What impact does decommissioning have on climate change?

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PhD Title: The Environmental Impact of Decommissioning: Quantifying Greenhouse Gas Emissions

The National Decommissioning Centre

Innovation through Partnership

1495

UNIVERSITY OF ABERDEEN

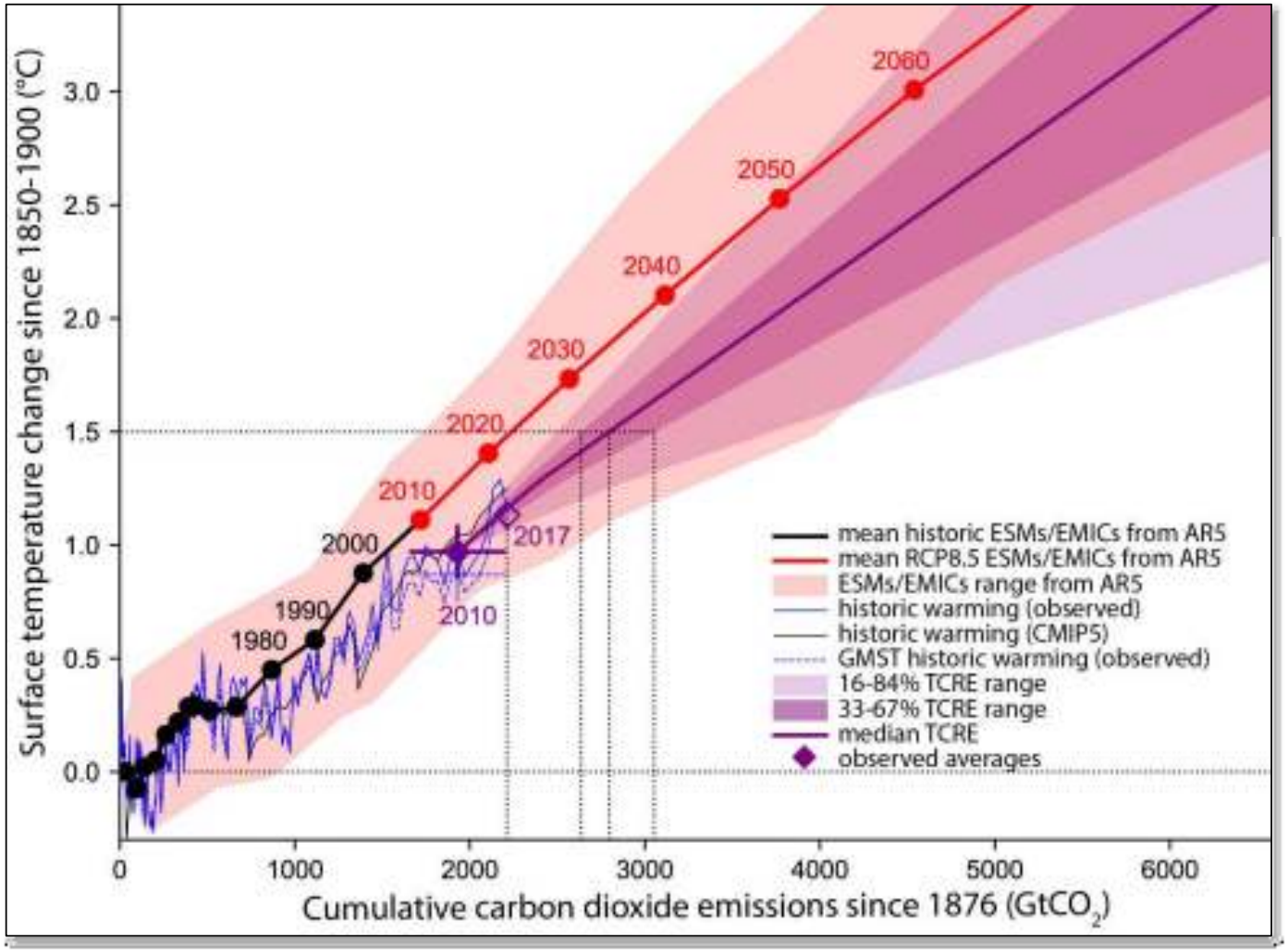
The Oil & Gas Technology Centre

Introduction

- An overview of the scientific consensus on climate change.
