Scottish Engineering

Route map to net zero by 2045

Securing a Green Recovery
on a Path to Net Zero – Feedback series

House keeping

- Please place your microphone on mute and camera off
- Session will be recorded
- Recording and slides will be made available on the Scottish Engineering Net Zero micro-site: https://www.scottishengineering.org.uk/net-zero-skills/

Agenda

Feedback series – Net Zero and energy costs

- RWG – Journey to Net Zero
  - Introduction
  - Outline Roadmap
  - Emissions and their reduction
  - Decarbonisation projects
- Q & A
- Scottish Engineering – Net Zero and Energy costs
  - Why Net Zero now?
  - What about the costs?
  - How can Net Zero help?

RWG Decarbonisation Strategy

November 2022

Who we are and what we do

- Gary Morton – Business Improvements Manager
- Graeme Gillespie – Operations Integrity Manager

Who we are and what we do

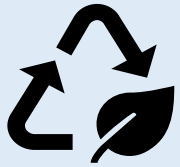
RWG
REPAIR & OVERHAUL EXPERTISE

- Gas Turbine Repair & Overhaul Expertise
- Joint Venture between Wood and Siemens Energy
- Helping operators in the global power generation, oil & gas and marine propulsion industries to maximise gas turbine availability and lower the cost of ownership of their equipment.
- Delivering an unrivalled depth of experience and product knowledge for SGT-A35 (Industrial RB211), SGT-A20 (Industrial Avon), SGT-A05 (Industrial 501), in addition to the RR Marine Spey, and WR21 gas turbines.
- By its very nature a carbon heavy activity!

Introduction

- RWG's decarbonization strategy is aligned with our Shareholders' strategy and is supported by the RWG Board.
- Momentum and enthusiasm across the group.
- Wider sustainability goal.
- Structured around three main themes.

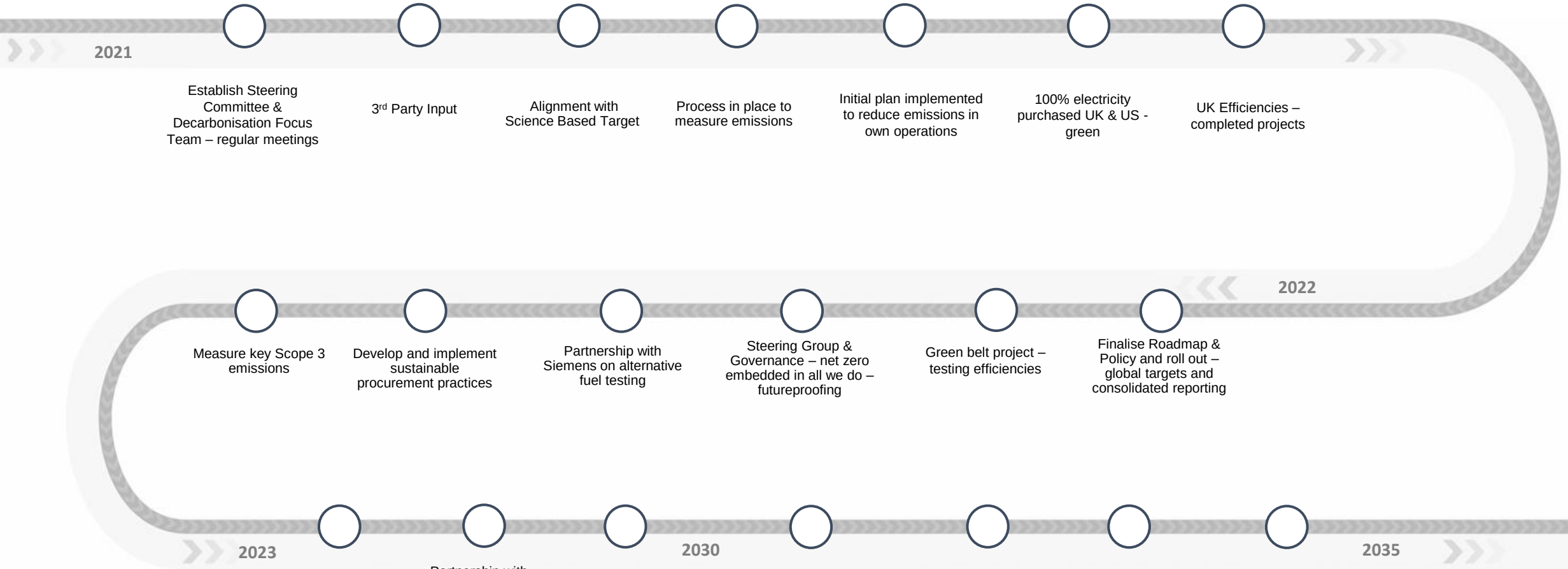
Decarbonised services and solutions to our customers



