IPPR

AN ILLUSTRATED GUIDE TO A BRIGHTER FUTURE

HOW TACKLING CLIMATE CHANGE CAN DELIVER BETTER LIVING STANDARDS AND SHARED PROSPERITY

ABOUT IPPR

IPPR, the Institute for Public Policy Research, is the UK's leading progressive thinktank.

We are an independent charitable organisation with more than 40 staff members, paid interns and visiting fellows. Our main office is in London, with IPPR North, IPPR's dedicated thinktank for the North of England, operating out of offices in Newcastle and Manchester.

The purpose of our work is to conduct and publish the results of research into and promote public education in the economic, social and political sciences, and in science and technology, including the effect of moral, social, political and scientific factors on public policy and on the living standards of all sections of the community.

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INTRODUCTION

It has been known for years that climate change is happening and is man-made. The latest scientific evidence reiterates these facts, and there is growing concern that the world is heading for a catastrophic temperature rise of 4°C.

Sceptics claim that there is little point in Britain acting alone to tackle climate change while other countries – notably the US and China – continue to burn fossil fuels. While this may be a compelling argument, both President Obama and President Xi are now taking climate change seriously.

Since 2010 the scientific and economic case for urgent action on climate change has been strengthened, but this report shows that it can help address three of the greatest challenges facing our country.

- **The consumer challenge:** energy and transport costs have spiralled and trust in markets has declined, while living standards have stagnated.
- **The capacity challenge:** there has been a lack of investment in much-needed new infrastructure, and not enough emphasis has been placed on managing existing usage of energy and transport.
- **The regional challenge:** while there has been economic recovery at the national level, there has been varied performance in terms of decent jobs and growth in our regions.

Getting our domestic policy on climate change right is vital if we are to meet the **international challenge**. The European Union is losing its leadership position on climate change, and needs fresh impetus.

This report sets out further detail on each of these challenges and offers 17 ideas for how they can be addressed. These ideas centre on the need for:

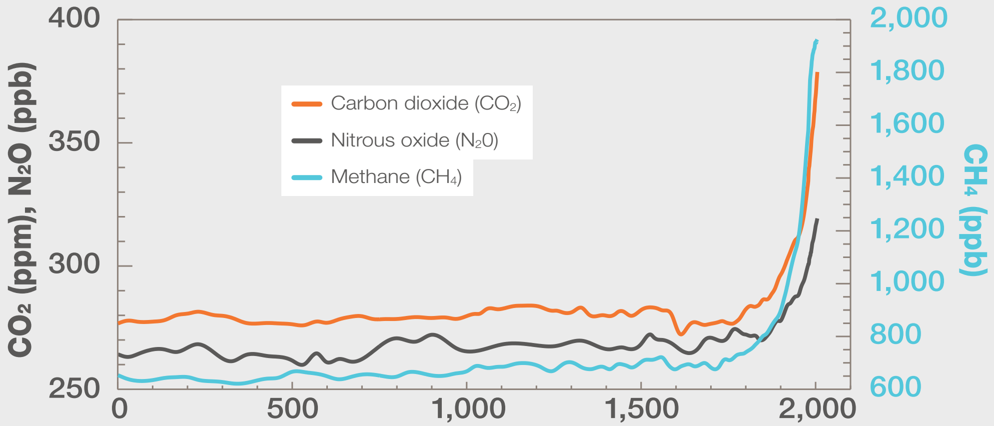
- an Obama-style **audit of the risks that climate change poses** to our security and way of life here in the UK
- a shift in focus away from large-scale generation and towards **energy efficiency, 'smart' demand-management tools, and smaller generation technologies** so that we can realise their potential to cut bills, reduce carbon and create jobs
- **new sources of finance for low carbon infrastructure**, particularly from communities and individuals
- **greater certainty** for all our low carbon sectors so that businesses have a solid framework in which to grow and create decent jobs in every region.

This short, graphic report should be read in conjunction with IPPR's new full-length report, *A brighter future: How tackling climate change can deliver better living standards and shared prosperity*, available at **ippr.org**.

THE CLIMATE CHALLENGE

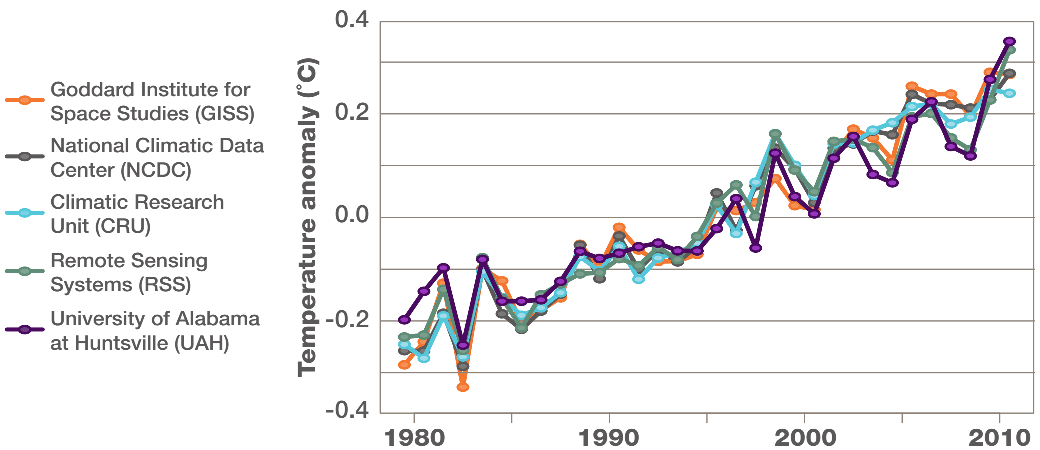
Climate change is happening and is man-made. Global greenhouse gas pollution grew nearly twice as quickly in the past decade as it did in the previous 30 years.

Levels of greenhouse gases in the atmosphere have risen dramatically since the industrial revolution.



Source: IPCC

Data from a range of sources shows that global warming is taking place – land and ocean temperatures are rising.



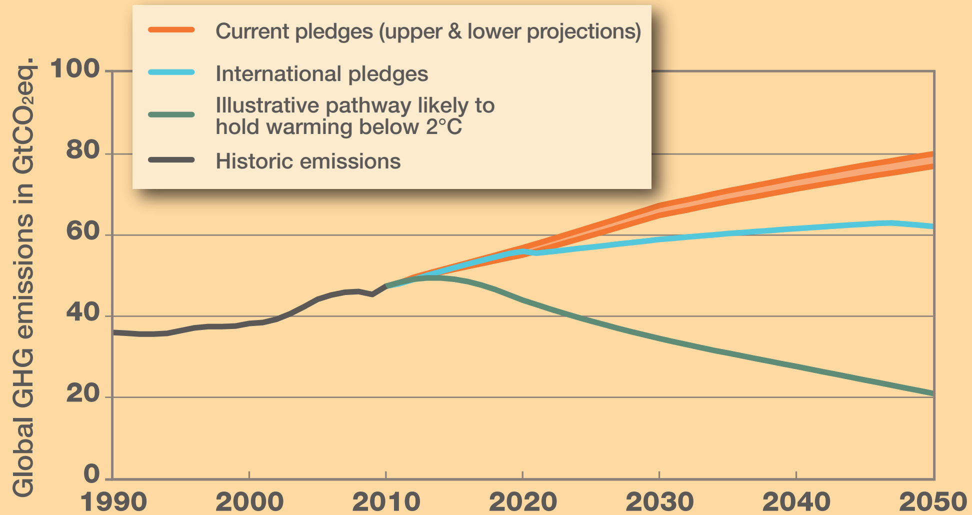
Source: 'Global temperature evolution 1979–2010', G Foster and S Rahmstorf (2012)

The effects of climate change are becoming both more apparent and more devastating – as the floods in the UK in winter 2013/14 demonstrated, its consequences will affect us all.

"All the evidence suggests there is a link to climate change."
Dame Julia Slingo, Met Office chief scientist, February 2014

The Somerset levels, February 2014

The world must do more if it is to avoid the worst climate change risks and prevent global temperatures from rising by more than 2°C – current policies are not enough.



