



Realising nature's value in infrastructure: Yorkshire Water and National Grid

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AECOM

This presentation

– Introduction

- Overview of AECOM
- Introduction to Natural Capital
- Overview of the Natural Capital Protocol

– Case Study: Yorkshire Water

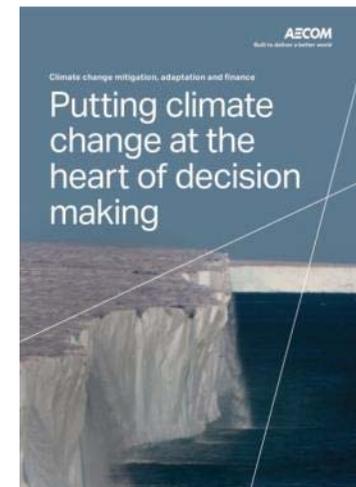
- High level application of the whole Protocol

– Case Study: National Grid

- More focused application of some of the key steps

Who we are

- AECOM is a global provider of professional technical and management support services with around 90,000 employees working in the environment, energy, water, and transportation sectors
- AECOM's **Policy and Appraisal team** is a specialist research, assessment, and evaluation team working in:
 - Natural capital and ecosystem services
 - Spatial and land use planning
 - Climate change and climate finance
 - Social impact and social capital



Natural capital and ecosystem services



*“The world's stocks of natural assets which include geology, soil, air, water and all living things. It is from this **natural capital** that humans derive a wide range of services, often called **ecosystem services**, which make human life possible”*

World Forum on Natural Capital

AECOM

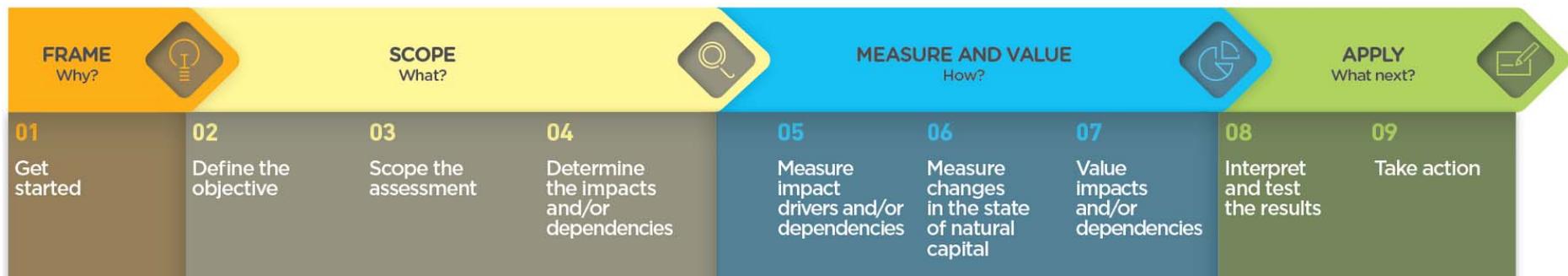
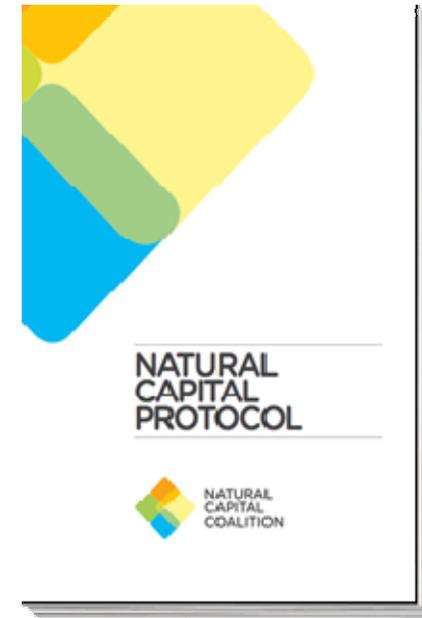
Natural capital experience