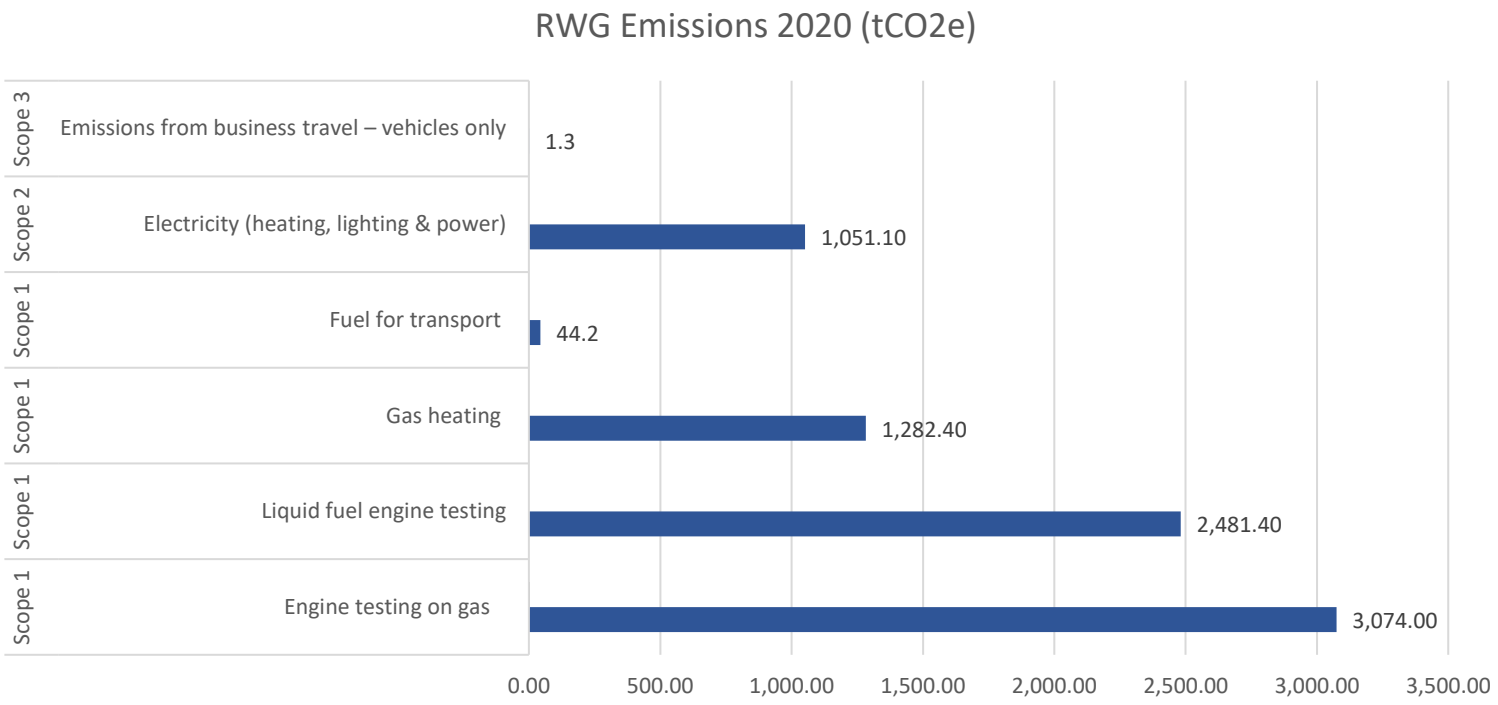
Climate-neutral own operations

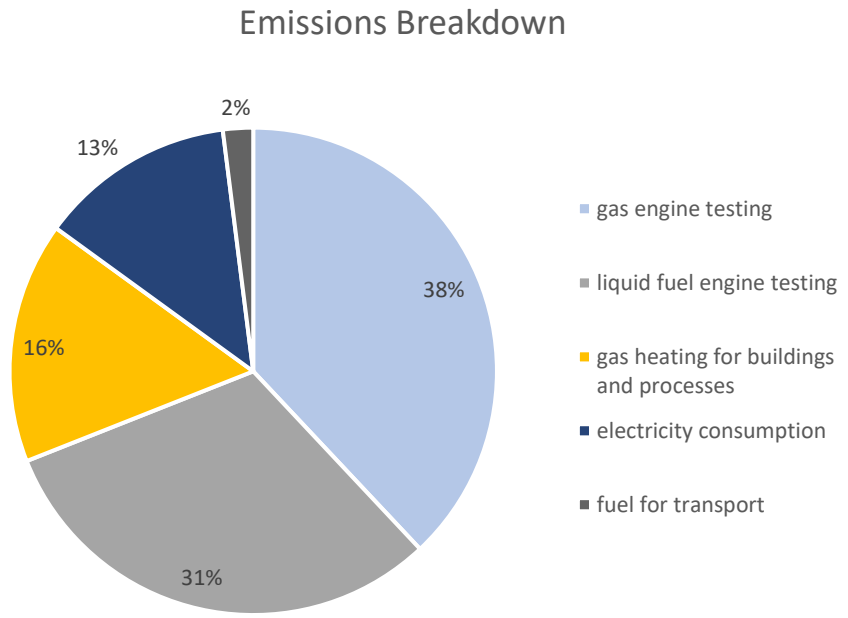
Decarbonised Supply Chain

Outline Roadmap



RWG emissions breakdown - UK





Total Emissions: 7934 tCO23

Completed Decarbonisation Projects - UK

Across all sites – UK

- 100% electricity purchased from renewable resources
- Biannual recommission of heating controls

Workshops

- Upgraded to LED Lighting
- Destratification fans
- Installation of roller door air curtain
- Variable speed drives in LEV systems
- Bi-annual compressed airline inspections
- Installed gas automatic meter reader
- Conservation on chemical tank heating

Offices

- Ongoing upgrade to LED Lighting
- Upgraded Air Conditioning systems

Test Bed

- Testing Efficiencies

- **233 Tonnes CO_2e** saved annually through the implementation of efficiencies (excludes test efficiencies)
- These equate to approximately **10%** of the total emissions from Heating, Lighting and Power at RWG sites

Engine Testing CO2e Reduction Project

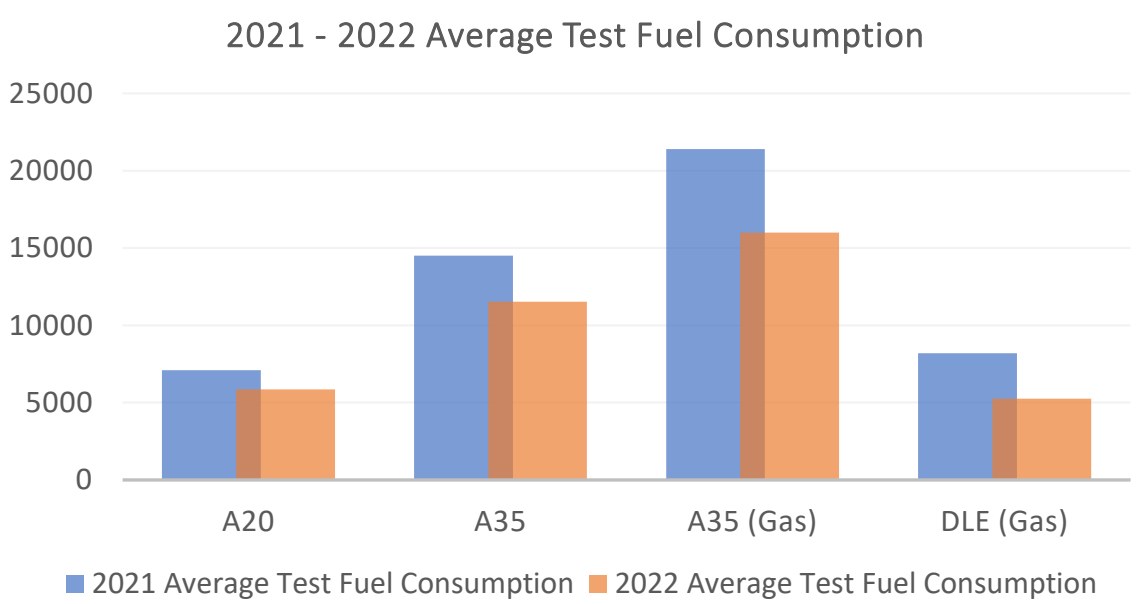
- Formed a small dedicated team.
- Simply challenged the norm under the mantra of "*nothing that we do should escape challenge*" & "*even a small improvement is an improvement*"

- Reviewed our own process & procedures and also the OEMs Testing Schedule.
- We asked "how, why and what if".

- Mapped out and reviewed all ideas and suggestions.
- Run the data, gathered evidence and presented this to the OEM supporting our proposed changes to the testing schedule.

OEM Test Schedule Challenge

- Challenged the OEMs Testing Schedule and improved the efficiency of the process in 8 key areas associated with:
    - Sequencing of running operations.
    - Rationalisation of data capture and dwell points.



700 T

Decarbonisation Projects Under Way

Key developments:

- Progress in the alternative fuels testing (road to hydrogen).
- Involvement with OEM to support new DLE technologies within legacy products
- Measuring the carbon footprint of engines through the overhaul process.
- Top suppliers identified as part of understanding and measuring our Scope 3 emissions.
- Installation of electric charging points in the Aberdeen facilities to service the electric company vehicles and vans and which will be open for use by employees too.
- Possibility of using sustainable aviation fuel in our test beds.

Challenges:

- Challenge for the industry – join efforts around a common cause.
- Adoption of a common Net Zero certification – avoid duplication of efforts, drive consistency and promote journey to decarbonization.

RWG
REPAIR & OVERHAUL EXPERTISE

Any Questions?

