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AIR QUALITY MANAGEMENT aqm RESOURCE CENTRE, BRISTOL

Applying nexus thinking to investigate the water-energy implications of two low carbon (nexus) futures for the City of Bristol

Dr Enda Hayes

University of the West of England, Bristol

enda.hayes@uwe.ac.uk

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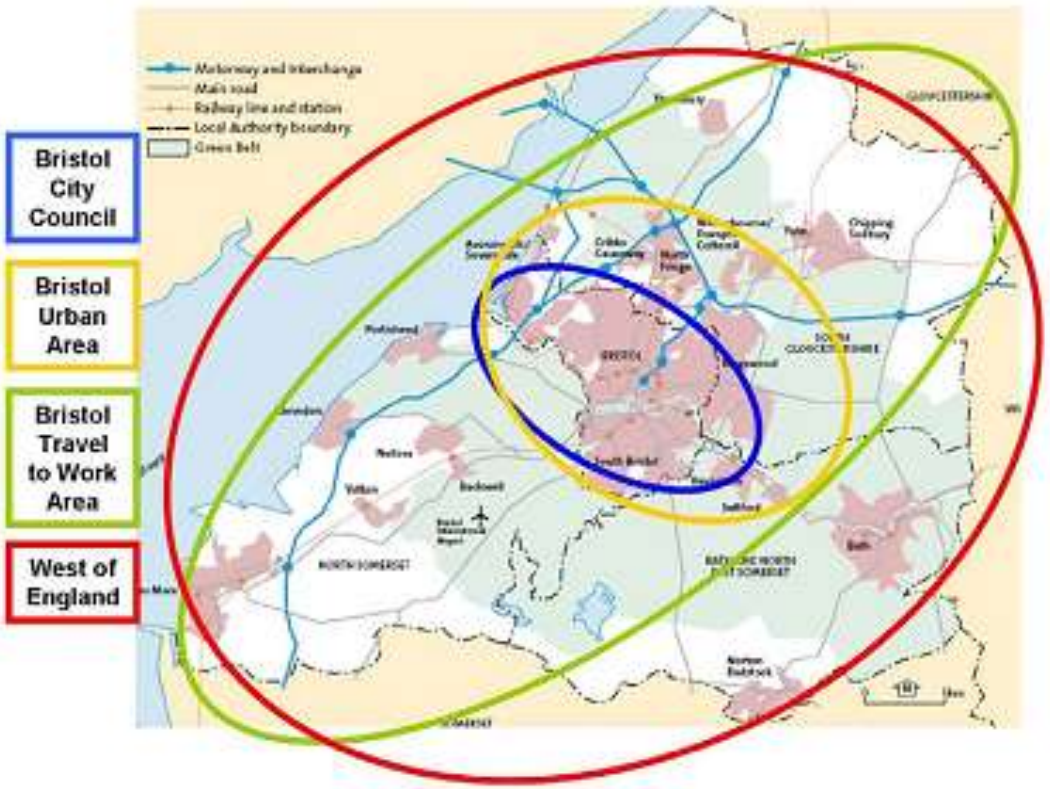
Welcome to Bristol



100 RESILIENT CITIES
CENTENNIAL CHALLENGE

BRISTOL
winner 2015
EUROPEAN
GREEN CAPITAL
An initiative of the European Commission

Bristol emissions ~ 5t per capita

UK average emissions ~ 7.5t per capita

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Aims and Objectives

1. Forecast future trajectories for Bristol based on historical trends, current activities and future likely actions.

2. Envision likely future scenarios for Bristol

3. ‘Backcasting’ with stakeholders to identify the key drivers and activities that brought about the scenarios

