Perceptions of energy security across Europe

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The concept of energy security

- Multifaceted, multi-scalar
- Key: ‘access’ (to energy)

“the uninterrupted availability of energy sources at an affordable price” (IEA)

Reliability

Affordability

Public perceptions

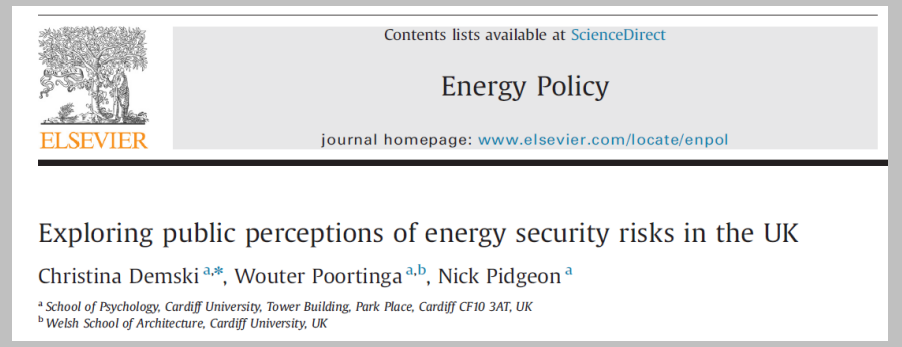
- Not been studied extensively and not theoretically informed

Key findings

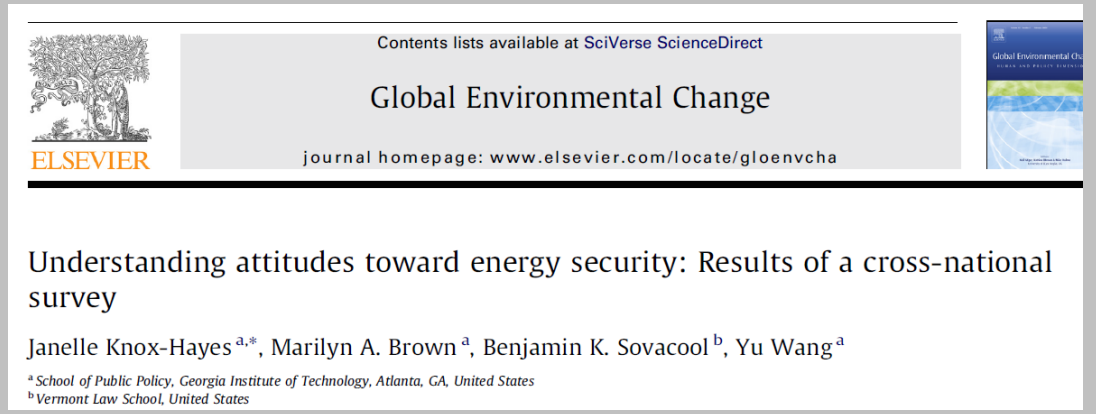
- High concern for import and fossil fuel dependence, and affordability
- Lower concern for actual disruptions/reliability
- Unfamiliar concept!

Country comparisons

- Policy priorities in different countries
- Import reliance & fossil fuel dependency as important national context?



Corner et al. (2011) - UK
DeCicco et al. (2015) – US
Jones et al. (2017) – Greece & Turkey



Also see Sovacool (2012, 2016); Sovacool & Tambo (2016)

European Social Survey Round 8

- Specific module led by Prof Wouter Poortinga
- Fielded in 2016/2017 in 22 European countries + Israel
- High-quality face-to-face interviews
- Probability samples
- Major efforts on response rates

Measuring energy security concerns

Meaningful measures to account for:

- ‘Energy security’ concept has low familiarity
- People unlikely to have extensive technical knowledge about risks and operations of energy systems

Risk perceptions – theoretical background

- Driven by affective responses to a threat
- Not statistical calculations of risks (e.g. likelihood)

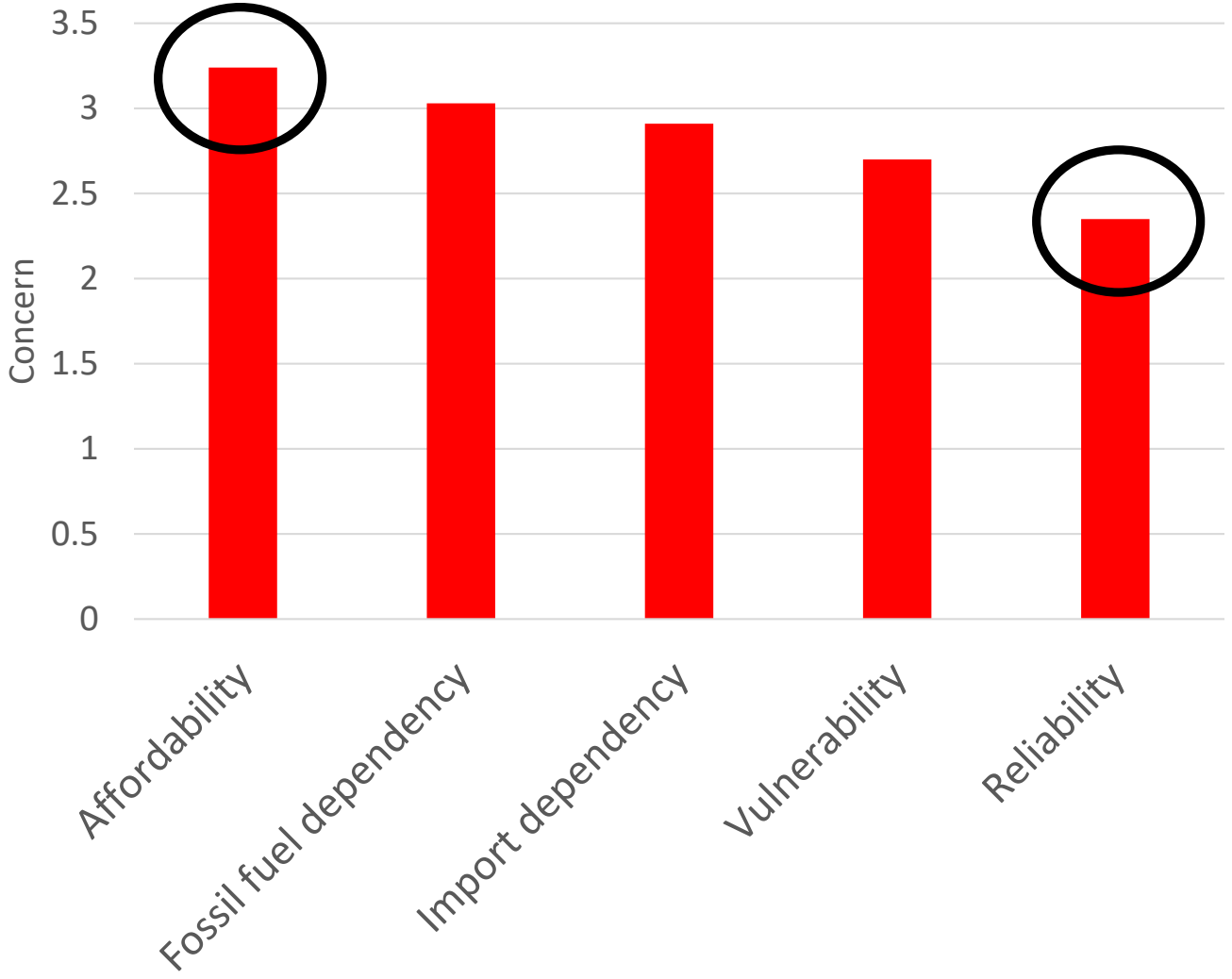
- -> Concern operationalised as ‘worry’

