Building Resilient Communities
11 November 2016, 9am – 4pm Mercury Theatre, Colchester

CARBON TRUST

Global threats, local solutions

Richard Rugg
Managing Director, Programme
11th November 2016

The Carbon Trust

We are a not for profit group with the mission to accelerate the move to a sustainable, low carbon economy

- We **advise** businesses, governments and the public sector on their opportunities in a low carbon world
- We **measure** and **certify** the environmental impact of organisations, supply chains and products
- We help **develop** and **deploy low carbon technologies** and solutions, from energy efficiency to renewable power

What I'm going to cover

1. Global challenge

2. Local opportunities

International agreement on the need to both limit & adapt to temperature rises

UN Framework Convention on Climate Change aims to limit warming to 2 (or ideally 1.5) degrees over pre industrial - https://unfccc.int/2860.php

Global average temperature above pre-industrial levels thermometer
Source: Adapted from IPCC WG2 AR4.

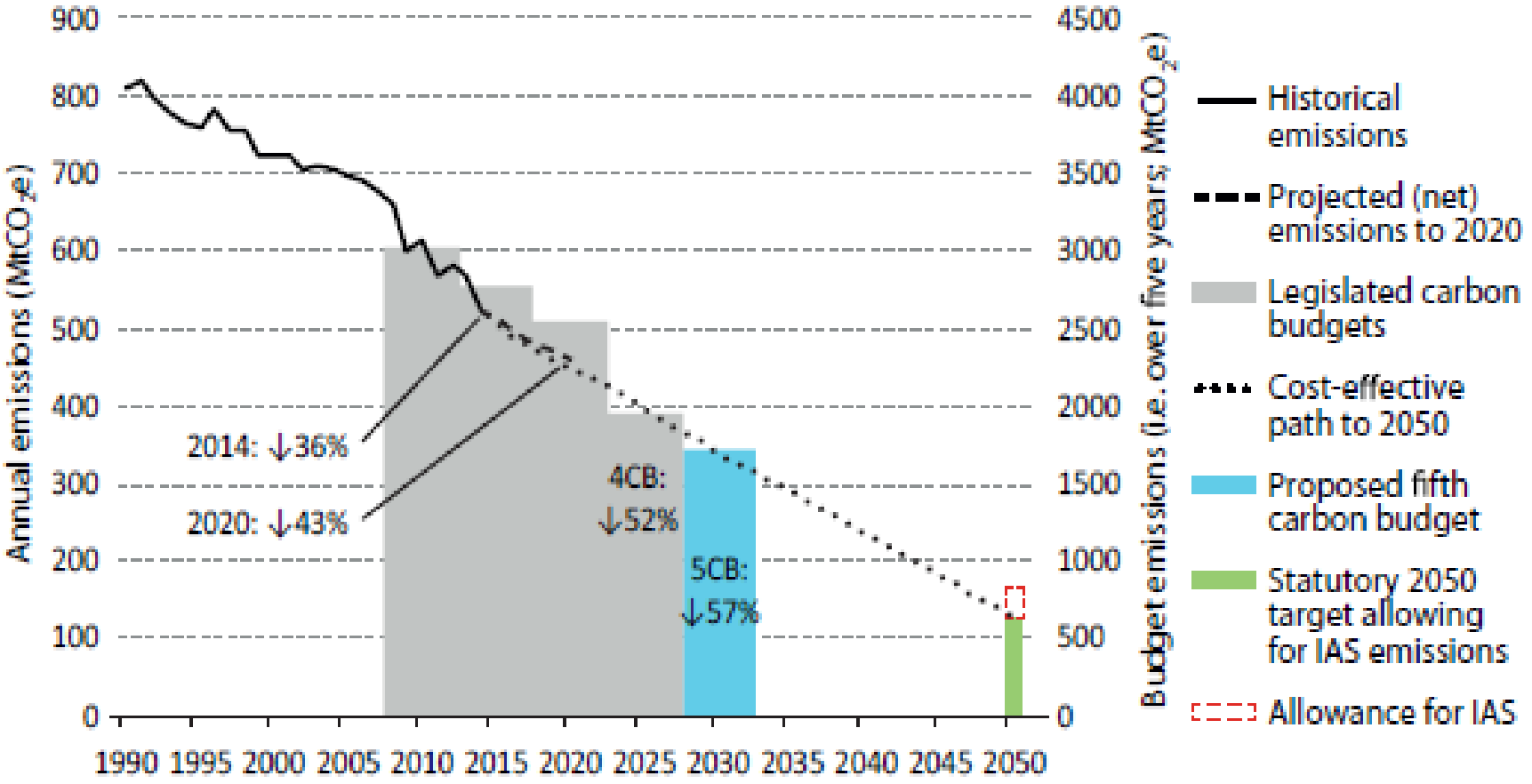
And every country has now committed to a carbon reduction target and adaptation actions