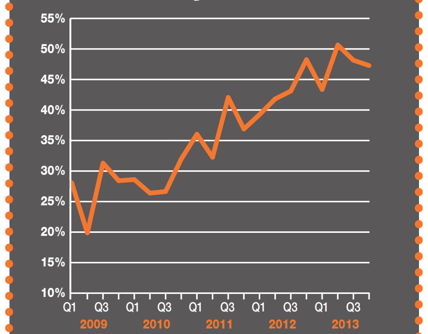
Source: climateactiontracker.org

SEVEN THINGS THAT HAVE CHANGED SINCE 2010

Since the last general election, several factors affecting decision-making on the climate challenge have changed.

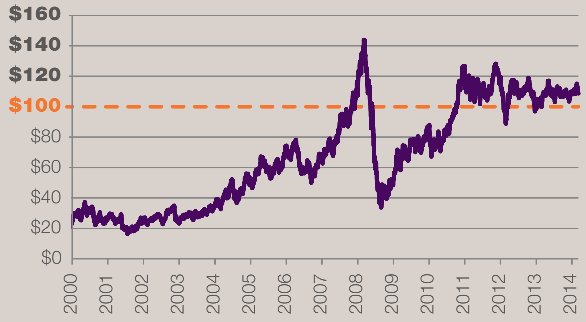
1 Over 800 weather-related disasters worldwide in 2012 caused a record **$130 billion** of losses.

2 The UK's reliance on fossil fuel imports has increased dramatically.



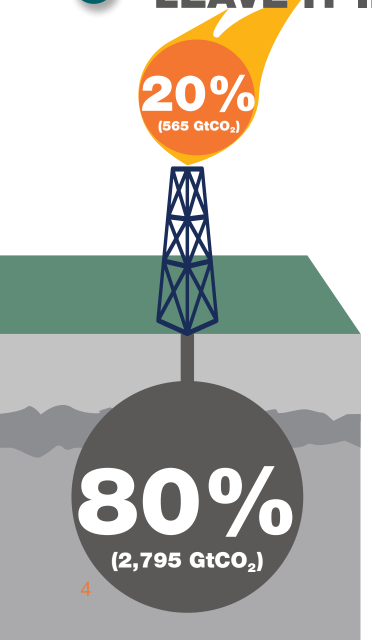
Source: DECC

3 The price of crude oil has settled at a 'new normal', above $100 per barrel



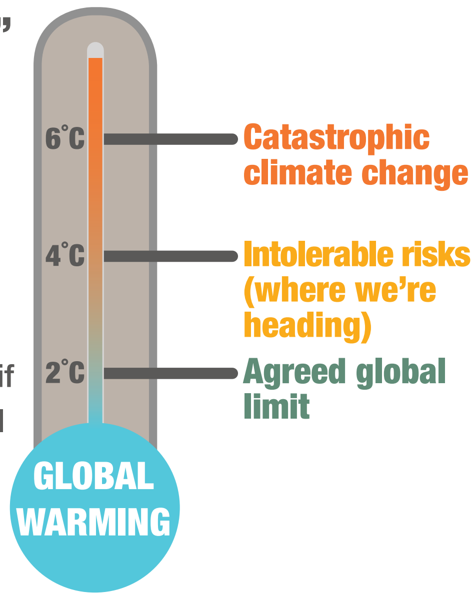
Source: US Energy Information Administration

4 "LEAVE IT IN THE GROUND"



Only **20%** of the fossil fuel reserves owned by the top 100 listed coal and top 100 listed oil and gas companies can be burned unabated if we are to keep global warming within **2°C by 2050**.

Source: carbontracker.org



5 The costs of renewable technologies are coming down rapidly.

For example, the cost of **solar photovoltaic (PV)** energy fell by **54%** between 2010 and 2013.

6 ***The US and China have finally begun to take climate change and green technology seriously.***

"CLIMATE CHANGE IS NO LONGER A DISTANT THREAT, BUT HAS MOVED FIRMLY INTO THE PRESENT"

PRESIDENT OBAMA, JUNE 2014

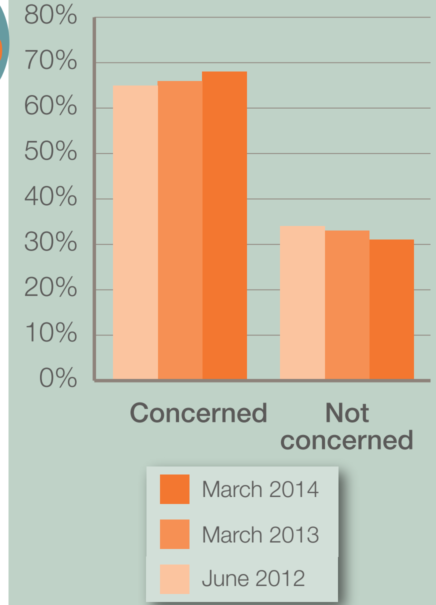
Photo: Christopher Dilts for Obama for America

Photo: Erin A. Kirk-Cuomo

"IT IS NOT AT OTHERS' DEMAND BUT OUR OWN WILL. WE HAVE ALREADY TAKEN MANY MEASURES AND WILL DO MORE IN THE FUTURE"

PRESIDENT XI JINPING, FEBRUARY 2014

7 PUBLIC CONCERN ABOUT CLIMATE CHANGE IS RISING



Source: DECC

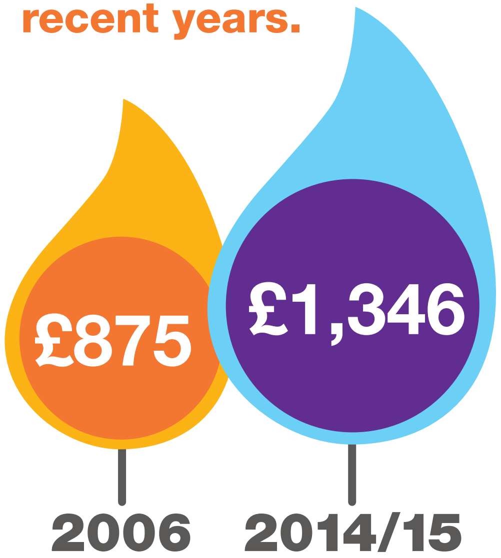
OUR IDEAS

The next government should undertake an Obama-style audit of the risks that climate change poses to the UK's security and way of life, including to businesses, infrastructure, homes, livelihoods, health and heritage.

THE CONSUMER CHALLENGE

The government can raise living standards, tackle fuel poverty and reduce emissions by reforming energy and transport markets and increasing energy efficiency.

The average dual-fuel bill has shot up in recent years.



Source: Ofgem

Trust in both energy and transport companies is low:

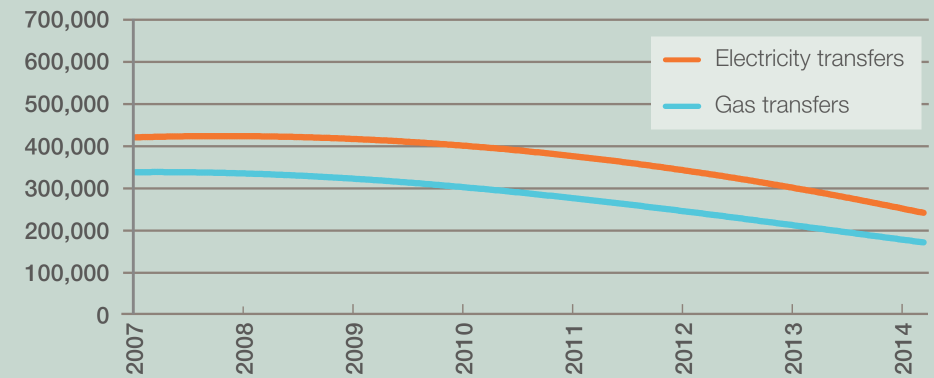
'JUST 32% OF BRITONS TRUST ENERGY COMPANIES'

AND

'ONLY 45% OF RAIL PASSENGERS ARE SATISFIED THAT THE PRICE OF THEIR TICKETS GIVES THEM VALUE FOR MONEY'

Source: Edelman, Passenger Focus

Gas and electricity switching rates have been declining for years, which indicates that competition in the energy market is failing.