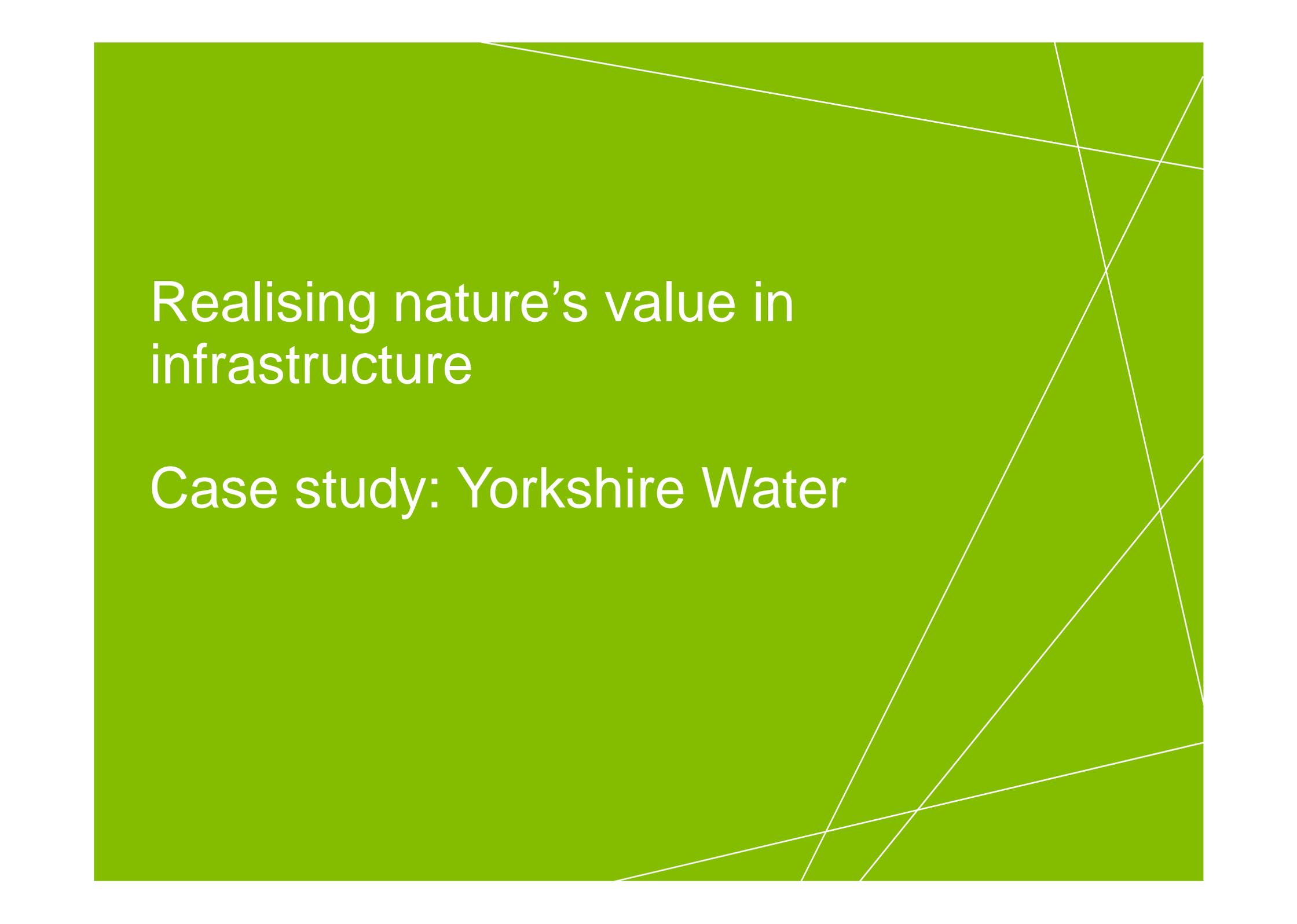
- We work on a range of natural capital projects for government, business, NGOs, and international agencies
- We are part of the EU Business@Biodiversity Platform, CIWEM's Natural Capital Network, the Sustainable Leaders Forum, and the Scottish Forum on Natural Capital
- We also manage the Natural Capital Coalition's Operations Group: a forum for businesses to learn and share good practice in terms of approaches for incorporating natural capital into decision-making



This presentation

- Focus of this presentation is on application of the Natural Capital Protocol (NCP)
- A standardised framework to identify, measure, and value impacts and dependencies on natural capital
- Case studies from two companies who have used the NCP to realise the benefits that natural capital can provide to business



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Realising nature's value in infrastructure

Case study: Yorkshire Water

Overview of Yorkshire Water

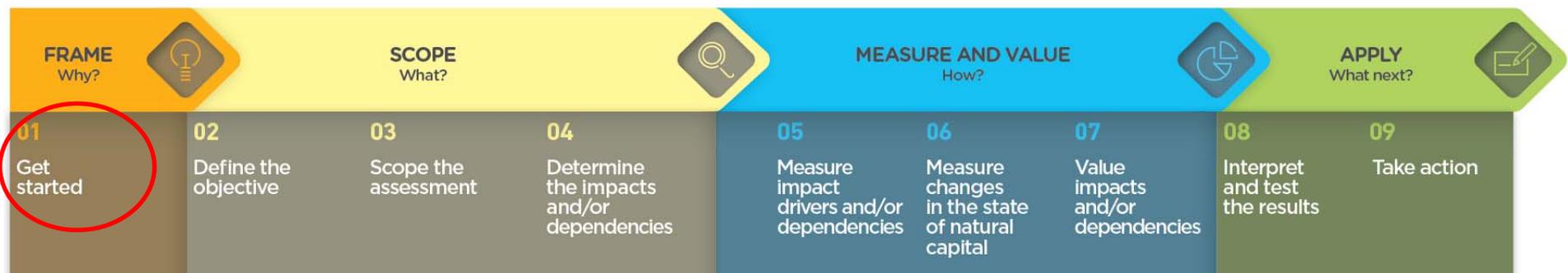
- Water and waste water service company in northern England with over 5 million customers
- Natural capital approach consistent with 6 strategic objectives
- Leaders in sustainability:
 - Developed a corporate Environmental Profit and Loss Account
 - Undertaking a ‘Total Impact and Value Assessment’
 - Commissioned AECOM to pilot the draft Natural Capital Protocol



Step 01. Get started

Why would a UK water company incorporate natural capital approaches in decision-making?