Measuring energy security concerns

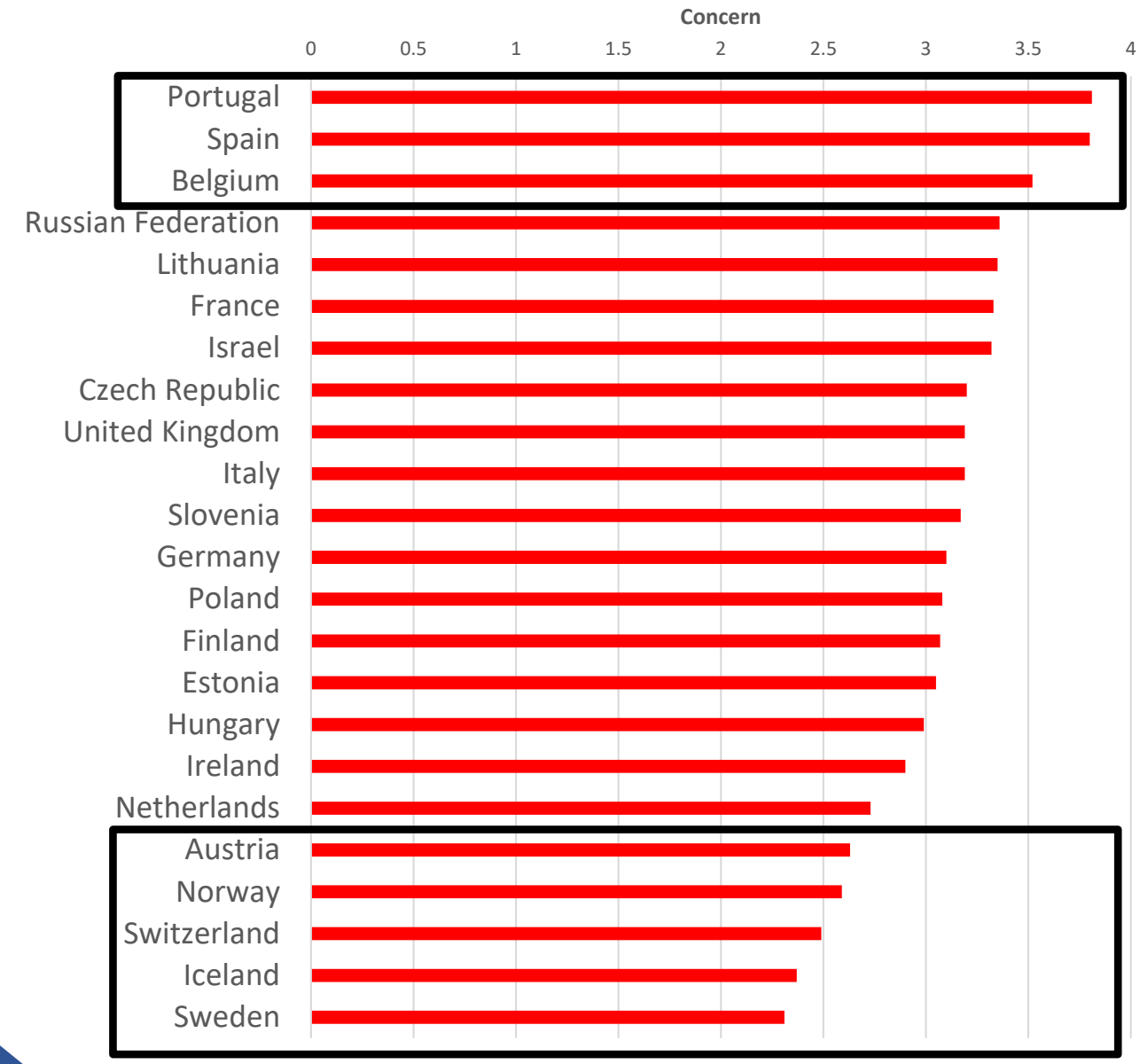
How worried are you …

- …that there may be power cuts in [country]? Reliability
- …that energy may be too expensive for many people in [country]? Affordability
- …that energy supplies could be interrupted (a) by natural disasters, (b) by insufficient power being generated (c) by technical failures, and (d) by terrorist attacks? Vulnerability
- …about [country] being too dependent on energy imports from other countries? Energy import dependency
- …about [country] being too dependent on energy generated by fossil fuels such as oil, gas and coal? Fossil fuel dependency