- Agreed at COP21 in Paris, 2015
- Aim to keep global temperature rise to less than 2 degrees above preindustrial
- Achieved via Nationally Determined Contributions (NDCs) – every country, including the UK, has submitted an emissions reduction target to the UN
- Each country has to report on progress every two years
- Linked to action on climate finance and adaptation measures

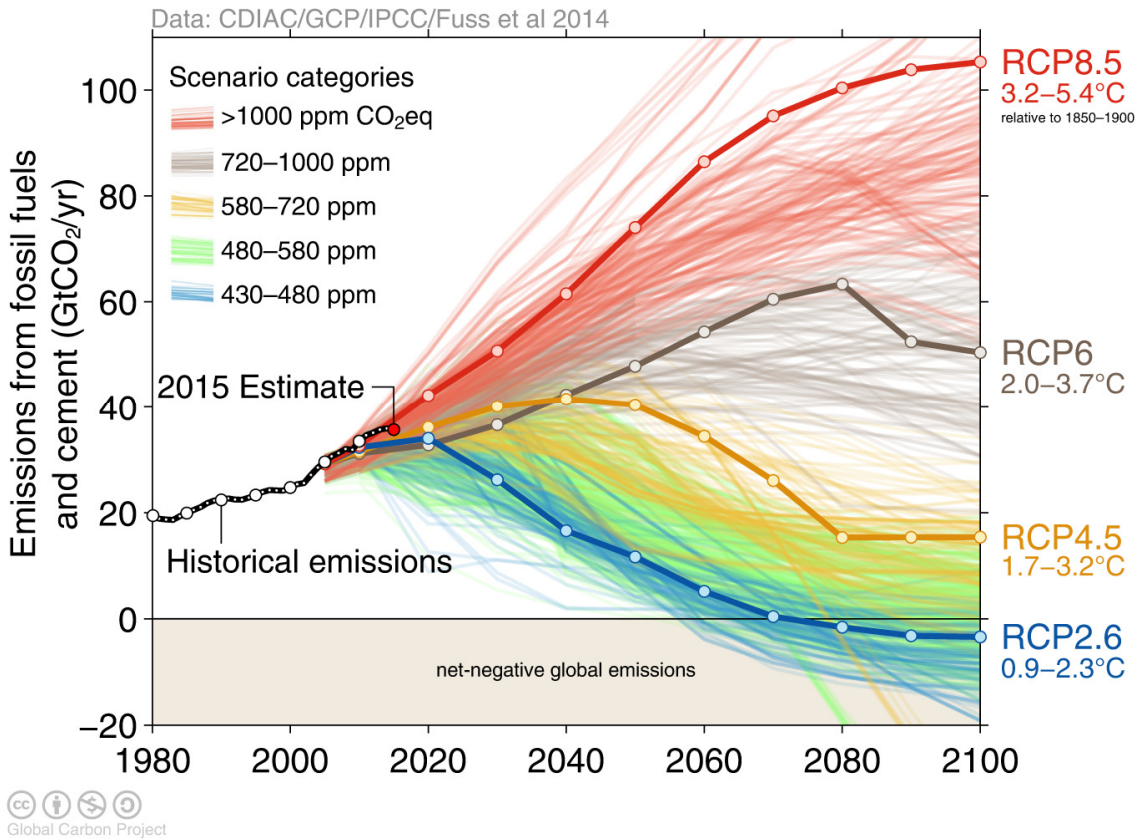
United Nations
Framework Convention on
Climate Change

