

# Resource efficiency – a business imperative



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- The growth of the world economy and the rising global population (9 billion by 2050) mean that the Earth's natural resources are being used up fast.
- Resources such as water, soil, clean air and ecosystem services are vital for our health and quality of life, but they are only available in limited supplies.
- Growing competition for certain resources will create scarcities and rising prices, which will affect the European economy.
- Resources need to be managed more efficiently throughout their life cycle, from extraction, transport, transformation and consumption, to the disposal of waste.
- That is why the Commission is pushing for "resource efficiency". This means producing more value using less material and consuming differently. This will limit the risks of scarcity and keep environmental impacts within our planet's natural limits.
- It is an overarching idea that applies to all natural resources from food, timber, and biodiversity to metals, soil, water, minerals, the atmosphere and land.
- Making Europe more resource efficient is a route to achieving economic, social and environmental policy goals more easily, more securely, and at lower cost.

## The policy background: Europe 2020

Resource efficiency is a key component of Europe 2020, the EU's strategy for building growth and jobs over the next ten years. The strategy aims to encourage economic growth that is smart (based on knowledge and innovation), sustainable (green growth will be more sustainable in the longer term), and inclusive (because high rates of employment deliver improved social and territorial cohesion).

The strategy's seven flagship objectives include a resource-efficient Europe initiative which provides a long-term framework for action, supporting policy agendas for environment and climate change, energy, transport, industry, agriculture, fisheries and regional development. The aim is to enhance certainty for investment and innovation and to create opportunities for sustainable economic growth by ensuring that all relevant policy areas factor in resource efficiency in a consistent manner.

## What are the expected benefits?

There are gains to be made on numerous fronts. Growth and job creation will result through new business opportunities. The construction sector, ecosystem and resource management, renewable energy, eco-industries and recycling all have a particularly high potential for employment growth.

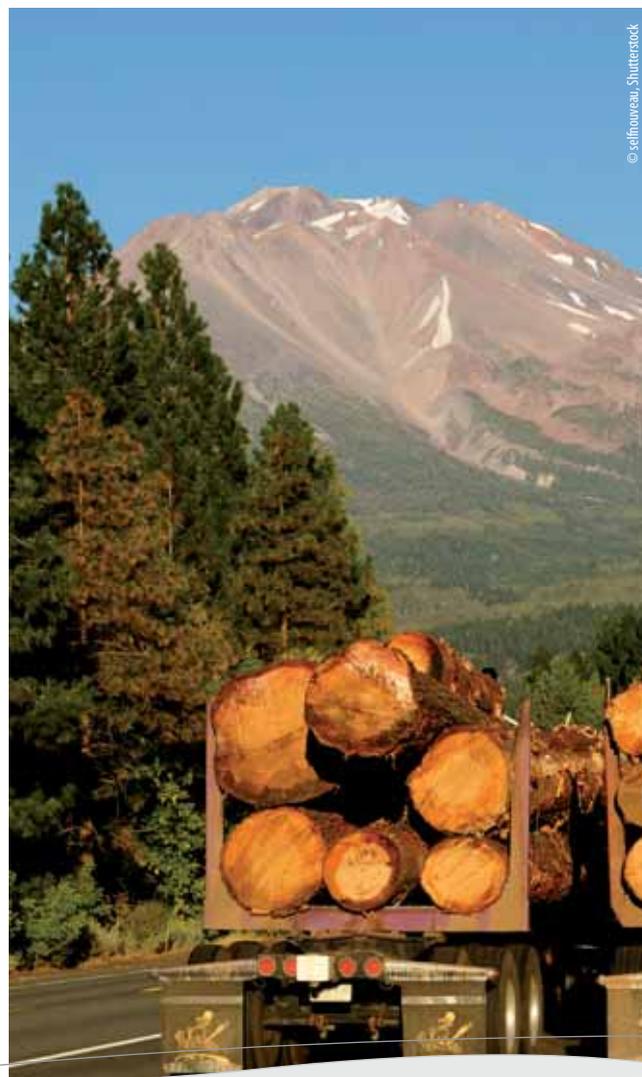
Economic stability will increase, as resource efficiency is a way to tackle security of supply issues and market volatility in critical resources. This is important for European consumers, and for those sectors that depend on rare earth metals, fresh water, fish and food.

