WWF

REPORT SUMMARY

UK

2014

THE ECONOMICS OF CLIMATE CHANGE POLICY IN THE UK

Summary and implications for the UK

Bold action to tackle climate change will modernise the UK economy, boost economic growth and job creation, increase household income and improve people's health.

These are among the findings of The Economics of Climate Change Policy report, written by Cambridge Econometrics, independent consultants that specialise in economic modelling, in association with Professor Paul Ekins of University College London. The report outlines scenarios which would enable the UK to meet its climate change goals. It compares the economic impacts of these scenarios with the economics of a low-ambition scenario where targets are missed.

This booklet is a summary of the report. It outlines how the next Government can close the gap between the savings in greenhouse gas emissions that existing policies are likely to deliver, and what is needed to meet the UK's legally binding targets.

wwf.org.uk/climateeconomics

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THE ECONOMIC CASE FOR TACKLING CLIMATE CHANGE

In 2008, the UK adopted the world's first Climate Change Act. This landmark legislation, which has now been copied in other countries as diverse as Mexico and Finland, commits the UK to cutting its emissions of greenhouse gases by at least 80% by 2050 compared to 1990 levels. Meeting this target will ensure the UK plays its part in international efforts to prevent the worst impacts of climate change.

The Act created an independent body - the Committee on Climate Change (CCC) - which has published a series of five-year carbon budgets which set out the pace at which the UK needs to cut its emissions to hit the 2050 target. The CCC also advises the Government on the steps that need to be taken to meet each budget in the most cost-effective way. The first four budgets have been set in law to cut UK emissions by 50% by 2025 compared to 1990 levels. This requires significant investment in low-carbon infrastructure across the UK's power, transport and heating sectors in the coming years.

In the UK, there's still cross-party support for tackling climate change. But political debates around the fourth carbon budget show how unclear or widely misunderstood the costs and benefits of climate change policies are. That's why WWF commissioned a review of the economic implications of UK climate change policies.

Our key question:

We wanted to find out what the overall impacts on the UK economy would be if carbon emissions were cut in line with the carbon budgets to 2030. The report looks at how climate policies could impact on household and industrial energy bills, household spending, economic growth and employment levels, energy security and healthcare.

Cambridge Econometrics used its respected macro-economic model of the UK's economy to assess the economic implications of the UK doing very little to reduce its emissions over the next 20 years and compared this with a scenario where the UK meets its carbon budgets.

A STRONG CASE

There's a strong economic, energy security and wellbeing case for meeting the UK's carbon budgets

Meeting the UK's carbon budgets achieves more than reducing carbon emissions. It moves us towards a world of new economic and technological opportunities and improved wellbeing of our citizens. The UK's housing stock is modernised and made more efficient, which would benefit people's health and cut energy bills. There's a significant shift towards electric cars. In line with the scenarios published by the CCC, our electricity comes predominantly from clean and low-carbon sources, such as renewables. And people are able to lead healthier lives thanks to reduced air pollution.

The overall economic impact of meeting the UK's carbon budgets

Striving for this future makes clear economic sense for the UK. The report shows that there are minimal net impacts on household energy bills up to 2030 and net economic benefits for the UK if it meets the first four carbon budgets. Positive impacts include increased household income and spending, net job creation, and improved energy security. Cambridge Econometrics also found that the macro-economic benefits would remain positive for the UK even if fossil fuel prices in 2030 were 40% lower than currently anticipated by the Government in its central projections.

The average household is expected to be £565 better off annually by 2030

The report's key findings

- **Meeting the UK's first four carbon budgets means that households will be better off.**
  Despite the upfront cost needed to finance the low-carbon and energy efficiency technologies needed to meet the first four carbon budgets, the average household is expected to be £565 better off annually by 2030 as a result of policies to reduce the UK's emissions in line with the first four carbon budgets. This is due in particular to increased energy efficiency in households, lower running costs for electric cars and the net increase in both wages and job creation caused by the significant investment in low-carbon infrastructure.

  However, the Government will need to ensure the costs and benefits of climate change policies are fairly distributed across households. Government policies need to support vulnerable groups – for example, making direct investment in energy efficiency to help fuel-poor households. Incentives will also be needed to drive the necessary investment in energy efficiency technologies in households, which will deliver reductions in energy use that can offset almost all of the predicted increase in electricity prices as well as the cost of the technologies themselves.