UK Climate Change Act

Carbon budgets provide stepping stones to the 2050 target



And there is a gap between rhetoric and reality at the global scale



Current global emissions trajectory

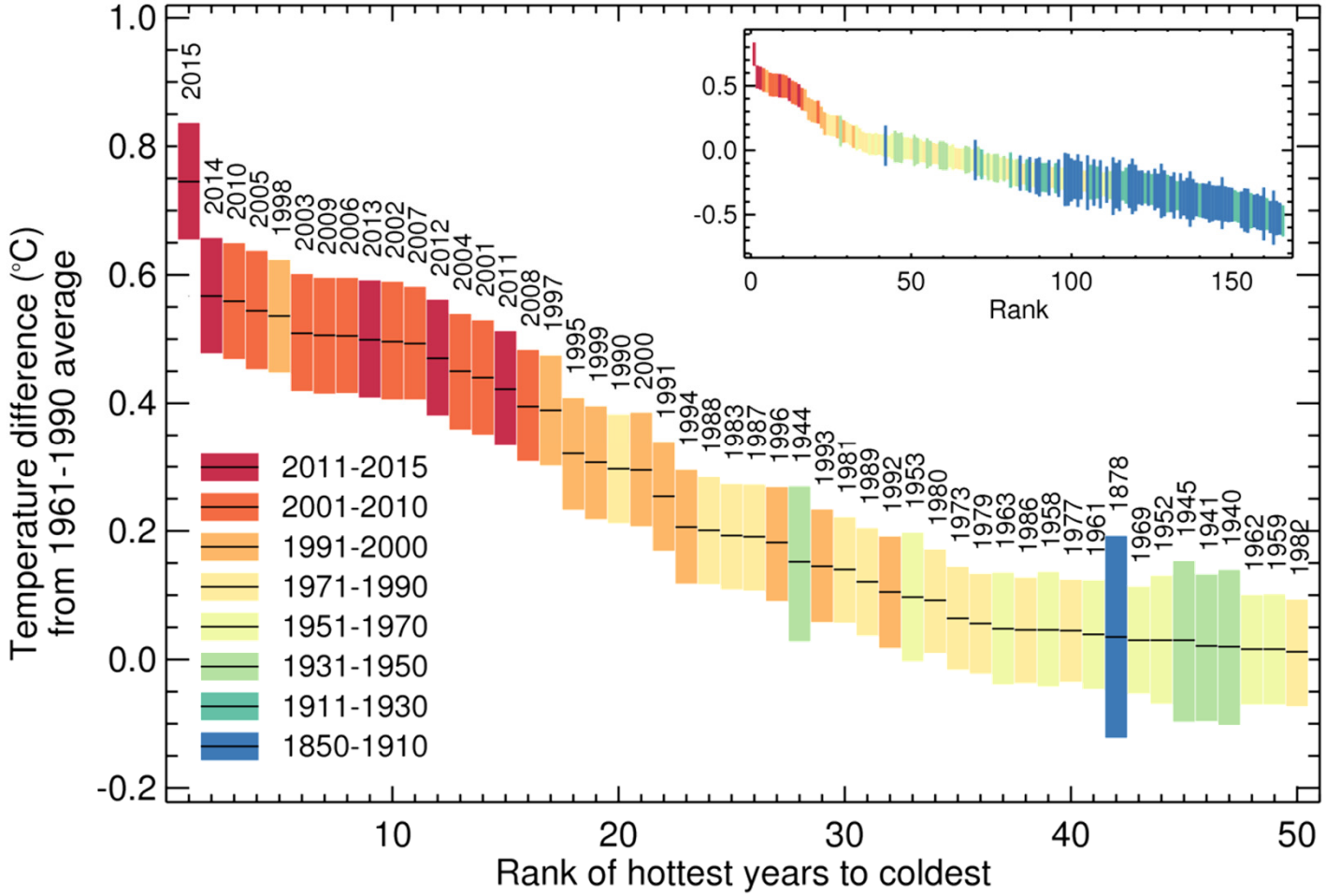
COP21 INDC commitments

1.5 to 2 degree COP21 target

Met Office
Hadley Centre