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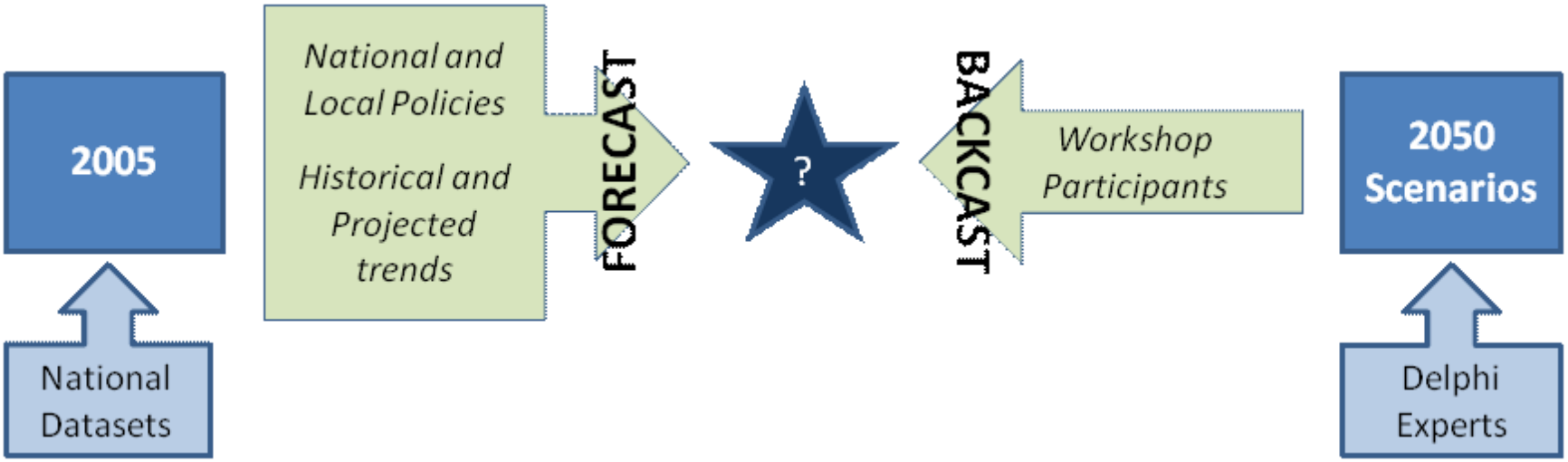
Methodology – Pathway approach



Outcome: a methodology and a pathway against which decisions and progress can be assessed, to identify possible carbon-trajectories

‘where we are now’ ‘where we need to be’