Impact on households' energy-related expenditure in 2030 (relative to low ambition scenario)

	Effects on energy bills due to a higher electricity price	Effects on energy bills due to efficiency improvements	Purchase cost of energy efficiency measures	Net impact on household energy expenditure
4CB	+£127	-£260	+£155	+£22

Source: MDM-E3, Cambridge Econometrics

£££

A 1.1% net increase in GDP and the creation of an additional 190,000 net jobs

- **There will be higher net GDP and employment.**
The combination of increased household income and investment in low-carbon infrastructure would, by 2030, lead to a 1.1% net increase in GDP and the creation of an additional 190,000 net jobs. And these figures don't even take account of the economic benefits that arise from exports of low-carbon goods and services out of the UK.

Impact on real household income in 2030

	Low Ambition	4CB
Average annual real household income	**£53,188**	**+£565**
• increase in average real income due to higher emplomen rate	-	£269
• average increase in real wages and unearned income	-	£296

Source: MDM-E3 , Cambridge Econometrics

£8.5BN

THE ANNUAL COST OF IMPORTS OF OIL AND GAS TO THE UK FALLS BY £8.5BN, BY 2030

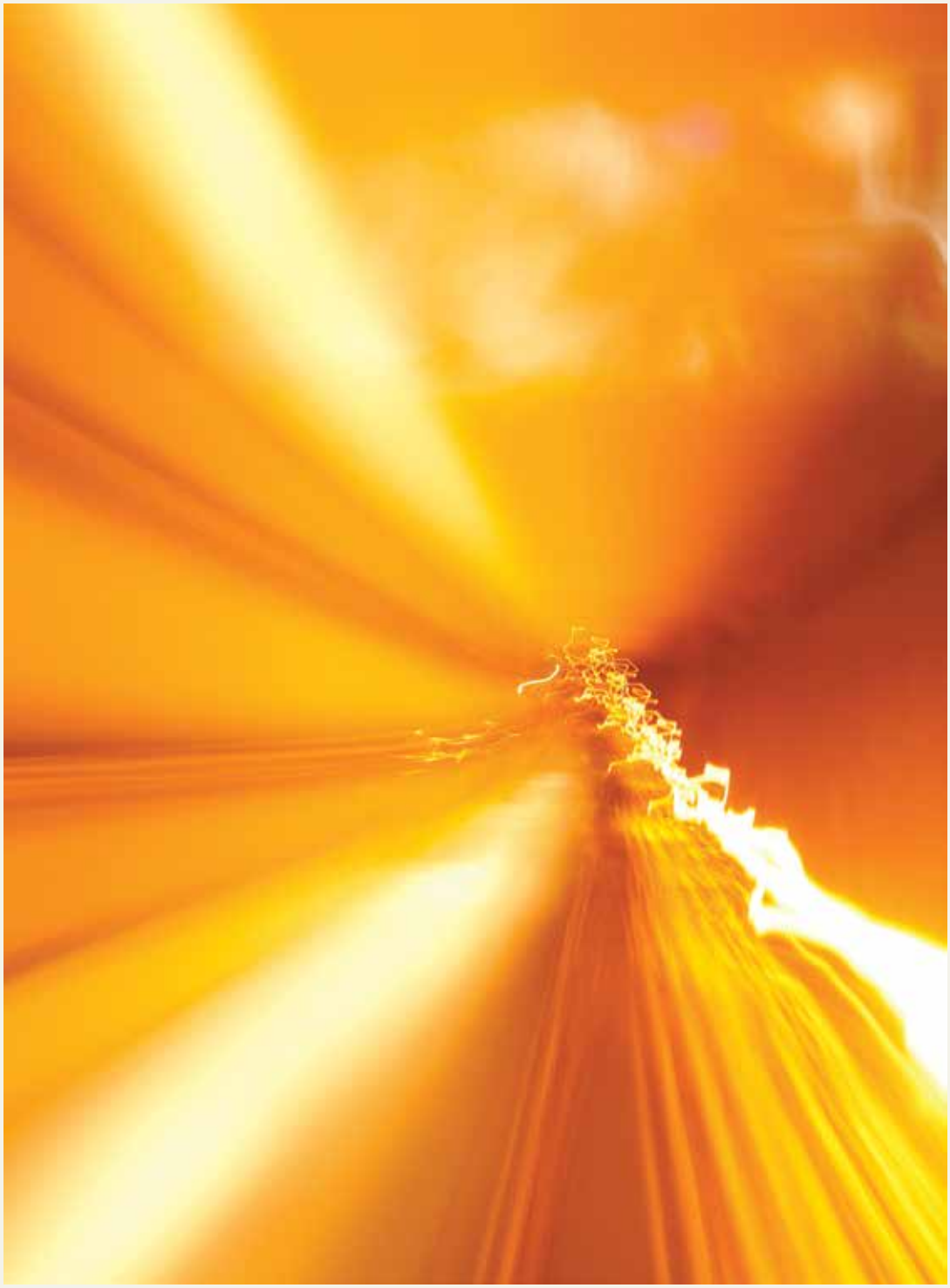
- **The UK's energy security is much improved.**
There'd be a 30% reduction in demand for primary oils and petroleum products and a 55% reduction in demand for gas in 2030. This would reduce the UK's exposure to the impact of global price spikes and supply interruptions, and mean more stable energy bills for consumers and businesses. By 2030, the annual cost of imports of oil and gas to the UK falls by £8.5bn.