Climate change is already having an impact

Ranked global annual average temperature

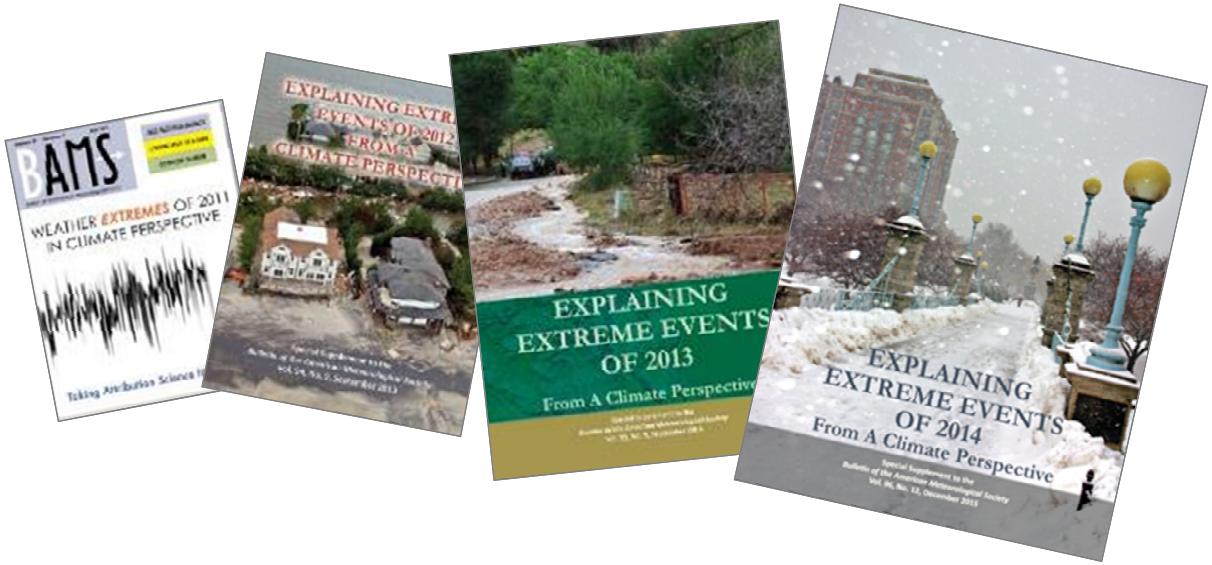


Attribution of Extreme Events:
Is Climate Change making a Contribution?

All these events display some evidence that human induced climate change was a contributing factor.