- The challenge for the UK decommissioning Industry.
- Current GHG emission auditing – fit for purpose?
- Current GHG emissions.
- How other industries are responding to climate change.
- The future of decommissioning, are we asking the right questions?

Climate Change: What we know

IPCC Cumulative CO_2 vs Surface Temperature Change

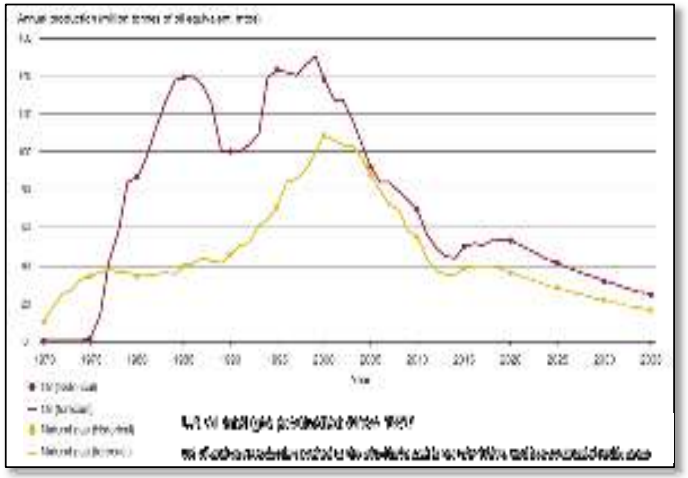


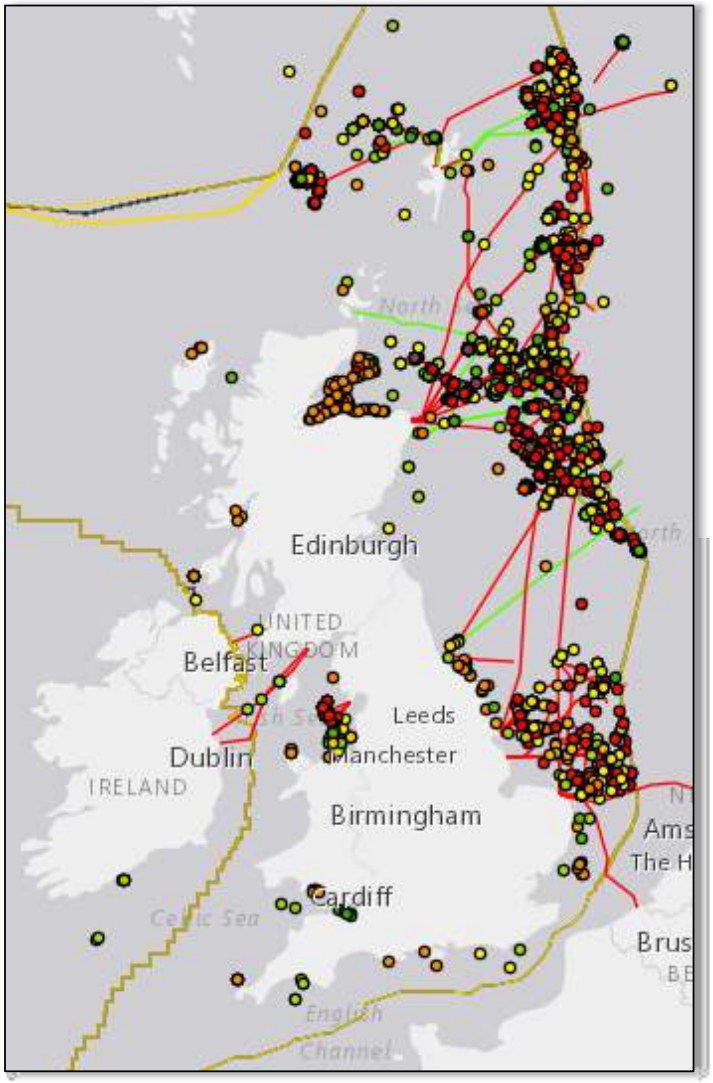
Climate Change is at the forefront of the public consciousness.