Scottish Engineering

Net Zero vs Energy costs

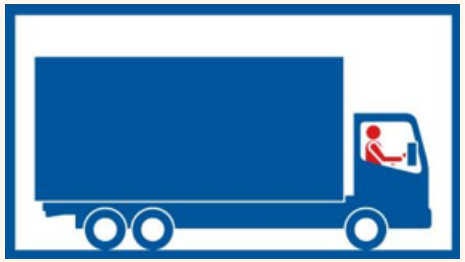
Securing a Green Recovery on a Path to Net Zero

Why Net Zero now?

Net Zero - Who cares?

Today's challenge vs Tomorrow's resilience

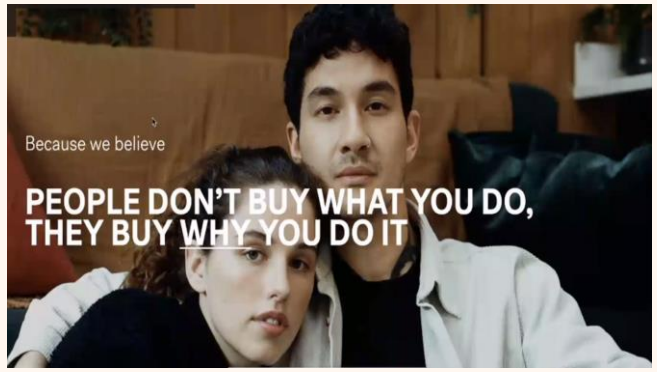
After COVID and Brexit challenges

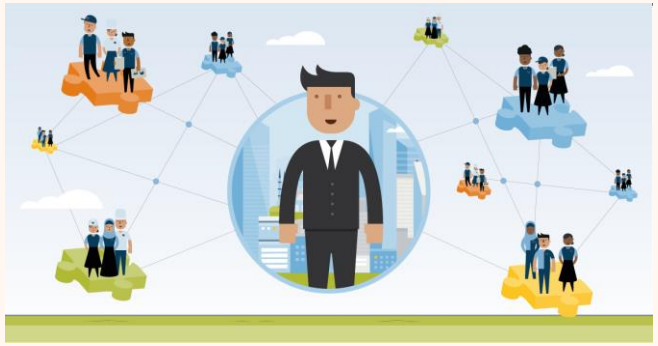


After supply chain challenges

Now energy cost and cost of living challenges

Scottish Engineering





Consumers **Customers** **Employees**

Everybody!

Governments **Peers** **Competitors**

Department for Business, Energy & Industrial Strategy

Cabinet Office

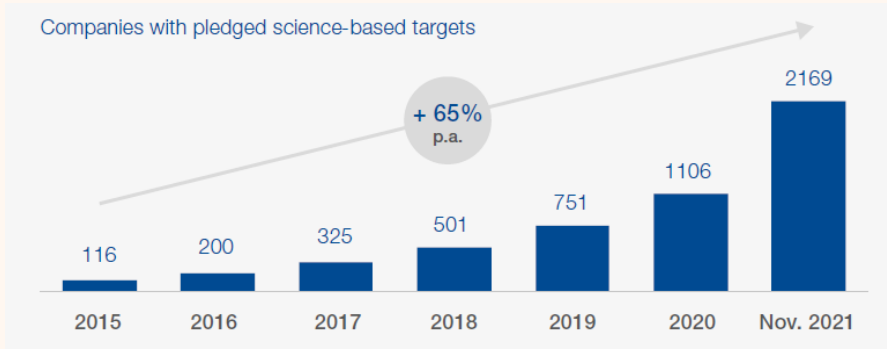
Procurement Policy Note – Taking Account of Carbon Reduction Plans in the procurement of major government contracts

Action Note PPN 06/21 05/06/2021

STREAMLINED ENERGY & CARBON REPORTING

ESOS energy savings opportunity scheme

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES



Scottish Engineering

Consumers

Popular support for net zero remains high

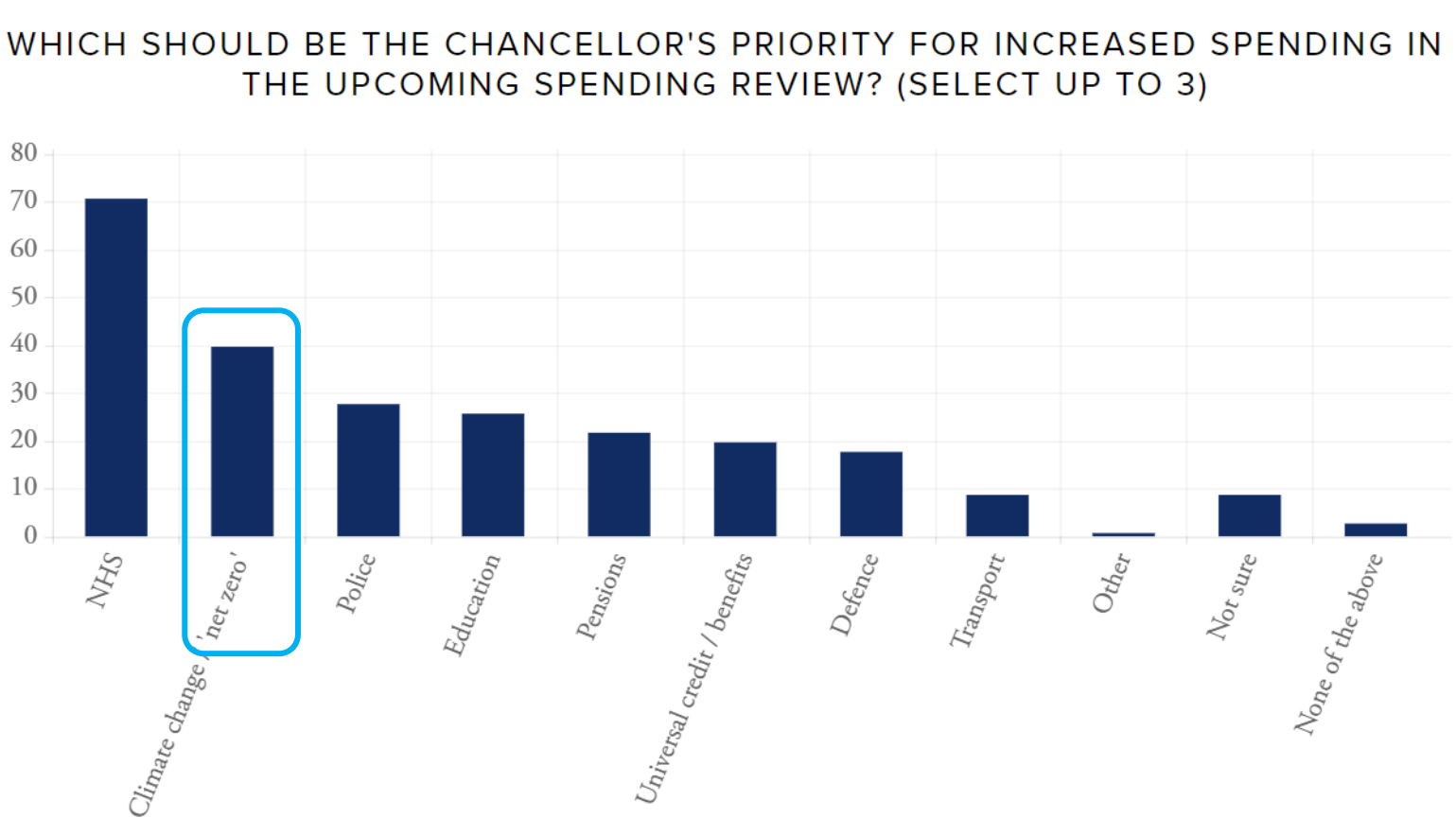
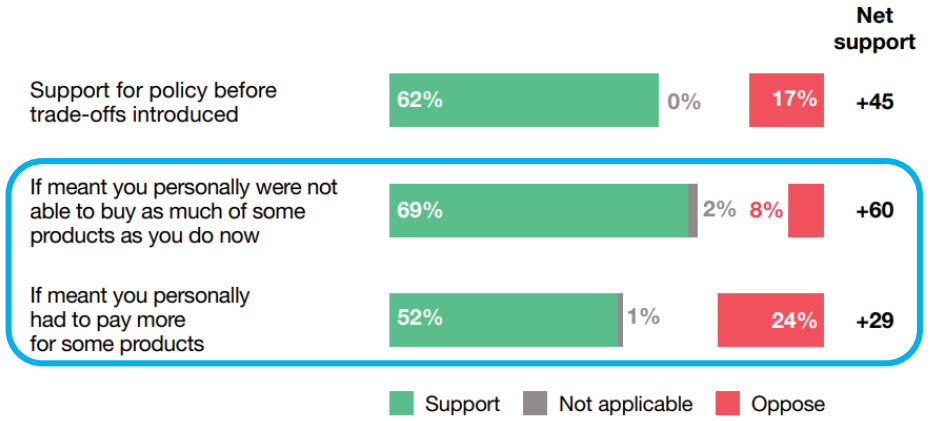