- One of five capitals that underpin business performance
- Inform decision-making and risk management:
 - UK environmental and financial regulators expect to see natural capital and ecosystem services considered in decision-making
- Powerful communication tool for internal and external stakeholders
- Demonstrate leadership and broader value created



Step 02. Define the objective

- Yorkshire Water wanted to:
 - Understand how the natural capital approach works
 - Determine how it might differ from existing approaches
 - Develop a case study for communication
- Pilot the Protocol on one of the company’s wastewater treatment sites (Rivelin)
- Full case study is available on Yorkshire Water and NCC websites



Step 03. Scope the assessment

- Rivelin is one of the primary water treatment plants supplying Sheffield
- Currently undergoing a £24m capital upgrade
- A number of high level options were considered before two main solutions were assessed in more detail
- Pilot retrospectively evaluated the natural capital impact of the two upgrade solutions ('notional' and 'chosen')



Step 04. Determine the impacts and/or dependencies

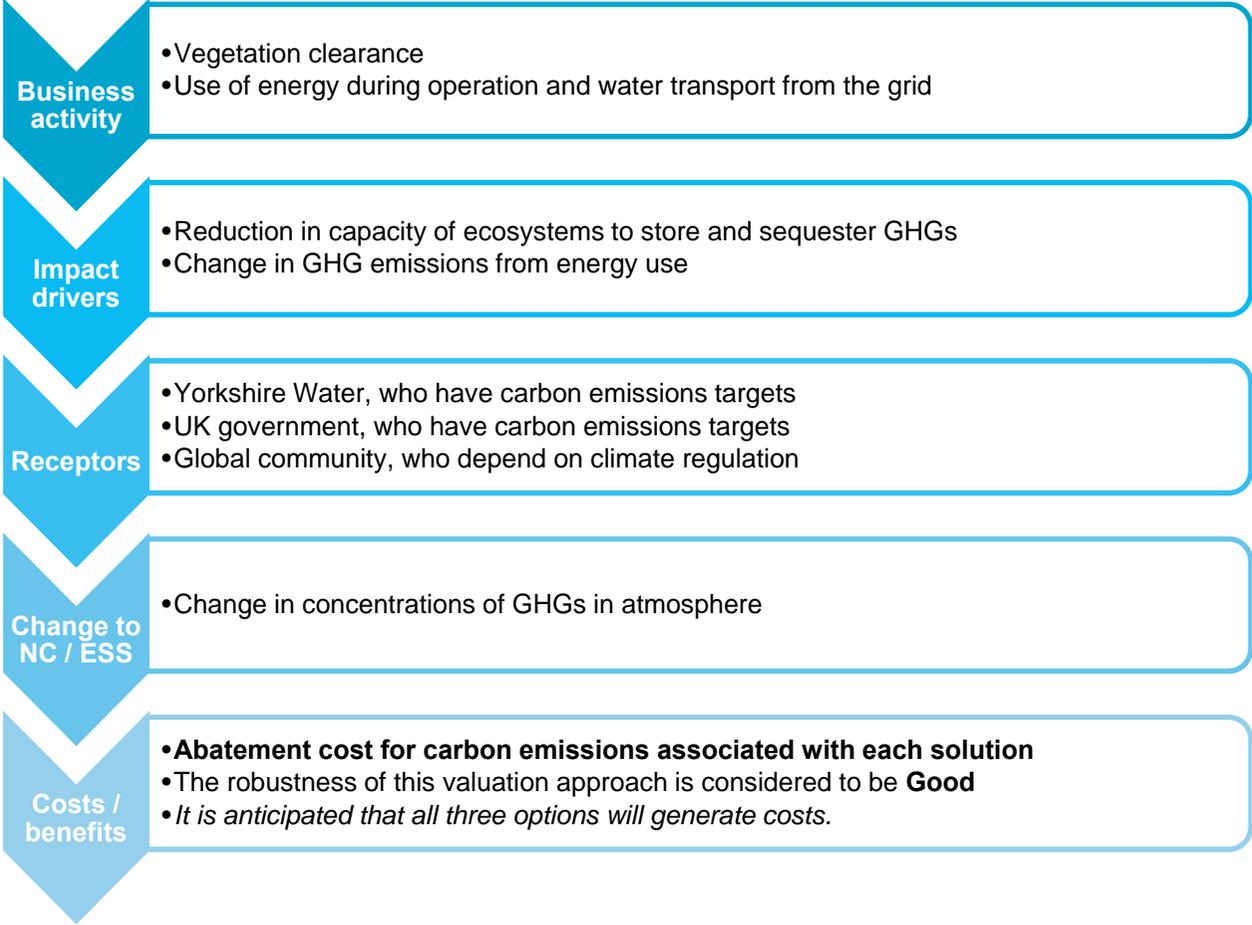


Step 05. Measure impact drivers and/or dependencies