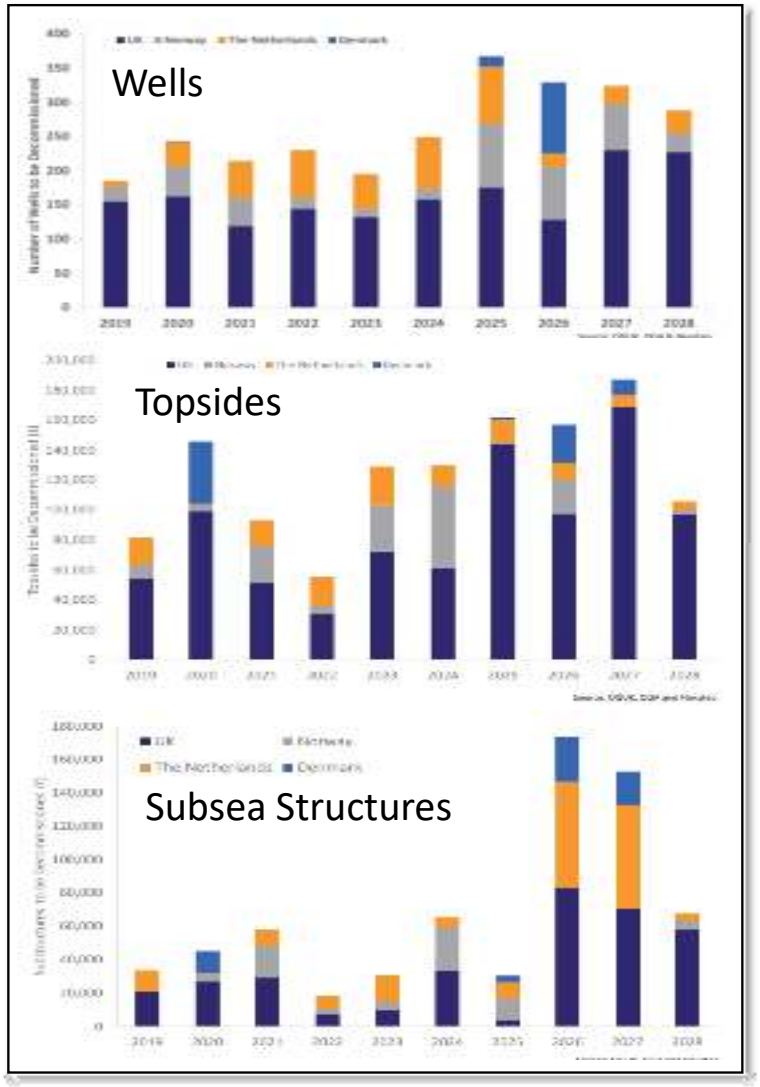
(Net) Zero Carbon is crucial to avoid **catastrophic climate change**, as mandated by the Paris agreement (2015).

