

# The global green race: a business review of UK competitiveness in low carbon markets

“green  
alliance...”

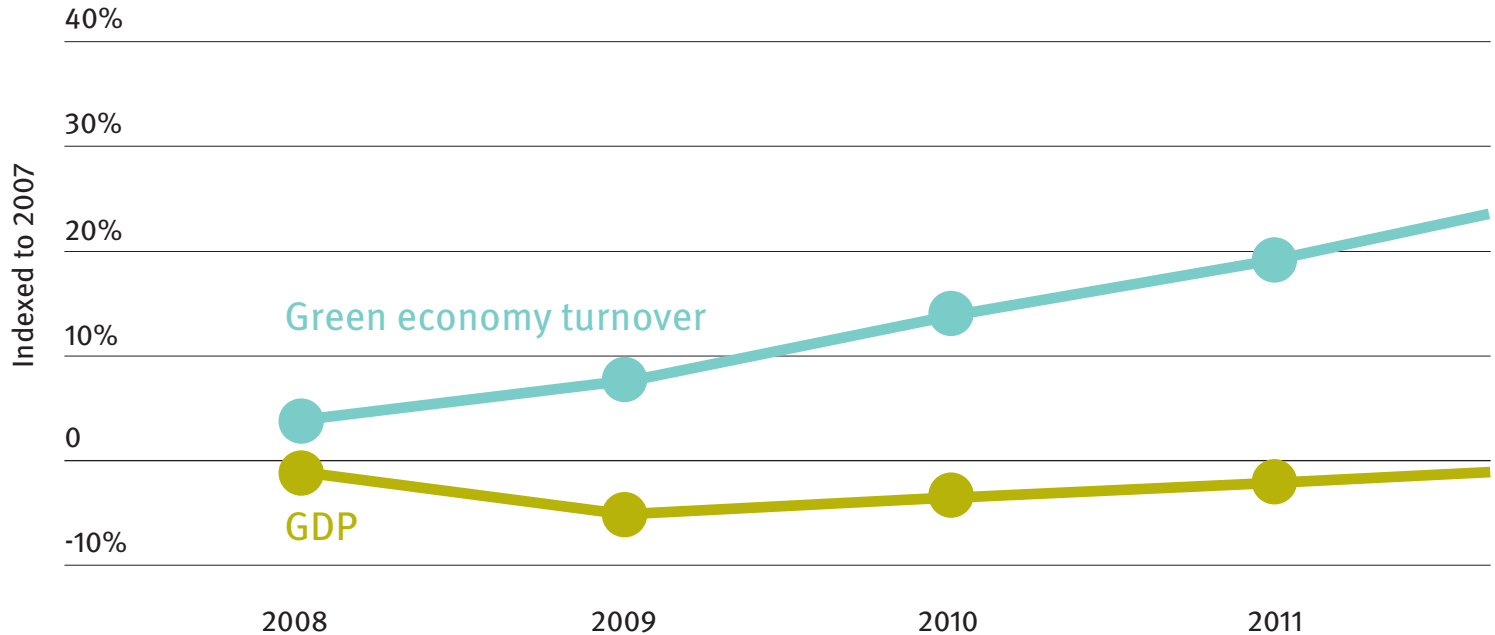
# Green business: a global success story

Resource and climate challenges have driven investment and growth

# Steady growth through recession

Markets for low carbon and resource efficient goods and services have out performed the mainstream economy since the onset of the financial crisis, growing steadily to reach £3.4 trillion annually.

