

# Your Innovation Partner



The  
Oil & Gas  
Technology  
Centre

Your Innovation Partner

**Chris Pearson**  
Interreg: GenComm  
June 2019

# Our Goals



**Unlock**

Unlock the full potential of the UK Continental Shelf



**Anchor**

Anchor the supply chain in North East Scotland



**Inspire**

Inspire a culture of innovation and transformation



£180 million funding from the Aberdeen City Region Deal

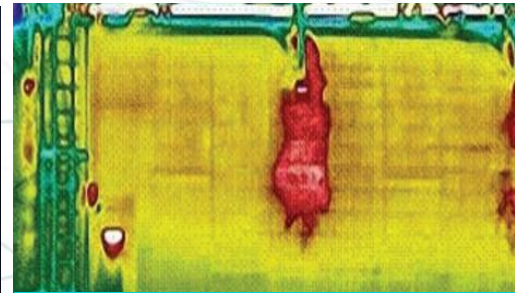
# Technology Vision



## Fix today



Data access



Asset inspection



Production optimisation



Revitalise exploration

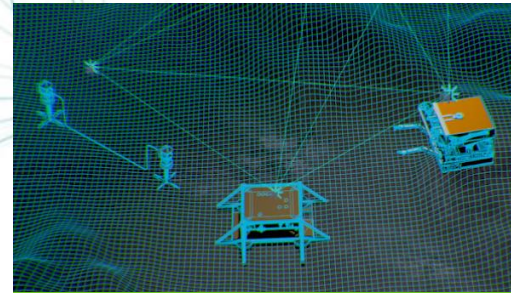


Efficient decommissioning



Alternative well barriers

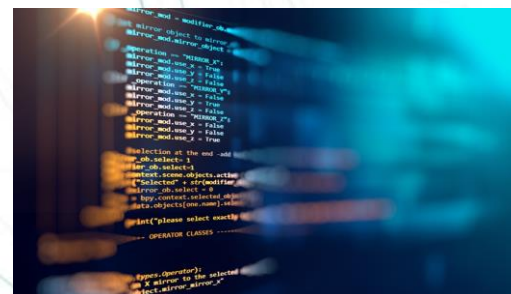
## Maximise recovery



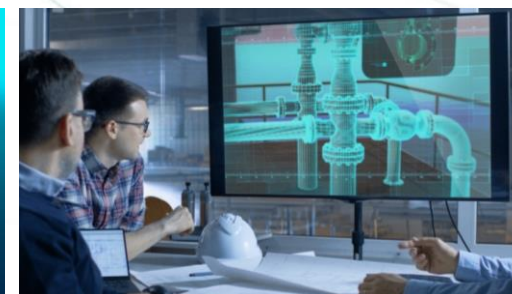
Tieback of the Future



Integrated energy



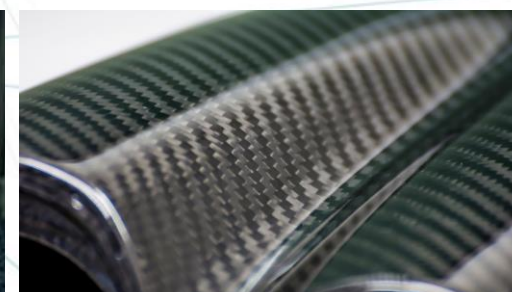
Automation



Remote operations



Artificial intelligence



New materials

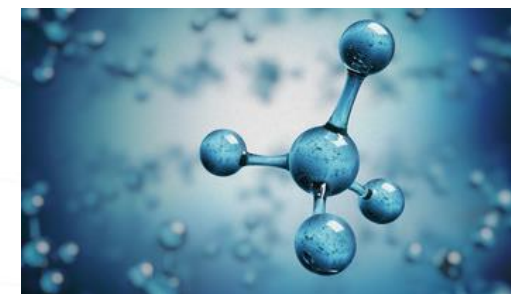
## Transform tomorrow



Low carbon operations



Reusable infrastructure



Hydrogen delivery



Data driven



Unmanned facilities



Zero carbon developments

Transforming the industry for the low carbon future

# How We Work



## Driving

Action through technology roadmaps to achieve MER UK and grow the supply chain



## Delivering

Projects that move the dial on key challenges and opportunities across the UKCS and beyond