Energy security concerns

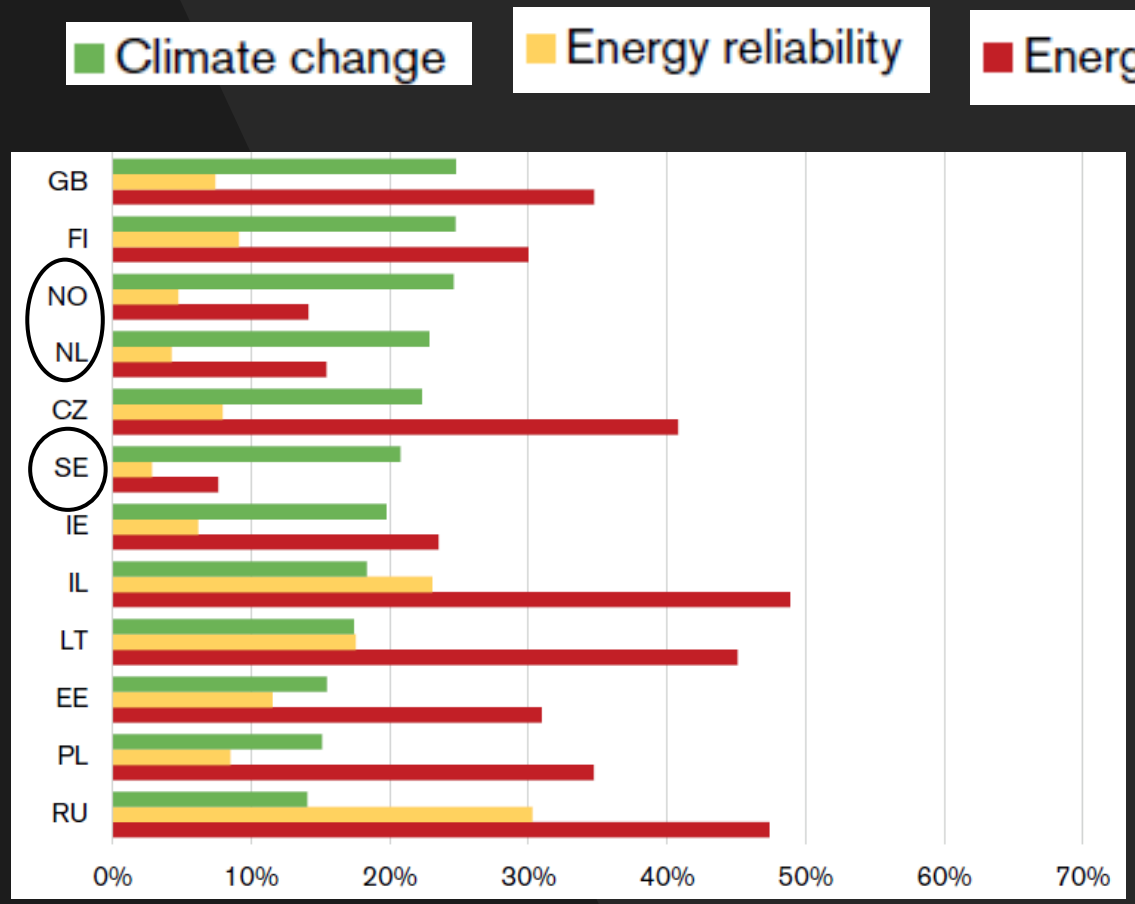


Affordability

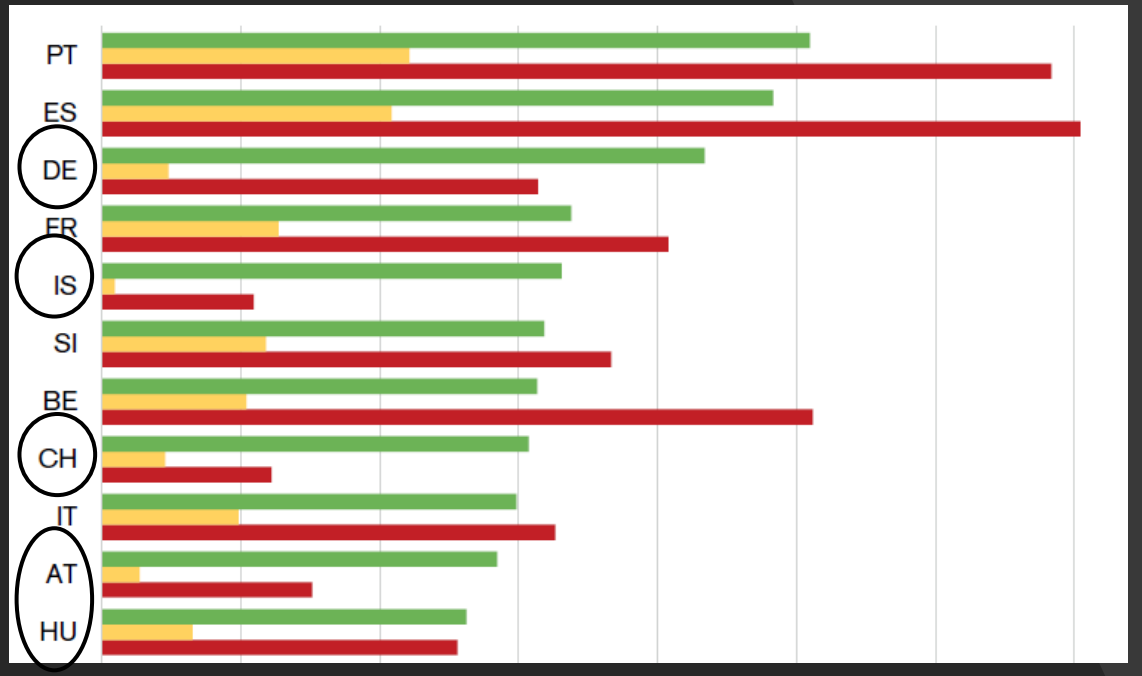


Reliability

Climate Change and Energy Security



% very/extremely worried



National context and concerns about energy security

- ESS perception data & PAWCER national indicators

European Social Survey

ERA.Net RUS Plus

nature energy

ARTICLES

https://doi.org/10.1038/s41560-018-0235-8

National context is a key determinant of energy security concerns across Europe

Christina Demski[1*], Wouter Poortinga[1,2], Lorraine Whitmarsh[1], Gisela Böhm[3,4], Stephen Fisher[5], Linda Steg[6], Resul Umit[7], Pekka Jokinen[8] and Pasi Pohjolainen[8]

Background & Method

What informs people's concerns about energy security? What heightens or attenuates concerns?

What role does national context play?

- Individual differences e.g. socio-demographics
- National contexts

<u>Multi-level modelling</u>

- Enables distinction between variance at individual and country level
- N=44,387 individuals (level 1), n=23 countries (level 2)
- Level 1 = age, gender, education and income
- Understanding cross-country differences beyond individual socio-demographic make up of populations

National contextual indicators

Energy

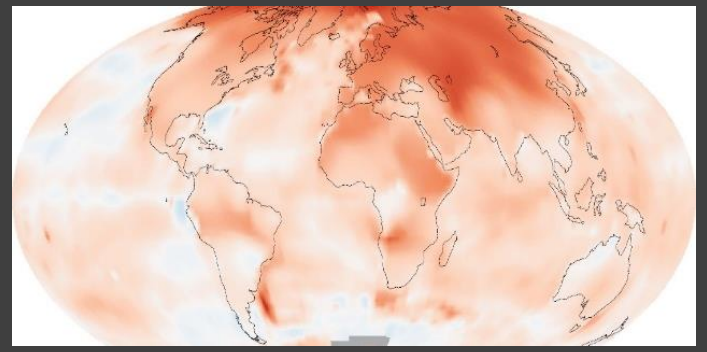
Household electricity prices (USD/MWh)

Net energy imports (% of energy use)

Fossil fuel consumption (%)

Per capita electric power consumption

Climate change/Low-carbon transition



CO2 emissions (metric tonnes per capita)

Climate and energy wellbeing index (energy use, energy savings, greenhouse gases, renewable energy)

Economic and human wellbeing

Per capita GDP

Human wellbeing index (basic human needs, personal development and health, well-balanced society)

National context - energy

National indicator	Relationship with energy security concern dimension

National context - energy

National indicator	Relationship with energy security concern dimension
Electricity prices	Affordability (+) Reliability (+) Vulnerability (+) Import dependency (+)

National context - energy

National indicator	Relationship with energy security concern dimension
Electricity prices	Affordability (+) Reliability (+) Vulnerability (+) Import dependency (+)
Net energy imports	Import dependency (+) Affordability (+) Fossil fuel dependency (+)

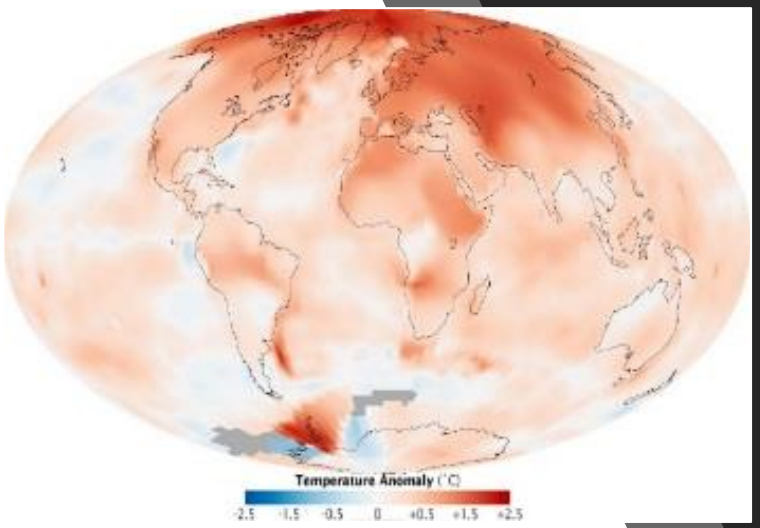
National context - energy

National indicator	Relationship with energy security concern dimension
Electricity prices	Affordability (+) Reliability (+) Vulnerability (+) Import dependency (+)
Net energy imports	Import dependency (+) Affordability (+) Fossil fuel dependency (+)
Fossil fuel energy consumption	Reliability (+) Vulnerability (+) Affordability (+)

National context - energy

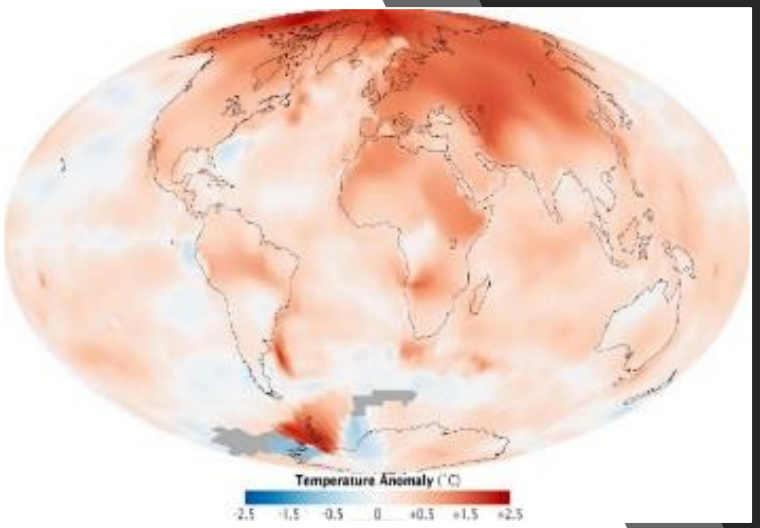
National indicator	Relationship with energy security concern dimension
Electricity prices	Affordability (+) Reliability (+) Vulnerability (+) Import dependency (+)
Net energy imports	Import dependency (+) Affordability (+) Fossil fuel dependency (+)
Fossil fuel energy consumption	Reliability (+) Vulnerability (+) Affordability (+)
Electric power consumption	Reliability (-) Vulnerability (-) Affordability (-) Import dependency (-) Fossil fuel dependency (-)