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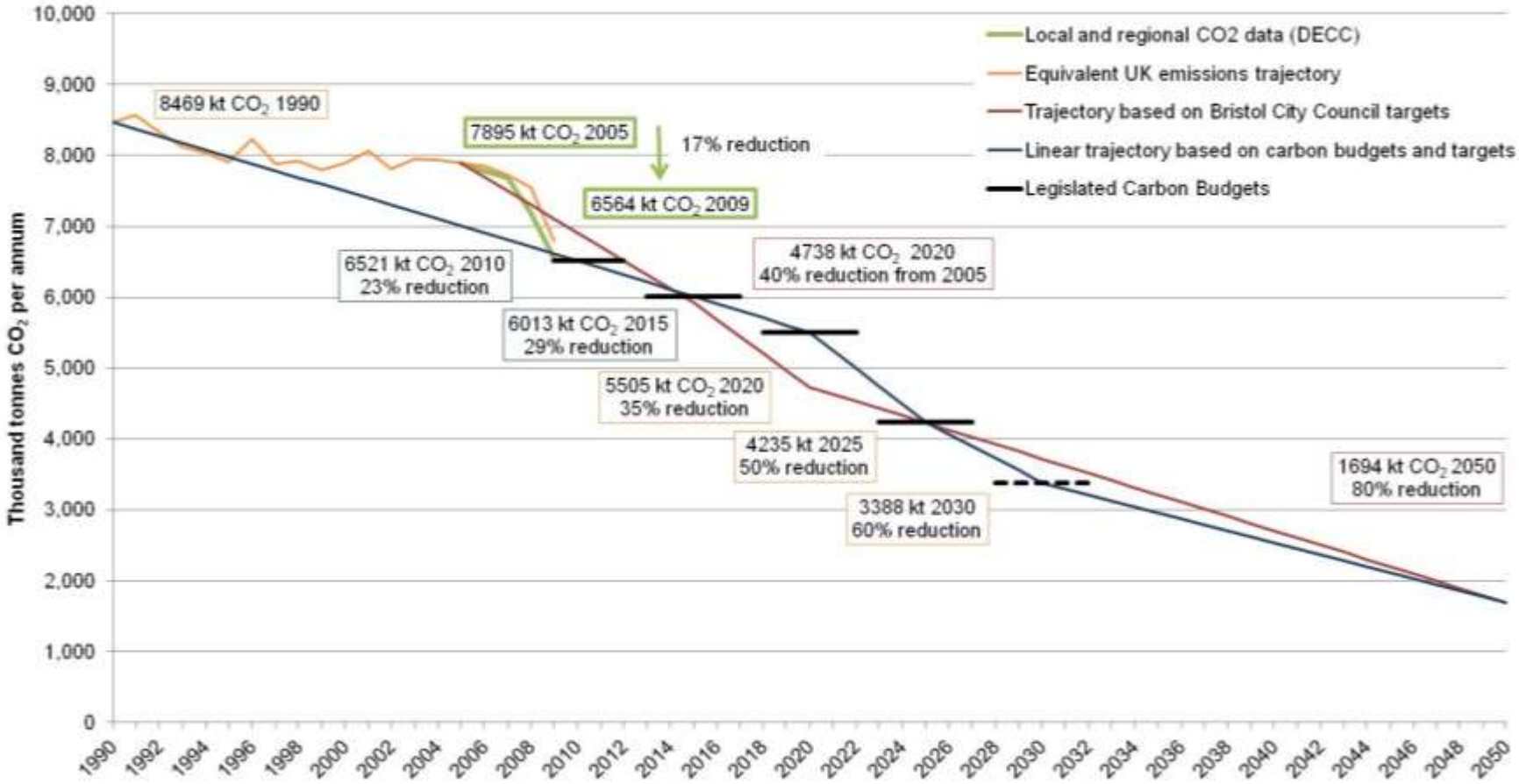
Target Trajectories



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Methodology – Creating the Future

"The future not only must be perceived; it also must be shaped" (Polak, 1973)

Allows the gap between the abstract 'low carbon future', and the reality of city policy-making today to be closed

Switches decision-making from 'reactive' to 'proactive' in creating a low carbon future

- Allows day-to-day problems to be set aside
- Makes the future more relevant and tangible
- Encourages buy-in from those chosen to create the vision

Does not provide a definitive blueprint, but a direction to move in ('Utopian Method')

One of the key challenges *"is to develop long-term future scenarios and to lay out alternate development pathways to reach there"*
(Dhakal and Shrestha, 2010)

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Delphi and the 'Experts'

Participants

- Councillors, MPs
- Local Government officers
- Regional Development Agency
- WoE partnership
- (Government Office for the South West)
- Networks/Groups: WoE Sustainable Construction network; BETS, GWE Business West, Business in the Community; CBI South West ; Green Capital Momentum Group
- Academics
- Public transport operators
- Port and Airport managers
- Highways Agency
- Wessex water
- Environment Agency
- Charities, Community Groups, Activist groups

Types of Experts

- Political
- Managerial/Strategic
- Technical/Operational
- Research/Academic

Expert Backgrounds

- Public sector
- Private sector
- Third sector

Expert Sectors

- Local and Regional Government
- Spatial planning
- Transport
- Energy
- Economy
- Waste
- Health
- Water and Food
- Climate change

Developed in the 1950s-60s (RAND Corporation)