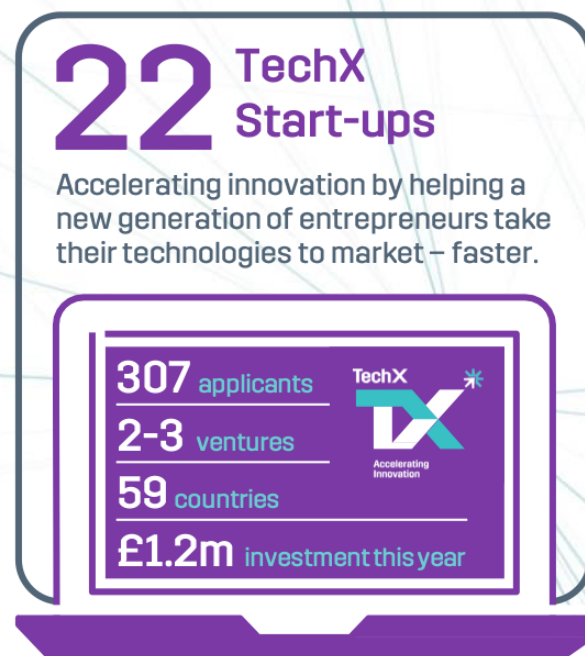
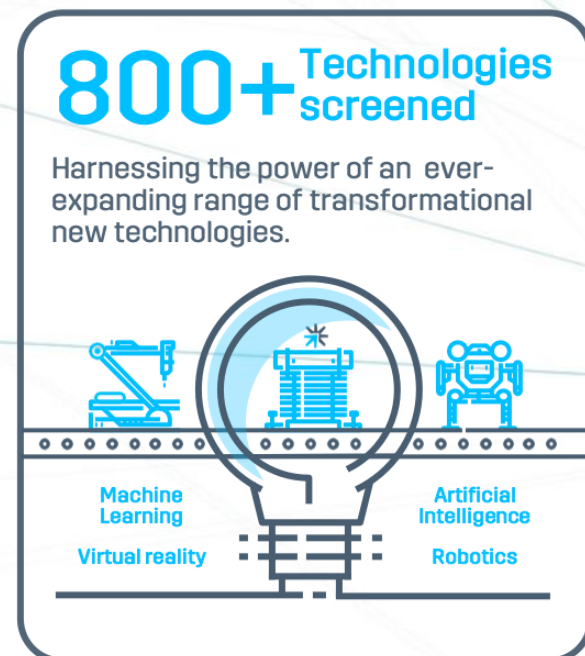
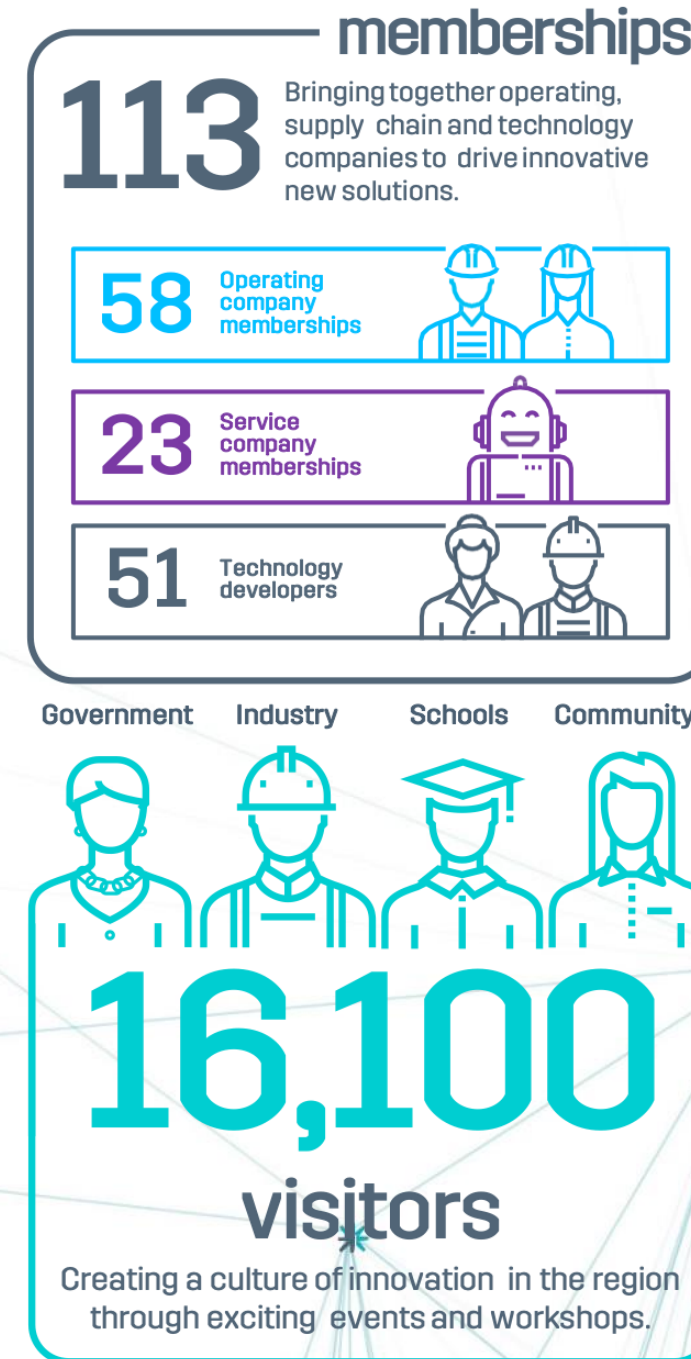