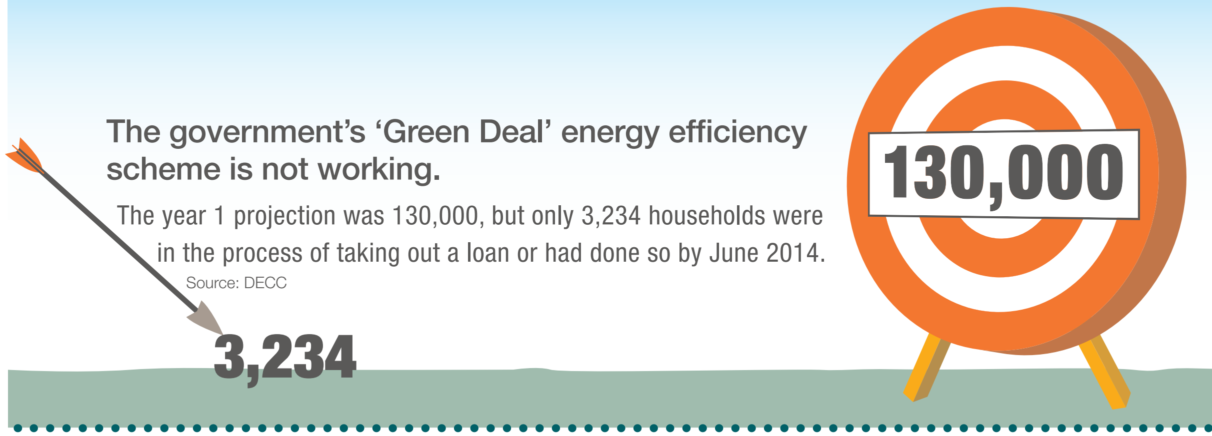


Source: Department for Transport

The government's 'Green Deal' energy efficiency scheme is not working.

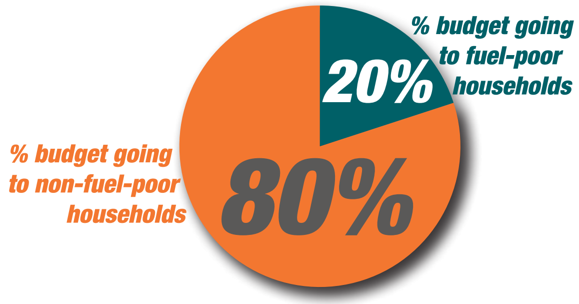
The year 1 projection was 130,000, but only 3,234 households were in the process of taking out a loan or had done so by June 2014.

Source: DECC



The government's key fuel poverty measure, the Energy Company Obligation (ECO), is not helping fuel-poor homes.

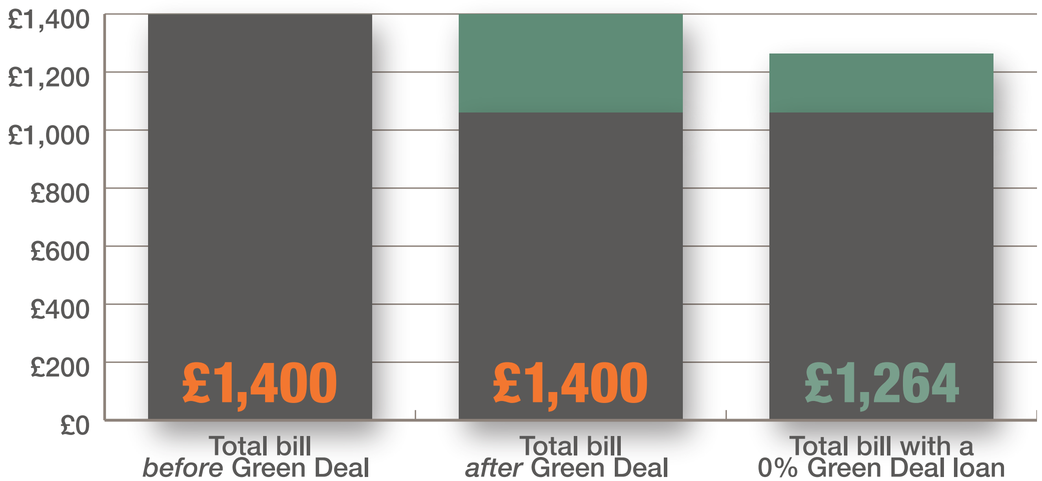
Only 47% of fuel-poor households are covered by ECO…



…and only 20% of the total budget for ECO is going to fuel-poor households.

The Green Deal currently makes no difference to people's bills – it's no surprise that so few people have signed up.

IPPR recommends a 'Help to Heat' scheme which would ensure that energy-saving measures deliver immediate individual bill savings.

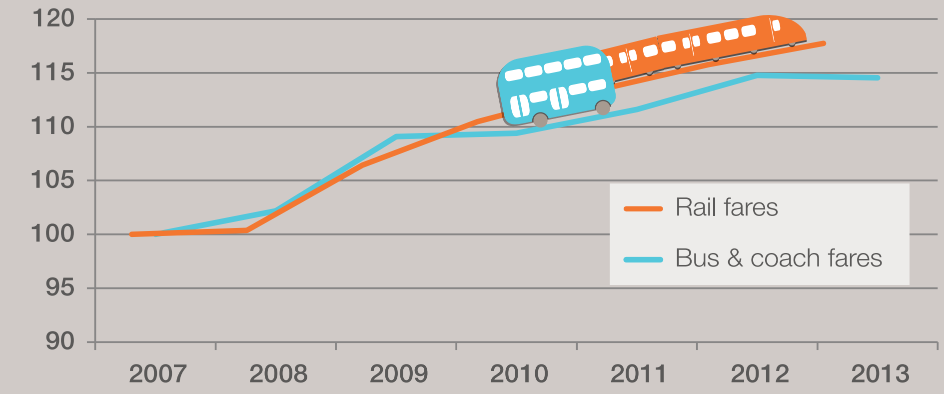


For more details, see IPPR's 2013 report *Help to heat: A solution to the affordability crisis in energy*

Living standards have also been affected by rising transport costs, and there are concerns about the performance of some markets.

BUS AND RAIL COSTS ARE RISING

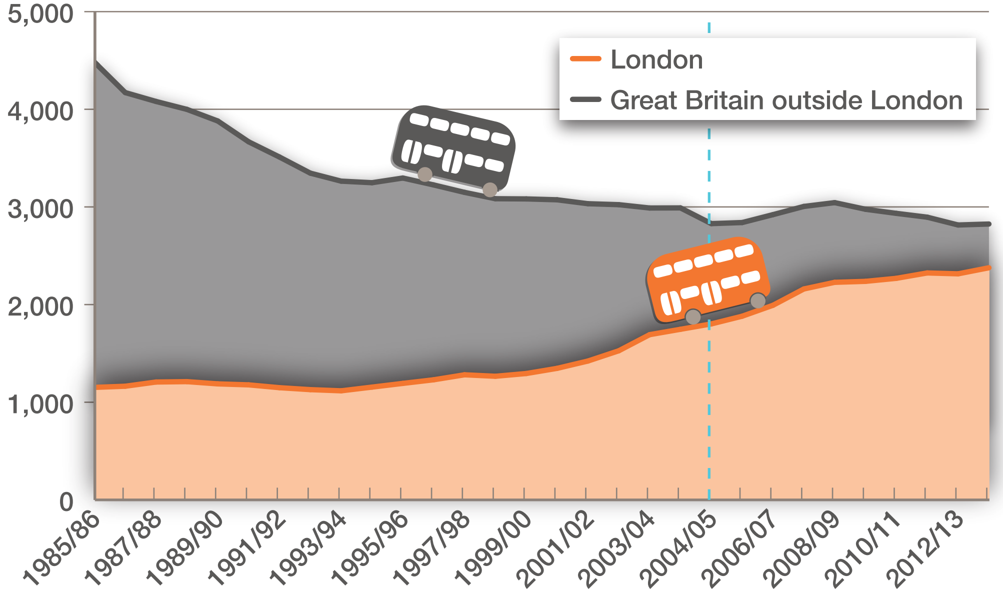
Fare increases in real terms, 2007–13 (2007=100)



Source: Department for Transport

The liberalisation of bus services outside London has failed, while Transport for London has increased bus use and gotten people out of their cars.