- *"one of the standard techniques to accumulate, to pool, and to appraise expert opinions"* (Steinert, 2009)
- Iterative, remote, consultative process, using a group of 'experts', where subsequent rounds of consultation are conducted in light of the group's answers to the first in order to achieve convergence on a consensus (Linstone and Turoff, 2002)

Approximately 140 experts:

- Engagement
- Access to knowledge & ideas

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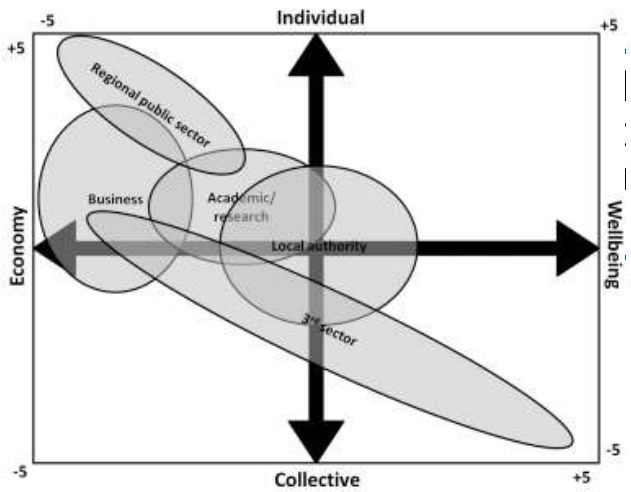
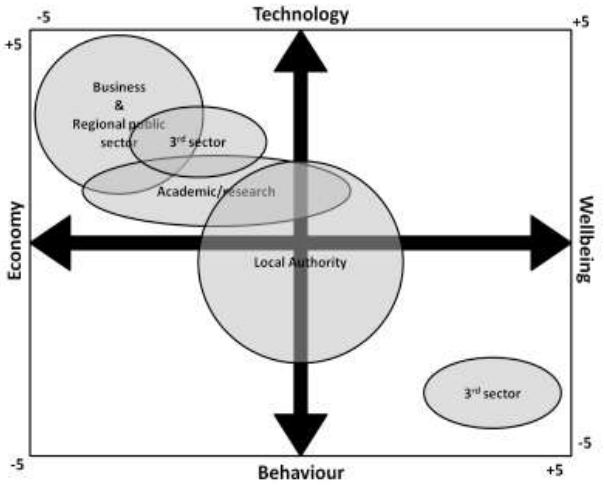
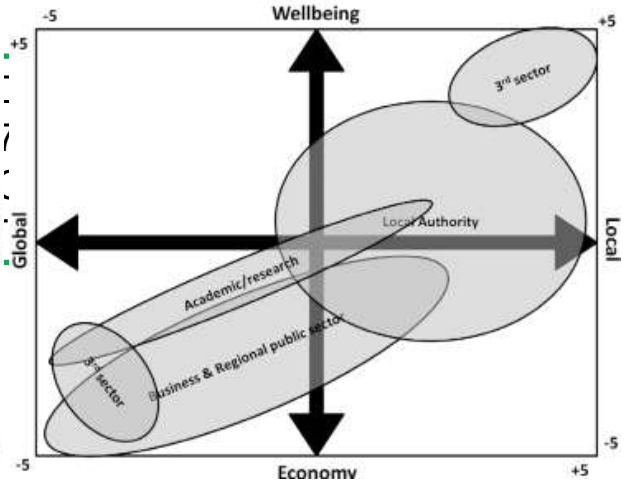
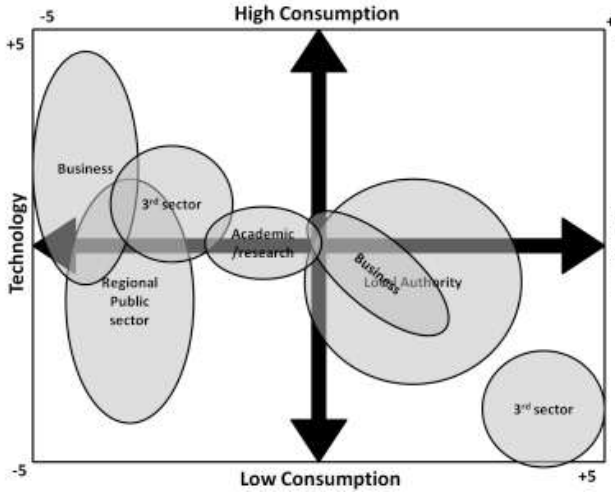
The Process