Texas drought, Summer 2011

Indian rainfall, Summer 2013



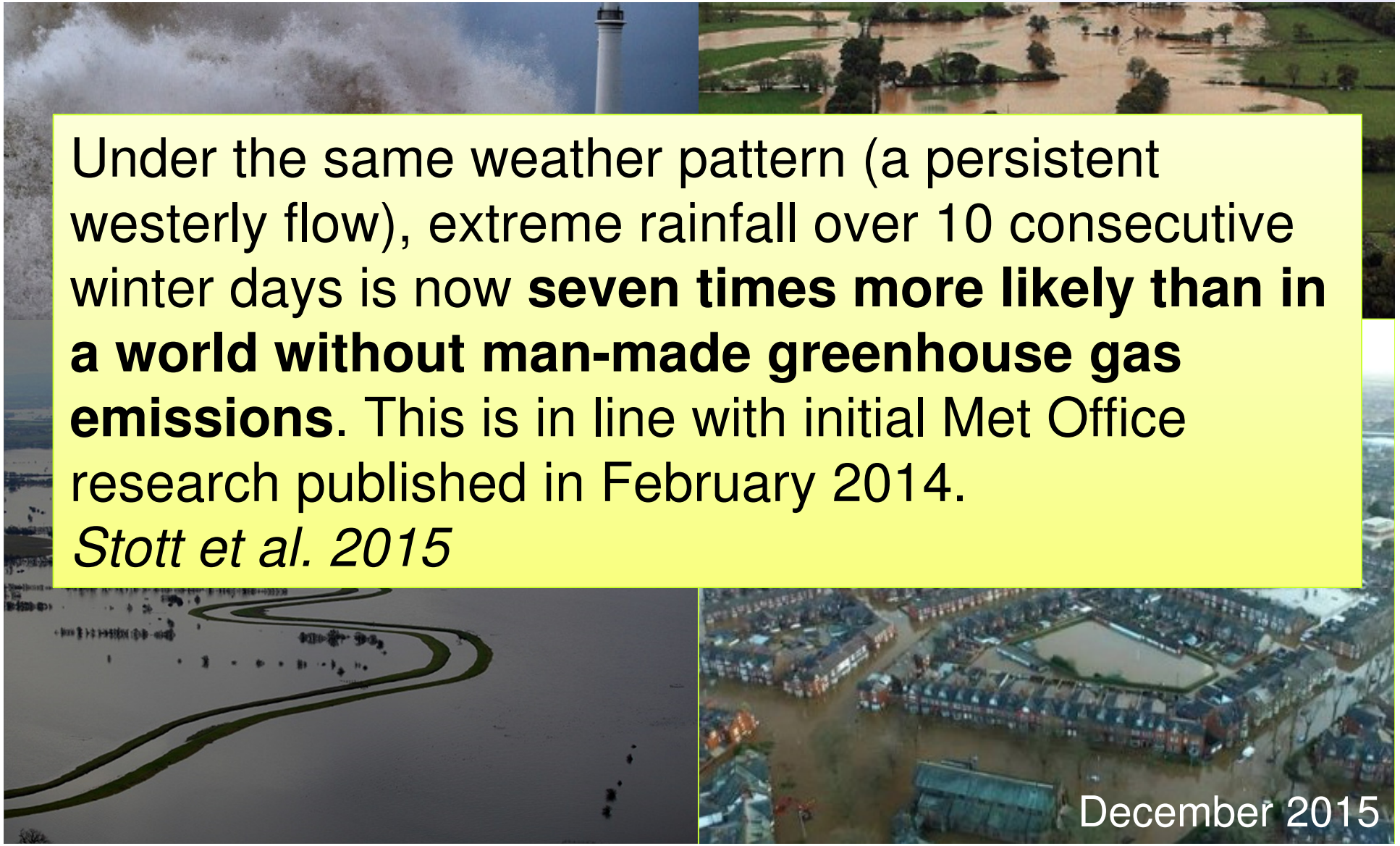
Extreme rainfall over 10 days, winter 2013/14

Inundation from hurricane Sandy, autumn 2012

New Zealand rainfall winter 2011

Iberian drought winter 2011/12

UK storms in Winter 2013/14
link to climate change?



Under the same weather pattern (a persistent westerly flow), extreme rainfall over 10 consecutive winter days is now **seven times more likely than in a world without man-made greenhouse gas emissions**. This is in line with initial Met Office research published in February 2014.
Stott et al. 2015

December 2015

Population growth & economic growth

Billions more consumers……

- UN projects world population will grow from 7.5 billion now to 8.9 billion in 2050
- OECD forecasts that the global middle class will increase by three billion people over the next 20 years
- Demand for energy, food, water and materials (such as steel) is expected to increase by 30% to 80% by 2030