In Scotland we must **achieve Net Zero Carbon by 2045**

The Challenge in the UK

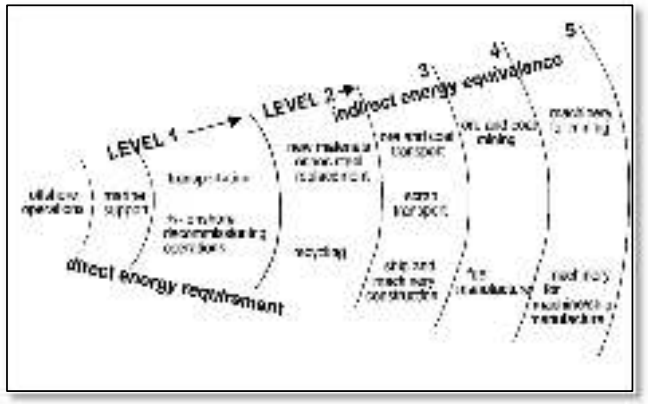


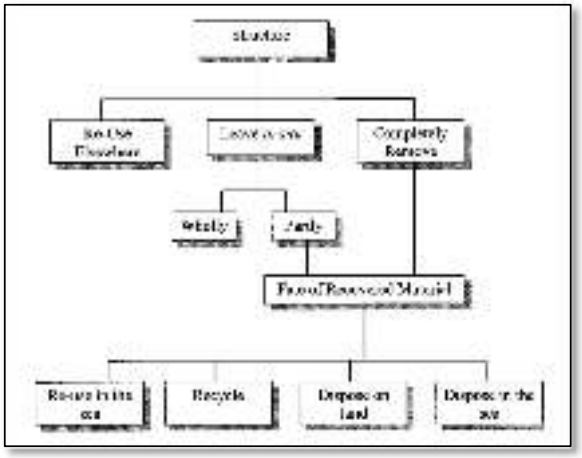




- Peak oil: 1990's
- Peak gas: 2000's
- Production in decline

Current Greenhouse Gas Emission Calculations
- Fit for purpose?





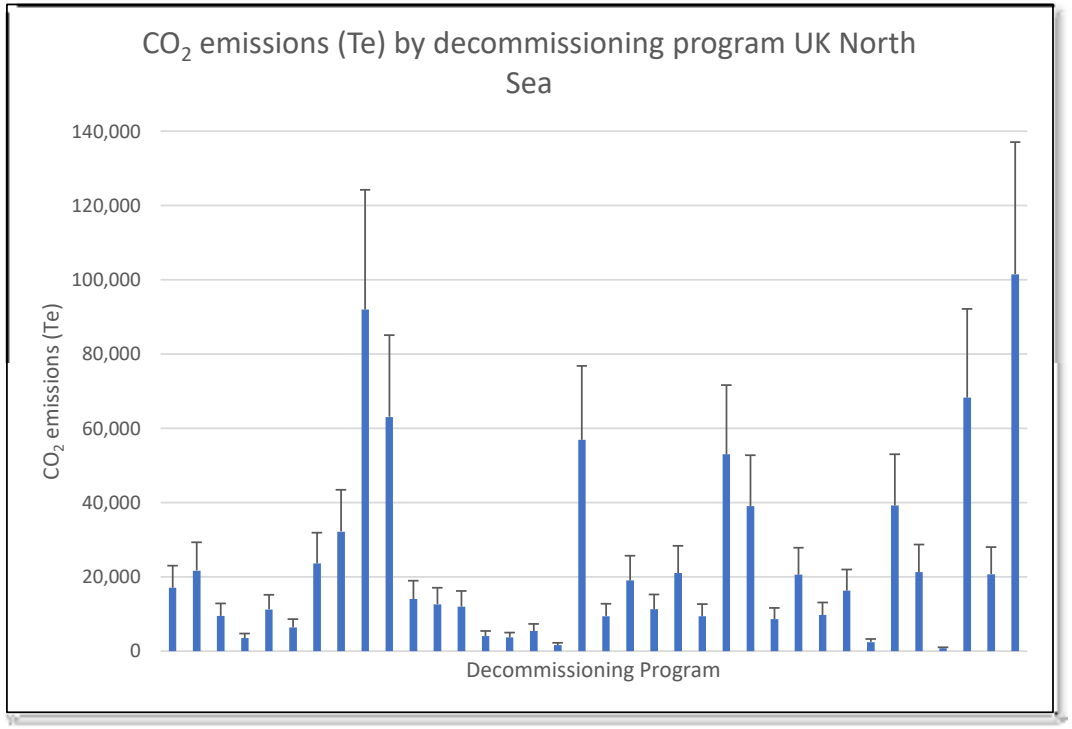
Institute of Petroleum guidelines; current 'best practise'.
20 years old and based on methods and data developed in the 1990's.