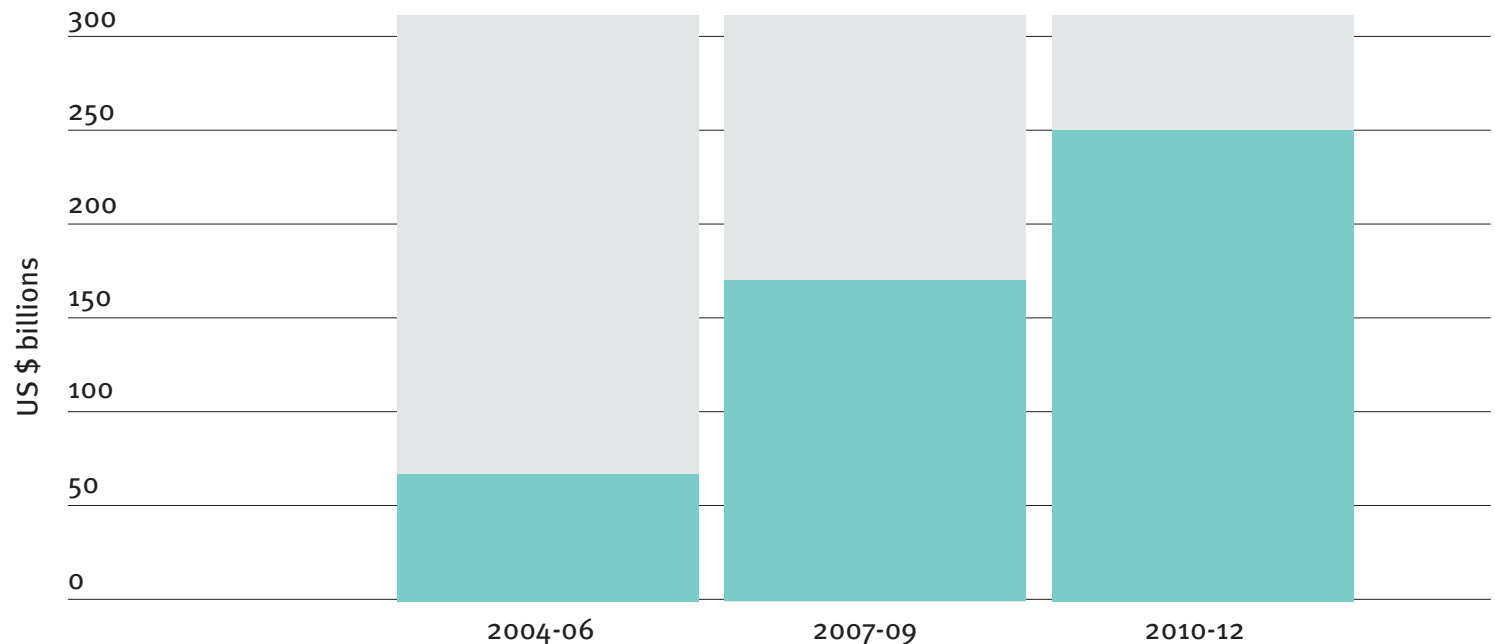
Indexed growth rate in the UK since the financial crisis



# Clean energy investment is rising fast

Flows of private capital into clean energy have increased rapidly in the past decade, reaching an average of US\$245 billion in 2010-12.

Average worldwide clean investment

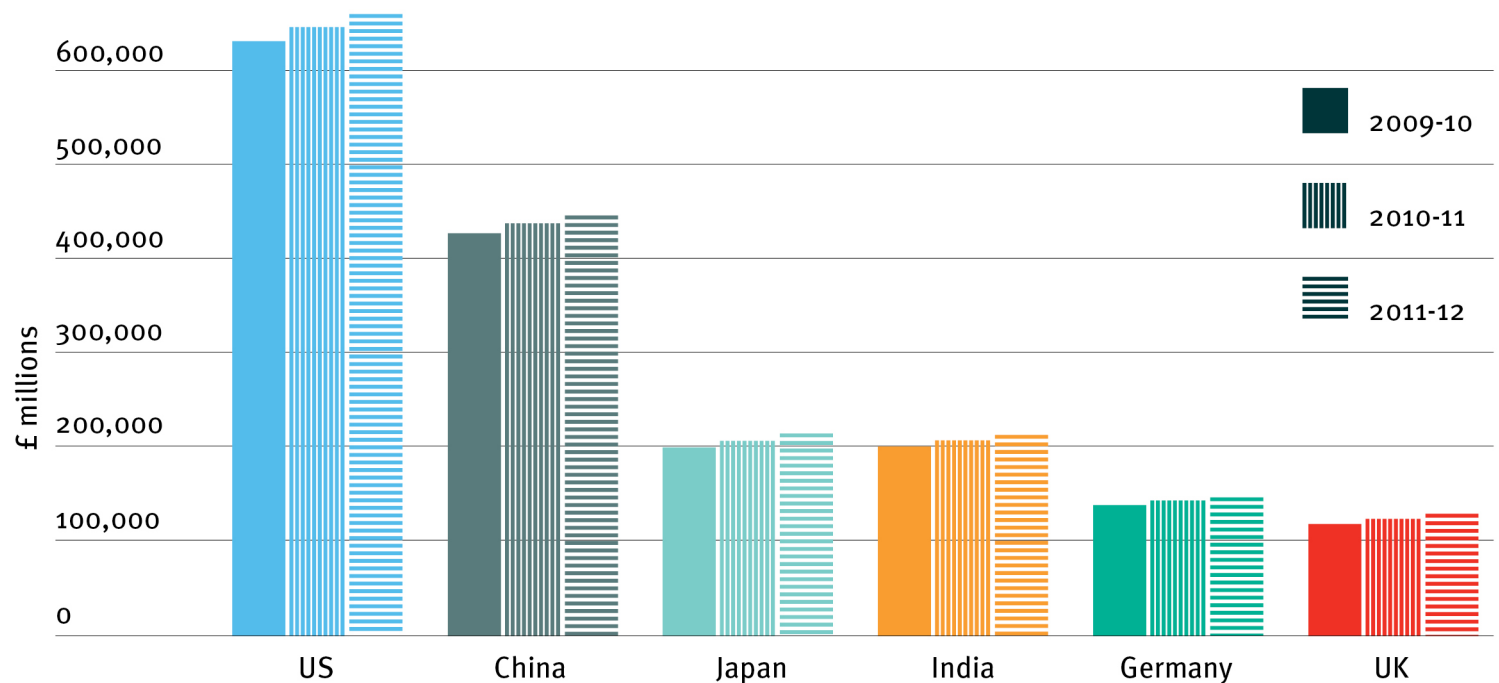


The UK has performed well, with strong businesses and an attractive investment climate