National context – climate change



National indicator	Relationship with energy security concern dimension

National context – climate change



National indicator	Relationship with energy security concern dimension
Carbon emissions	Reliability (+)
Climate and energy wellbeing index	No relationships found

National context - wellbeing

National indicator	Relationship with energy security concern dimension

National context - wellbeing

National indicator	Relationship with energy security concern dimension
Per capita GDP	Reliability (-) Vulnerability (-) Affordability (-)

National context - wellbeing

National indicator	Relationship with energy security concern dimension
Per capita GDP	Reliability (-) Vulnerability (-) Affordability (-)
Human wellbeing index	Reliability (-) Vulnerability (-) Affordability (-)

National context - wellbeing

National indicator	Relationship with energy security concern dimension
Per capita GDP	Reliability (-) Vulnerability (-) Affordability (-)
Human wellbeing index	Reliability (-) Vulnerability (-) Affordability (-)
Electric power consumption	Reliability (-) Vulnerability (-) Affordability (-) Import dependency (-) Fossil fuel dependency (-)

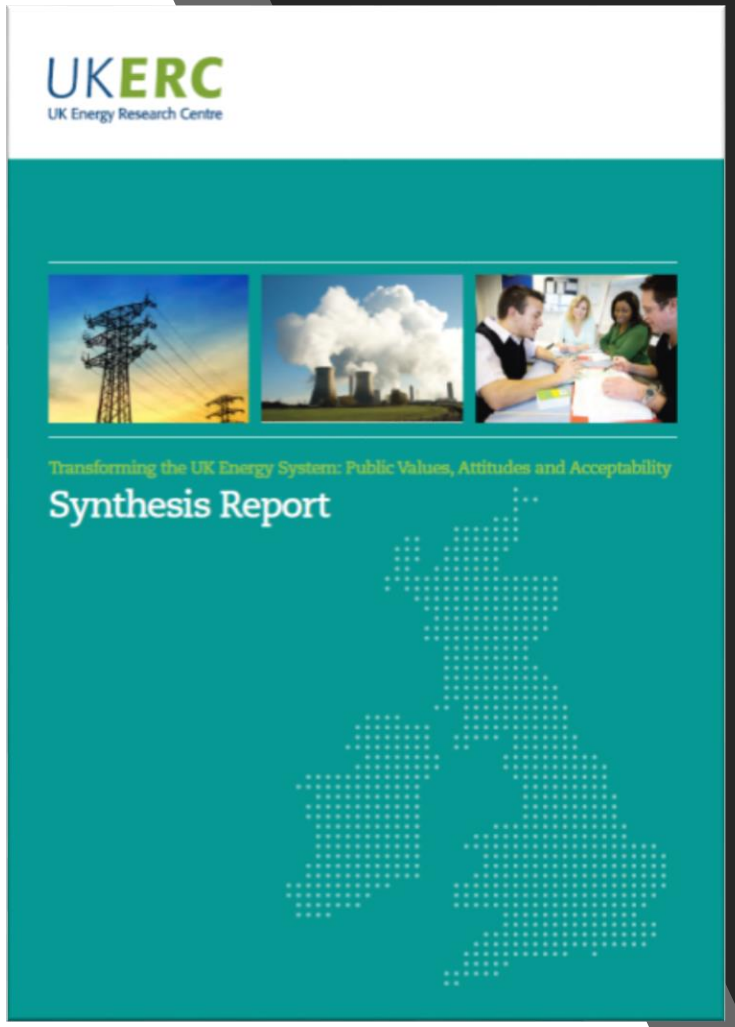
Public energy security concerns - Summary

- People’s concerns reflect the energy context of their country
- Effectively managing prices, imports and fossil fuel dependency will help attenuate people's concerns.

- Concerns around affordability high, reliability low.
- Moving towards a low-carbon energy system presents opportunities and pitfalls…
- People in countries with higher economic and human wellbeing felt more secure (energy reliability, affordability, vulnerability).

- Considerations and interconnection with policy areas beyond energy important (e.g. Butler et al., 2018)

Public acceptance of energy transitions



Demski, C.et al. 2015. Public values for energy system change. *Global Environmental Change* 34, pp. 59-69

Public perspectives on energy futures – technologies, ways of living, governance…

Values that underpin preferences and views – guiding principles inform how people evaluate new technologies, ideas, policies, changes.

Interconnected value clusters:

- **SECURE & STABLE**: affordability, reliability, safety
- AUTONOMY & POWER: control, autonomy, choice
- ENVIRONMENT & NATURE
- EFFICIENT & NOT WASTEFUL
- PROCESS & CHANGE: improvement, quality, long-term
- **JUST & FAIR**: social justice, fairness

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Need for urgent social change

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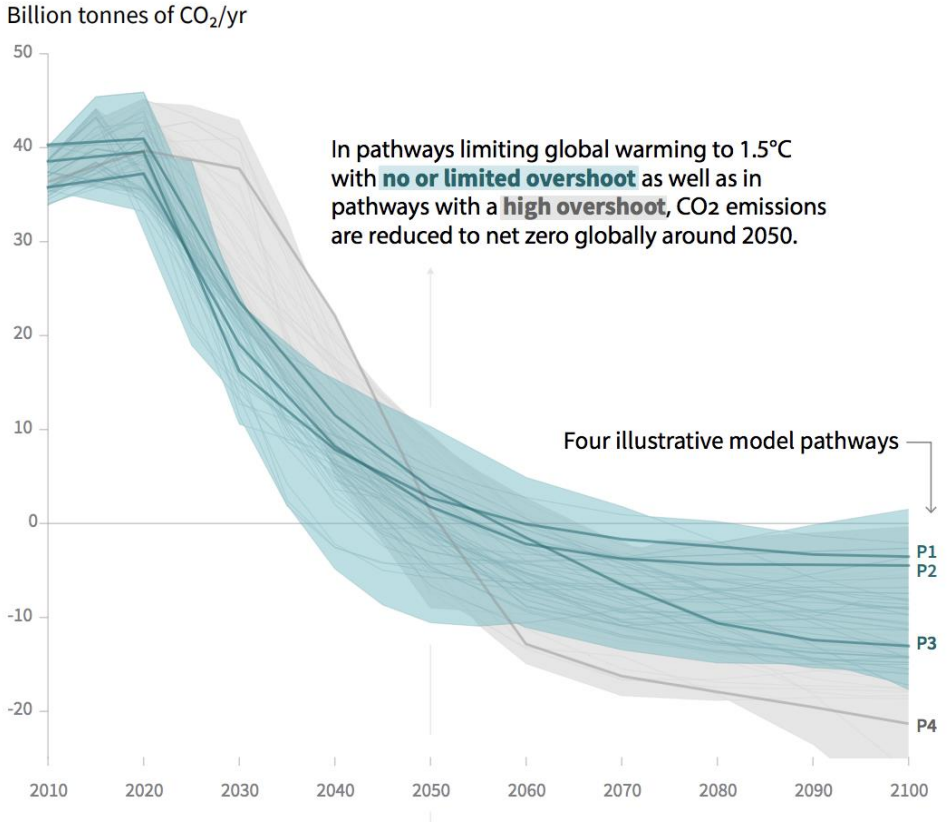
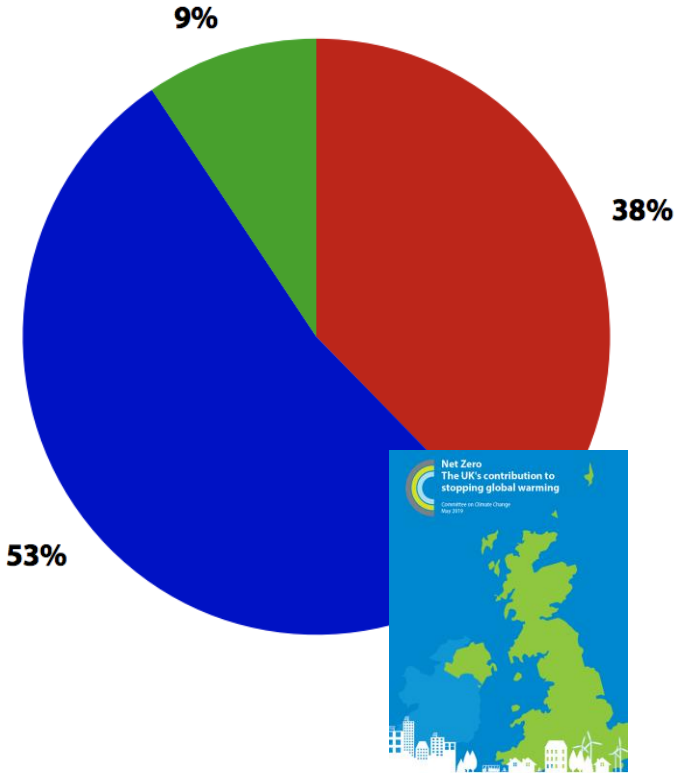