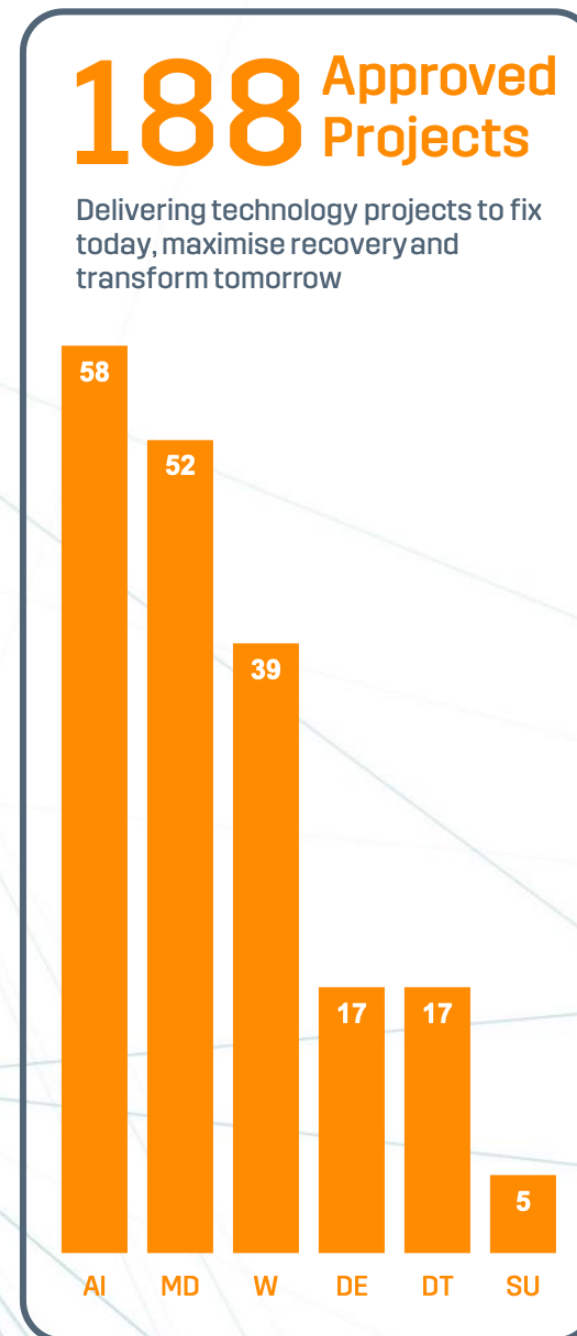
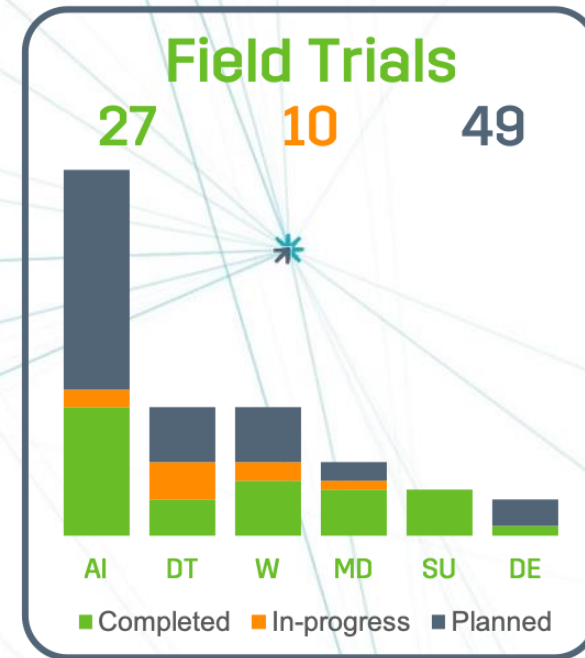
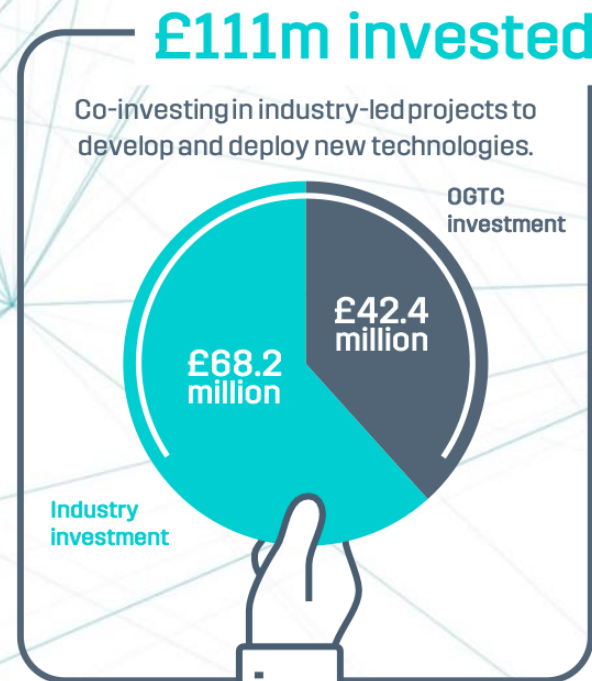
## Connecting