- **British-based businesses would benefit directly from the measures and changes required by a low-carbon transition.**
For example, they'd benefit by developing, manufacturing and installing low-carbon technologies in the power sector, and from the additional spending power of households and the knock-on effect this would have on the wider economy. It's important to note that the UK's low-carbon technology sector is already growing rapidly, having achieved 4% growth in gross output in 2011/12 according to the Department for Business at a time where the rest of the economy was at near zero growth.

The UK's economic sectors in 2011 (in absolute terms and percentages of UK totals)

	Turnover	Gross Value Added	Employment
Energy-intensive sector	£89bn (4%)	£23bn (2%)	347,000 (2%)
Services sector	£1,072bn (32%)	£511bn (54%)	12,751,000 (59%)
Low-carbon sector and supply chain	£128bn (4%)	Not available	939,000 (4%)

Source: ONS Annual Business Survey (2013) and BIS (2013)



Meeting carbon budgets will give rise to a transformation of the UK's power sector from a system dominated by coal and gas-fired power generation towards a low-carbon electricity mix with a high renewable content.

- **Well-designed policy can address challenges that energy-intensive industries will face during the transition to a low-carbon economy.** Some energy-intensive firms will require financial support during the transition to a low-carbon economy to address the initial increase in industrial energy bills while also continuing to reduce their own carbon footprint. But many energy-intensive firms also stand to benefit economically from the transition. Cambridge Econometrics estimate, for example, that the energy-intensive sector (excl. petroleum refining) will see an increase in production of around 1.9% by 2030 if the UK meets its first four carbon budgets compared to the scenario where the budgets are missed. This is because the transition to a low-carbon economy increases the demand for energy-intensive products, such as steel for wind turbines and glass for glazing.
- **There's a £5.7bn net increase in annual government revenue by 2030.** Directly, the auctioning of allowances under the EU Emissions Trading Scheme and revenue from the Government's carbon price support mechanism almost entirely offset reductions in hydrocarbon tax revenue from falling petrol and diesel sales.
- **The UK will be equipped with a clean, efficient and modern power sector.** Meeting the carbon budgets will give rise to a transformation of the UK's power sector from a system dominated by coal-and gas-fired power generation towards a low-carbon electricity mix with a high renewable content and a carbon intensity of 50gCO2/kWh by 2030. This amounts to an almost tenfold reduction in carbon intensity compared to today's power system.

+5.7BN

THERE'S A £5.7BN NET INCREASE IN ANNUAL GOVERNMENT REVENUE BY 2030

- **UK citizens will enjoy better health from improved air quality, cleaner environments and fewer local pollutants,** such as particulates (black smoke) and nitrous oxide (NOx). The reduction in emissions of particulates from road transport alone could cut annual healthcare spending by between £96m and £288m by 2030.

THE ROLE OF THE NEXT GOVERNMENT

There needs to be a "step change" in Government action across a number of priority sectors if we're to achieve the wide range of economic, energy security, environmental and health benefits outlined in the report.

TAKE FIRM, POSITIVE ACTION TO DECARBONISE THE ECONOMY

CONTINUE THE TRANSITION TO A MODERN, LOW-CARBON ELECTRICITY SUPPLY

IMPROVE ENERGY EFFICIENCY TO INCREASE ENERGY SECURITY AND TACKLE FUEL POVERTY

INCREASE THE UPTAKE OF LOW-CARBON HEAT

CALL TO ACTION

Current policies are not on track to meet the first four carbon budgets, as the Government itself acknowledges. The following policy recommendations reflect the CCC's advice on the priority sectors for cutting emissions by 2030.