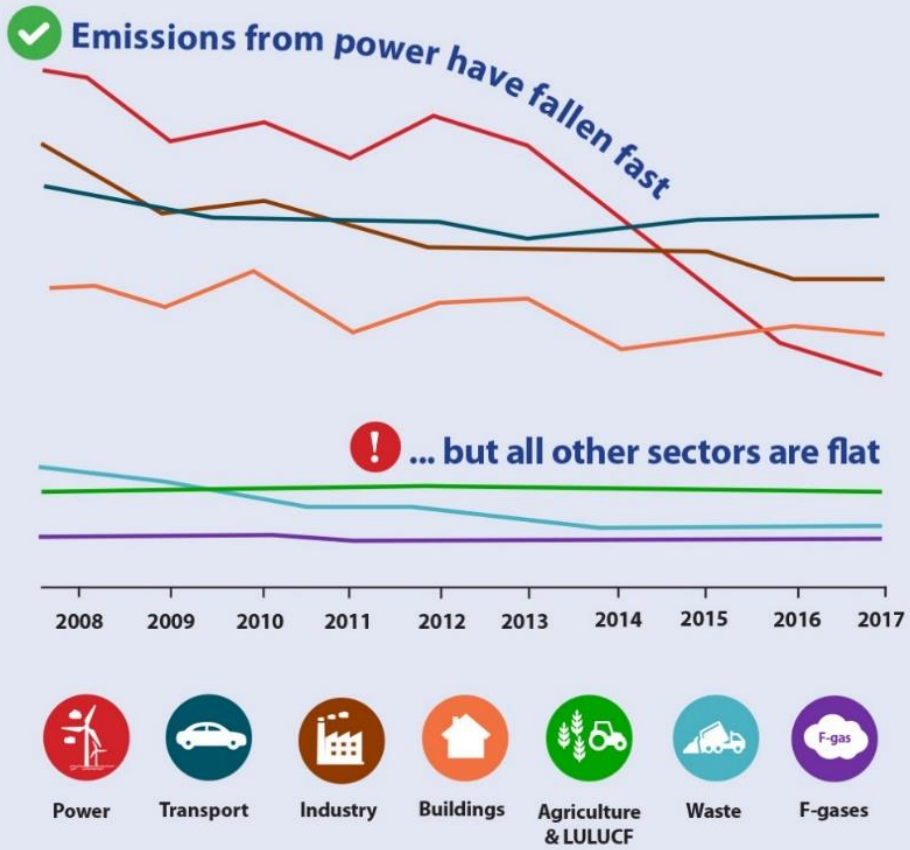
- Low-carbon technologies or fuels not societal / behavioural changes
- Measures with a combination of low-carbon technologies and societal / behavioural changes
- Largely societal or behavioural changes

- Climate change is urgent issue (IPCC, 2018)
- Social and behavioural change is **essential** and a ***large*** component of mitigating climate change (CCC, 2019)

Committee on Climate Change

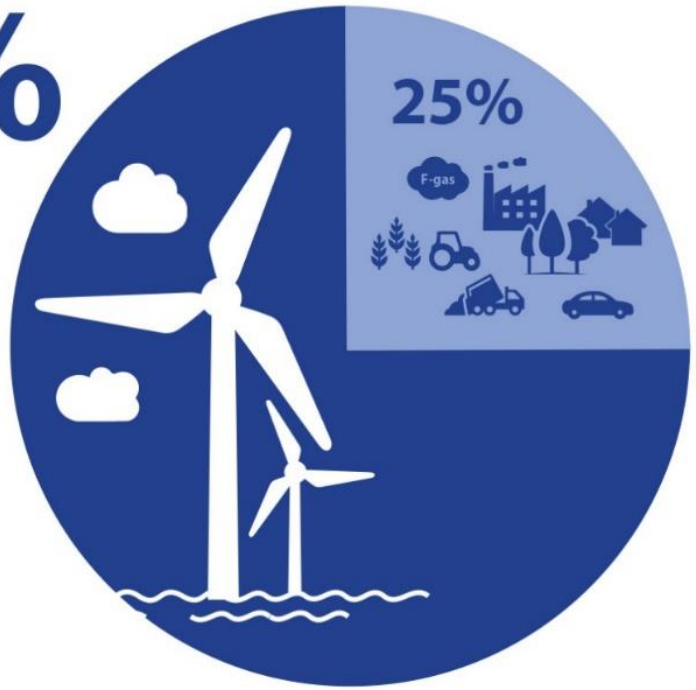
Excellent progress in reducing emissions from electricity generation masks failure in other sectors

The UK's greenhouse gas emissions have reduced by 43% compared to 1990 levels, on the way to a target of at least an 80% reduction by 2050.