Industry, governments, regulators and academia to drive technology investment and deployment



Partnering with industry, government and academia

# Our Track Record



Delivering strong results

# 10-year Roadmap



## Driving



	Solution Centres	TechX Accelerator	National R&D Centres	Culture of innovation
	Unlock UKCS potential & anchor the supply chain	Accelerate 100 new start-ups	Create at least two national R&D centres	Thought leadership for the industrial transition
	Add >£8bn value	Add >£8bn value	Increase R&D capability	Ready for the future
	Production efficiency up 10%	15 new spin outs	National Decommissioning Centre with the University of Aberdeen	Low carbon industrial transition
	Up to 20 billion barrels	50% commercialisation	National Subsea Centre with Robert Gordon University	Inspiring the next generation
	35% cost reduction	£100m co-investment syndicate		Industry and academic engagement
	Well costs down 50%			
	50% fields under			
	Costs down 50%			

# Solution Centres



## Driving



	Digital	Subsurface	Decom	Wells	Marginal Developments	Asset Integrity
	10% increase in production efficiency	MER UK up to 20bn barrels	35% cost reduction	50% lower well construction costs	50% under development	50% cost reduction
Digitally enabled supply chain	Discover more	Late life management	Optimise design	Tieback of the Future	Risk based inspection & data analytics	
Digital & data architecture	Develop more	Post COP OPEX reduction	Flawless delivery	Facility of the Future	Detection & condition based monitoring	
Smart facilities	Recover more	Innovative removal	Maximise production	Integrated energy	Enhanced inspection techniques	
Digitally enabled worker		Optimise abandonment	Optimise abandonment		Repair & mitigation solutions	
Production optimisation						

Delivering solutions to industry challenges

# TechX Accelerator



Accelerating Innovation



## Driving

15 new spin outs

### Ventures

Creating start-ups with technologies that for a low carbon economy

100 new start-ups

### Pioneers

Supporting start-ups validate and commercialise exciting new technology ideas

50% commercialisation

### Market Entry

Helping technology companies from other sectors enter oil and gas

£100 million investment

### Co-investment

Unique fund offering seed capital to companies exiting TechX



Accelerating game-changing companies



# National R&D Centres



## Driving

### Partnering

With R&D institutions and innovation centres across the UK and internationally

### Enhancing

The research R&D capability of universities and other organisations

### Developing

New technologies that deliver for the UK and internationally



**Industry-led R&D in partnership with academia**

# National Decommissioning Centre



The National Decommissioning Centre

Innovation through Partnership



UNIVERSITY OF ABERDEEN

The Oil & Gas Technology Centre

Your Innovation Partner



## Mature basin management

- Business models
- Long-term liability management
- Comparative assessment
- Basin-wide simulation