Figure 3.8 – Support for changing product pricing to reflect the degree to which products are environmentally friendly

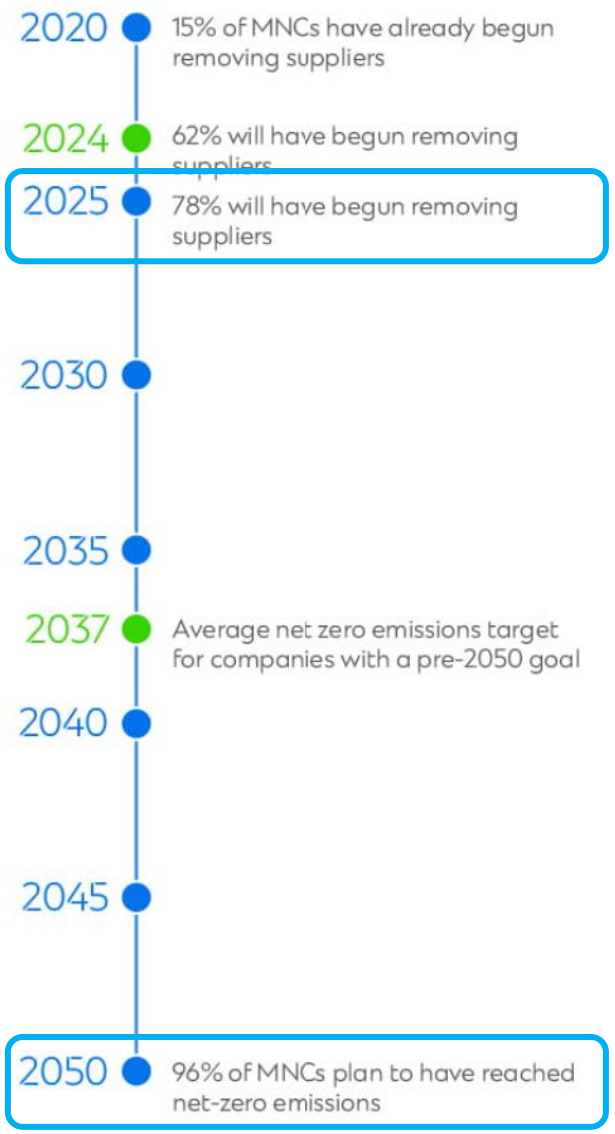


Customers

Multi-national companies (MNCs)

- **67%** say the first step in their net zero strategy will be reducing supplier emissions.
- **78%** say they will start removing slow-to-transition suppliers by 2025.
- MNCs expect to cut around **35%** of their current suppliers as they respond to net-zero pressure.

Key net zero dates for MNCs and their suppliers



How MNCs are helping suppliers reduce carbon emissions

Employees

Values and Responsibilities

23%
say 'doing a job that makes a difference' is most important to their career.

25%
say their ideal employer is an organisation with values matching their own.

37%
are worried about automation putting jobs at risk – up from 33% in 2014.

60%
think 'few people will have stable, long-term employment in the future'.

65%
think technology will improve their job prospects in the future.

70%
would consider using treatments to enhance their brain and body if this improved employment prospects in the future.

73%
think technology can never replace the human mind.

74%
are ready to learn new skills or completely retrain in order to remain employable in the future.

74%
believe it's their own responsibility to update their skills rather than relying on any employer.

Scottish Engineering

Competitors

Climate leaders gain competitive advantage

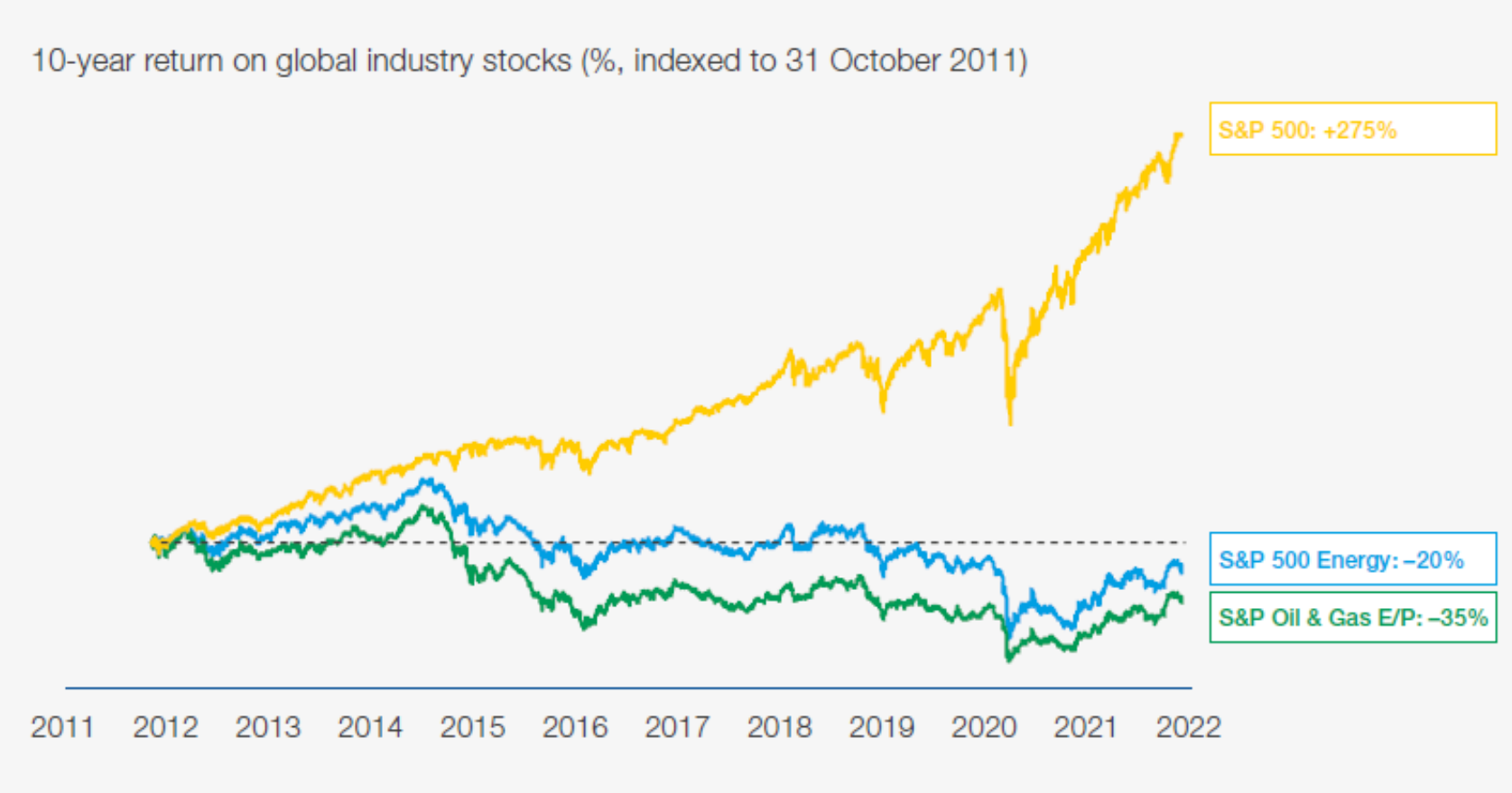
Easier hiring, retention	Higher revenues	Save cash and carbon	Lower regulatory risks	Cheaper financing	Higher value
40%	+4–25 pp	~50%	+2–12 pp	–100 bp	+3 pp
of talent seek sustainability	CAGR of sales growth for "green" products	of emission reduction at net zero cost in key sectors	EBIT margin after EU Carbon Border Tax[1] for companies abating 55% of emissions	WACC for top quartile environmental performers in Europe	TSR for top quartile environmental performers globally