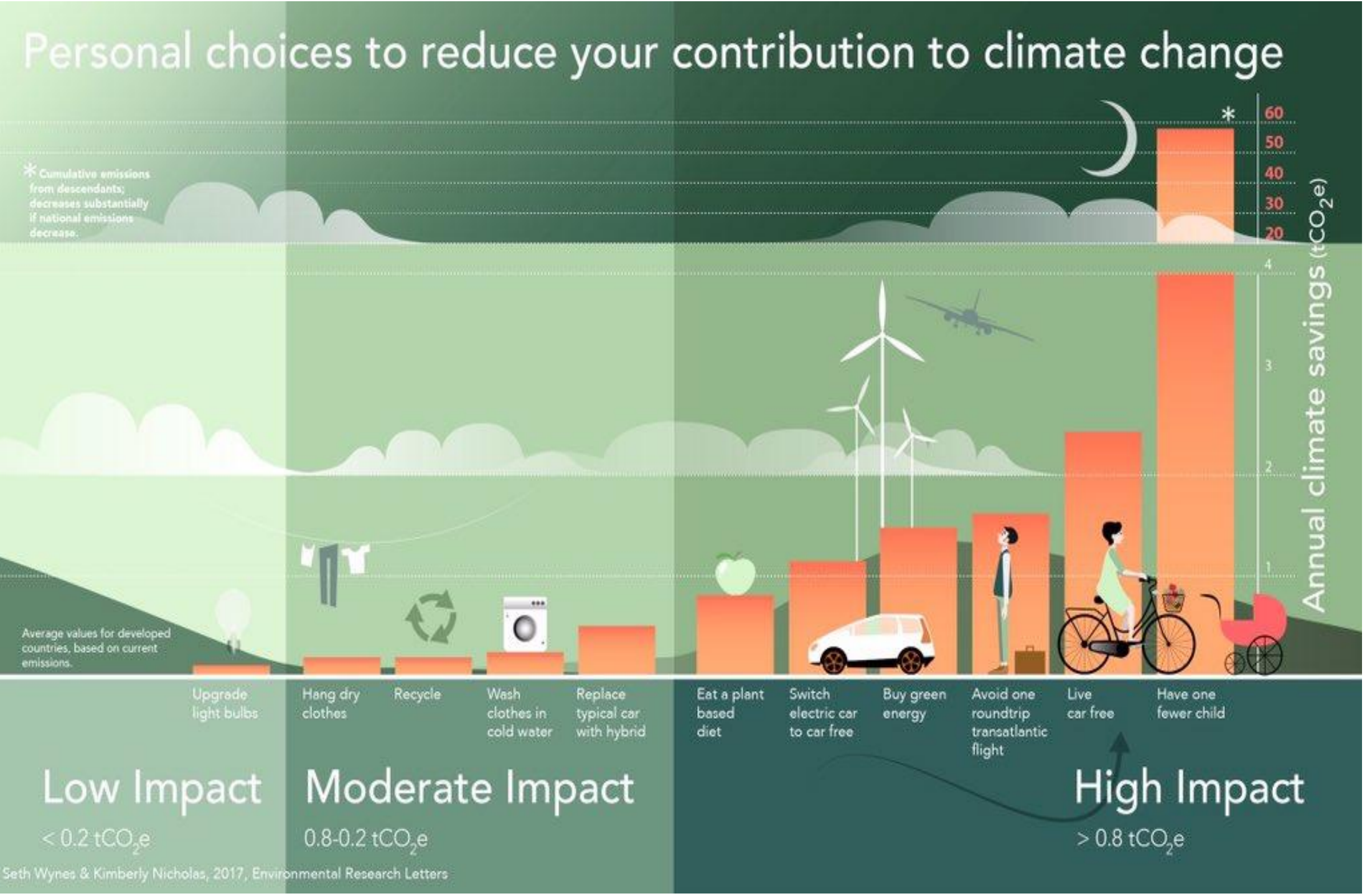


75%

of emissions reductions since 2012 have come from the power sector



Clear goals, ambitious strategy and well-designed policies have been effective. These lessons must now be applied to other sectors



Wynes & Nicholas, 2017

Citizen engagement vital for radical change… also builds political mandate

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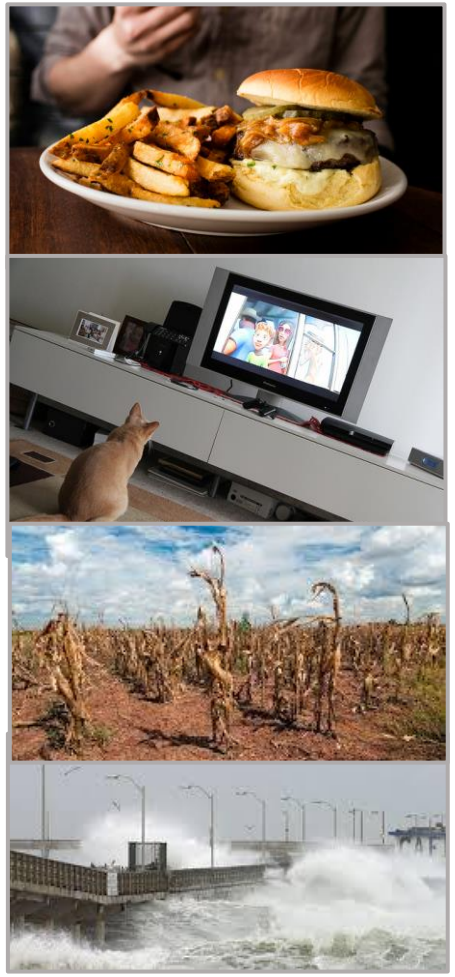

1.5° future?

4° future?

Demski et al., 2015; Willis, 2018

Urgency and emergency

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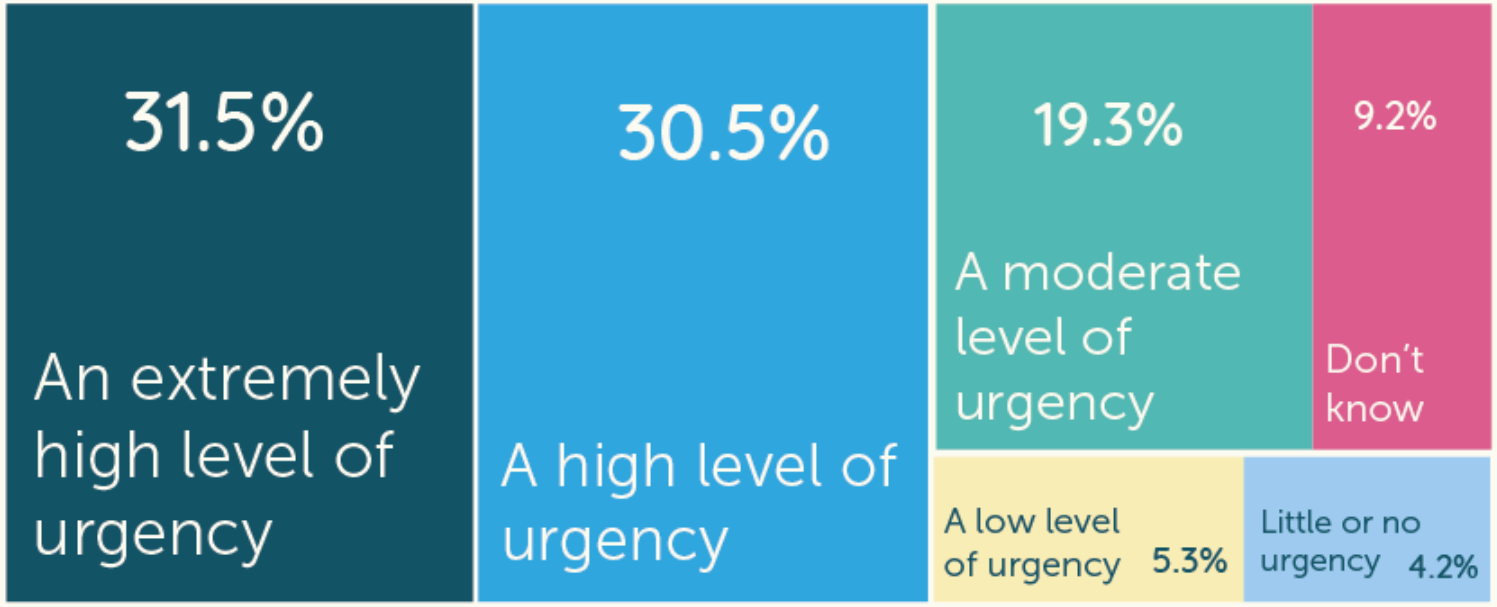
"Which of these best describes your views about the way in which climate change needs to be addressed?"

Addressing climate change requires...