Better resource efficiency will sustain the economic health of key sectors such as agriculture, forestry and fisheries. The EU industries that use their output rely on available stocks of land, soil, water and biodiversity, so higher efficiency will bring greater rewards. Adjusting to global changes in the pressures on resources will also improve long-term economic competitiveness.

Switching to a low-carbon economy will help prevent dangerous climate change, and bring numerous additional benefits. This can be done through the further development of existing

technologies, such as renewable energy sources and electric vehicles, and by investing in low-carbon infrastructure. As well as drastically reducing oil and gas imports, it would considerably reduce air pollution, leading to considerable savings in health costs.

There are fiscal implications, too, for tax authorities. Raising revenue from resource use rather than labour can help balance public finances without negatively affecting competitiveness, while significantly promoting employment. It is a way to improve the efficiency of spending programmes.



## What is resource efficiency and why do we need it?

We need to use the Earth's limited resources in a more sustainable way. Our society depends on metals, minerals, fuel, water, timber, fertile soil and clean air, which all constitute vital inputs to keep our economy functioning. But we have been using up these limited resources much faster than they can be replenished, and significant shortages will ensue unless we change our approach.

Europe relies on the rest of the world for many resources, such as fuel and raw materials, which are embedded in products imported from outside the EU. Scarcities and volatile commodity prices could bring instability to many regions of the world, so using resources more efficiently is imperative for us all.

Turning Europe into a resource-efficient economy will require widespread reform, as there are many bottlenecks to be addressed. The resource-efficient Europe flagship initiative launched early in 2011 supplies a general framework for action, while during the year more specific actions are proposed in long-term policy roadmaps covering climate, energy and transport.

A complementary roadmap due for adoption in mid-2011 sets out a vision for the structural and technological changes needed up to 2050, with objectives to be reached by 2020 and suggestions about how they could be met. The roadmap tries to identify inconsistencies in policy and market failures that need to be resolved. Cross-cutting themes, such as consumption behaviour and the need for more investment in innovation, are in the spotlight, and key resources are analysed from a life-cycle perspective.

## So what is the EU doing?

2011 will see many EU-level initiatives to raise awareness about the need to use scarce resources more efficiently. In the wake of the overarching flagship communication on resource efficiency, deliverables include long-term policy papers on climate, energy, biodiversity, encouraging an economy-wide switch to resource efficiency, and additional plans in sectors such as transport, agriculture, fisheries, raw materials, and energy taxation. Examples include:

A **Roadmap to a Low-carbon Economy by 2050**, analysing options for setting the EU on the path towards becoming a low-carbon economy, increasing energy security and promoting sustainable growth and jobs, while ensuring that the proposed measures are most cost-efficient and do not bring negative distribution consequences.

In the wake of the Low-carbon Roadmap, the Commission will present an **Energy Roadmap 2050** in the latter part of 2011, focusing on reducing greenhouse gas emissions in the Union, in the context of the target of an 80-95% reduction in EU emissions by 2050. The Energy Roadmap will present different routes towards the objectives, review the current EU energy policy – sustainability, energy security and competitiveness – and focus on how this can be improved in the transition to a low-carbon energy system.

A new **Biodiversity Strategy** should ensure that by 2050 the EU's biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored. This should safeguard the essential contribution biodiversity makes to human well-being and economic prosperity, and ensure that any catastrophic changes caused by the loss of biodiversity are averted.

A **Roadmap to a Resource-efficient Europe** complements these, setting out a coherent framework of policies and actions for a shift towards a resource-efficient economy. The aim is to increase resource productivity, decouple economic growth from resource use, enhance competitiveness and promote security of supply.

The Commission has also adopted a new strategy to secure EU access to raw materials. Non-energy raw materials are important for technologies such as electric cars and photovoltaics. The new strategy aims to improve Europe's access to raw materials, working towards a fair and sustainable supply of them from international markets, fostering a sustainable supply within the EU, and promoting recycling.

Ongoing reforms to the common agricultural policy include a focus on better management of the biological resources that support agriculture and the provision of ecosystem services from rural land. Biodiversity will also benefit from any general improvement in the overall environment.

A White Paper on the future of transport outlines plans up to 2050, indicating how to achieve an internal market for transport, innovation and modern infrastructure. The paper defines the overall framework for the next ten years in the field of transport infrastructure, internal market legislation, decarbonisation of transport, technology for traffic management and clean vehicles, and the use of standardisation, market-based instruments and incentives.