Note: 1. Based on a €75/tCO_2 carbon price assumption for 2030.

Scottish Engineering

Businesses

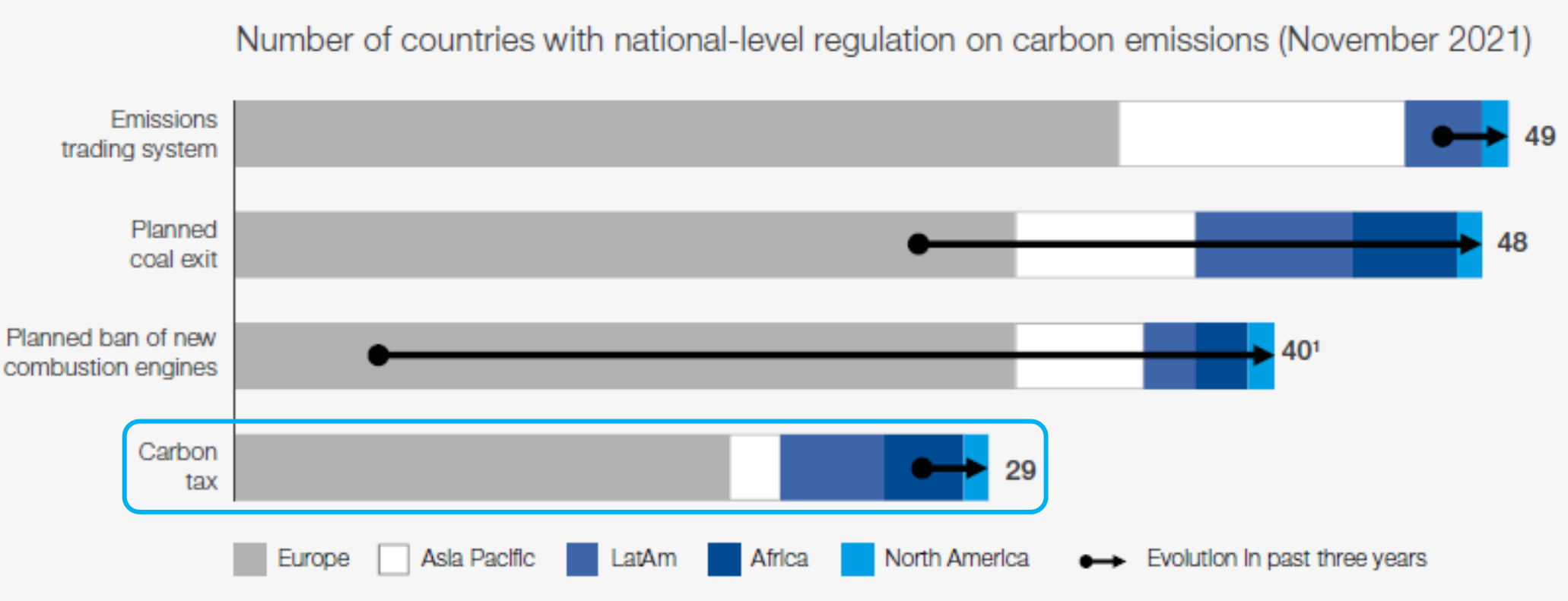
Markets are skeptical of fossil fuel-based business models



Scottish Engineering

Governments

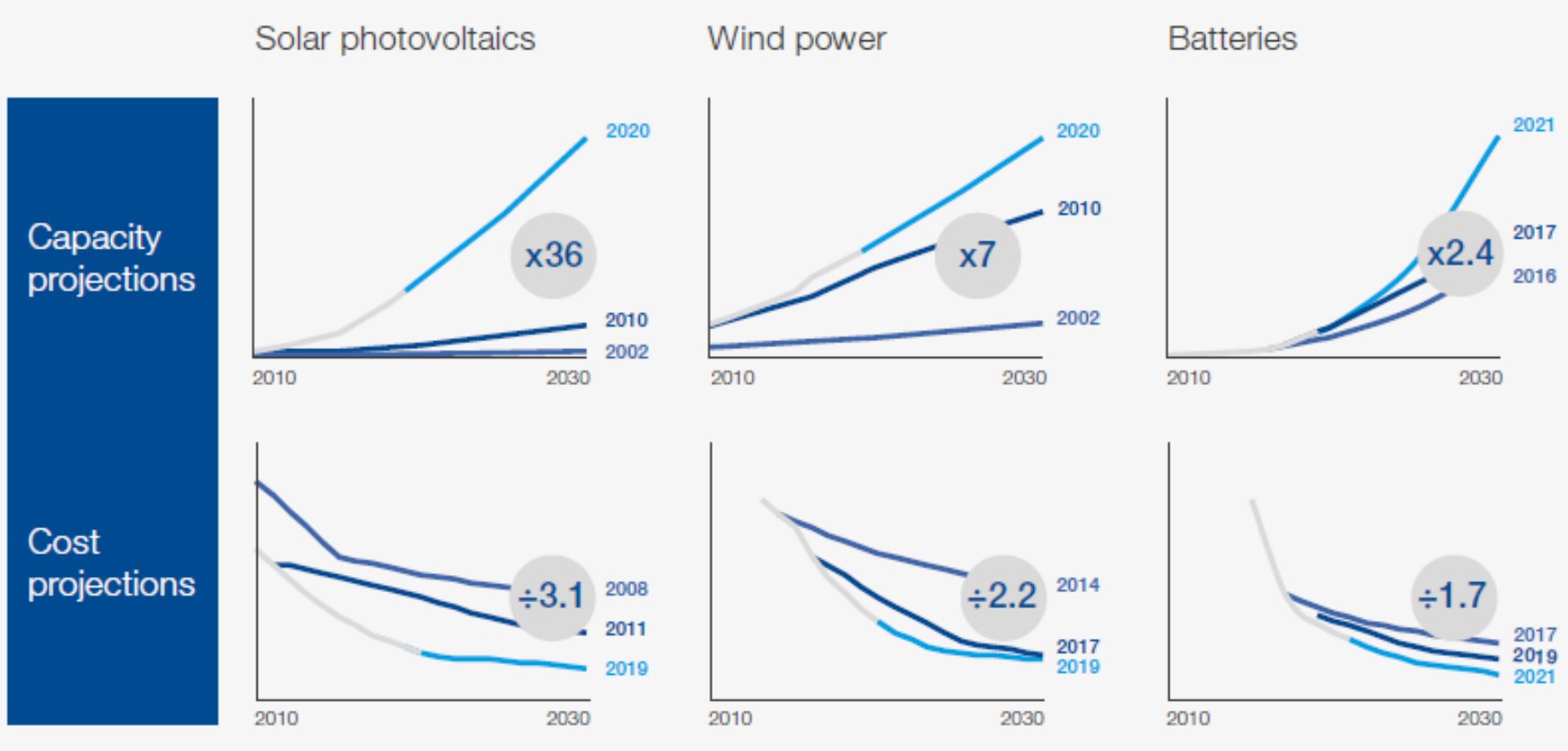
A significant carbon regulation pipeline