Urgency and emergency

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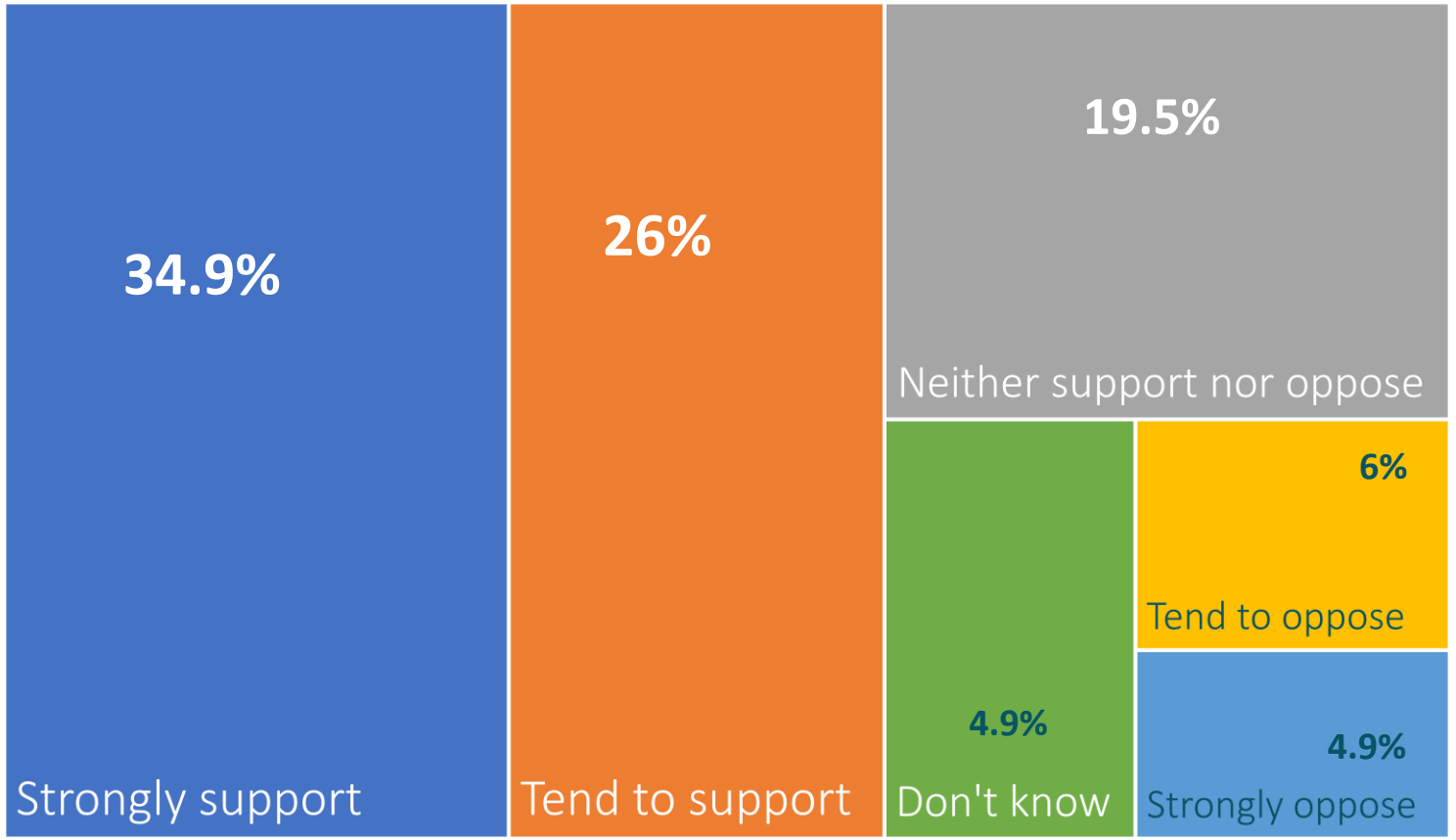
The UK Parliament, as well as some cities and organisations, have recently declared a state of 'climate emergency', a motion that recognises the need to take urgent steps to tackle climate change.

To what extent do you support or oppose the UK Government declaring a 'climate emergency'?



Change in concern

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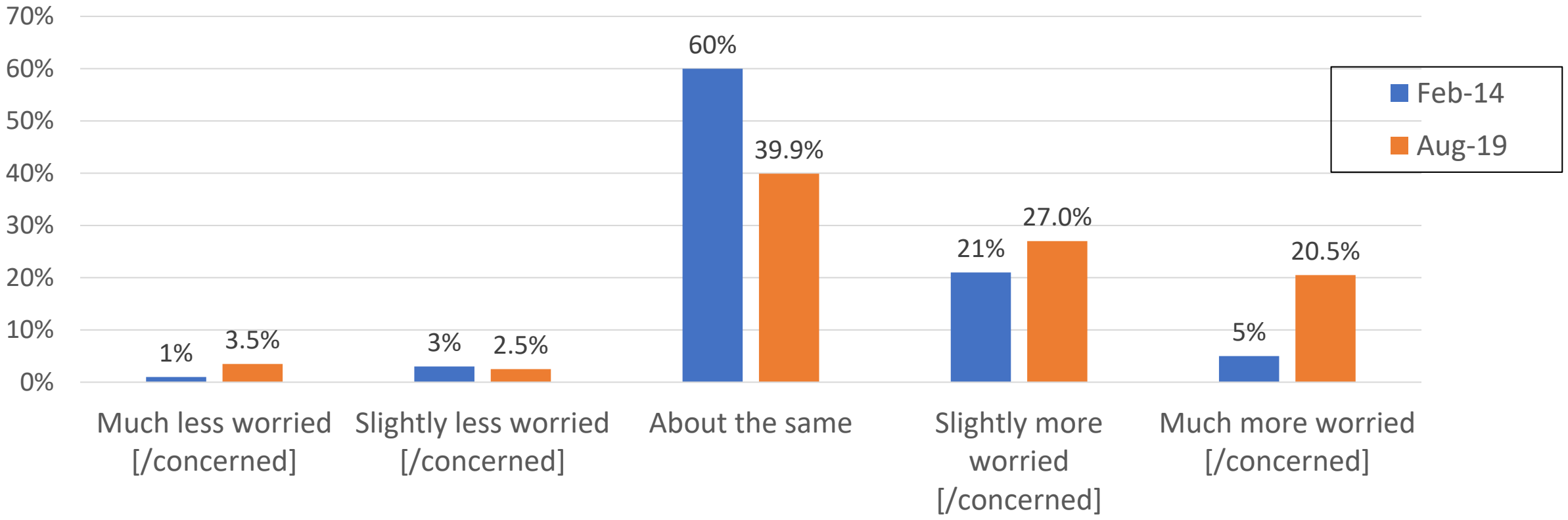
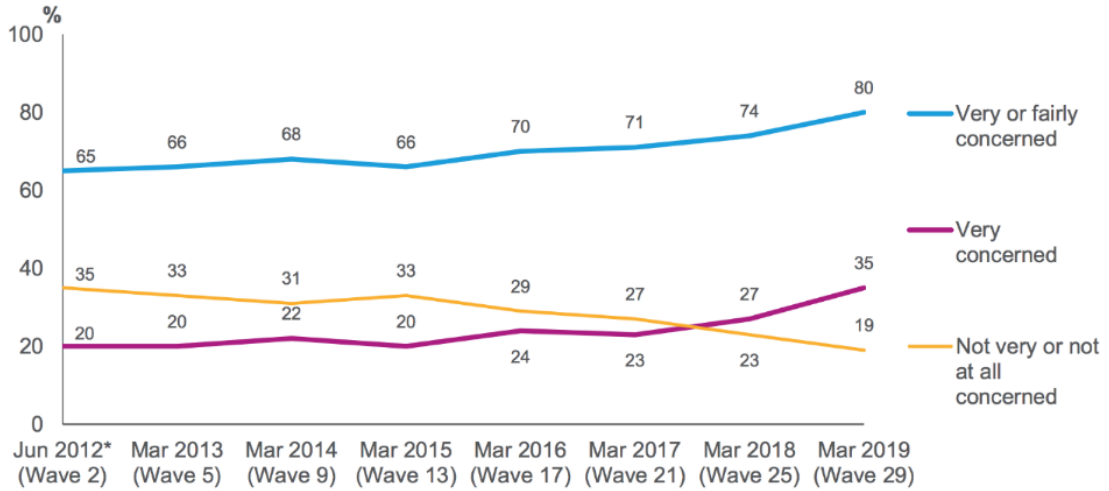
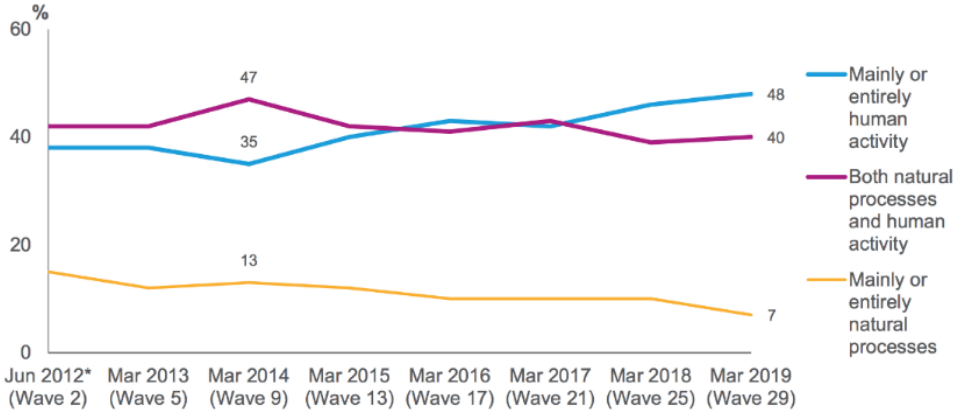
Generally speaking, would you say that you have become more or less worried about climate change over the past 12 months, or have your views remained about the same?