# Sixth largest share of the global market

The UK ranks sixth in the low carbon and environmental goods and services (LCEGS) market, increasing sales whilst retaining market share year-on-year.

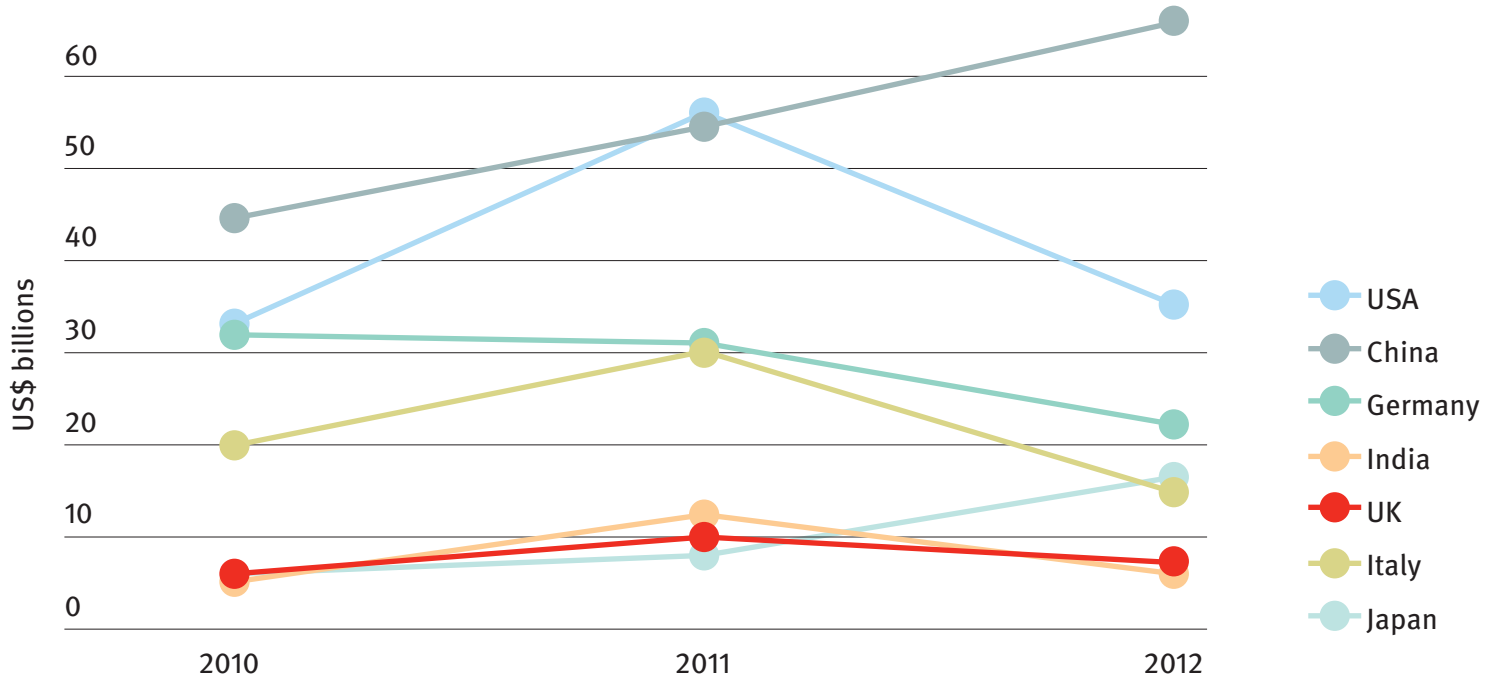
LCEGS sales 2009-10 to 2011-12



# In the top ten for renewable energy investment

In a volatile financing market, the UK is established among the top ten global destinations for renewable energy investment.