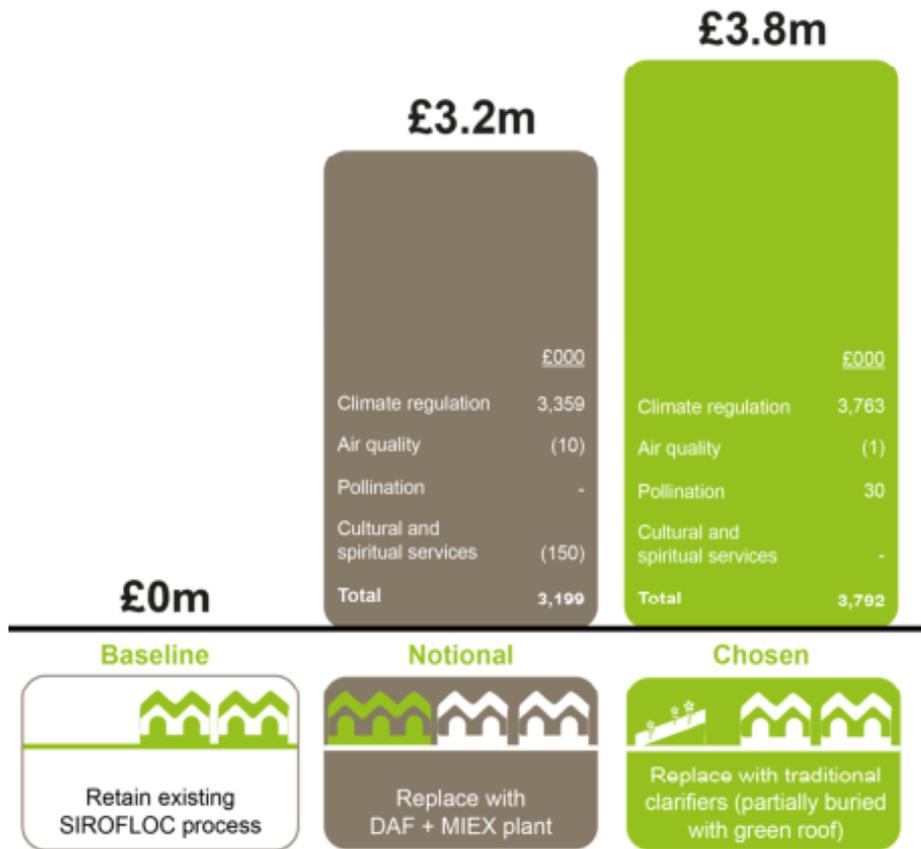
Ecosystem Service	Estimated Impact Relative to Baseline		Materiality	Priority for inclusion in NCA
	Notional Solution	Chosen Solution		
Crops	-	-	Low	✗
Livestock and fodder	-	-	Low	✗
Capture fisheries	-	-	Low	✗
Aquaculture	-	-	Low	✗
Wild foods	-	-	Low	✗
Timber	-	-	Low	✗
Energy	-	-	Low	✗
Biochemicals and medicine	-	-	Low	✗
Water supply	-	-	Low	✗
Fibre	-	-	Low	✗
Genetic resources	-	-	Low	✗
Local climate regulation	-	-	Low	✗
Global climate regulation	↑	↑↑	High	✓
Air quality regulation	↓	↓	Medium	✓
Hazard regulation	-	-	Low	✗
Water quality regulation	-	-	Low	✗
Pollination	-	↑	Medium	✓
Disease and pest control	-	-	Low	✗
Noise regulation	-	-	Low	✗
Soil quality regulation	-	-	Low	✗
Tourism and recreation values	-	-	Low	✗
Cultural and spiritual values	↓↓	-	Medium	✓
Scientific and education values	-	-	Low	✗
Wild species diversity	-	-	Low	✗



Step 06. Measure changes in the state of natural capital



Step 07. Value impacts and/or dependencies



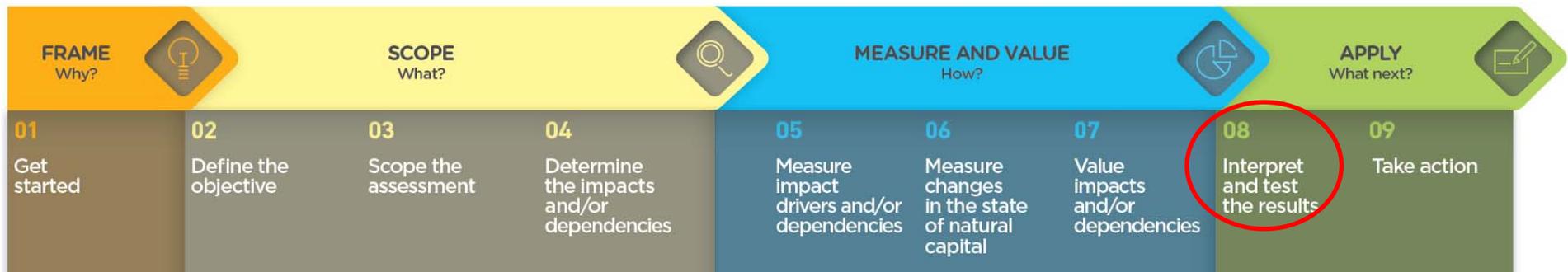
Step 08. Interpret and test the results

Opportunities

- Potential to enhance environmental and social benefits from capital investments
- Leads to informed operational decisions
- Can be an empowering engagement tool, internally and externally

