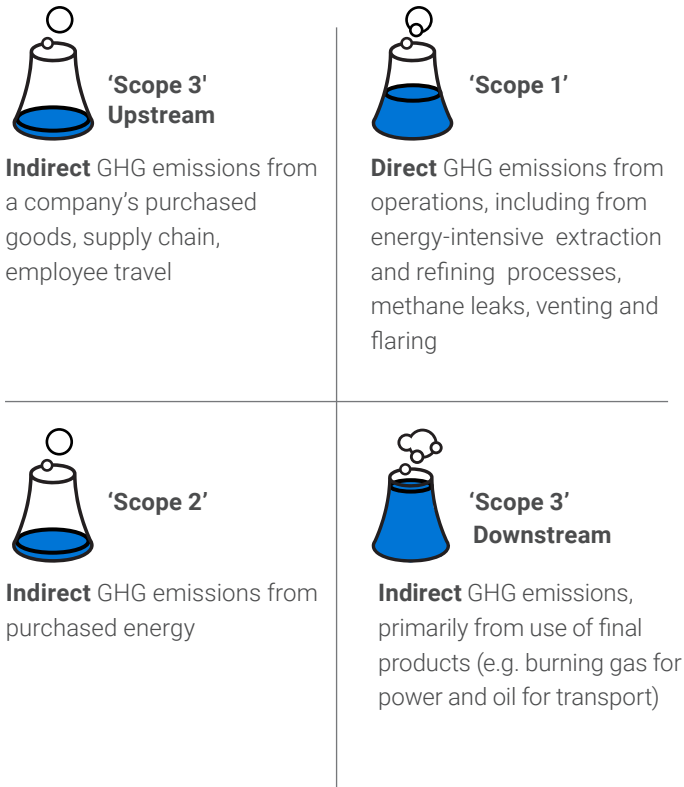



Net zero: oil and gas

To prevent dangerous climate change, greenhouse gas emissions must reach net zero. What does the **oil and gas sector** need to do?

12% of human-caused GHG emissions come from the operations of the oil and gas sector

Sources of emissions



 Sources: LGIM, based off McKinsey (2019), IEA (2020)



Challenges

- Price volatility
- Loss of revenues and market share
- Technology costs
- Lack of infrastructure
- Policy uncertainty
- Behavioural barriers to 'managed decline'
- Stranded asset risk



Opportunities

- Portfolio diversification
- Growth in non-combustion uses of fossil fuels (e.g. petrochemicals)
- Attracting talent and maintaining social licence to operate

Companies

Governments

Key levers	Key policies
<ul style="list-style-type: none"> Managed decline for upstream business Shift to lower-carbon product mix Electrification and renewables in pursuit of net zero operational emissions 	<ul style="list-style-type: none"> Stable and higher carbon prices Removal of subsidies Strengthened flaring and venting regulation Zero-emissions transport/heat/power standards Waste collection and recycling standards Development of low-carbon infrastructure Standards for biofuels and hydrogen



Other environmental considerations

- Reduced pollution (SOx and NOx) and impact on biodiversity from fewer exploration activities
- Potential land use trade-off between biofuels and food crops

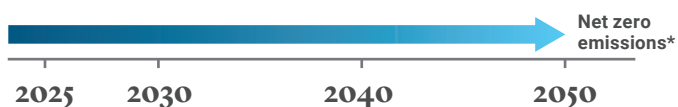
Social impacts and the 'just transition'

- Employment and tax revenues from oil and gas
- Consumers sensitivity to fuel costs
- Need to retrain workforce

Physical risk impacts

- Disruptions from extreme weather events (e.g. storms and flooding for coastal facilities, water scarcity in water-intensive processes, melting permafrost affecting pipelines)

Decarbonisation effort



Easier to achieve

- Managed decline does not require reinvention
- Methane reductions possible at no net cost
- Co-location of facilities with renewable energy
- Blending hydrogen/ biomethane in gas grid
- Installing EV charging in petrol stations

Possible with effort

- Increase in production of advanced biofuels, hydrogen
- Carbon capture, utilisation and storage (CCUS) in refining and upstream gas
- Diversification into non-core areas of the energy system

*To be followed by reducing emissions of other GHGs such as methane to net zero

What is needed?



Company leadership

- Commitment to 'ex-growth' for upstream oil and gas
- Pursuing diversification



Research and innovation

- CCUS
- Lower-temperature refining catalysts
- Green hydrogen



Consumer behaviour

- Changes in energy use and transport habits: ride-sharing, working from home

LGIM will vote and implement investment sanctions against companies falling short of our climate expectations.

How are we assessing companies' net zero pathways?

Net-zero commitment	<ul style="list-style-type: none"> Does the company have a comprehensive net-zero target, including emissions from sold products and has this target been certified by the SBTi? Has the company disclosed a net-zero transition plan, including interim targets?
Strategy	<ul style="list-style-type: none"> Has the company committed to a managed decline for its fossil fuel portfolio? Evidence of R&D in / acquisitions of low-carbon technology? Is executive remuneration aligned with the net-zero pathway?
Resilience	<ul style="list-style-type: none"> Exposure to physical risk? Resilience of business model in – and alignment to – climate scenarios?
Targets	<ul style="list-style-type: none"> Does the company have a target to achieve net-zero operational emissions? Commitment to achieve zero routine flaring, and to significantly limit methane intensity? Does the company have a green revenue target?
Collaboration	<ul style="list-style-type: none"> Evidence of the company working collaboratively across its value chain to reduce emissions? Evidence of the company advocating for meaningful policy action?
Red lines	<ul style="list-style-type: none"> Does the company disclose downstream Scope 3 emissions? Does the company have plans to expand 'extreme' oil (bitumen extraction, Arctic oil)?

For more information...

Please see: https://www.lgim.com/landg-assets/lgim/_document-library/responsible-investing/climate-impact-pledge-brochure-uk-eu-2021.pdf

Important information

Source: LGIM as at September 2021. The value of an investment and any income taken from it is not guaranteed and can go down as well as up, you may not get back the amount you originally invested. The above information does not constitute a recommendation to buy or sell any security

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