Annual renewable energy investment 2010-2012

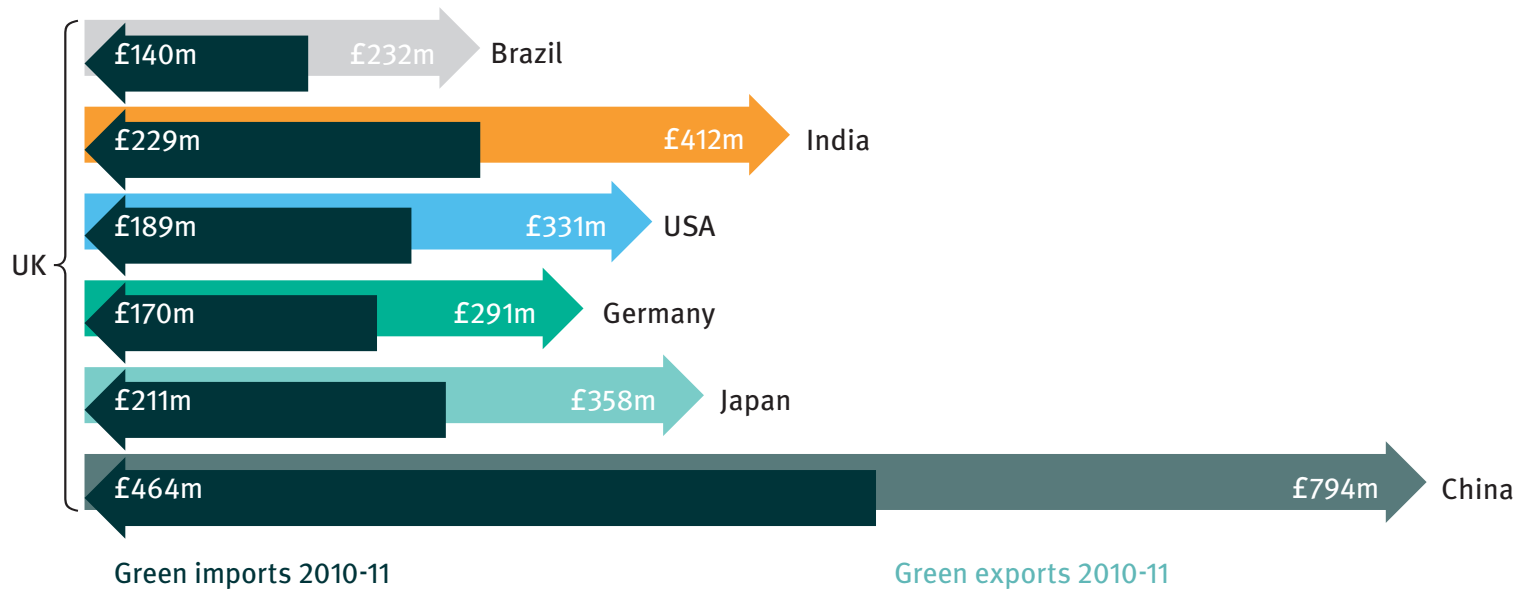




**Green businesses contribute  
billions to the UK's bottom line**

# A multi-billion pound trade surplus

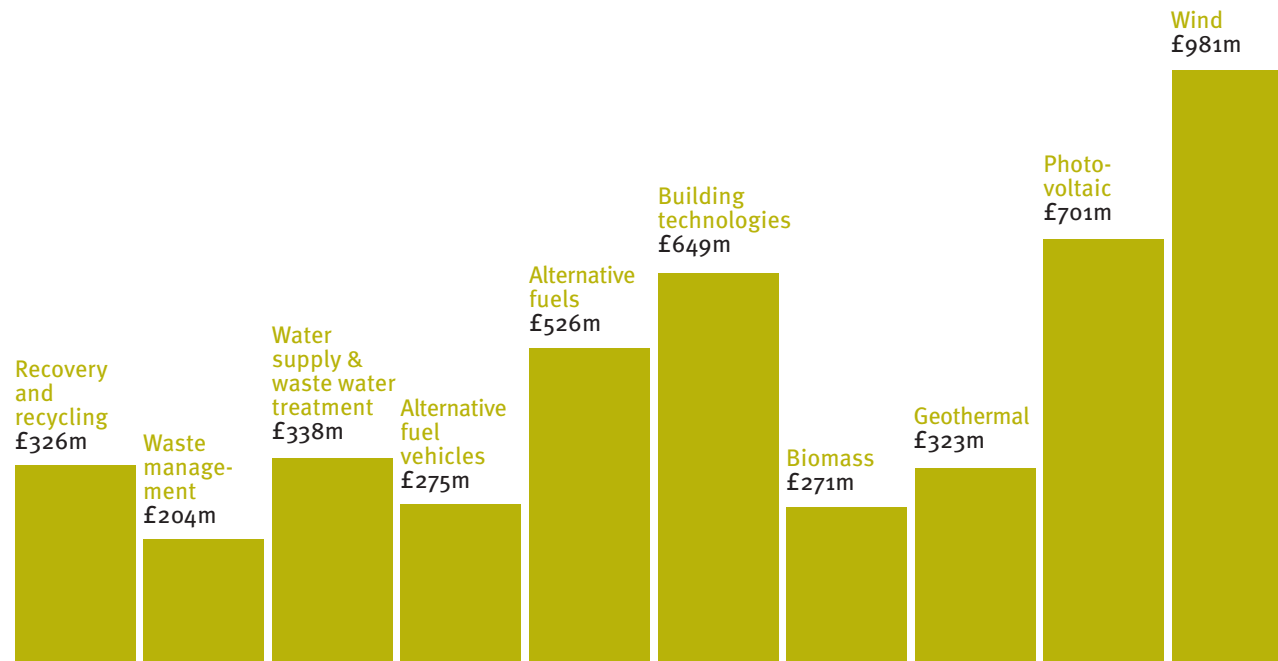
Companies in green business sectors are major exporters, generating a surplus for the UK with every country we trade with.