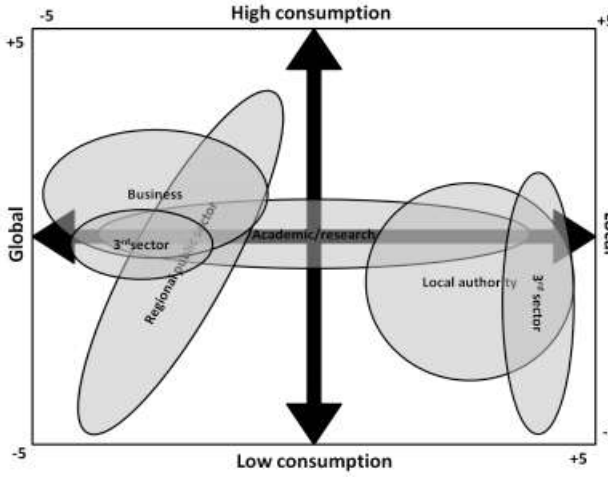
The Findings

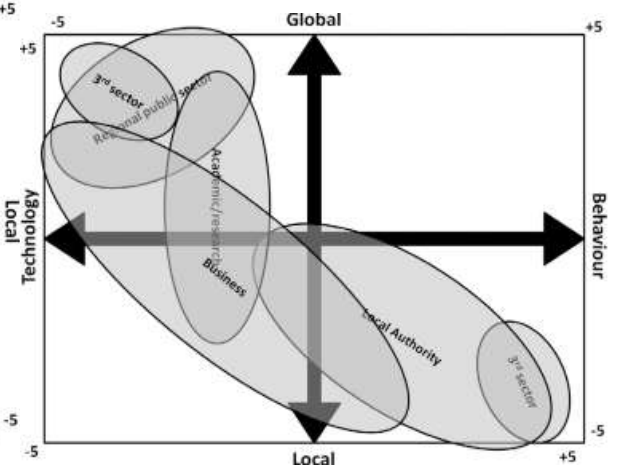












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The Process

Q1

- broad open-ended questions to explore the subject and generate key themes

Q2

- rating statements from first questionnaire to create scenarios

The Findings

A1

- Diversity of views
- 7 scenarios emerged
- Clear ‘institutional’ patterns to responses

A2

- 2 distinct scenarios
- No institutional patterns

The Process

Q1
- broad open-ended questions to explore the subject and generate key themes

Q2
- rating statements from first questionnaire to create scenarios

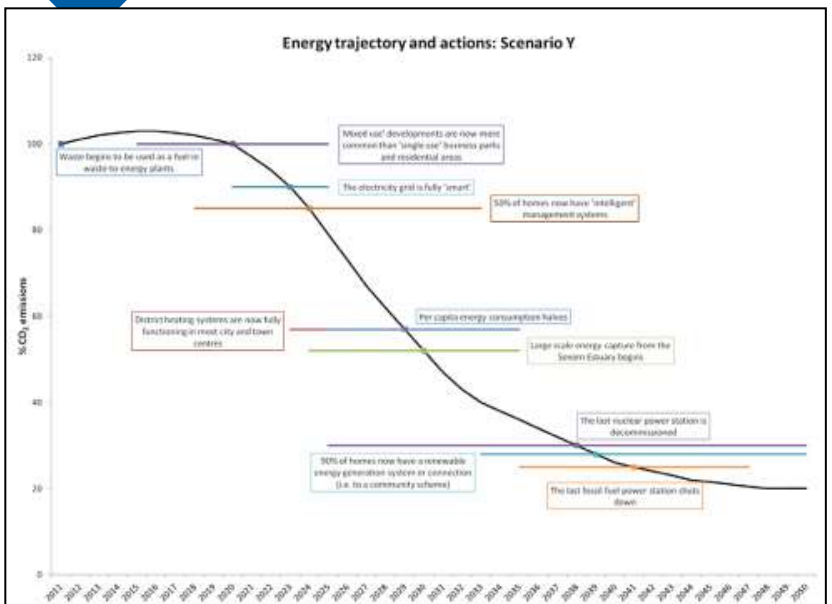
Q3
- Indicate preferred scenario
- Identify policy and tech actions