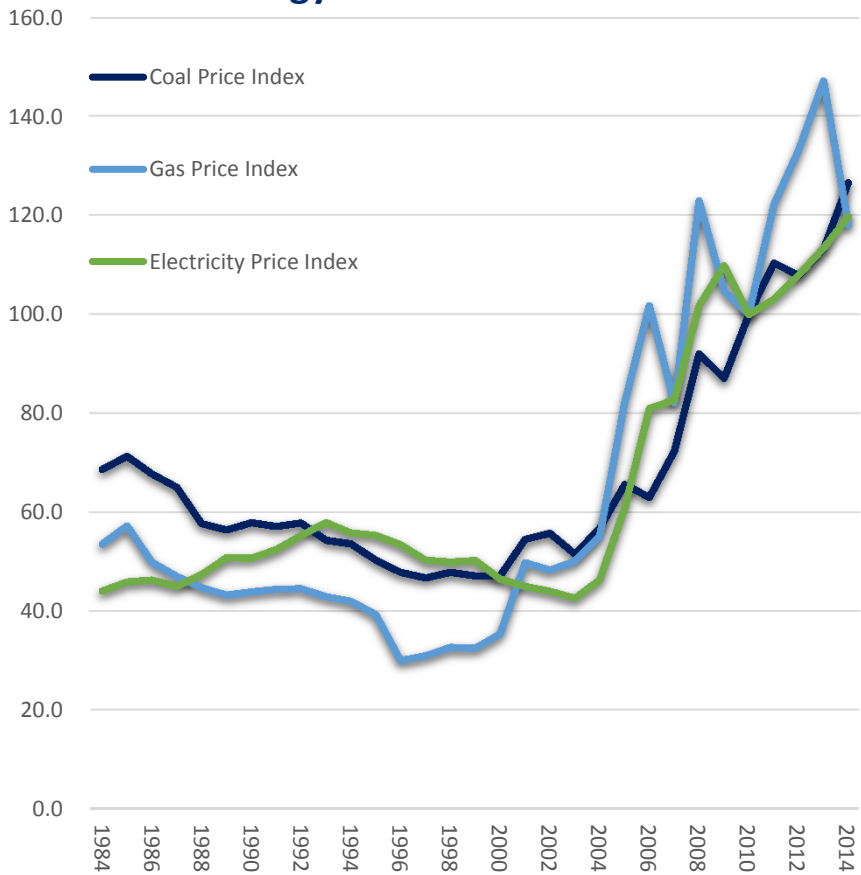
Resource efficiency gaining traction

New pressures on organisations related to energy, water, land and material resources

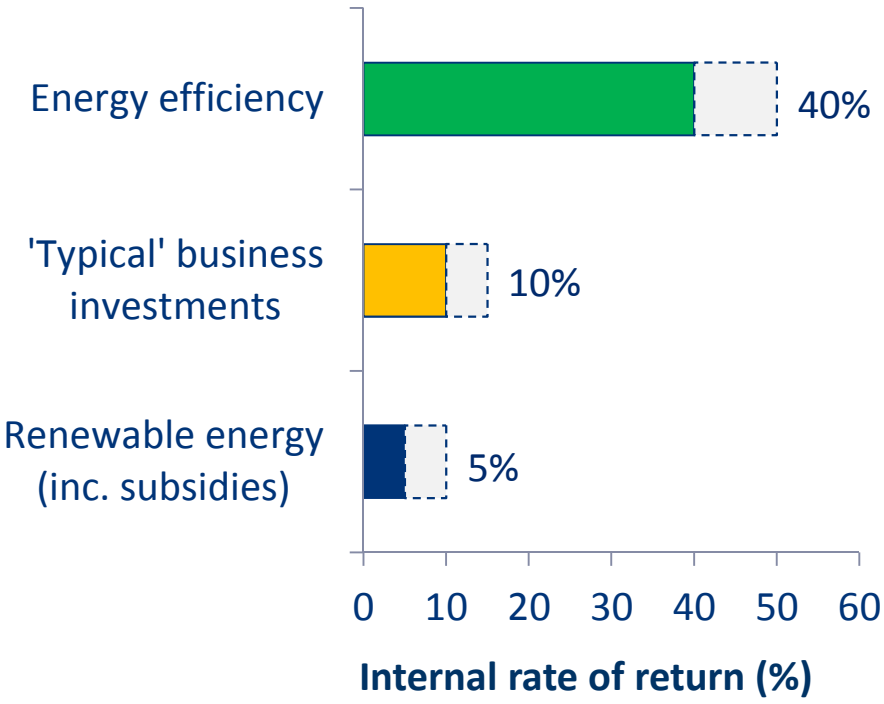
- Economic impacts driven by scarcity
  - Resource price increases
  - Increased price volatility
- Environmental impacts driven by overuse
  - Water stress
  - Land use
- Resulting in
  - Reduced security of supply
  - New regulations

Rising energy prices

With energy prices rising, energy efficiency makes even greater business sense



Source: DECC



Source: Carbon Trust analysis

What I'm going to cover

1. Global challenge

2. Local opportunities

Local opportunities

5 ways to lead the way…….