# A strong and diverse sector

This success is spread across a range of companies active in low carbon, environmental and renewable energy sectors.

2011-12 trade surplus generated by the top ten low carbon and environmental goods and services sectors



## Analysis

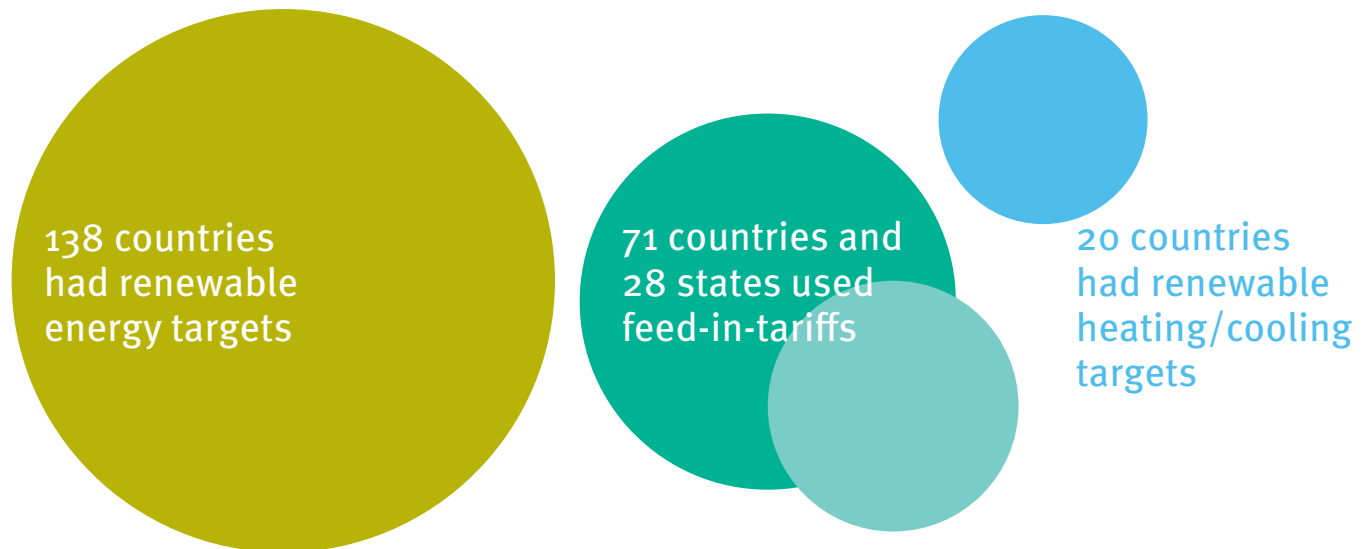
The UK's success has been built around strong domestic carbon policies, diplomatic leadership to grow international markets, and clear political commitments that give investors confidence in the UK's direction of travel. With other countries also adopting this approach, the UK needs a clear strategy to maintain its green competitive edge.

The competitive dynamic is changing – and the UK is not adapting

# More economies are joining the race

Green growth is now a global goal. Governments across the developed and developing worlds are pursuing policies to manage environmental impacts and drive green investment.