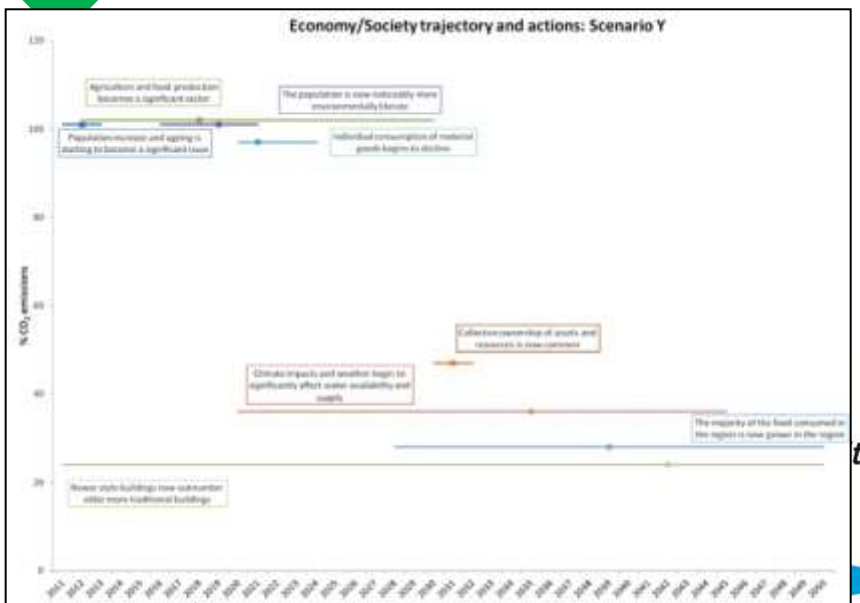
The Findings

A1
- Diversity of views – 7 scenarios
- Clear 'institutional' patterns to responses

A2
- 2 distinct scenarios
- No institutional patterns

A3
- Backcasting workshop
- Identify drivers and actions





A low carbon future – Scenario X

Energy: A mix of renewables across the Bristol region provides a top-up to the national decarbonised nuclear and clean fossil fuel base load supply. Centre for the latest in energy efficiency.

Transport: Travel is still popular, important and necessary, and a variety of options are available including an efficient and integrated public transport network and electric vehicles

Built Environment: Traditional style, highly efficient buildings in integrated communities, with some high-rise office hubs, significant green space and public infrastructure.

Food, waste, water: UK produce and some imports, reduced and separated waste, and efficient water use.

Economy: A thriving, hi-tech economy, internationally competitive.

Society: A mixed society, environmentally literate, with a good quality of life.

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A low carbon future – Scenario Y

Energy: The Bristol Region is a leader in decentralised, renewable energy, with most households and communities meeting their needs through integrated generation and high levels of efficiency.

Transport: The need for travel has been reduced through a move to localisation, but where travel is necessary it is largely by bicycle, foot or public transport.

B**uilt Environment**: Innovative, modern, highly efficient buildings in integrated communities, with significant green space, public transport infrastructure and urban agriculture.

Food, Waste, Water: Local seasonal produce, reduced and separated waste, respect for water supply.

Economy: A diverse economy, meeting local needs and providing skills.