## Well Decommissioning

- Barrier verification
- Abandonment landscape
- Alternative barrier materials
- Designing for decommissioning



## Late life and decommissioning

- Basin-wide decommissioning
- Alternative removal
- Decision making
- Dismantling and in situ decom
- Environmental science



## Thought leadership

- Inspire and implement
- Engineering and technology
- Culture and behaviour

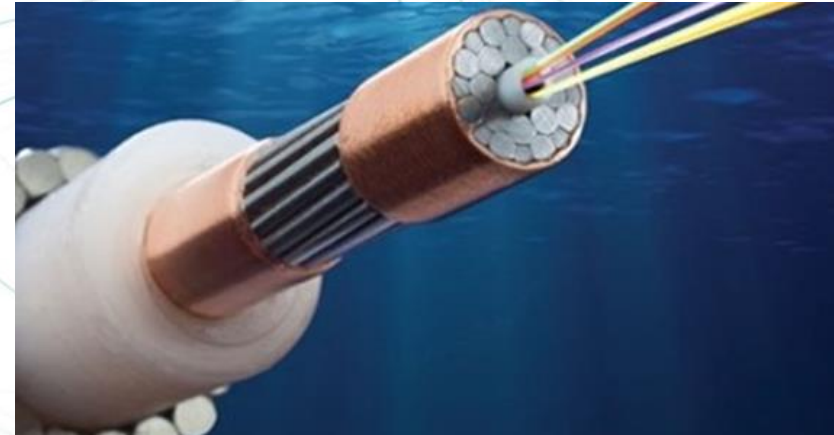
Industry-led R&D in partnership with academia

# National Subsea Centre



## Engineering

- Multi-discipline
- Teaching and research
- Industry and academia



## Technology

- Subsea 4.0
- Cross industry alignment
- Faster/cheaper deployment



## Integrated Energy

- Clean growth
- Integrated distribution
- Re-purposing assets



## Thought Leadership

- Inspire and implement
- Engineering and technology
- Culture and behaviour

Industry-led R&D in partnership with academia

# Culture of Innovation



## Driving



### Inspiring the next generation

- Primary Engineer
- Lego League
- Developing the Young Workforce

### Engaging events and workshops

- Tech20
- Doors Open Days
- Innovation workshops

### Increasing gender diversity

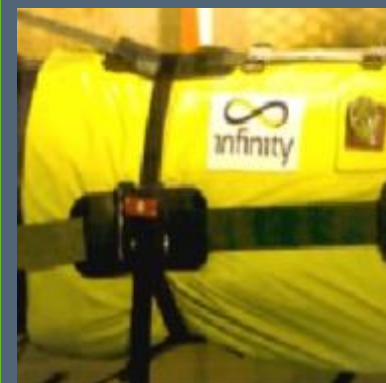
- Women in Engineering
- Fabulous Female Leaders
- Mentoring women in business

**Creating a culture of innovation**

# Fix Today



## Delivering



### Failforce actuator safety gauntlet

Simple, low cost protector for actuator valves

Improves safety and lowers cost by 90% or £8,000 per actuator

Potential £300 million in savings to UKCS

Reduce cost



### GDi digital twin & inspection

3D modelling and 360 imaging of offshore installations

Improves asset integrity efficiency, including maintenance and repair by ~£2 million per platform

Potential £500 million in savings to UKCS

Add barrels



Delivering projects that move the dial

# Maximise Recovery



## Delivering



### Osokey seismic in the cloud

Collaborative database for seismic data and analytics

Provides rapid access for data interpretation, driving improved exploration performance

Potential 20% cost reduction for IT and storage

Increase reserves



### Cavitas thermal heavy oil recovery

Subsea energy storage and power generation system to produce autonomous power for subsea wells

Integrated marine energy solution that lowers cost

Potential to unlock ~400 million barrels UKCS reserves

Add barrels



Delivering projects that move the dial

# Transform Tomorrow



## Delivering



### Sealand platform power hub

Alternative power sources for existing facilities, working in partnership with offshore renewables