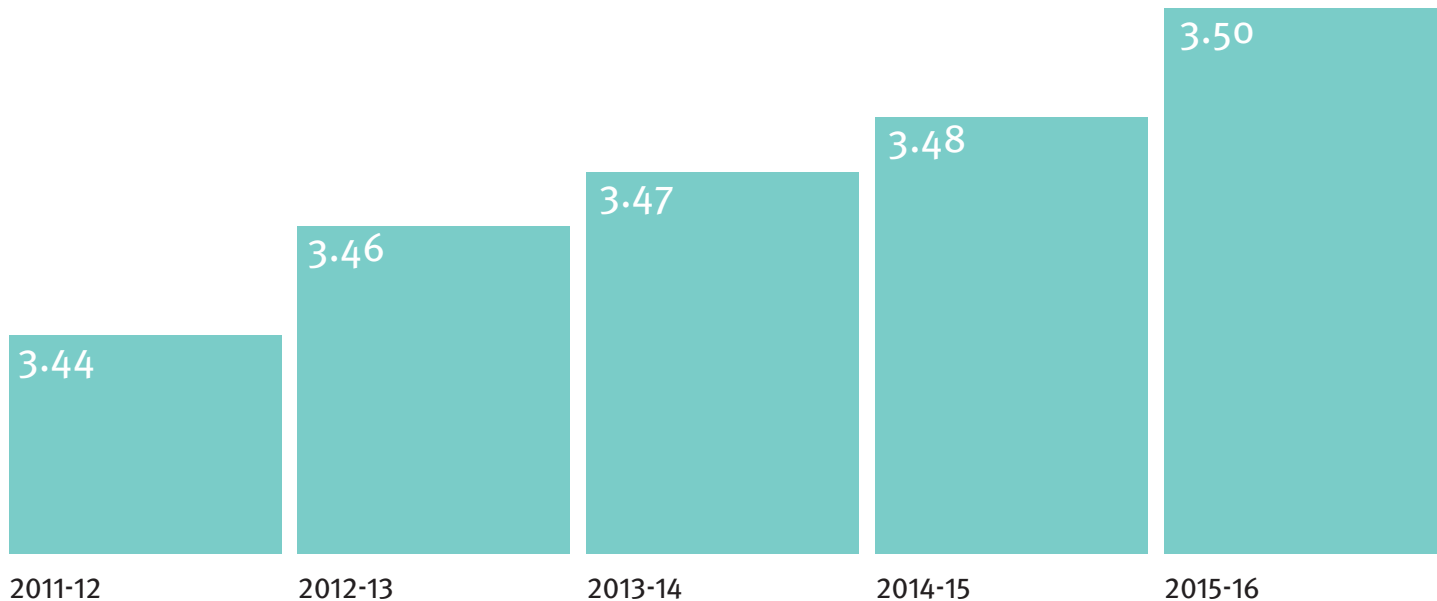
By early 2013:



# The market will keep growing

Even in a difficult economic climate, the market for green goods and services is projected to keep growing strongly over the next five years.

Value of the global LCEGS market (£ trillion)



The UK's global competitors  
are gearing up with ambitious  
green economic development  
programmes



Political leadership on green growth

Low carbon research and innovation policies

Support for clean technology deployment



Japan

Renewable energy and low carbon technologies are central to the 2012 New Growth Strategy to revitalise the Japanese economy.

Ambition to create a 50 trillion yen market for environmental goods and services and 1.4 million new jobs by 2020.

Targets for greenhouse gas reduction (25% by 2020 and 80% by 2050, compared to 1990) and renewable energy (28GW of solar energy by 2020).

Policy focus on stimulating demand for environmental technologies. Green innovation is central to the New Growth Strategy, delivered through extensive regulatory and fiscal reform.

Measures include: a tax on CO<sub>2</sub> emissions; feed-in tariff extension; ambitious product performance target programmes (eg Top Runner); subsidy programmes, including for innovative low carbon technology-intensive industries, worth up to one billion yen per company to attract green manufacturing to Japan.

Extensive use of feed-in tariffs to support deployment of wind, solar and geothermal, at above market rates even after early 2013 cut.

Preferential tax rate available for fixed renewable energy generation assets. Grant programme for consumers buying fuel efficient cars, worth US\$3.2 billion between 2011-13.

Mobilised US\$16.3 billion of clean energy investment in 2012.

Political leadership on green growth

Low carbon research and innovation policies

Support for clean technology deployment



Germany

Long standing agreement across the political spectrum on green economic issues. Comprehensive strategies on low carbon energy (New Energy Concept, or Energiewende, 2010), resource efficiency (ProgResS, 2012) and green innovation (High Tech Strategy 2020 Action Plan, 2012).

Self-imposed targets go beyond those set by the EU for greenhouse gas reduction (40% by 2020, 80% by 2050), renewable energy (18% by 2020, 60% by 2050) and energy efficiency (20% reduction by 2020, 50% by 2050). Additional target for renewable electricity (35% by 2020, 80% by 2050).

Aim to enhance existing German manufacturing strength through long term projects working along value chains and across sectors.

High Tech Strategy 2020 Action Plan outlines ten Future Projects with 10-15 year innovation objectives. Includes low carbon cities, renewable energy generation and decentralised, smart energy systems.

Market for German environmental and resource-efficient manufacturing sectors estimated at €300 billion in 2011, supporting 1.4 million jobs.

Energiewende guarantees grid access and generous feed-in tariff payments to small scale decentralised energy installations, financed through a levy on consumer bills.

State development bank KfW subsidises programmes, such as €1.5 billion annual fund to enable low cost home energy efficiency loans (2012-14) and €5 billion support to establish ten offshore wind farms.

Mobilised US\$22.8 billion of clean energy investment in 2012.