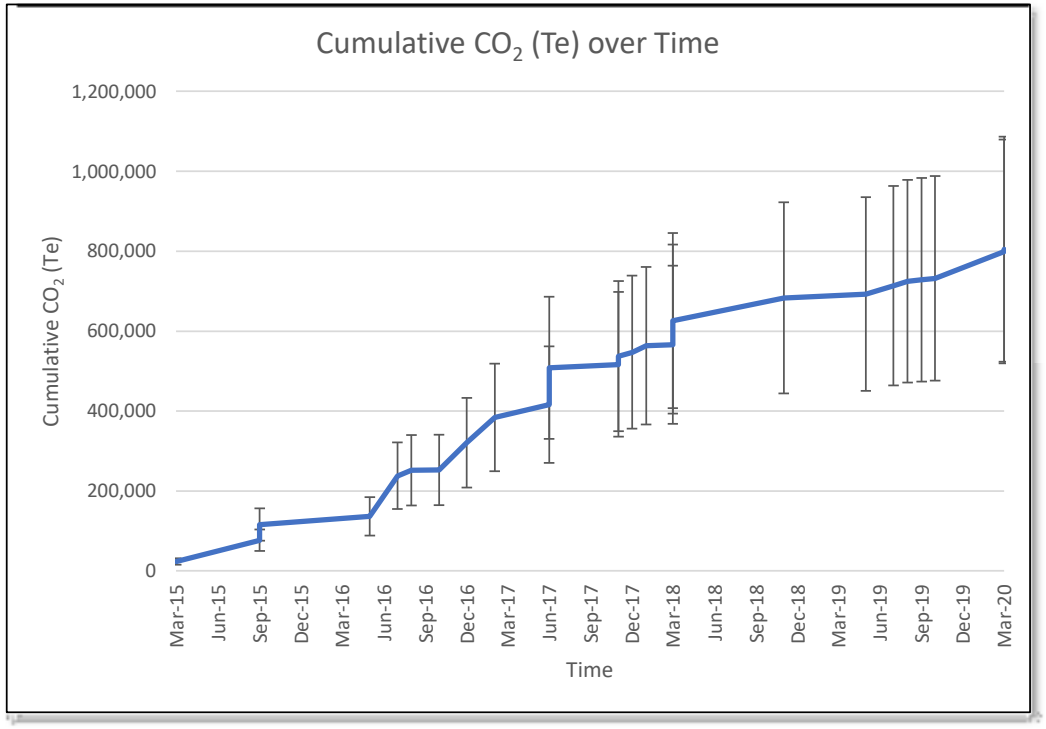
Not compelled to report emissions after decommissioning is complete.

EIS/EA's and CA's – do not reflect urgency of climate change.

Quantifying our <u>BASELINE</u> emissions will allow us to quantify our <u>REDUCTIONS</u>.