BUS PASSENGER JOURNEYS *(1,000s, 1985/86–2013/14)*



Source: Department for Transport. Dashed blue line denotes change in estimation technology outside London; two sets of data are shown for 2004/05.

THE SOLUTIONS

OUR IDEAS

A radical overhaul of the government's energy efficiency programme is vital to bringing down bills. A dramatic raising of its ambitions should be centred on a 'Help to Heat' scheme, with responsibility for better-targeted delivery devolved to local areas to help reduce consumers' bills.

The Competition and Markets Authority's inquiry into the energy markets should investigate Ofgem's ability to regulate a more diverse market facing rapid innovation.

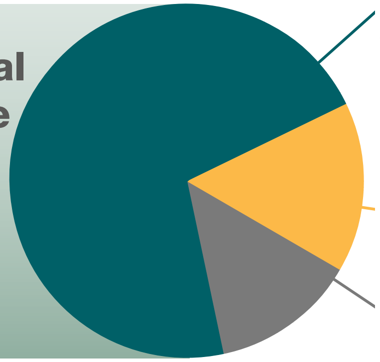
Cities and regions should be given powers similar to those of Transport for London, in order to deliver better value for money and encourage more people to switch from cars to public transport.

These new regional transport bodies should be encouraged to find efficiencies in existing transport budgets which can be passed onto consumers through lower prices and cleaner, better services.

THE CAPACITY CHALLENGE

The government can address capacity constraints in energy and transport by creating smarter and more decentralised systems and encouraging new sources of investment.

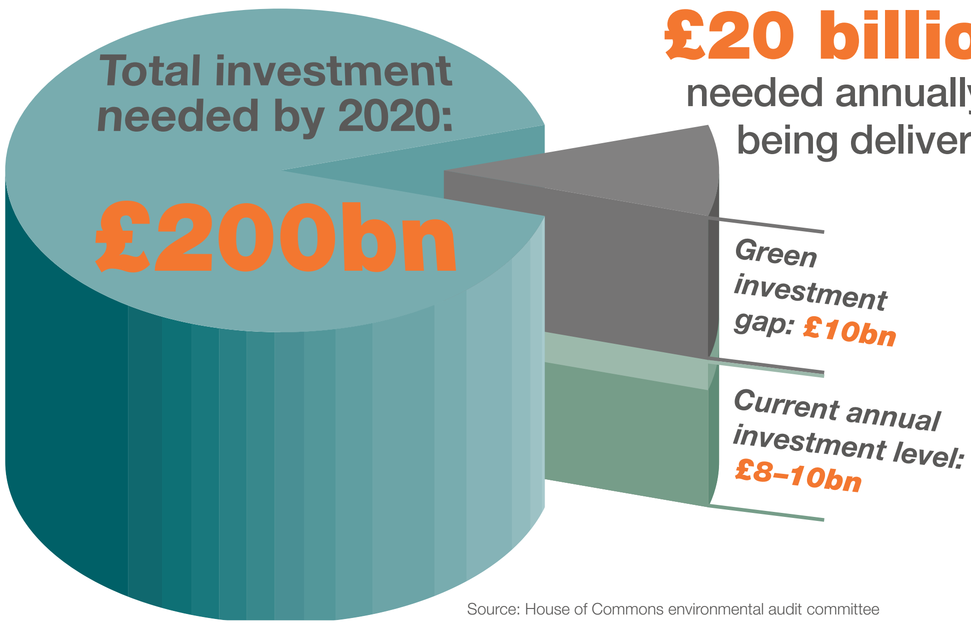
The Treasury's national infrastructure pipeline is primarily for low-carbon projects



Source: Green Alliance

But there is a 'green finance gap'

Only **£8–10 billion** out of the **£20 billion** needed annually is being delivered.



Source: House of Commons environmental audit committee

Europe's utility companies – the main source of investment – have lost half their share value in recent years.

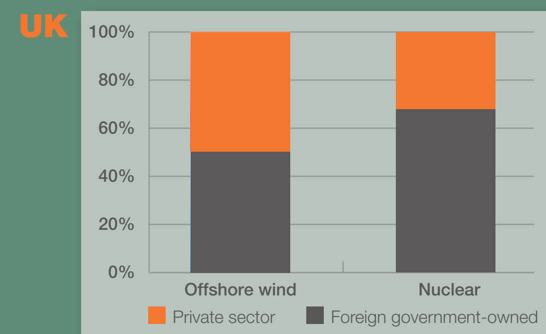
"[Changes in energy markets are] causing the rationale of the prevailing utility business model to come under severe pressure and potentially, ultimately, crumble."
Citibank

UK vs Germany on generation ownership

In 2012, **86%** of all UK electricity-generating capacity was owned by just 10 companies, including several foreign government-owned utility firms. Indeed, these foreign state-backed companies own **50%** of our offshore wind capacity and **68%** of our nuclear capacity.

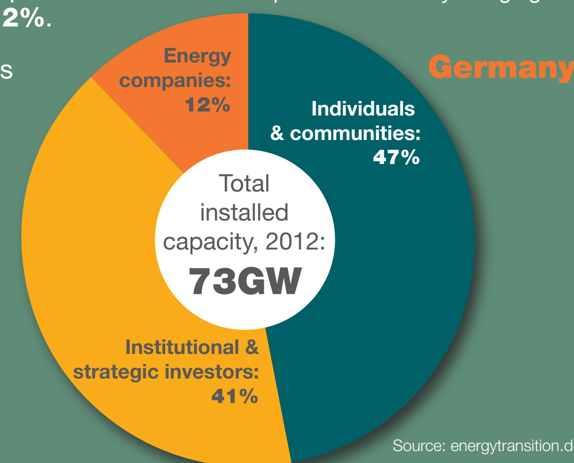
By contrast, **nearly half** of renewable capacity in Germany is owned by private individuals and municipal companies. Energy companies own just **12%**.

Local authorities, communities and individuals are well-placed to take a stake in the UK's generation system and ensure that the benefits from subsidies flow to them.



Most of our offshore wind and nuclear power is owned by foreign governments.

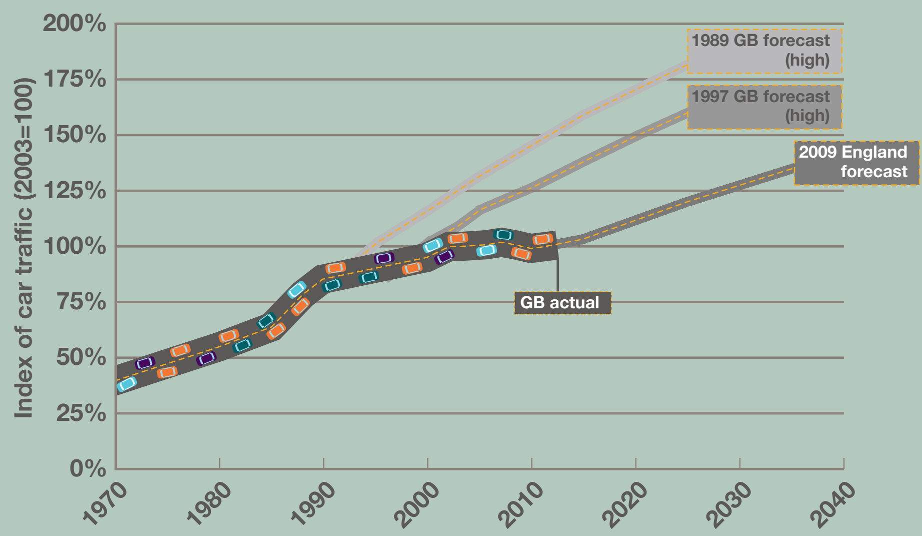
Source: SERIS



Source: energytransition.de

As well as failing to upgrade our infrastructure, we are not managing existing demand as well as we should.