Further actions proposed include improving energy efficiency around the EU, and making the construction industry more sustainable. A reform of the Energy Taxation Directive opens the way to more efficient fuel choices. Details of the proposals can be found by following the links at the bottom of the next page.

## How can it be done?

In recent decades, changing patterns of resource use have shown that progress on resource efficiency is perfectly possible. Over the last 20 years, recycling has become standard practice for both businesses and households across the EU, with major consequences for industries like paper, glass and resource extraction. EU-level legislation has also lowered carbon emissions: since 1990, greenhouse gas emissions in the EU have fallen by more than 10%, while Europe's economies have grown by about 40% over the same period.

There are five golden rules for maximising economic growth while mitigating pressure on the resource base:

- **Save:** take existing opportunities for resource savings wherever possible – some EU economies are 16 times more efficient than others;
- **Recycle:** increase the recycling of materials and the reuse of elements in products (mobile phones are a recent example);
- **Substitute:** replace primary resource inputs with alternatives that offer greater efficiency and which have lower environmental impacts throughout their life cycle (by phasing out mercury, for example);
- **Reduce:** dematerialise how we meet people's needs, through new business models or goods and services with lower resource inputs. Examples include reducing the weight of vehicles, or downloading music and entertainment legally from the internet rather than buying a solid object like a DVD.
- **Value:** policy-makers need to find ways of bringing the proper value of natural resources into consideration in decisions, enabling the improved management of our natural resource base. Learning to value – and to put a price on – ecosystem services and natural resources will ease the pressure on the environment.





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## Efficiency and growth

More efficient use of resources and pollution control can be major drivers of economic growth, as is shown by Europe's eco-industry. The sector has grown by around 8% per annum in recent years, and its annual turnover of €319 billion accounts for about 2.5% of Europe's GDP. Much recent growth has been concentrated in resource management involving new technologies such as solar and wind energy. The environmental protection market is a worldwide opportunity for European firms: the global market for eco-industries, currently worth around €1 000 billion per annum, is expected to triple by 2030. The EU holds roughly one-third of the world market and is a net exporter, with many European producers benefiting from 'first-mover advantage'. Strong export markets include China and other developing countries pursuing environmentally sound growth. The world market is growing by around 5% per annum.

## The dangers of over-exploitation

Without careful management, there is a genuine danger of irreversible changes in ecosystems. An example is the collapse of Atlantic cod stocks off the coast of Canada in the 1990s. The exploitation of the deeper part of the stock by offshore bottom trawlers resulted in a large catch increase followed by a steep decline. The absence of effective and timely governance decisions saw tens of thousands of people lose their source of employment, bringing enormous human costs and devastation to local communities – and cod stocks have never recovered.

Atlantic cod landings in Canada



Source: Millennium Ecosystem Assessment

## The rebound effect

While many resource-efficiency initiatives relate to production, questions regarding consumption are also being addressed. Studies are being carried out on the 'rebound effect' – the idea that the introduction of technology and policy instruments intended to improve environmental efficiency might have the unintended side effect of increasing consumption. Home insulation, for example, to make a home more thermally efficient and cheaper to heat, might result in householders leaving the heating on for longer or at a higher temperature, cancelling out the efficiency gains. The existence and significance of the rebound effect and how to address it is hotly debated, so more information is needed.

### Further information:

A resource-efficient Europe – Flagship initiative of the Europe 2020 Strategy:  
<http://ec.europa.eu/resource-efficient-europe/>

Roadmap for a resource-efficient Europe:  
[http://ec.europa.eu/environment/resource\\_efficiency/](http://ec.europa.eu/environment/resource_efficiency/)

The Biodiversity Strategy:  
[http://ec.europa.eu/environment/nature/index\\_en.htm](http://ec.europa.eu/environment/nature/index_en.htm)

Roadmap for moving to a low-carbon economy in 2050:  
[http://ec.europa.eu/clima/policies/roadmap/index\\_en.htm](http://ec.europa.eu/clima/policies/roadmap/index_en.htm)

The Raw Materials Initiative:  
[http://ec.europa.eu/enterprise/policies/raw-materials/index\\_en.htm](http://ec.europa.eu/enterprise/policies/raw-materials/index_en.htm)

Energy initiatives, including the 2050 Roadmap:  
[http://ec.europa.eu/energy/index\\_en.htm](http://ec.europa.eu/energy/index_en.htm)