Scottish Engineering

Technologies

Projections have proven far too conservative



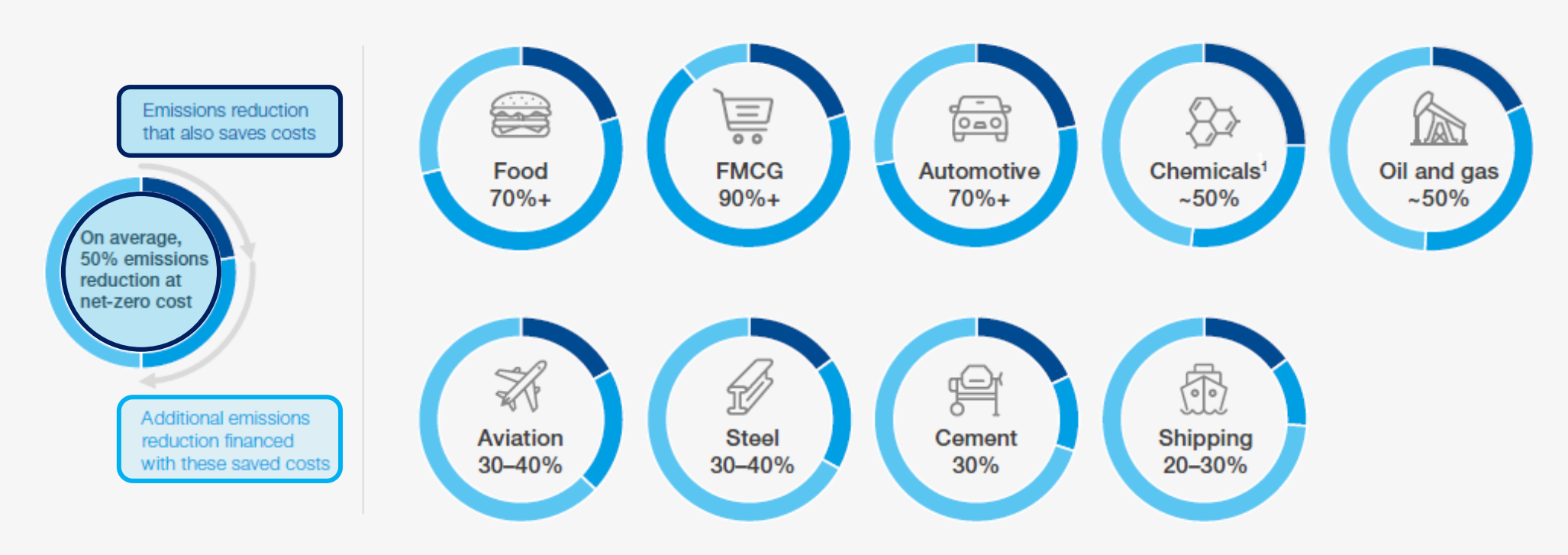
Scottish Engineering

What about the costs?