The Department for Transport has consistently overestimated the demand for new roads.

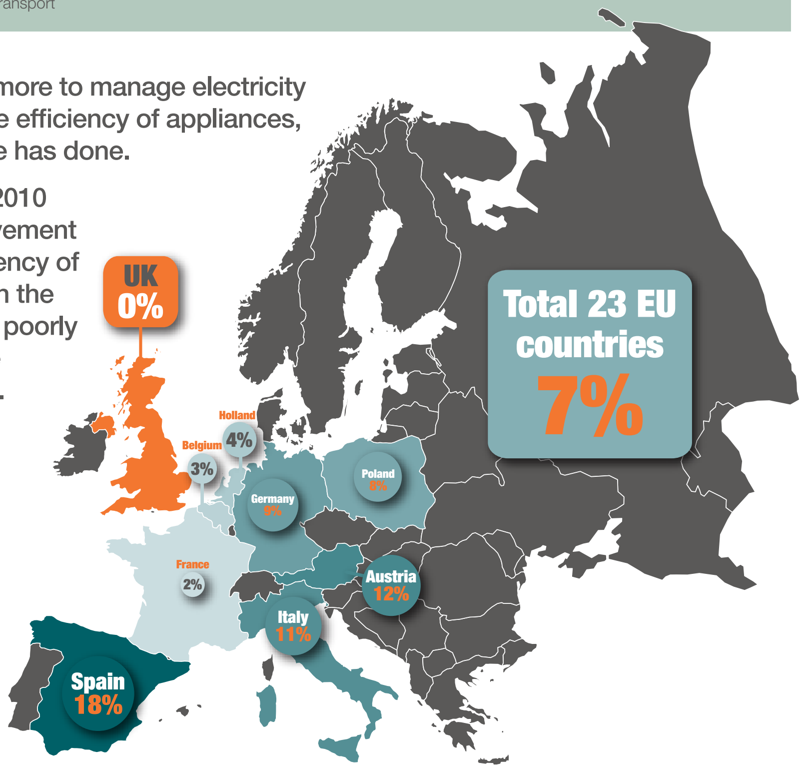


Source: Department for Transport

We could do much more to manage electricity use by improving the efficiency of appliances, as the rest of Europe has done.

Between 2005 and 2010 there was no improvement in the average efficiency of appliances bought in the UK, comparing very poorly against the EU-wide improvement of **7%**.

Source: Global Action Plan



THE SOLUTIONS
OUR IDEAS

In order to avoid unnecessary expenditure, a value-for-money review of all planned infrastructure should take place to ensure that it is necessary and that alternative means of providing capacity cannot be found.

As traditional sources of finance dry up, reforms such as Green ISAs and new responsible investment rules are needed to make it easier for local authorities, communities and individuals to invest in low-carbon generation and help keep the lights on.

Subsidy allocations should be reformed so that smaller-scale generation technologies such as onshore wind and solar can compete with larger technologies on a level playing field.

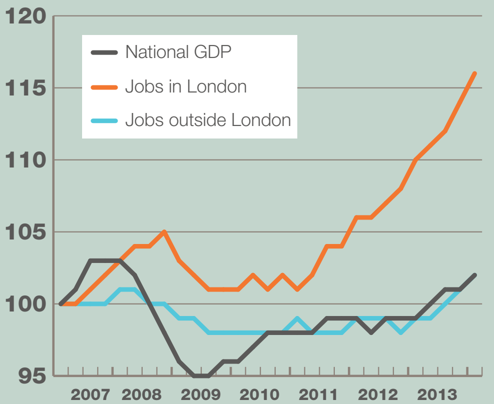
Market incentives to capture the full potential from reducing demand and better managing demand in both energy and transport should be boosted through new energy efficiency technologies, ‘smart’ home energy management technologies and smart-tickets.

THE REGIONAL CHALLENGE

The government can help create well-paid and decent jobs in every region by developing a low-carbon industrial strategy and providing the conditions for investment in low-carbon infrastructure.

There is a huge regional imbalance in jobs growth between London and the rest of the UK.

GDP versus jobs growth (2007=100)



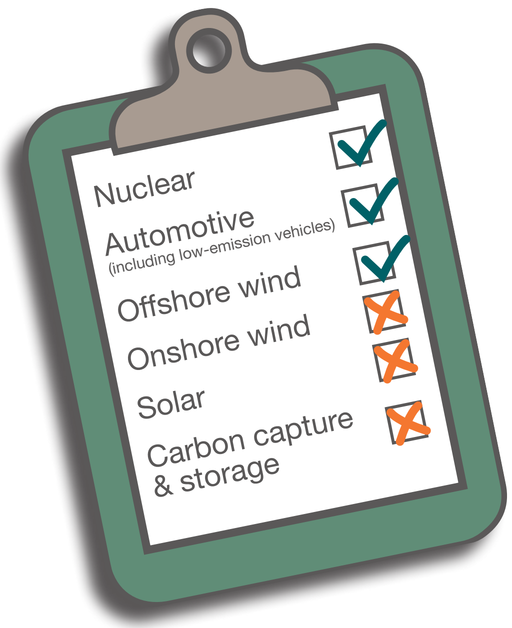
Source: IPPR calculations using ONS statistics

As the map opposite illustrates, good jobs are available all around the country from low-carbon projects.

Yet **45** onshore wind farms have been delayed & **12** blocked in the past 12 months alone

Source: RUK

The government's industrial strategies are not backing every low-carbon sector.