Society: A self-sufficient, collective, slower placed society, with a strong sense of community.

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Lessons learned

- Multi-disciplinary stakeholder engagement - they must think outside of their silos
- Can address short-termism by providing a vision of long term transformation and multi-sector action.
- Powerful tool for stakeholder buy-in and engagement, guiding policy and providing a framework around which stresses can be tested e.g. nexus.
- Using scenario approach to frame the discussion moves nexus dialogue beyond '*operations and metrics*' to '*management and decision-making'*.
- Scenario approach allows cities to reduce their vulnerability and enhance their resilience
- Transferability of methodology to other urban areas and environmental (in)securities.

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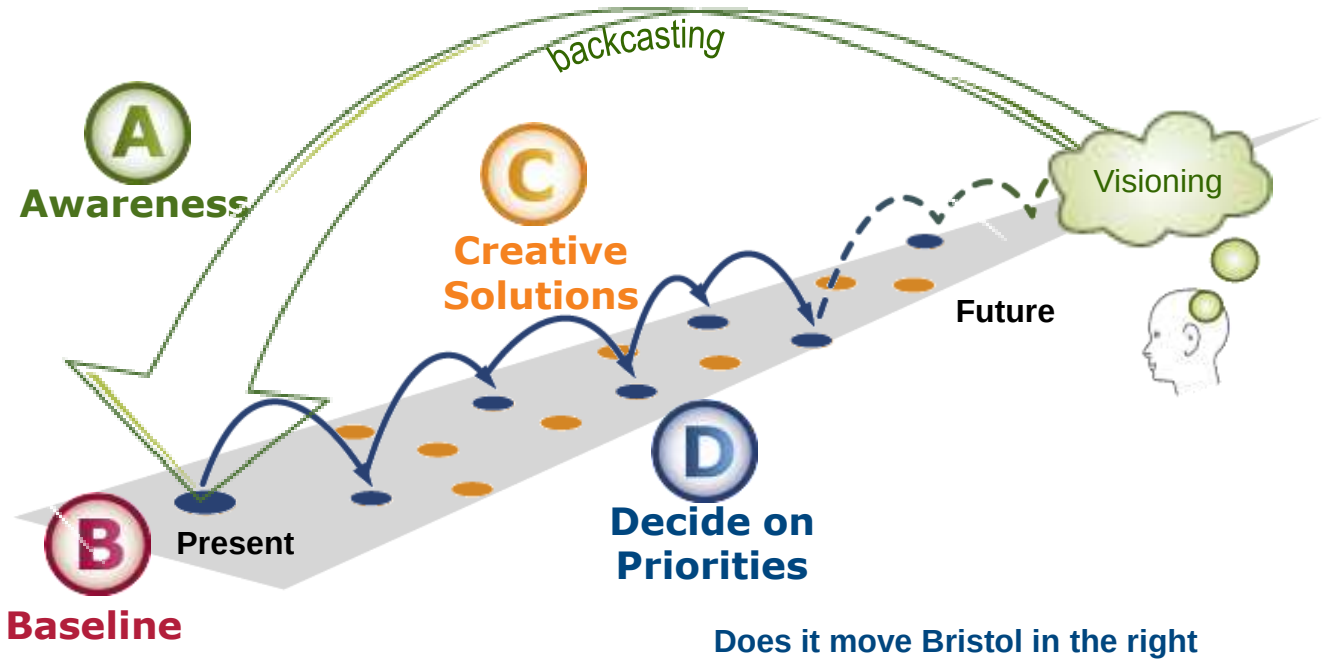
The Next Steps…..The Natural Step



Does it move Bristol in the right direction?
Is it a flexible platform?
How do we quantify this?

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BRISTOL winner 2015 EUROPEAN GREEN CAPITAL

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EPSRC

Thank you. Any questions?

enda.hayes@uwe.ac.uk

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For more information, see: www.lrfoundation.org.uk

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