Calculated GHG Emissions

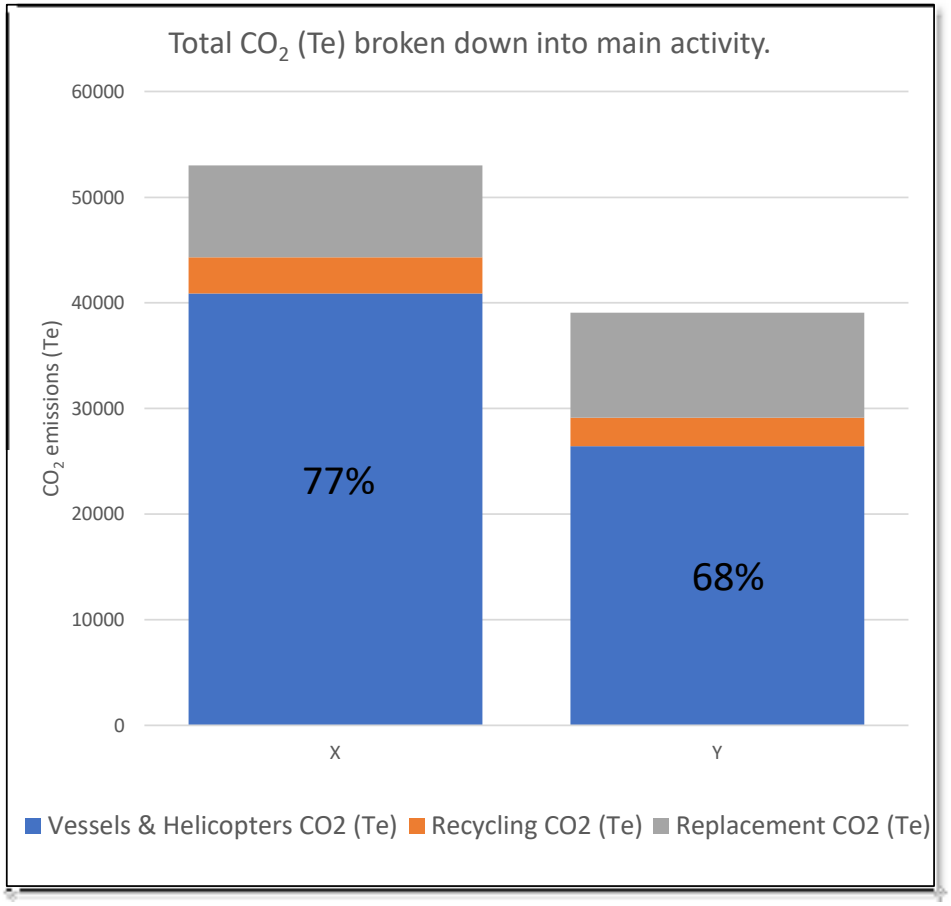




Error: 30-35% according to the IOP.

