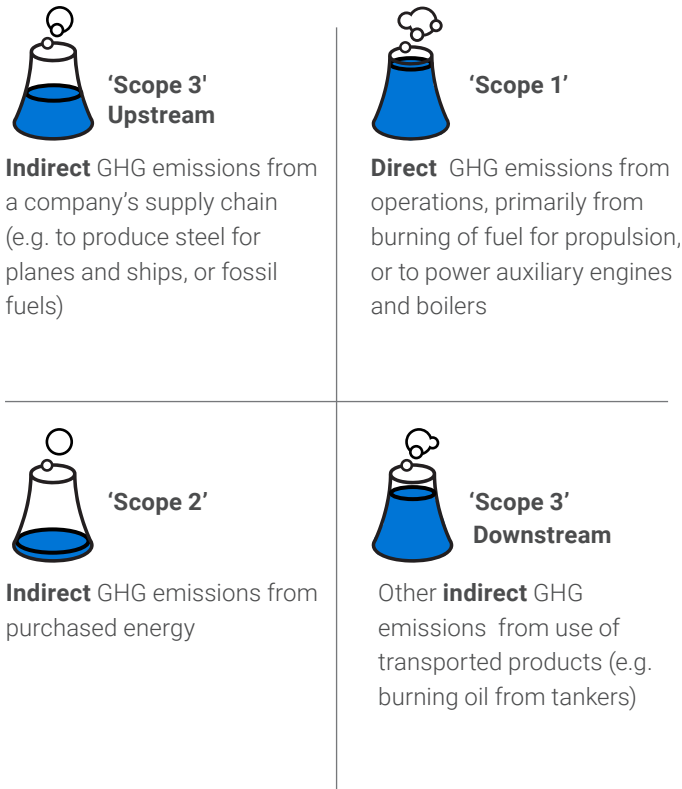


# Net zero: airlines and shipping

To prevent dangerous climate change, greenhouse gas emissions must reach net zero. What do the **airline and shipping** sectors need to do?

**3%** of human-caused GHG emissions come from airlines and shipping

## Sources of emissions

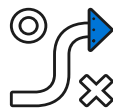


 Sources: UNEP (2019)



## Challenges

- Price of current technologies
- Battery range and density
- Fragmented industry structure
- Lack of robust policies



## Opportunities

- Growing consumer demand to reduce 'food miles' and other transport-related product emissions

## Companies

## Governments

Key levers	Key policies
<ul style="list-style-type: none"> <li>Electrification and batteries</li> <li>Sustainable biofuels</li> <li>Ammonia</li> <li>Hydrogen</li> <li>Vessel design</li> </ul>	<ul style="list-style-type: none"> <li>Carbon pricing and taxation (including at refuelling points)</li> <li>Support for renewables</li> <li>Policy coordination between international regulators, (air) ports and transport operators</li> <li>Regulation of biofuels</li> <li>Tightening/enforcing energy efficiency standards and green fuel mandates</li> </ul>



## Other environmental considerations

- Net zero shift would also help tackle pollution (reduce SOx and NOx)
- Waste and impacts on biodiversity
- Biofuel/agriculture trade-offs

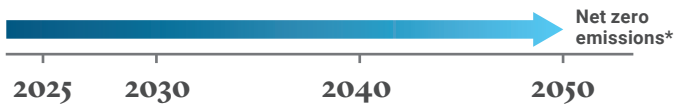
## Social impacts and the 'just transition'

- Limited impacts from changes in fuel used by ships and planes, but restrictions on (short-haul) flights may prove disruptive

## Physical risk impacts

- Disruption to global transport routes and hubs from extreme weather

## Decarbonisation effort



### Easier to achieve

- Biofuel blending
- Vessel design
- Energy efficiency
- Batteries for short-haul journeys
- Wind-assisted propulsion for ships
- Slower ship cruising speeds
- Air traffic management for more direct routes and less taxiing

### Possible with effort

- Scaling sustainable biofuels
- Ammonia- or hydrogen-based fuels
- Policy cooperation

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

## What is needed?



### Company leadership

- Companies investing in available decarbonisation technologies
- Logistics companies adopting stringent targets for freight



### Research and innovation

- Reducing costs of electrolysis
- Synthetic fuels
- Carbon capture and storage
- Battery density



### Consumer behaviour

- Demand for products with reduced transport emissions
- Modal shifts in transport due to 'flight-shaming'

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

## How are we assessing companies' net zero pathways?

<b>Net-zero commitment</b>	<ul style="list-style-type: none"> <li>Does the company have a target for net zero by 2050 or earlier?</li> <li>Does the company provide a net zero transition plan that sets out clear milestones over the short and medium term?</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>Is there evidence of the company pursuing "low-hanging fruit" in terms of decarbonisation measures?</li> <li>Evidence of a capital allocation strategy that contributes to the development and roll-out of low-carbon technologies and wider decarbonisation efforts</li> </ul>
<b>Resilience</b>	<ul style="list-style-type: none"> <li>Is the company analysing the physical climate risks to its portfolio and evidencing measures to manage these?</li> <li>Resilience of business model in – and alignment to – climate scenarios?</li> </ul>
<b>Targets</b>	<ul style="list-style-type: none"> <li>Does the company have targets related to use of "green" fuels, and the climate alignment of fleets?</li> </ul>
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>Evidence of the company working collaboratively across its value chain to reduce emissions?</li> <li>Is there evidence of the company advocating for meaningful policy action from regulators?</li> </ul>
<b>Red lines</b>	<ul style="list-style-type: none"> <li>Short and medium-term operational emissions targets and evidence of progress towards these targets</li> </ul>

## For more information...

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