Scottish Engineering

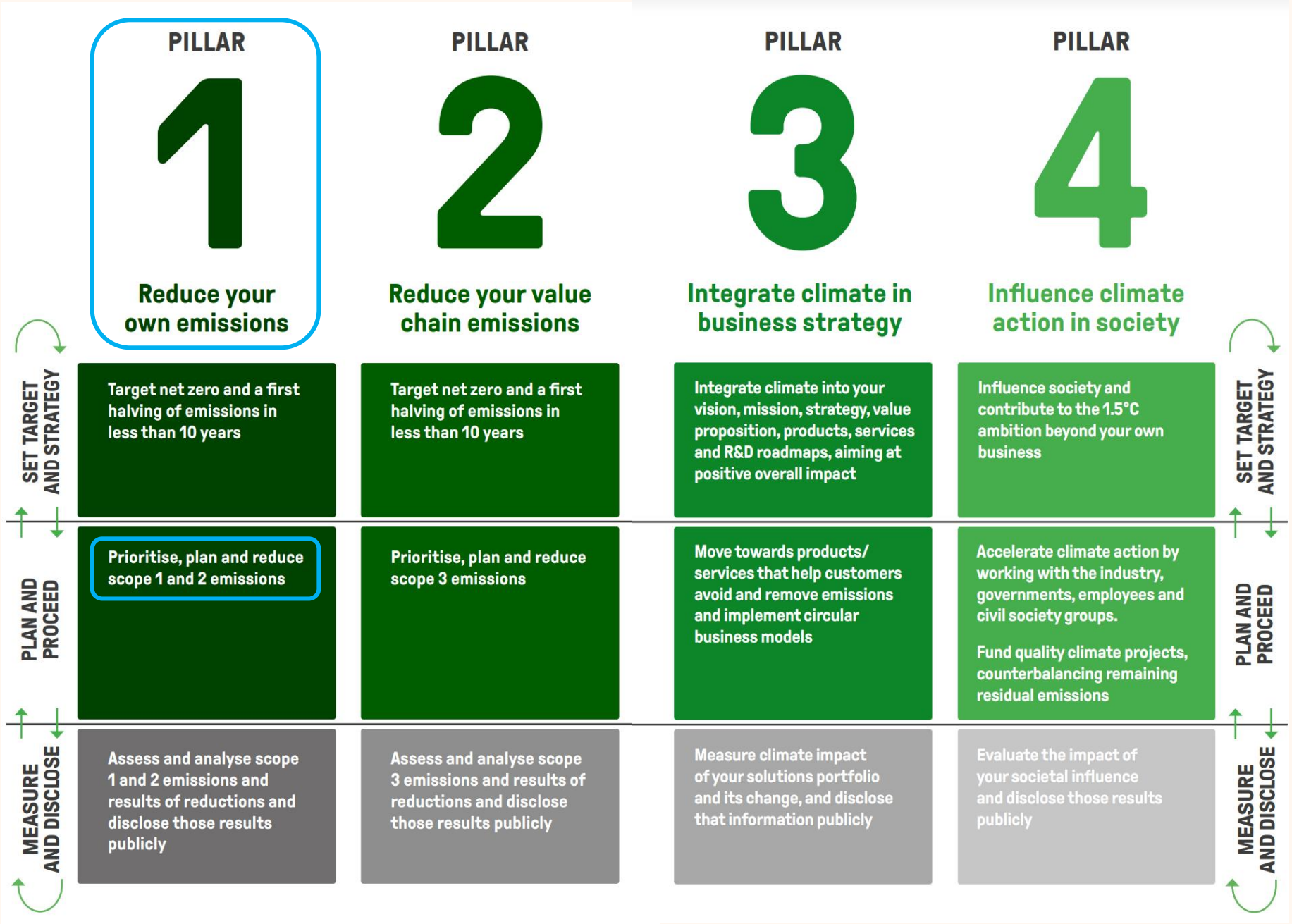
Implementation

Companies can reduce significant Scope 1 and 2 emissions at net-zero cost



Scottish Engineering

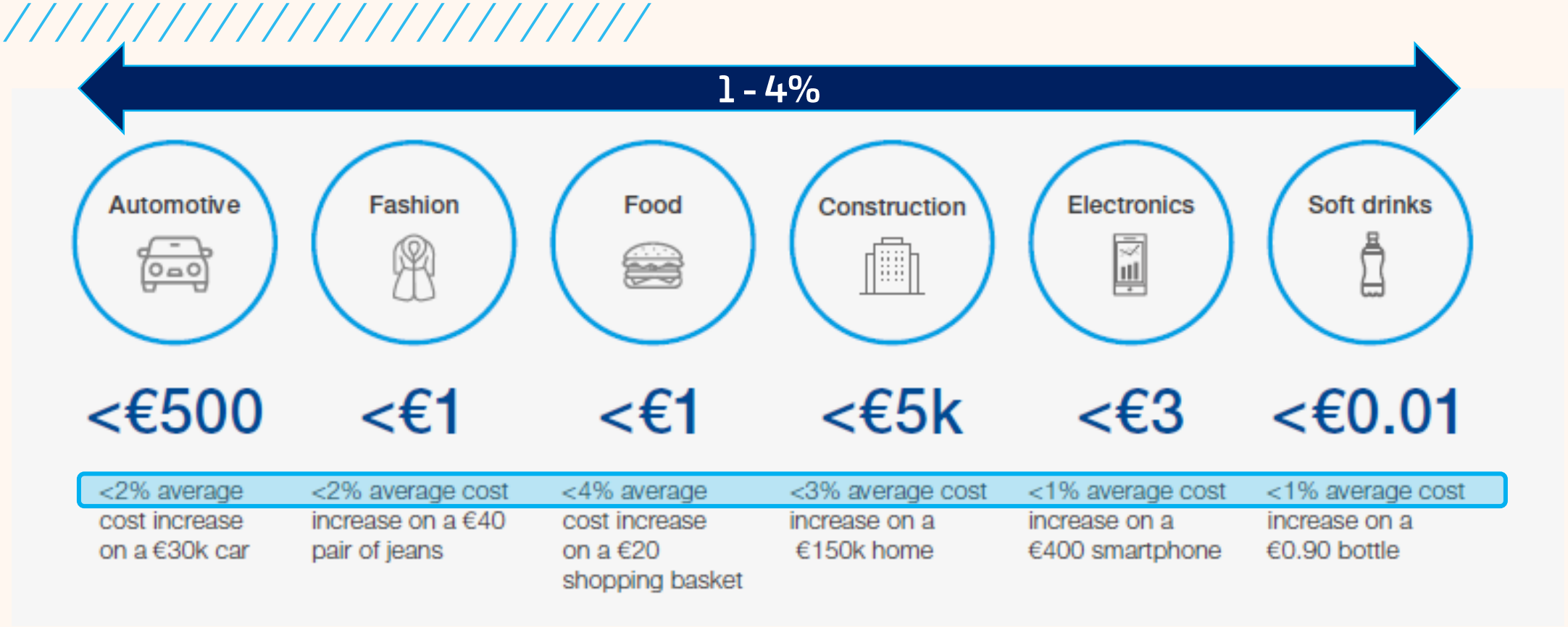
EXPONENTIAL ROADMAP INITIATIVE



Scottish Engineering

Implementation

Full decarbonisation has a low impact on the end price

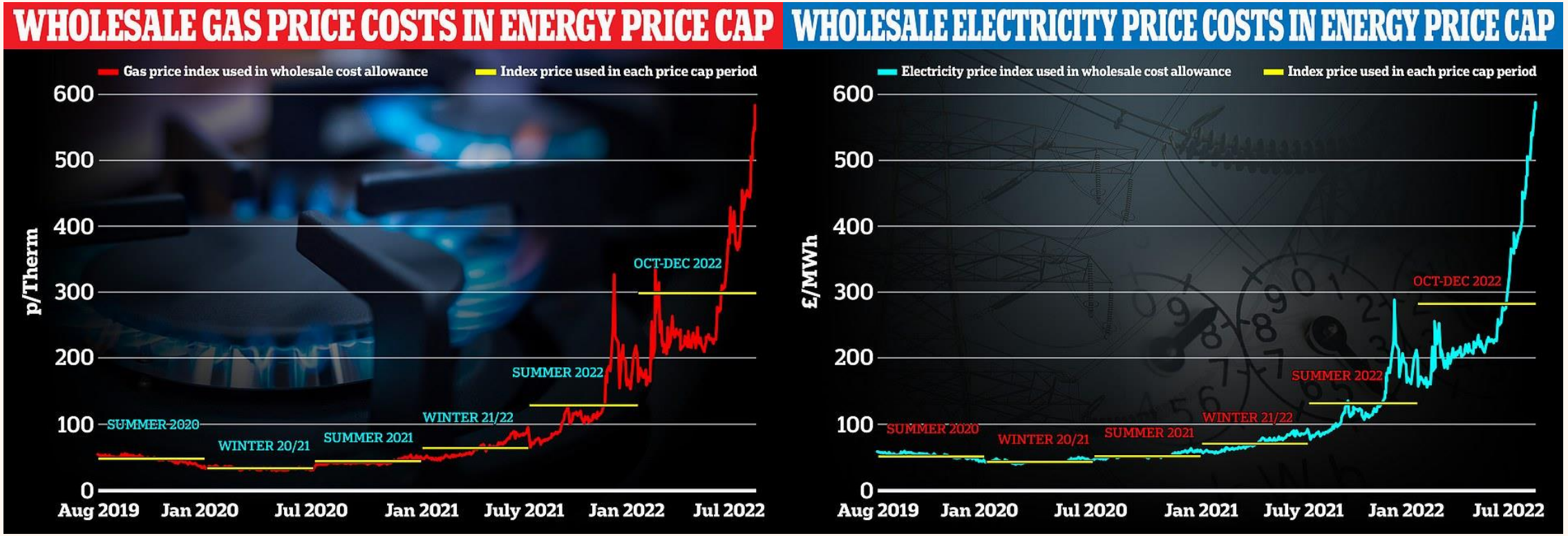


Scottish Engineering

Energy

Prices

The Federation of Small Businesses estimates bills rose for small businesses by **349% (x3.5) for electricity** and by **424% (x4.25) for gas** between February 2021 and August 2022.