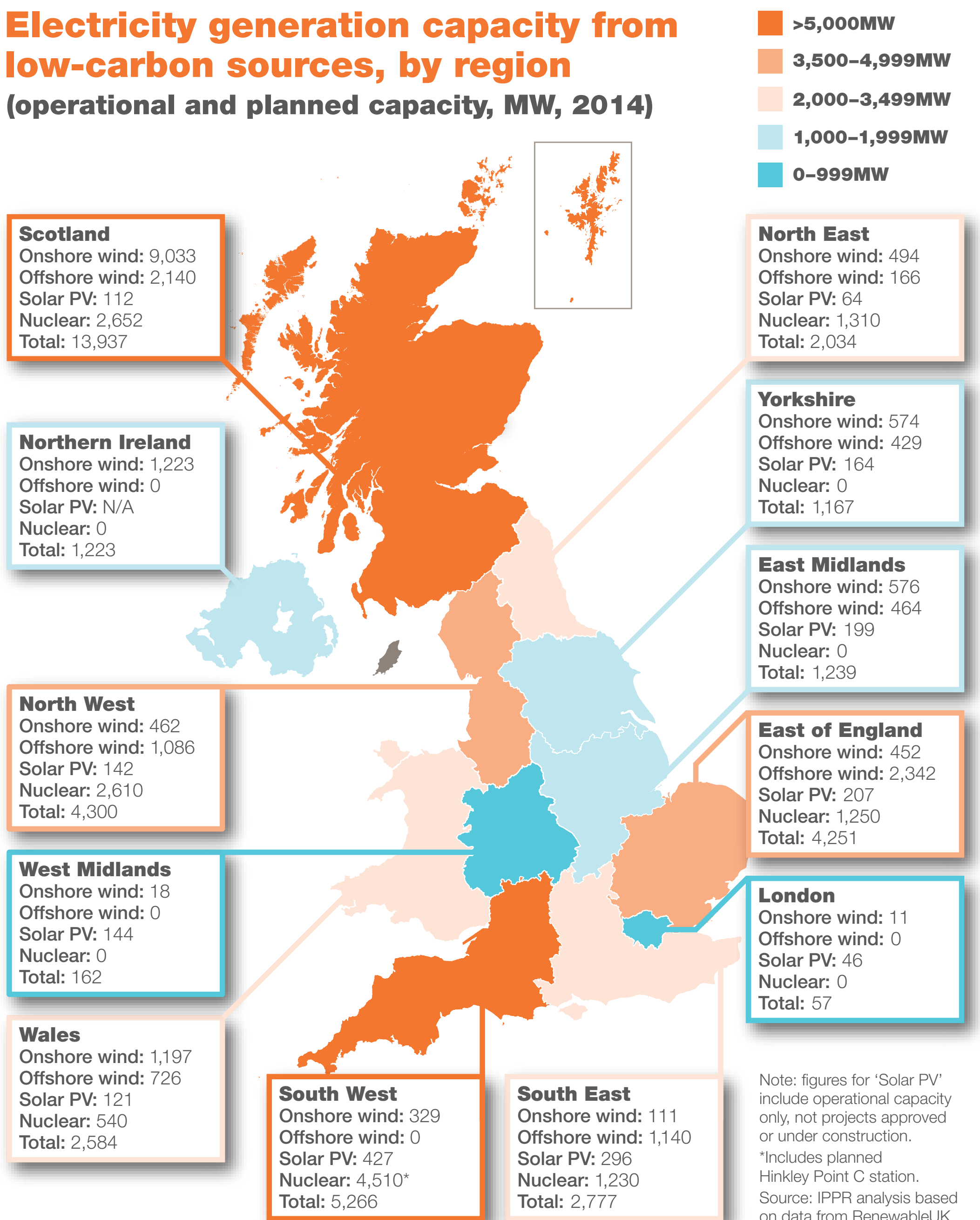


The Committee on Climate Change has criticised the government's current approach:

"[DECC's central] scenario with high nuclear deployment, but low investment in carbon capture and storage and offshore wind during the 2020s... would imply unacceptable costs and risks of achieving the 2050 target and/or of very high electricity prices."

Electricity generation capacity from low-carbon sources, by region

(operational and planned capacity, MW, 2014)



Note: figures for 'Solar PV' include operational capacity only, not projects approved or under construction.
*Includes planned Hinkley Point C station.
Source: IPPR analysis based on data from RenewableUK

Supply chain jobs installing energy efficiency measures are available in every region, as well as in the renewable and low-carbon energy sectors, which are growing in many regions.

The **Green Investment Bank** has directly committed...

£1.3bn

...and mobilised...

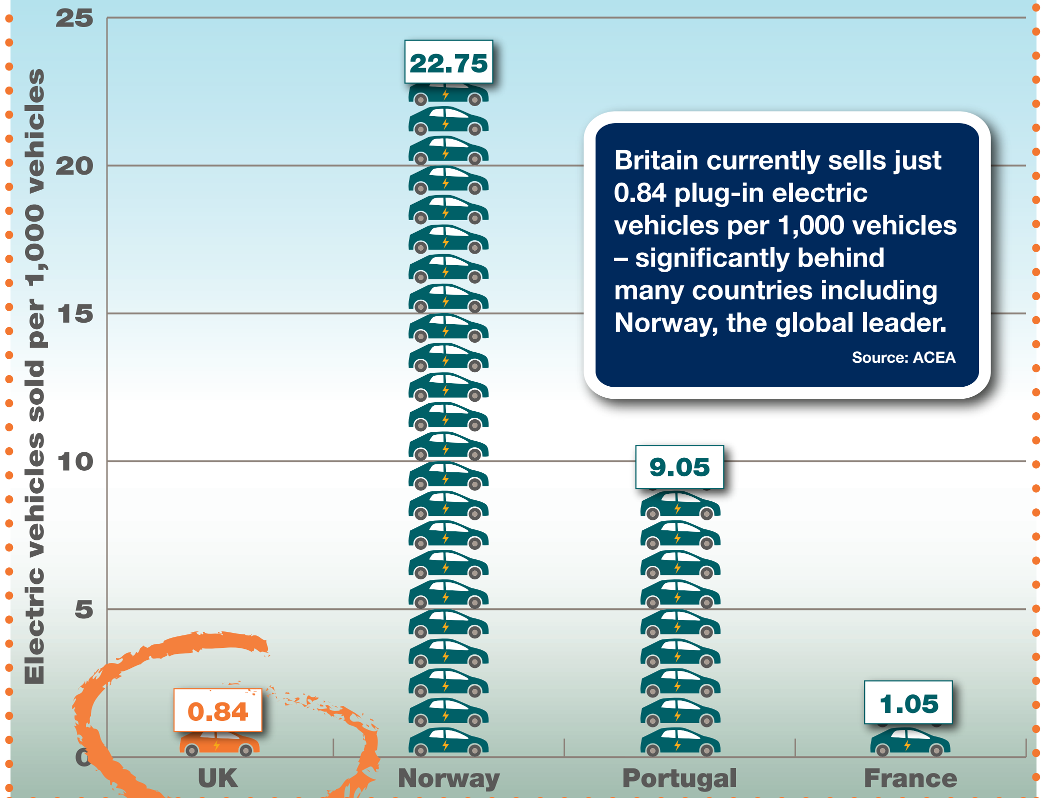
£4.8bn

But this is a drop in the ocean compared to the

£200bn

of investment in green projects needed by 2020, which would bring jobs to all regions of the UK.

We need to sell more electric cars in Britain if we want a bigger share of the growing global market and the jobs that will come with it – especially for the Midlands and North East.



THE SOLUTIONS

OUR IDEAS

The low-carbon economy provides jobs in every region of the UK. Industrial strategies should therefore be put in place for every low-carbon sector, with a greater focus on developing appropriate skills in every region.

Jobs installing energy efficiency measures, which are needed in every region to improve our building stock, should be created for those facing long-term unemployment through job guarantees.

The Green Investment Bank should be given borrowing powers with immediate effect so that it can support our low-carbon sectors and create jobs in every region of the country.

In order to provide certainty for the clean technology supply chain, the government should adopt the Committee on Climate Change's proposal of a 2030 decarbonisation target for the power sector.

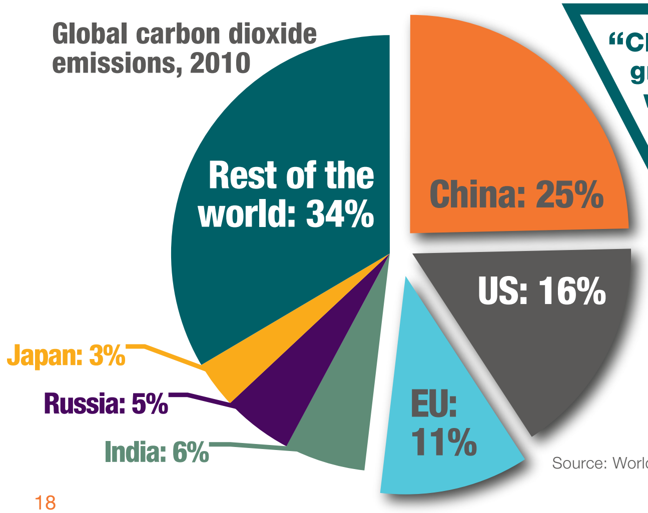
THE INTERNATIONAL CHALLENGE

The government can ensure that global action is taken on climate change by maintaining momentum for an ambitious EU climate and energy package and a global deal at Paris in December 2015.