Political leadership on green growth

Low carbon research and innovation policies

Support for clean technology deployment



## China

2011-15 Five Year Plan sets out a new growth path via resource conservation and developing new capabilities in green technologies.

Targets for mass renewable energy deployment (100GW of wind, 35GW of solar and 13GW of biomass) and greenhouse gas reduction (17% per unit of GDP).

Extensive use of resource taxes (metals and minerals, oil and gas) to incentivise resource efficiency and conservation. Seven pilot carbon trading schemes to launch by 2014 as a precursor to a national scheme, with a carbon tax being trailed for a (currently unspecified) future point.

Focus on developing manufacturing capabilities further up value chains to capture market share for emerging environmental technologies.

The Five Year Plan identifies seven strategic emerging industries (SEIs) including alternative fuel cars, energy conservation, environmental protection and alternative energy.

Target for SEIs to represent 15% of GDP by 2020, up from 3% in 2011, and for R&D (public and private) to reach 2.5% of GDP by 2015. National Development and Reform Commission (NDRC) taking lead in attracting finance for SEIs, eg through stimulating public venture capital funds.

State subsidies for programmes include clean energy deployment (US\$2.4 billion to meet 2015 targets) and energy efficient buildings (up to US\$13 per square metre to retrofit existing buildings, and one off grants of up to US\$8 million for new build).

Mobilised US\$65.1 billion of clean energy investment in 2012.

Political leadership on green growth

Low carbon research and innovation policies

Support for clean technology deployment



## South Korea

2009 Five Year Plan for Green Growth sets out the ambition to stimulate economic activity worth 20% of GDP and create 1.8 million new jobs by 2013. It commits government to spending 2% of GDP annually to implement the plan, worth US\$19.6 billion in 2012.

2020 targets for greenhouse gas emissions reduction (30% compared to business as usual, equal to 4% in real terms) and renewable electricity (6.9%, more than 500% increase from 2010).

An emissions trading scheme is set to launch in 2015 covering 70% of Korea's greenhouse gas emissions.

Aims to build on Korea's established expertise in high tech manufacturing to achieve a target of US\$11.6 billion of exports from environmental industries by 2016.

The Five Year Plan identifies 17 growth engine industries and 27 priority green technologies in areas including low carbon energy, carbon capture and storage (CCS), transportation and green cities.

State R&D in green technologies was worth US\$2.1 billion in 2010. Company R&D in these technologies is incentivised through mechanisms such as tax credits, worth up to 30% for clean vehicles, solar batteries, wind and geothermal energy and CCS.

Strong focus on nuclear but Renewable Energy Portfolio Standard (RPS) aims to ramp up renewable energy deployment.

Targets set for the 13 largest public and private utilities (90% of market) to increase generation from renewables to 10% by 2022, built around trade in Renewable Energy Certificates by power producers.

Mobilised US\$900 million of clean energy investment in 2012, up from \$333 billion in 2011.

Lack of UK political leadership is undermining business confidence and the UK's ability to compete

Political leadership on green growth

Low carbon research and innovation policies

Support for clean technology deployment



UK

Open conflict within government on green issues is creating uncertainty and deterring investment.

No vision from government on climate and resource resilient growth, creating uncertainty about future pace and direction of travel.

The impact of world leading emissions reduction targets (80% by 2050), set by 2008 Climate Change Act, is being undermined by political threats to 'unpick' carbon budgets.

Target set via EU for renewable energy (15% by 2020), but progress is slow. Credibility of important low carbon policy initiatives (eg Energy Efficiency Mission and Green Deal) harmed by absence of implementation plans.

Some strong technology and sectoral policies. But little long term funding and limited resources are stretched thinly.

Focused government interventions, via 11 sectoral industrial strategies and eight 'great technologies', covering low carbon technologies such as offshore wind and automotive.

No strategy to overcome the UK's poor commercialisation track record in order to build industrial capability.

Existing low carbon innovation funding is split between numerous technologies and institutions eg DECC's £205 million for Innovative Low Carbon Technologies is divided across nine programmes over four years (2011-15).

Strong financing mechanisms but weak support for supply chain development.

Significant consumer levies to deploy clean energy (£7.6 billion Levy Control Framework up to 2020) and building retrofit (ECO, estimated at c.£1.3 billion per year to 2015). Consumer payments available for renewable heat (RHPP/RHI) and renewable energy (feed-in tariffs).

Market frameworks in place or under development to mobilise private investment into energy infrastructure and buildings (Green Deal).

Mobilised US\$8.3 billion of clean energy investment in 2012. But lack of post-2020 framework will hinder development of UK supply chains for key energy technologies.

## Analysis

The UK is not matching the level of vision and focused delivery of its competitors. Without decisive government leadership UK green business will fail to capture growth opportunities and the economy will suffer.

What is at stake?