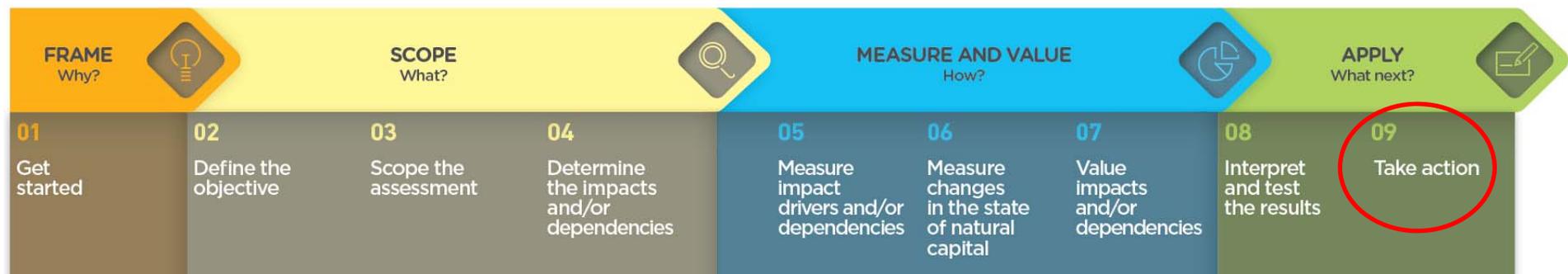
Challenges

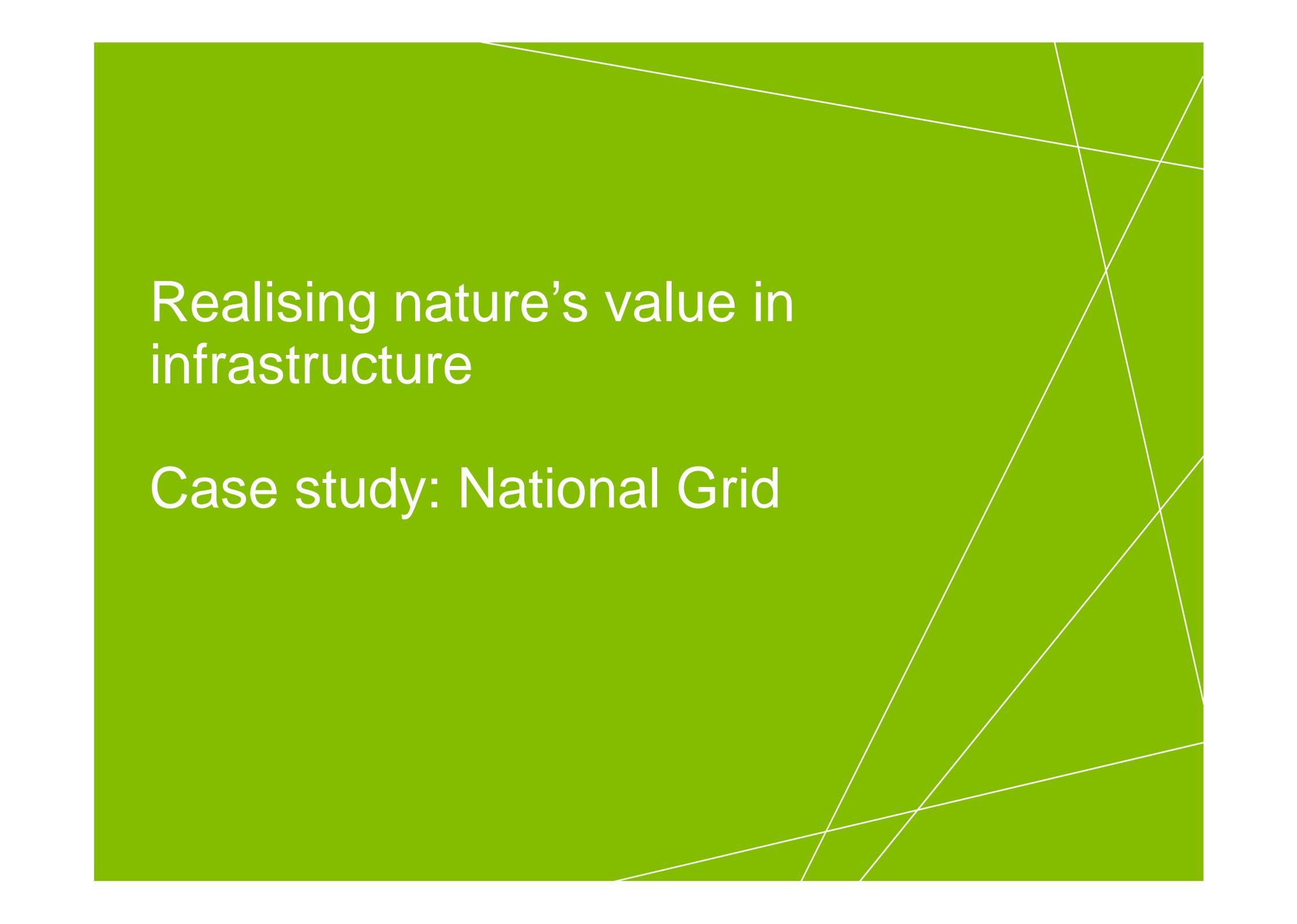
- Data and time requirements
- Developing a methodology that:
 - links with existing business systems
 - transparently addresses less tangible services
- Need to engage across a range of business functions, not just the Sustainability Team
- Most natural capital benefits (costs) accrue to society, not private companies