Reuse of infrastructure, reducing cost and CO<sub>2</sub> footprint

Potential £600 million annual saving to UKCS

Re-use and re-cycle



### EC-OG subsea power hub

Downhole heating device for unlocking heating oil reserves

Small footprint technology that maximises recovery

Potential £200 million saving to UKCS

Integrated energy



Delivering projects that move the dial

# Our Innovation Network



## Connecting

### Horizon Scanning

Predicting emerging technologies and trends

### University Network

Forging partnerships with industry and academia

### Academic Panel

Harnessing expert advice and technical capability

### Industrial Network

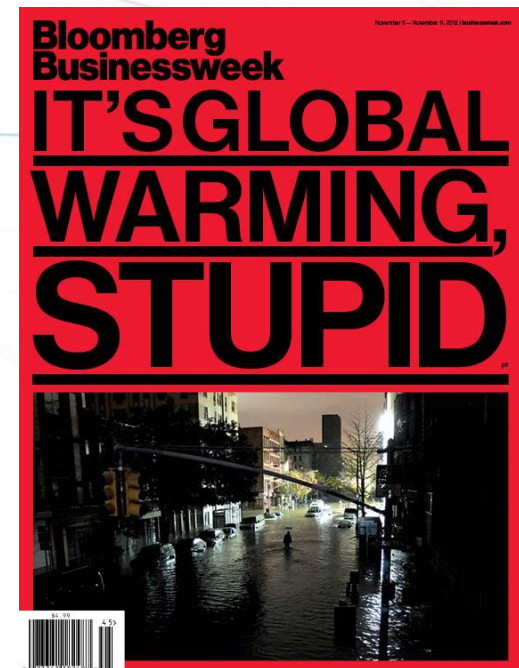
Leveraging the technology strengths of other sectors



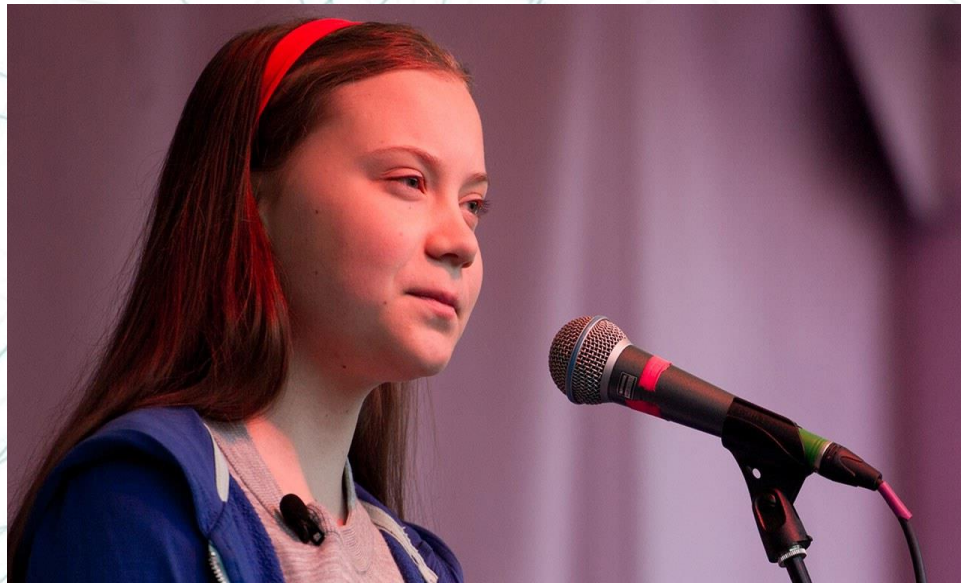
**Bringing the outside in**



# A Changing World



# The Social Wave



**Greta Thunberg**

**“I don't want your hope. I don't want you to be hopeful. I want you to panic...and act as if the house was on fire. Because it is.”**



**Damon Gameau**

**“If we simply embraced the best solutions already available to us to improve our planet and shifted them rapidly into the mainstream.”**



**Sir David Attenborough**

**“If we have not taken dramatic action within the next decade, we could face irreversible damage to the natural world and the collapse of our societies.”**

**Driving demand for action**

# The Policy Landscape



## Global



UNITED NATIONS

ipcc

INTERGOVERNMENTAL PANEL ON  
climate change



## UK



Net Zero  
The UK's contribution to  
stopping global warming

Committee on Climate Change  
May 2019



TIME FOR ACTION

COP25  
CHILE  
2019  
UN CLIMATE CHANGE  
CONFERENCE



Advancing goals and targets

# Industrial Transition



**A cleaner industry**

**Decarbonise operations**



**Net zero carbon basin**

**Integrated energy**



**Global net zero**

**Our contribution**



**Working across the energy sector to be part of the solution**

# Work With us



The  
Oil & Gas  
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# Together we can transform the future