1. Getting your house in order
2. Engaging employees & suppliers
3. Pioneering major projects
4. Collaborating with partners
5. Develop your climate risk assessment

1.) Getting your house in order

Setting and exceeding carbon reduction targets

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Colchester, the place to live, learn, work, and visit.

- Colchester Borough Council developed a Carbon Management Strategy - and **exceeded** their carbon reduction target by **25%**.
- **Projects reflected the Council's roles**: managing buildings and land; providing services (incl. recycling, waste collection, park maintenance and parking).
- By the end of 2012 they had reduced CO_2 emissions by **2,444 tonnes**, 133 tonnes more than the initial commitment.
- Through increased efficiency the Council also delivered savings of **£787,700 over four years**, including reduced energy costs.

2.) Engaging employees and suppliers

Empower and behaviour change

- Bradford Teaching Hospitals are embedding low carbon behaviour throughout their organisation.
- Rolling out **Carbon Trust Empower** to inform staff and encourage them to **pledge to reduce their energy, water and waste consumption** at work.
- Their version of Empower will comprise tailored text and **virtual tours of the office, theatre, ward and outpatients** rooms.
- It will form part of all **staff's objectives** and new starter's **inductions**.

Carbon Trust Empower™

Engaging employees in resource efficiency

Taking good habits home…..

Home Room

3.) Pioneering major low carbon projects

Harnessing the potential of decentralised energy

- Bristol City Council has committed to becoming a low carbon city and home for green industries.
- In June 2013 Bristol was named as **European Green Capital 2015.**
- Has reduced its carbon footprint by 28%; now aims to **reduce total city emissions by 40% by 2020**.
- As part of this they have obtained EU ELENA funding to progress ambitious **district energy projects**.
- We're supporting them in developing four district energy schemes around the city to deliver:
  - carbon reduction
  - reduced energy costs
  - greater energy security.

4.) Collaborating with public sector partners

Supporting carbon reduction across the schools estate

- **Simple measures first**; traffic light labelling system for light switches and electrical equipment.
- **Space and water heating** including measuring temperatures of rooms, heating controls, draught-proofing and insulating boiler rooms.
- Advice on making better use of energy information, such as **half hourly data from smart meters**.
- Support to investigate ‘invest to save’ measures such as **LED lighting** and renewable energy options.
- **Potential savings calculated by practical tools** and fed back to energy teams, helping them build the business case for further investment in schools.

£6,000 per year energy savings for primary school Ysgol Bryn Onnen

Leveraging planning policy

Influencing developers with low carbon planning policies

- Warwick District Council are setting clear targets to developers for low carbon in new builds.
- **Ambitious target of 10% energy from onsite renewables** for any new developments (incl. domestic).
- Developing a supportive & collaborative approach to **working with the developer community.**
- Sharing expertise as to how targets can be met through the Low Carbon Planning Toolkit.

5.) Measure & adapt to climate change risks

Prepare for a changing climate

- Level of activity taken to adapt to the impacts of climate change is very low in the UK
- It is essential that we revisit the appropriateness of **current investment** into adaptation
- How climate change will affect your organisation's ability to deliver its **core services**
- **Climate risk assessments** needed & related adaptation plans

Future variability in UK climate

Sexton and Harris, 2015

Met Office Hadley Centre

Hotter, drier summers, but...

35% chance of wet summer until 2040s

Chances of a *very* wet summer 18% in 2020 and still 10% in 2100

Chances of a very hot summer 90% by 2100

Warmer, wetter winters, but...

Chances of a cold winter are 20% by 2020 and 4% by 2100

Chance of *very* cold winter 2009/10 was 6% but drops to below 1% by 2100

Hotter, drier summers / warmer, wetter winters on average

But envelope expands

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Our mission is to accelerate the move to a sustainable, low carbon economy

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