Step 09. Take action

- Now helping Yorkshire Water to integrate **natural**, **human** and **social** capital into their company wider decision making procedures
- Aim is to integrate the capitals into cost-benefit analysis models in order to enable the social and environmental costs and benefits of standard engineering decisions to be more fully understood
- This will also help to allow the wider costs and benefits of alternative investment decisions such as peatland restoration, green roofs and natural filtration, to be compared against more traditional investments as standard business practice



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Realising nature's value in infrastructure

Case study: National Grid

Overview of National Grid

Electricity transmission:

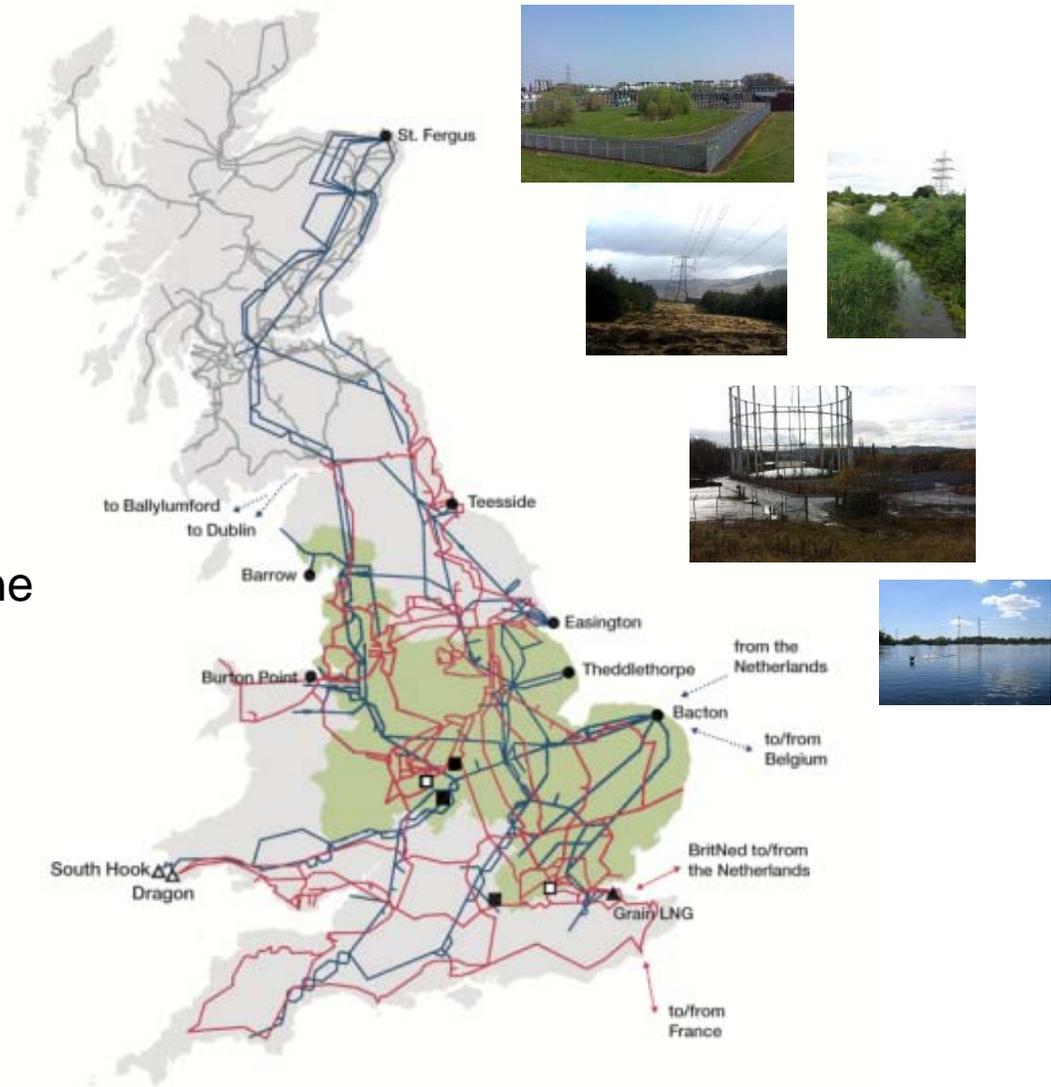
- 7,200 km overhead line
- 1,400 km underground cable
- 329 substations

Gas transmission:

- 7,660 km high pressure pipeline
- 23 compressor stations

Legacy landholdings:

- 645 former industrial sites



Why would a UK infrastructure company incorporate natural capital approaches in decision-making?

