all economic sectors, including pollution control, water and waste management, and energy generation. These technologies also produce fewer emissions, generate less waste, have a limited impact on health and biodiversity and generally help reduce costs and improve competitiveness.

What is eco-innovation?

Eco-innovation refers to all forms of innovation – technological and non-technological, new products and services and new business practices – that create business opportunities and benefit the environment by preventing or reducing their impact, or by optimising the use of resources (including energy use). Eco-innovation is closely related to the development and use of environmental technologies and also to the concepts of eco-efficiency and eco-industries. The common aim is to contribute to more sustainable production and consumption patterns. Practical examples of eco-innovation include processes to recover valuable substances from waste water, more efficient food packaging, the production of construction materials from recycled waste, eco-products and new management methods. For examples visit the ETAP website (see back page) and the EU's European Business Awards for the Environment website at:

http://ec.europa.eu/environment/awards/index_en.htm.



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New challenges call for new solutions

The world is facing serious environmental problems such as climate change, the depletion of natural resources, air pollution and biodiversity loss. All of these issues have potentially disastrous implications for life on earth. Novel solutions and more environmentally-friendly technology must be developed if such problems are to be avoided or minimised.

Europe needs to do more with less. Maximising efficiency at all stages of production is crucial. Eco-innovation is the innovation process to develop and bring to the markets new environmental technologies, products and services that reduce the overall impact on the environment. Business and innovation can together create sustainable solutions that make better use of precious resources and reduce the negative side-effects of our economy on the environment.

Environmental technologies can help reduce energy and resource consumption and produce less waste and fewer greenhouse gas emissions. For example, emissions avoided as a result of energy saved during production or by driving more environmentally-friendly cars, contribute to fighting climate change.

Boosting competitiveness and environmental protection

A clean and healthy environment is essential for maintaining prosperity and a high quality of life in Europe. But the strength and competitiveness of the economy is also essential if this quality of life is to be maintained.

Developing and promoting new solutions is fundamental to triggering the potential for economic benefits through cost savings, innovation and international trade.

Eco-technologies can unlock potential markets, foster innovation, increase European competitiveness and create new high-skilled jobs.

The European Union recently launched the Lead Market Initiative and identified several market sectors which are future high-growth areas in Europe. Most of the sectors identified as lead markets, such as sustainable construction, recycling, bio-based products and renewable energy, are prime markets for eco-innovation.

A growing business sector

It is not just the environment which stands to gain from eco-innovation. The world market for environmental products and services is growing every year. Europe is in a strong position to lead the way in using the power of innovation to meet today's environmental challenges and also has a great opportunity to step up its investment in this relatively new sector.



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In recent years, the eco-industries have emerged as an important segment of the European economy. This sector has an estimated turnover of around €227 billion, corresponding to 2.2% of EU GDP – greater than the European aerospace or pharmaceutical industries – and employs 3.4 million people directly.

The market for environmental technologies grows as their potential continues to improve. Certain sectors are expanding at a remarkable rate in Europe and around the globe – over 20% annually for some renewable energy sources such as wind power. Europe has roughly one third of the world market of eco-technologies, which is projected to double from its current level to €1000 billion by 2020.

Obstacles to getting from research to market

While Europe has a reputation for being a leader in new technology development, it isn't always easy getting a product or service from the research stage to the market. There are many barriers to the development and wider use of environmental technologies.

Market demand for environmental technologies in the public and private sectors is low for a number of reasons. These include the lock-in to existing technologies, price signals that favour less eco-efficient solutions, difficult access to finance and low consumer awareness.

Switching from traditional to environmental technologies is a complex process. It may involve economic barriers such as higher investment costs resulting from perceived risks and significant start-up costs. A lack of available risk capital in this area also hinders the move from drawing board to production line.

Support systems for innovative enterprises are inadequate and private investment into research across Europe needs a boost. Applied research, and cooperation between the science and industry sectors in particular, need greater support.

Encouraging market take-up

The challenge is to improve the overall environmental performance of products throughout their life-cycle, to boost the demand for better products and production technologies and to help consumers make informed choices.

Sustainable consumption and production maximises the potential for businesses to transform environmental challenges into economic opportunities and provides a better deal for consumers.

The Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan

The European Commission launched an Action Plan on Sustainable Consumption and Production and on Sustainable Industrial Policy in July 2008. It aims to improve the overall environmental performance of products throughout their life-cycle, promoting and stimulating demand for better products and production technologies, and helping consumers to make better choices

To encourage greater take-up of environmentally-friendly technologies the European Union is using tools such as green public procurement (the process by which public authorities seek to reduce the environmental impact of good and services they buy), eco-labelling, financial incentives, voluntary agreements, industry standards and market mechanisms like tradable permits. Eco-labels, for example, enable consumers to easily identify and select environmentally-friendly goods and services, while environmental technology verification, which provides reliable information on the environmental performance, will help producers to convince markets of the merit of new technology.