Rising public concern…





BEIS, 2019

… but limited behaviour change

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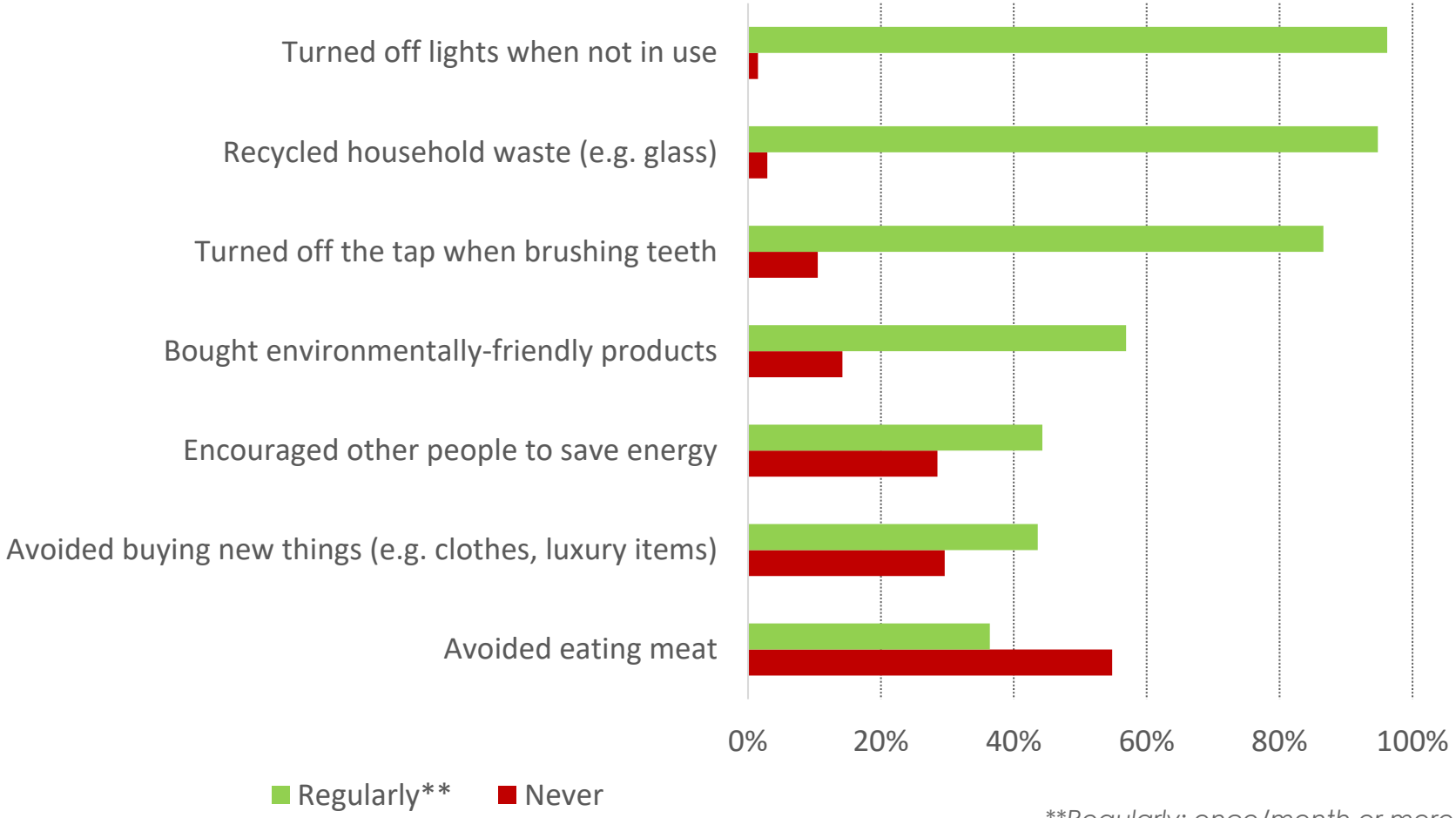
In the past 12 months, have you…?



***Regularly: once/month or more*

Whitmarsh et al., 2017

Centre for Climate Change & Social Transformations (CAST)

Centre for Climate Change and Social Transformations

- £5m ESRC funding for yrs 1-5 (+ significant institutional commitment
- May 2019 start
- Director: Prof. Lorraine Whitmarsh

University of East Anglia

The University of Manchester

Climate Outreach

University of York

Cardiff University

Prifysgol Caerdydd

CUSP

Yale Program on Climate Change Communication

Committee on Climate Change

European Environment Agency

GMCA Greater Manchester Combined Authority

GIG Cymru NHS Wales

IKEA

University of Gothenburg

中国气候传播项目中心 China Center for Climate Change Communication

Department for Business, Energy & Industrial Strategy

Llywodraeth Cymru Welsh Government

The Scottish Government Riaghaltas na h-Alba

Cardiff Caerdydd

Save every drop Anglian Water

ipbes Science and Policy for People and Nature

UEPB Universidade Estadual da Paraíba

King's College London

ipcc Intergovernmental Panel on climate change

House of Commons

10:10 Climate Action

GREENER UK

Wates

wrap

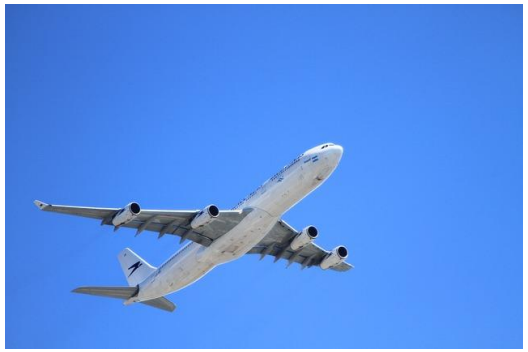
surple

Aim & focus

How can we as a society live differently *and better* to achieve systemic, deep and rapid emission reductions?

To achieve a step change in understanding how to transform lifestyles and systems of governance for sustainable, very low-carbon futures.

Food & Diet



Mobility

Heating & cooling

Material consumption

CAST: People as agents of change

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- Social/behavioural change is not just about citizen/consumer action
- Individual and collective action across a **range of contexts and roles**
- **Co-benefits** to motivate change

Our expectations…

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- Technology + lifestyle change – both required
- No silver bullets, but some underlying principles:
  - People can exert influence through variety of roles (e.g. citizen, consumer, community member)
  - Low-carbon futures must address core principles and values (e.g. fairness, wellbeing)
  - Co-benefits can mobilise people and policy
  - Multiple intervention points needed, from household to national level
  - Timing is critical: habit disruption, policy windows, infrastructure change
  - This will not be easy: no more ‘simple and painless’!

Theme 1. Visioning

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What could low-carbon transformed futures look like?

- Public & SH visions
- Comparing visions
- Scenarios & modelling
- Tracking discourse change
- Media representations

- International comparative component!

Theme 2. Learning

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How and why have transformations occurred?

- Government-led
- Society-led
- Moments of change

Theme 3. Trialling

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How can we accelerate transformations?

- Individual
- Household
- Organisations
- City-level
- Government-led

Theme 4. Engaging

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How can transformation be embedded within society?

- Novel communications
- Decarbonising research
- Upscaling + engaging
- Synthesis + learning

www.cast.ac.uk