Traditional view

- Risks
- Costs
- Liability
- Limited return on investment
- Contamination issue



Natural capital view

- Benefits
- Dependencies
- Priorities
- Efficiencies
- Opportunities
- Value creation
- Positive return

Approach

Quantify

- Natural capital on National Grid sites

Assess

- Ecosystem services provided

Value

- Each of the ecosystem services

Measure and Value

Identify

- Potential risks and opportunities

Develop

- More informed management decisions

Realise

- Benefits of natural capital

Apply

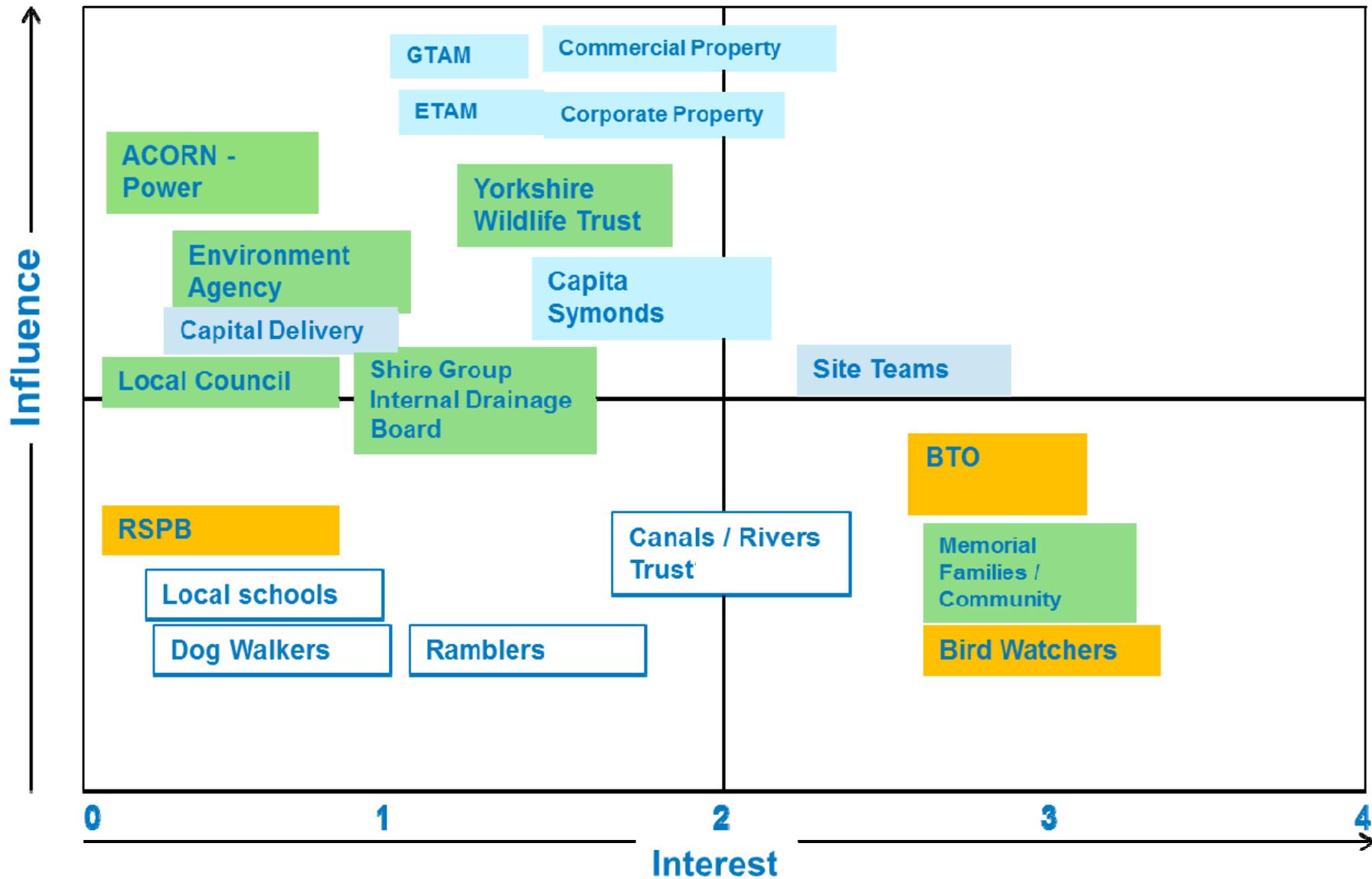


Assess

Valuation Report: National Grid

		Baseline	Scenario 1	Scenario 2
Provisioning Services				
	Food	£0	£0	£256,794
	Water	£156,332	£156,332	£156,332
	Timber	£0	£0	£0
	Energy	£0	£0	£0
Regulating Services				
	Carbon	£61,940	£14,329	£116,845
	Air Quality	£0	£0	£0