The EU has also designed specific financial measures to share the risks of investing in eco-innovation. The rules on state aid for environmental protection have been adapted to allow more effective support for innovative technologies.

Evidence shows that well designed environmental legislation in areas such as waste electronics, eco-design, soil remediation and industrial pollution control acts as a driver for innovation. Results from companies that comply with such legislation show that their overall costs have decreased significantly.

Staying ahead of the pack

In a sector highly dependent on new technology development, maintaining levels of investment in research and development is paramount if Europe is to keep its leading market position. The EU's Environmental Technologies Action Plan (ETAP) was instrumental in channelling resources into environmental research projects and bridging the gap between research and market. This funding is being increased in the EU's 7th research programme. The programme is the EU's main mechanism for funding research and up to 30% of its €32 billion budget on applied research for

The EU Environmental Technologies Action Plan (ETAP)

The European Commission set up the Environmental Technologies Action Plan in 2004 to speed up the removal of financial, economic and institutional barriers to the development of environmentally friendly technologies and to increase market take-up.

The plan includes nine priority measures in three broad areas: getting from research to market; improving market conditions; and acting globally. The measures are undertaken by the European Commission, national and regional authorities, industries and research organisations. EU countries have developed and are implementing national roadmaps for environmental technologies under the plan.

Current key priorities are mobilising finance and other actions to promote market opportunities for businesses involved in environmental technologies, this includes establishing credible verification of environmental performance to boost confidence in eco-technologies. Tools will be also developed to monitor, benchmark and boost the uptake of eco-innovation. For example, a networked observatory on eco-innovation will provide relevant statistics and analysis on emerging trends and global business opportunities.



Funding for eco-innovation

To encourage investment in environmental processes and technologies, the EU has developed a range of instruments that focus on environmental innovation and entrepreneurship. Under the EU's new Competitiveness and Innovation Framework Programme (CIP), a total of €430 million is available for the promotion of eco-innovation through different forms of assistance, like risk capital financing or networking activities. €195 million has been earmarked to support first application and market replication projects on eco-innovation, reaching out to the business sector. For more information, visit: <http://ec.europa.eu/ecoinnovation/>



Under CIP Intelligent Energy Europe Programme €730 million is available to foster energy efficiency and renewable energies. The programme aims to improve market conditions for untapped opportunities to save energy and encourage the use of renewable energy sources. For more information, visit:



<http://ec.europa.eu/intelligentenergy/>

There are also financing opportunities for environmental services and technologies under the EU's funding programme LIFE+. It will co-finance projects that contribute to the development and demonstration of innovative policy approaches, technologies, methods and instruments, mainly targeted at the public sector.



For more information, visit: <http://ec.europa.eu/environment/life/funding/lifeplus.htm>

2007-2013 will go towards environmental technologies. Research areas include hydrogen and fuel cells, clean production processes, alternative energy sources, carbon storage, biofuels, energy efficiency, waste management and water technologies.

Investors such as banks, venture capitalists, investment funds, and insurance companies are becoming increasingly aware of the opportunities presented by environmental technologies. Investment in clean technologies, for example, now represents around 10% of all venture capital in Europe. Such investments are attracting small and large investors alike. Socially responsible financial products with an emphasis on the environment have also increased in recent years.

Working together

EU Member States have an important role to play in supporting and promoting new technologies. The majority of them have established national roadmaps to implement the Environmental Technologies Action Plan (see box), highlighting national programmes that support innovation and environmental technologies.

The European Union is also working with other countries and regions to promote sustainable development on a global scale. It is especially important for developing countries, where addressing the detrimental environmental impact of production activities and lessening the impact of a growing population on scarce resources is becoming increasingly urgent. In international discussions, the European Commission actively advocates the reduction or removal of trade tariffs on environmental products, technologies and services.

Changing the way we consume and produce

There are many areas where technology is helping us to solve the major environmental challenges facing us. But technology alone is not the answer. Big changes are needed to the way we consume and produce goods and services. The market price of many conventional products and services often does not reflect their true costs. The manufacture of products often involves emissions but these are not included in the price. The healthcare costs arising from illnesses relating to correspondingly higher pollution levels are similarly not included. European consumers and producers need to play their part in a low carbon, highly energy-efficient economy in order to protect and preserve the planet.

Further information

European Commission ETAP website:

http://ec.europa.eu/environment/etap/index_en.htm

European Commission Sustainable Consumption and Production and Sustainable Industrial Policies Action Plan

http://ec.europa.eu/environment/eussd/escp_en.htm

http://ec.europa.eu/enterprise/environment/sip_new_pages/sip_a1_en.htm

European Commission Competitiveness and Innovation Framework Programme webpage

http://ec.europa.eu/cip/index_en.htm

Executive Agency for Competitiveness and Innovation webpage

<http://ec.europa.eu/eaci/>

LIFE+- Financial Instrument for Environment

<http://ec.europa.eu/environment/life/funding/lifeplus.htm>

Seventh Framework Programme for Research and Technological Development

<http://ec.europa.eu/research/fp7/>



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