1

Take firm, positive action to decarbonise the economy

- set out clearly how it intends to deliver the agreed emission reduction objectives set out in the fourth carbon budget;
- work closely with the CCC to ensure that the fifth carbon budget (covering the years 2028 to 2032) to be adopted in 2016 is set in a way that keeps the UK on the most cost-effective path to reducing its emissions of greenhouse gases by at least 80% by 2050 as required by the Climate Change Act;
- ensure that Infrastructure UK's National Infrastructure Plan and corresponding infrastructure pipeline is set in accordance within the recommended carbon budgets set by the CCC.

2

Continue the transition to a modern, low-carbon electricity supply

- set a carbon intensity target for the electricity sector in 2030 of 50g CO2/kWh (as recommended by the CCC) and provide more clarity as to the level of funding that will be available under the Levy Control Framework beyond 2020 to fund the low-carbon infrastructure required to meet this objective;
- champion the UK's renewable energy industry by providing clarity on the support available beyond 2020 and encouraging community ownership of renewable energy;
- create the conditions for long-term, sustainable investment in offshore wind to boost the domestic supply chain and accelerate cost reductions and prioritise the development of a co-ordinated offshore grid to reduce transmission costs;
- accelerate the demonstration of carbon capture and storage in the UK in the power and heavy industry sectors;
- improve the UK's capacity market by eliminating long term contracts and prioritising demand reduction and response capacity.

3

Improve energy efficiency to increase energy security and tackle fuel poverty

- set out an ambitious plan to retrofit homes, supported by minimum standards for energy efficiency, increased carbon reduction ambition for the Energy Company Obligation (ECO) and incentives to encourage uptake of the Green Deal;
- ensure the revenues from the EU Emissions Trading Scheme and the UK carbon price floor are used to invest in a more ambitious energy efficiency programme primarily targeted at low-income households living in the worst properties and most deprived areas of the UK;
- introduce policies such as an energy efficiency feed-in tariff to incentivise cost effective electricity demand reduction;

- continue to press the EU for higher ambition on energy efficiency in standards for everyday products, such as fridges, dishwashers and washing machines.

4

Increase the uptake of low-carbon heat

- commit to continued funding of the Renewable Heat Incentive (RHI) beyond 2020;
- extend the Green Deal to pay for upfront investment in low-carbon heat. And provide information about low-carbon heat and the RHI that will build public confidence in these technologies;
- ensure the Zero Carbon standard covers all sizes of development. And that from 2019, it requires investment in low-carbon heat.

5

Facilitate the transition to a low-carbon transport system

- push for a strong 2030 target in the EU for new car emissions;
- continue to provide stimulus measures for rapid electric vehicle uptake and make the development of a national rapid charging network a priority;
- support demand management measures to reduce car kilometres, and promote 'smart choices', including walking and cycling;
- set out an integrated transport strategy that will deliver the desired modal shift of air and road transport onto the passenger and freight rail network;
- ensure the Green Investment Bank can help to finance electric vehicles in the UK;
- formally include the UK's share of international aviation and shipping emissions in the carbon budgets in 2016, and confirm that aviation emissions must return to 2005 levels by 2050.

6

Continue proportionate support to energy-intensive industries

- continue proportionate financial support to the UK's energy-intensive firms in the transition to a low-carbon economy where clear competitiveness concerns are demonstrated;
- ensure that this financial support (such as through exemptions of the costs introduced by the Contracts for Difference) is provided in a way that minimises impacts on fuel-poor households by, for instance, funding some of these measures out of taxation where appropriate;
- set out a strategy to maximise the contribution of UK-based energy-intensive industries to the supply chain for the UK's new low-carbon infrastructure.

7

Increase climate ambition in the EU and internationally

- champion a strong EU climate and energy package by continuing to call for an emissions reduction target of 50% by 2030, supporting a structural reform of the EU Emissions Trading Scheme and by providing strong support for the ambitious deployment of renewable energy and energy-efficiency infrastructure;
- work to secure an ambitious deal at the 2015 UN Framework Convention on Climate Change Summit in Paris to ensure international mechanisms are in place to prevent dangerous levels of climate change;
- work to secure ambitious UN Sustainable Development Goals in 2015 that reflect the need for urgent and ambitious action on climate change by including a goal on addressing climate change as well as mainstreaming climate action across all other relevant goals.

The impacts of climate change policies on the UK economy by 2030

100% RECYCLED

HOUSEHOLDS BETTER OFF

Real income of average household up by £565 a year

IMPROVED ENERGY SECURITY

Annual fossil fuel import costs down by £8.5bn

EMPLOYMENT UP

Transitioning to a low carbon economy suggests 190,000 net new jobs by 2030

HIGHER GDP

Meeting carbon budgets see an increased GDP, up 1.1% in 2030

WWF

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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