The year ahead is critical for securing a global deal

2014	SEPTEMBER 23	*Ban Ki Moon's climate summit in New York City*
	OCTOBER 23	*EU leaders due to agree new EU climate and energy targets*
	DECEMBER 1	*UN climate talks in Lima to agree outline of new international climate agreement*
2015	NOVEMBER 30	*Landmark UN climate summit begins in Paris to try to agree a new global climate deal*

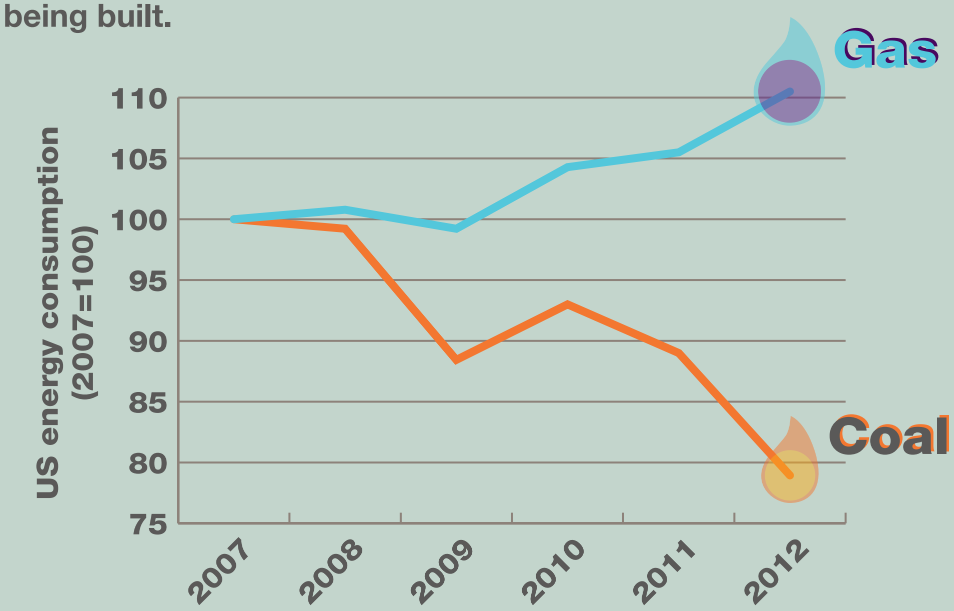
China, the US and EU (including Britain) must take the lead in tackling climate change – otherwise the whole world, including many living in abject poverty, will suffer the consequences.



"Climate change is the greatest market failure the world has ever seen… it demands an international response, based on a shared understanding of long-term goals and agreement on frameworks for action."
Stern Review

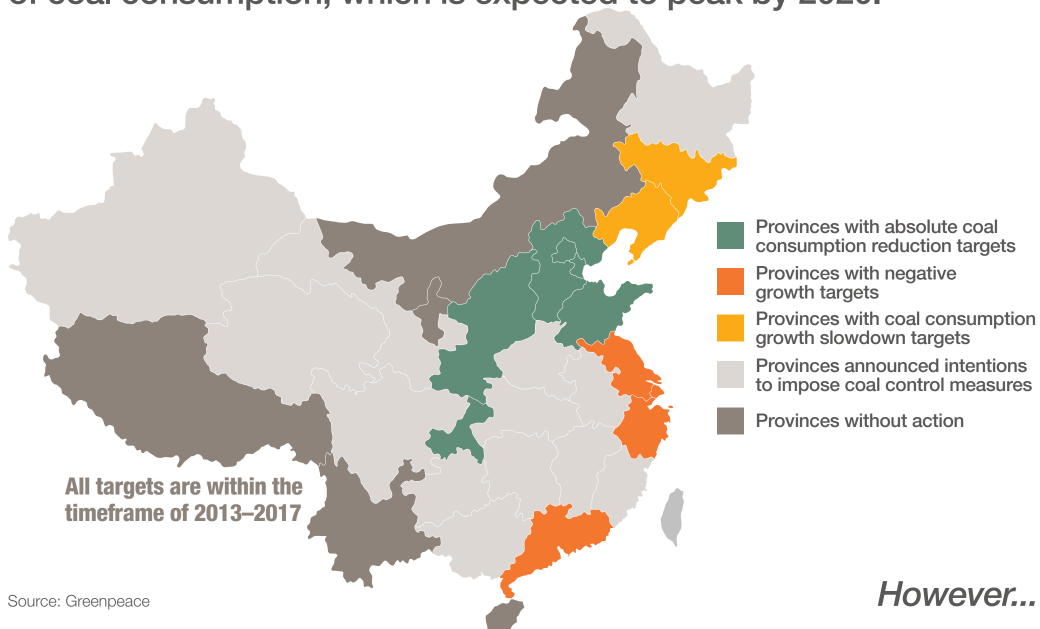
Source: World Bank

In the US, hundreds of dirty coal plants are coming off the system, and new pollution standards have banned new coal stations from being built.



Source: Financial Times; data from EIA

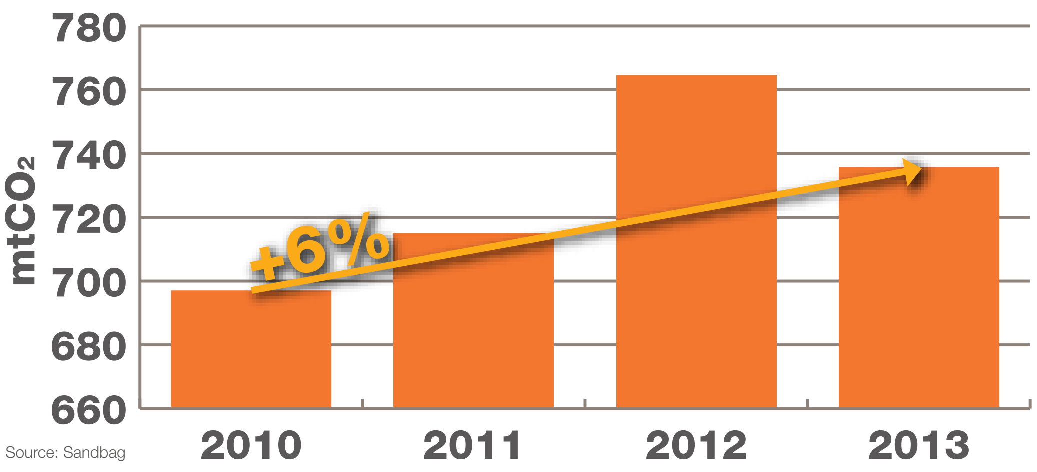
In China, more and more regions are regulating to reduce levels of coal consumption, which is expected to peak by 2020.



Source: Greenpeace

However...

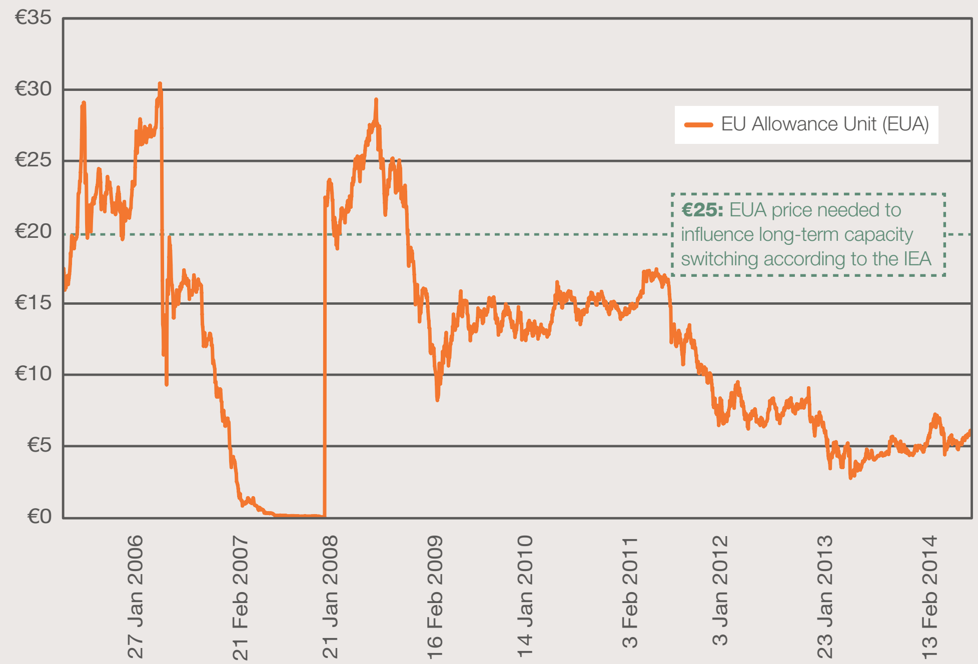
...in Europe, coal consumption has risen in recent years.



Source: Sandbag

The EU's main green policy – the Emissions Trading Scheme – has failed to set a stable and adequately high price for carbon, which would have prevented the resurgence of coal.