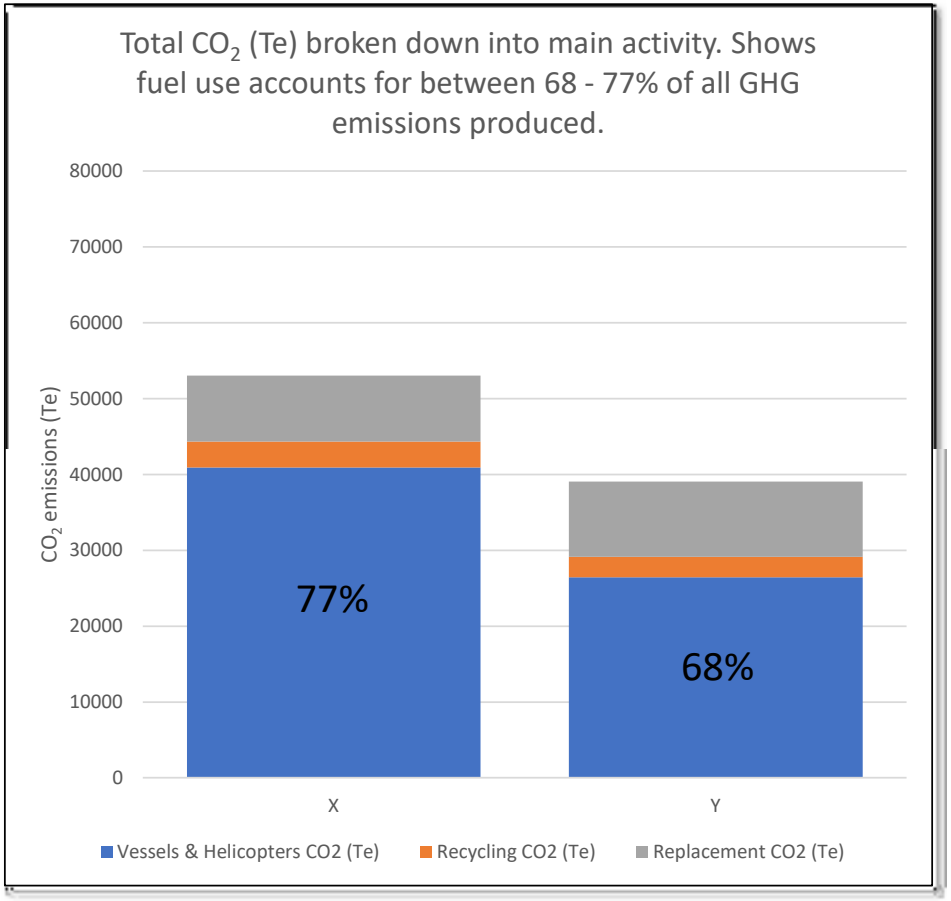
Current Calculated GHG Emissions

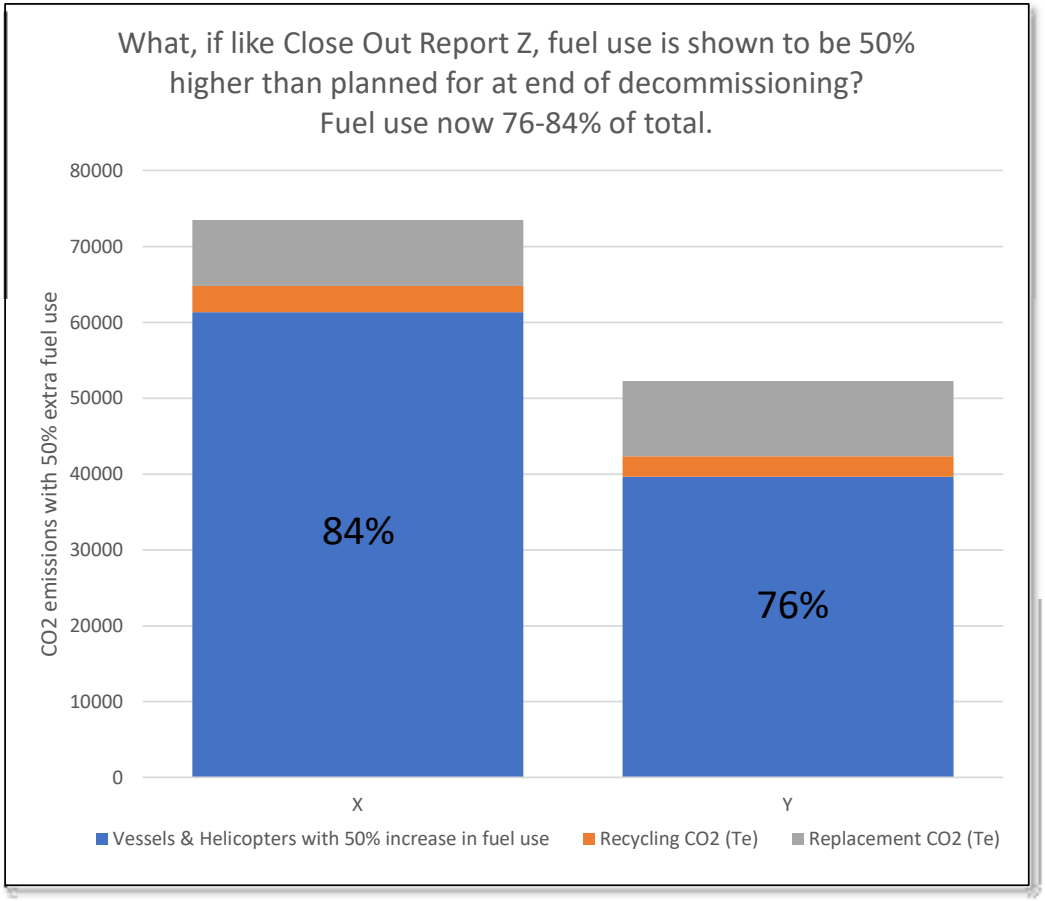
example from decommissioning programs X and Y