Scottish Engineering

How can Net Zero help?

Decreasing energy usage

Scottish Engineering

Net Zero – Decreasing resource usage

Decarbonization Initiatives		Value chain emissions				
		Scope 1		Scope 2	Scope 3	
Initiative category	Example initiatives	Facilities, inc. gas	Vehicles	Purchased electricity	Upstream	Downstream
Monitor your energy usage and contract	Install a smart meter			●		
	Sub-meter high usage activities or equipment			●		
	Assign responsibility for your energy program	●	●	●	●	●
	Switch off a default energy tariff	●		●		
	Stay on your current contract if it has favourable terms	●		●		
	Shop around if your contract is expiring soon	●		●		
Save using low or no cost measures	Set your heat lower	●		●		
	Avoid overcooling			●		
	Create a temperature 'dead band'	●		●		
	Get a smart thermostat	●		●		
	Do regular operations and maintenance checks	●			●	
	Move your thermostats	●		●		
	Draught proof doors and windows	●		●		
	Install overhead fans	●		●		
	Check compressors are running properly			●	●	
	Check motors are running efficiently			●	●	
Invest in longer term energy savings	Insulate your pipes, roof and walls	●		●		
	Switch to more efficient light bulbs			●		
	Install automatic lighting systems			●		
	Install variable speed and frequency drives			●		
	Improve refrigeration efficiency	●		●		
	Replace office equipment with more efficient models			●		
Generate your own energy	**Network – Members**	●	●	●	●	●
Find funding and support	**https://findbusinesssupport.gov.scot/**	●	●	●	●	●

Scottish Engineering

Net Zero – Decreasing resource usage

Efficiency

Decarbonization Initiatives		Value chain emissions				
Initiative category	Example initiatives	Scope 1		Scope 2	Scope 3	
		Facilities	Vehicles	Purchased electricity	Upstream	Downstream
Energy efficient buildings	Insulation Energy management Heating & air conditioning	●		●		
Energy efficient production	Electrification Smart control system Energy/water technology & recovery	●		●		
Low-carbon energy use	Switch energy provider to renewables	●	●	●		

Scottish Engineering

Net Zero – Decreasing resource usage

Process

Decarbonization Initiatives		Value chain emissions				
Initiative category	Example initiatives	Scope 1		Scope 2	Scope 3	
		Facilities	Vehicles	Purchased electricity	Upstream	Downstream
Low-carbon energy production	Build renewable energy capacity for direct operations	●	●	●		
Industrial processes	Equipment replacement Process material substitution/efficiency Carbon capture, utilization and storage	●		●		
Transportation	Vehicle efficiency (e.g. sustainable fuels) Vehicle replacement (zero emissions vehicles) Switch transport mode (e.g. rail)		●	●		●

Scottish Engineering

Net Zero – Decreasing resource usage

Engagement

Decarbonization Initiatives		Value chain emissions				
Initiative category	Example initiatives	Scope 1		Scope 2	Scope 3	
		Facilities	Vehicles	Purchased electricity	Upstream	Downstream
Behavioural change	Internal carbon pricing Travel policy, commuting & teleworking	●	●	●	●	●
Business model	Product portfolio transformation Divestment of investment portfolio Consumer engagement & sustainable behaviours	●	●	●	●	●
Supply chain engagement	Supplier, third party, & peer engagement Raw material substitution & procurement practices Government engagement & policy advocacy				●	

Scottish Engineering

Net Zero – Decreasing resource usage

Waste

Decarbonization Initiatives		Value chain emissions				
Initiative category	Example initiatives	Scope 1		Scope 2	Scope 3	
		Facilities	Vehicles	Purchased electricity	Upstream	Downstream
Waste & material circularity	Product or service design & packaging Material substitution, reuse & recycling Waste reduction				●	●
Fugitive emissions	GHGs reduction or capture e.g. Agriculture (methane, NO2 from fertilisers, etc.) e.g. Industrial plants/pipe leakages	●	*Highly sector dependent*			
Voluntary offsets	GHG avoidance/ reduction GHG removal/ sequestration	*Offset residual emissions from value chain*				

Scottish Engineering

Takeaway

Scottish Engineering

Net Zero or Energy savings

Both, they are concurrent

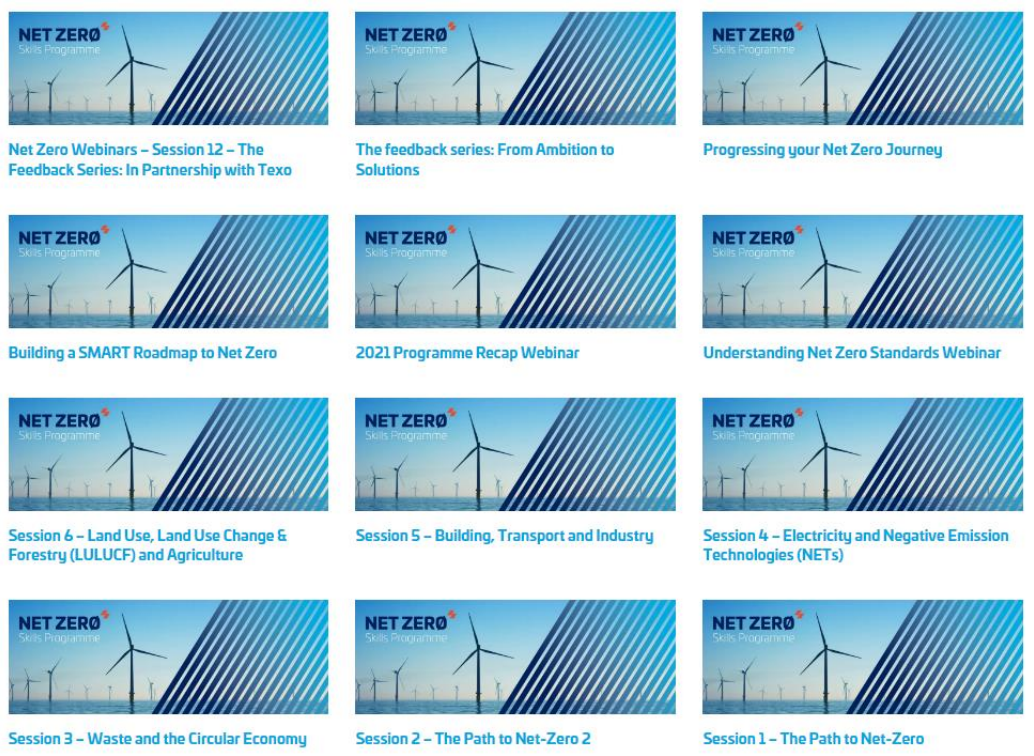
- Why: Net Zero is not going away and is affordable (at least getting on the journey)
- What: sustainability, both environmental and financial
  - Efficiency (facility and process)
  - Excess (waste and offsetting)
  - Engagement (internal and external)
- How: leverage the former to deliver the latter

Scottish Engineering

Net-Zero Support Programme

Webinars

> https://www.scottishengineering.org.uk/net-zero-skills/path-to-net-zero-webinars/



One-to-One

> Please make a note of interest to:
>> scoteng.org.uk
>> 0141 221 3181

Eric Boinard
Net Zero Project Lead
ericboinard@scottishengineering.org.uk

Scottish Engineering

Thank you

scoteng.org.uk | 0141 221 3181

Scottish Engineering