**Short term investment and economic growth**  
The £60 billion of low carbon projects listed in the Treasury's infrastructure pipeline for the next two years would add at least 0.7% to GDP by 2015, if investors are convinced to back them.

**Long term jobs and exports in cleantech**  
Just four clean energy technologies (offshore wind, marine energy, CCS and electricity storage) could contribute £89 billion to UK GDP between 2010-50, as part of a global market potentially worth £3.3 trillion over that period.

# Three routes to keeping the UK competitive

1.  
Restore confidence in the UK as a low carbon  
investment destination

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2.  
Enhance innovation to develop cleantech in areas  
of potential UK advantage

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3.  
Support development of international green  
markets and trade

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# 1. Restore confidence in the UK as a low carbon investment destination

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**Convince investors that the UK's commitment to low carbon remains strong.**

The majority of projects in the Treasury's infrastructure pipeline are low carbon. Yet many final investment decisions are being delayed or deferred, with policy uncertainty a major factor.

“The UK will need to convince investors that its market is both attractive and offers a stable regulatory environment. Policy needs to be credible, consistent and provide stakeholders with visibility over long periods of time. Currently, however, there is a high level of ambiguity in relation to UK policy signals.”

PricewaterhouseCoopers, March 2013

## How to restore confidence

### **Cancel the proposed 2014 review of the fourth carbon budget.**

Publicly committing to the UK's existing planned trajectory would be a powerful statement of intent, continuity and ambition.

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### **Use existing committed government infrastructure spending to accelerate low carbon projects.**

The extra £3 billion planned for the 2015-16 financial year should go to low carbon projects in the infrastructure pipeline.

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### **Set a quantified 2030 power sector decarbonisation target.**

In line with advice from the Committee on Climate Change, this will drive investment and help avoid expensive energy system changes during the 2020s.

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## 2. Enhance innovation to develop cleantech in areas of potential UK advantage

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**Turn world leading research into UK industrial capability.**

The UK is a world leader in fundamental research in universities. Yet a lack of focus in technology commercialisation programmes, too little long term funding and dwindling levels of risk capital are preventing UK research being commercialised here, sending potential benefits overseas.

“What is consistent across business is the need for a clear vision from the government to provide confidence into the future. Without a definite commitment from government, business is more reticent about making its own financial commitment to the levels of risk that innovation requires. The evidence that we have seen shows that there is no coherent innovation policy.”

House of Commons Science and Technology Committee, March 2013

# How to enhance innovation

**Focus on commercialising four clean energy technologies where the UK has the potential to be a world leader.**

Offshore wind, marine energy, CCS and electricity storage could generate UK-based business activity worth £89 billion and save the UK up to £160 billion in deployment costs up to 2050.

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**Use existing energy innovation institutions (Energy Technology Institute, Technology Strategy Board, Catapult Centres) to lead development.**

In return, give predictability and stability through guaranteed minimum funding for ten years.

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**Redirect existing public R&D funding to create a green venture capital fund.**

Just ten per cent of the money currently used every year for R&D tax credits would be enough for a £100 million fund to provide risk capital to UK green SMEs.

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### 3. Support development of international green markets and trade

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**Ensure UK companies can benefit from export opportunities as markets for green goods and services expand.**

Current UK green business export success has relied on international and regional climate policies driving demand for low carbon, and open trade with continental Europe and, via the EU, important global markets. This will be threatened if upcoming climate negotiations lead to unambitious or non-binding agreements, and will be entirely undermined by a UK exit from the EU.

“If the government continues with its current approach, there is a real risk that UK green business growth will not reach the government’s expectations, which could mean the UK losing almost £400 million in net exports in 2014-15.”

CBI, July 2012

# How to support market development

## **Campaign for ambitious targets in the EU 2030 climate package.**

Build support for the UK government's position on a 50 per cent greenhouse gas reduction target, and drop opposition to renewable energy and energy efficiency targets.

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## **Ensure a meaningful global climate agreement in 2015.**

A binding post-Kyoto treaty would further drive expansion of markets for green goods and services.

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## **Use EU membership to open up trade in environmental goods and services.**

Build on President Obama's lead to pursue agreement in the WTO. Push for strong sustainable development agreements in ongoing EU trade talks with the US, Japan and China.

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Strong government leadership on low carbon will give UK business the confidence and clarity it needs to invest and grow. As the global race takes off, failure to act could see the UK muscled out of expanding global markets by more ambitious and focused competitors.

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# The global green race: keeping the UK competitive in low carbon markets

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The logo for Green Alliance, featuring a dark teal square background. On the left side of the square, there are two white quotation marks. To the right of the quotation marks, the words "green" and "alliance..." are written in a white, lowercase, sans-serif font, stacked vertically.

“green  
alliance...”

Twelve companies contributed to this review. It was developed under the Chatham House rule, in consultation with members of Green Alliance's Business Circle and selected partner companies.

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