Calculated GHG Emissions

example from decommissioning programs X and Y

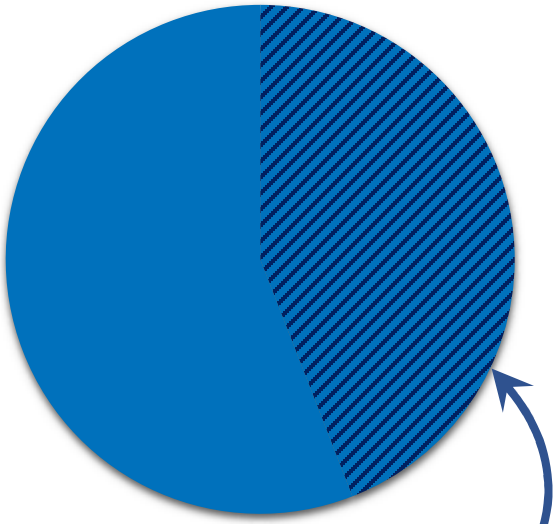




Decommissioning Emissions in UK Context

2018 UK Emissions Footprint

449 $MtCO_2$ eq



Potential Decommissioning Operations NOT including well P&A

200 $MtCO_2$ eq

How can industry help?

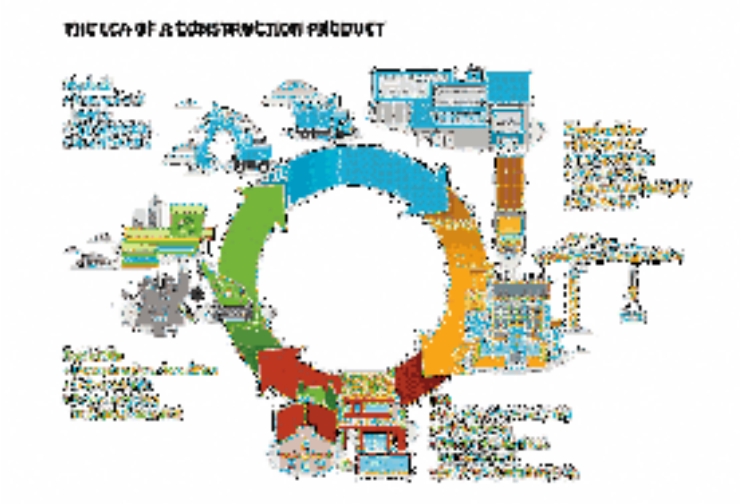
Data, data and more data!

Work programmes, fuel consumption, efficiency ratings, recycling data, both before and after operations.

P&A data also needed!!!

How are other industries responding to climate change?

- Replacing hydrocarbon fuels with hydrogen to manufacture steel.
- **Material Value** and **Product Value** for LCA approach which accounts for re-use options.
- Use of Value Engineering to increase efficiencies of processes and operations.
- CoolFarmTool – online tool to calculate GHG emissions.
- BOEM Offshore Wind Energy Facilities Emissions Estimating Tool.
- Carbon Pricing and Carbon Offsetting – useful tools?



The Way Ahead?

- Carbon capture and storage.
- Rig-to-reef.
- Renewables (wind/solar/wave).
- Aquaculture.
- Living Marine Lab.
- Leisure and tourism.
- Increased recycling capacity in the UK.