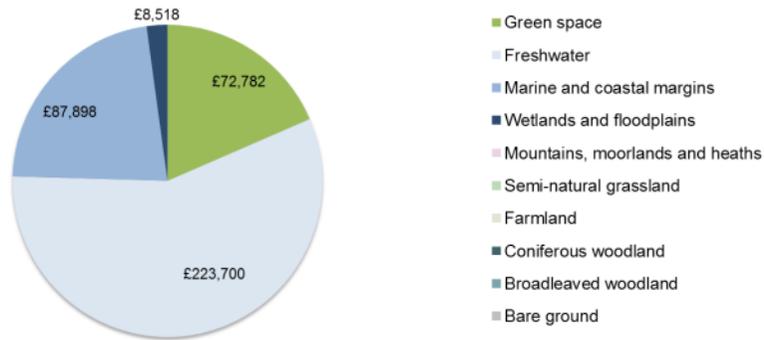
Value



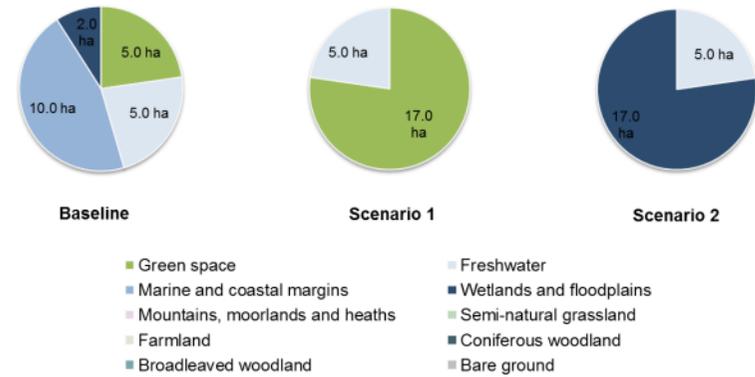
- Get buy in..
- Gauge interest
- Communicate approach
- Adhoc as required

Identify

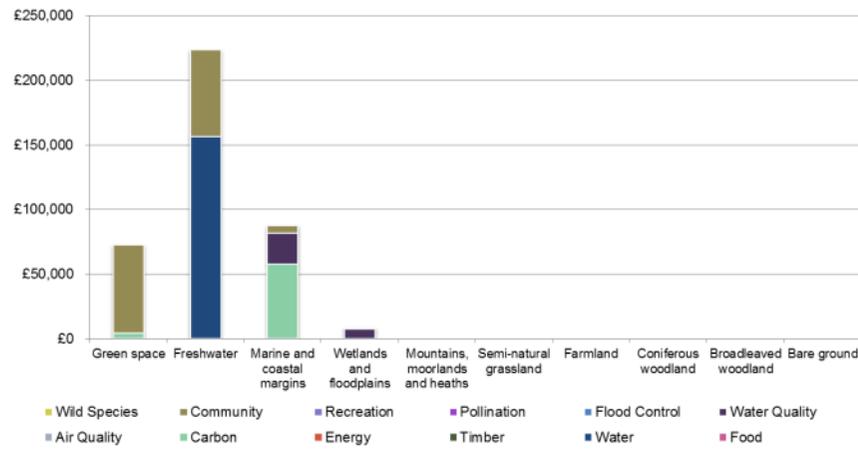
Baseline Habitat Values



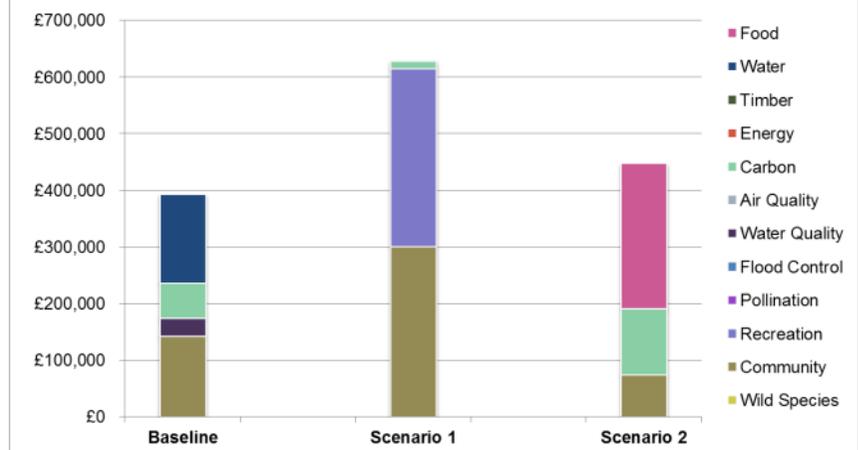
Natural Capital Stocks



Baseline Habitat Values by Ecosystem Service



Ecosystem Service Flows



Develop



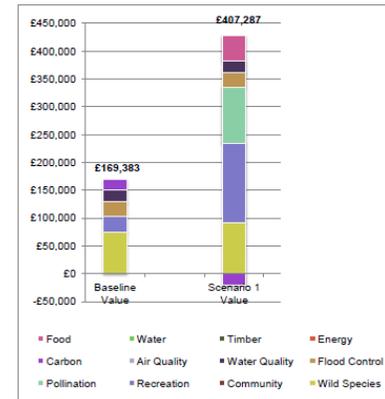
Realise

Case study: Thorpe Marsh



Yorkshire
Wildlife Trust

- Initial assessment to establish baseline
- Development of scenarios with YWT
- Business case incorporating natural capital values
- Sanctioning
- Project delivery including:
 - Wetland / grassland restoration
 - Community engagement
- **Benefit:cost ratio 8:1**



Going forwards

- Approach is being deployed across National Grid:
 - Transforming the way assets are managed
 - Driving more informed decision making for capital delivery
 - Building a more complete picture of National Grid's land and natural capital value
- All new graduates are required to pilot the natural capital approach at a particular site
- Work with the tool to develop a business case for investment
- Pitch the case to a 'Dragons Den' panel with the best projects receiving funding
- Creating wider uptake of natural capital throughout the business, further investment, and improved relationships



Thank you

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