Spot price of EUA carbon allowances, 2005–2014



Source: the Intercontinental Exchange with calculations from Sandbag Climate Campaign

THE SOLUTIONS

OUR IDEAS

In order to encourage a global deal on climate change, Britain should support the adoption of a new, legally-binding EU-wide commitment to halve greenhouse gas pollution (on 1990 levels) by 2030, provided that there is sufficient ambition from other major economies at the UN climate summit in Paris in 2015.

A successful outcome to the Paris summit will be contingent on:

1. A fair contribution to finance for adaptation and low-carbon development in some of the poorest and most vulnerable countries
2. Targets to cut emissions set for every five-year period with the aim of achieving carbon neutrality by 2050.

The UK must support the establishment of a global sustainable development goal specifically related to keeping global temperatures from rising by more than 2°C.

To avoid coal use increasing and undermining Britain's commitment to a global deal, the government's Emissions Performance Standard for carbon pollution should be extended so that the rules apply to the UK's existing coal-fired plants. Within the EU, the UK should push for other member states to follow the UK's lead in addressing the resurgence of coal.

IMPACT

To develop this document, IPPR engaged with representatives from all three main political parties and heard expert testimony from many different organisations.

"WE CAN'T CONTROL WHOLESALE PRICES. BUT BY ENCOURAGING HOME-GROWN ENERGY – INCLUDING RENEWABLES AND NUCLEAR – WE CAN INFLUENCE SOME OF THE COSTS OVER TIME. BUT THE BEST WAY TO CUT BILLS IN THE LONG-TERM IS TO CUT OUR USE OF ENERGY"

ED DAVEY, MINISTER FOR ENERGY AND CLIMATE CHANGE

"BILLS ARE RISING YEAR ON YEAR. THE MARKET HAS FAILED TO UNLOCK THE INVESTMENT THE COUNTRY NEEDS, AND PUBLIC TRUST AND CONSENT HAS BEEN LOST"

CAROLINE FLINT, SHADOW MINISTER FOR ENERGY AND CLIMATE CHANGE

"NOT JUST THE GREEN INVESTMENT BANK BUT THE CLIMATE CHANGE AGENDA IS AN AREA OF IMPORTANT CONSENSUS. WE MUSTN'T TAKE THAT FOR GRANTED AND WE NEED TO REINVEST IN THAT AND KEEP IT THAT WAY"

GREG BARKER, MINISTER OF STATE FOR ENERGY AND CLIMATE CHANGE (2010–14)

We are grateful to individuals from a number of organisations which presented to the roundtable discussions that informed this document.

ALSTOM
AVIVA
Campaign for Better Transport
Bristol City Council
cambridge econometrics
CBI The Voice of Business
Centre for European Reform
E3G
Eco Plastics – Driving Sustainable Packaging
European Climate Foundation
eef The manufacturers organisation
eunomia
Catapult Future Cities
green alliance...
Green Investment Bank
Greenpeace
Grantham Research Institute on Climate Change and the Environment
Institute for European Environmental Policy
nationalgrid
Nesta
NISSAN
passivsystems
ShareAction – the movement for Responsible Investment
sustrans – join the movement
Transport for London
University of Cambridge

IPPR is particularly grateful to our steering group, which included:

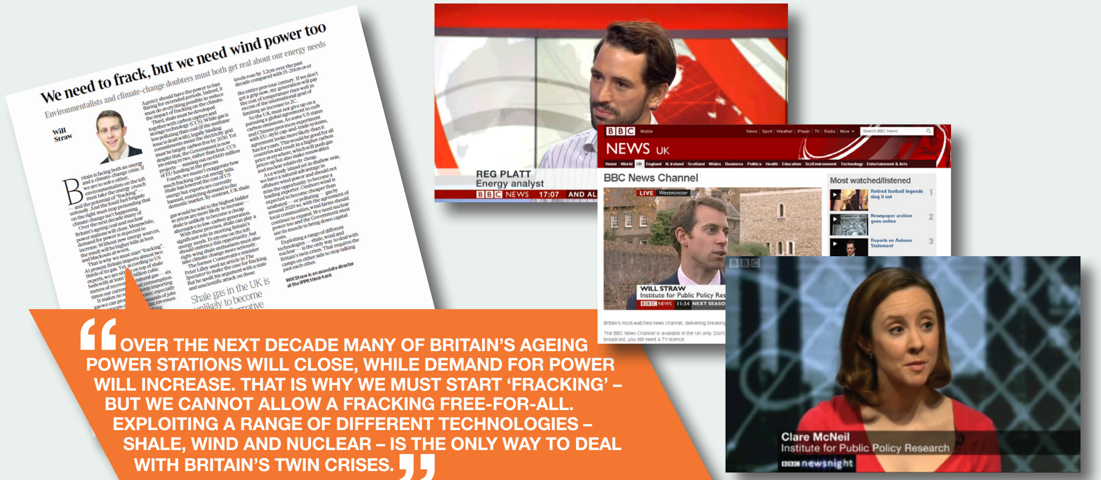
- **Ruth Davis**, political director at Greenpeace
- **Nick Mabey**, chief executive and founding director of E3G
- **Matthew Spencer**, director of Green Alliance
- **Michael Jacobs**, senior adviser on international climate change policy at IDDRI
- **Ben Caldecott**, head of government advisory at Bloomberg New Energy Finance
- **Duncan Brack**, vice chair of the Liberal Democrats' federal policy committee and manifesto group.

We would also like to thank the **European Climate Foundation** for their generous funding.

OTHER IPPR WORK

*Many of the ideas and analysis in this publication are taken from IPPR's reports on energy, transport and climate change, which can be downloaded from our website, **ippr.org**.*

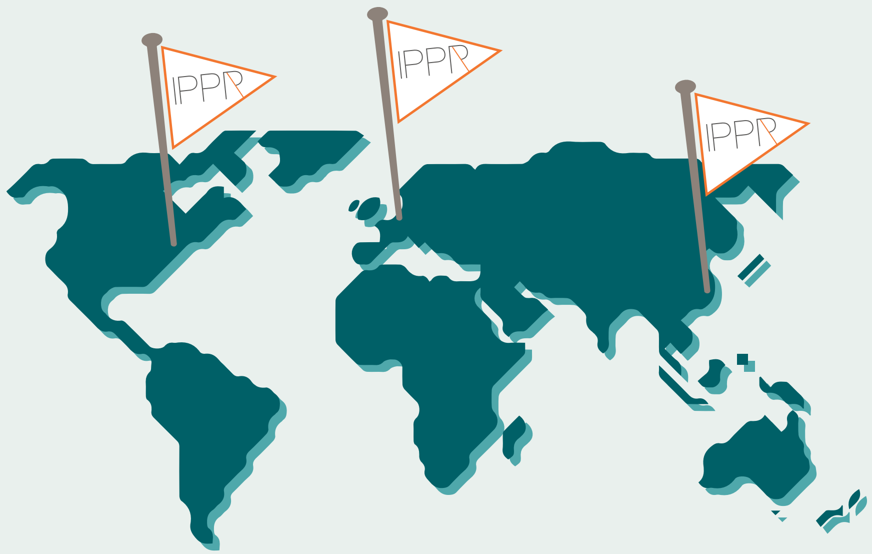
IPPR has the highest media profile of all UK thinktanks, and is a prominent voice on climate change, energy and transport issues.



"OVER THE NEXT DECADE MANY OF BRITAIN'S AGEING POWER STATIONS WILL CLOSE, WHILE DEMAND FOR POWER WILL INCREASE. THAT IS WHY WE MUST START 'FRACKING' – BUT WE CANNOT ALLOW A FRACKING FREE-FOR-ALL. EXPLOITING A RANGE OF DIFFERENT TECHNOLOGIES – SHALE, WIND AND NUCLEAR – IS THE ONLY WAY TO DEAL WITH BRITAIN'S TWIN CRISES."

WILL STRAW, ASSOCIATE DIRECTOR, *THE TIMES* (MAY 2013)

IPPR works with international partners to examine climate change policy in the world's three biggest emitters – the EU, the US and China.



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