ZESTAs. Zero Emissions Maritime Technology Association

SHIP ZERO 26

OUTCOMES REPORT

Ship Zero was the first-ever shipping industry event to align with the IPCC "very low emissions scenario", by not contemplating the use of fossil fuels or any GHG emitting fuels or technology.

The objectives of Ship Zero were to:

- Demonstrate and inform the shipping industry that zero emissions technology is currently market ready.
- Bring together a broad cross section of significant players across the maritime industry to brainstorm solutions to achieving true zero, based on existing technology.
- Generate concrete and specialist publications to be distributed to relevant stakeholders

The 3-day workshop contained presentations, keynote speeches, panel discussions and collaborative brainstorming sessions.

Ship Zero drew an impressive and renowned group of experienced leaders and authoritative voices in the rapidly growing zero emissions shipping sector.
The workshop covered a range of crucial topics. Speakers and moderators ranging from shipowners, technology providers, innovators, safety experts, finance, policy, ports and regulators presented their diverse experiences and perspectives.

Click here to read the full Ship Zero agenda.

Click here to see photos and watch videos of presentations, keynotes and panel sessions.

The brainstorming sessions were 20-to-30-minute in-person discussions of topics related to the previous presentations. In each session, attendees were free to choose between three groups covering different topics included finance, systems design, energy storage, green hydrogen supply, hydrogen fuel cell and bunkering technology, wind propulsion, safety, crew training, shipyards, supply chains, system efficiency, ESG, market factors, policy, regulation and certification. The attendees were given a large piece of paper divided into four sections (policy, market, technology and finance) and were invited to discuss and document how zero emissions shipping can be achieved from a holistic systems perspective. Chatham House rules were observed throughout, to enable an open and honest dialogue. The workshops emphasised collaborative and holistic approaches to solving the barriers faced by zero emissions shipping. The dialogue created a space for reflection that brought together different perspectives and identified potential partnerships between the stakeholders present.

Outcomes

The discussions at Ship Zero provided the basis for several post-Ship Zero outcomes:

- Policy Brief
- White Paper of technical solutions and industry agreements showing that ZE technology is poised to escalate in scale
- Navigational Chart to True Zero

Policy Brief

The Ship Zero 26 Policy Brief was completed during COP26 and distributed to over 2,000 ministers ahead of Transport Day (10/11/2021).

The document introduces the outcomes and learnings from Ship Zero before succinctly summarising the state of zero emission technology readiness levels (TRLs) and latest infrastructure and finance developments. It finishes by describing the government policy actions that can support the IMO in achieving effective emissions reductions in line with the Paris Agreement.




White Paper

This collaborative report will describe technical solutions and industry agreements in place that demonstrate that technology is poised to escalate in scale. Details of existing standards, qualifications and certifications will be listed to demonstrate the progress so far and identify any gaps that must be addressed.

Work has begun on the White Paper in collaboration with members and partners, including:

- **Shift Clean Energy**: Providing input on safety standards and certification of battery and electrical energy storage systems. Is an industry leader in preventing battery thermal runaway through their CellCool system and gas extraction.
- **Unitrove**: Providing input on standards for liquid hydrogen bunkering. Developed the world's first liquefied hydrogen bunkering system and has pioneered the development of relevant standards, working closely with the British Standards Institute.
- **University of Strathclyde**: Providing expertise in naval architecture.
- Orkney Island College: Providing input on crew training and qualification for hydrogen-propelled vessels. Developed the world's first government-recognised training course for crews of hydrogen-fuelled vessels, working closely with the UK Maritime and Coastguard Agency.
- **ZEM Tech**: Providing expertise in marinised hydrogen propulsion, storage, integration, infrastructure, supply and production of green hydrogen.

Navigational Chart to True Zero

The Navigational Chart to True Zero is currently under development and will be delivered later in 2022. It will be a timeline of representative vessel projects ongoing up to 2030 which demonstrate all technology required for achieving True Zero shipping.

Between now and COP27, three workshops will build on and finalise the Navigational Chart to True Zero:

- Q1: online workshop
- Q2: in-person workshop in conjunction with the ZESTAs AGM
- Q3: online workshop
- ShipZero27 hybrid workshop in conjunction with COP27




Workshops will follow a similar format to the brainstorming sessions at Ship Zero but will emphasise vessel demonstration projects and technology integration.

The Chart will demonstrate the progress of real-time projects in development, starting with a baseline of existing zero emission vessels, supply chains and maritime infrastructure:

- Maas & Antonie - Future Proof Shipping & Nedstack
- Alphenaar - ZES
- Hydra - Norled
- Sea Change - ZEI
- Gisas Power - NAVTEK Zeetug30
- Aurora & Elektra – Shift
- Battery swapping solutions such as Shift PwrSwäp, ZES containers

The timeline will show projects in development, giving a short description of technical details and operational characteristics. Users will click through to see another timeline of each project's key milestones (e.g. design completed, keel laid, propulsion system delivered, etc.). We will add projects to the timeline, with a focus on collaboration between members.

Attendance

Ship Zero forged partnerships between key stakeholders, boosted industry confidence in zero emissions technology and resulted in deals that will catalyse increased zero emissions shipping.

Experts from a diverse cross section of the shipping industry attended Ship Zero, demonstrating motivation to address shipping's increasing GHG emissions from all perspectives of the industry. Figure 1 shows a breakdown of sectors present.
Prominent delegates included representatives from the **governments of Greenland, Solomon Islands, Canada, Chile and Scotland** as well as the **United Nations Special Envoy for the Oceans**. Delegates from the **International Maritime Organisation (IMO)** included the Head of US Delegation, the Technical Officer of the Marine Environment Division and the IMO Representative for the Solomon Islands. Classification society **Bureau Veritas** provided regulatory insight, sponsorship, as well as presenting and moderating on several topics.

Input from industry bodies like the **International Chamber of Shipping** and the **World Shipping Council** and major shipowners including **NYK Line, Yusen Logistics, Stena Bulk** and **Ardmore Shipping** gave the workshop solid footing in current industry challenges. Delegates from engineering and design experts **ABB, Wilhelmsen, Houlder, MAN Energy Solutions** as well as notable financial institutions such as **CitiGroup, Société Générale, Ocean Assets Institute, Bride Valley Partners, Greenbackers Investment Capital, PJ & Company, BC Trade and Invest and Lothian Pension Fund** made considerable contributions to the workshop outcomes.

Figure 1 – Ship Zero attendees by sector

Leaders were the clear majority at Ship Zero 26, with almost two thirds of the attendees holding Executive or Senior positions, as shown in Figure 2.

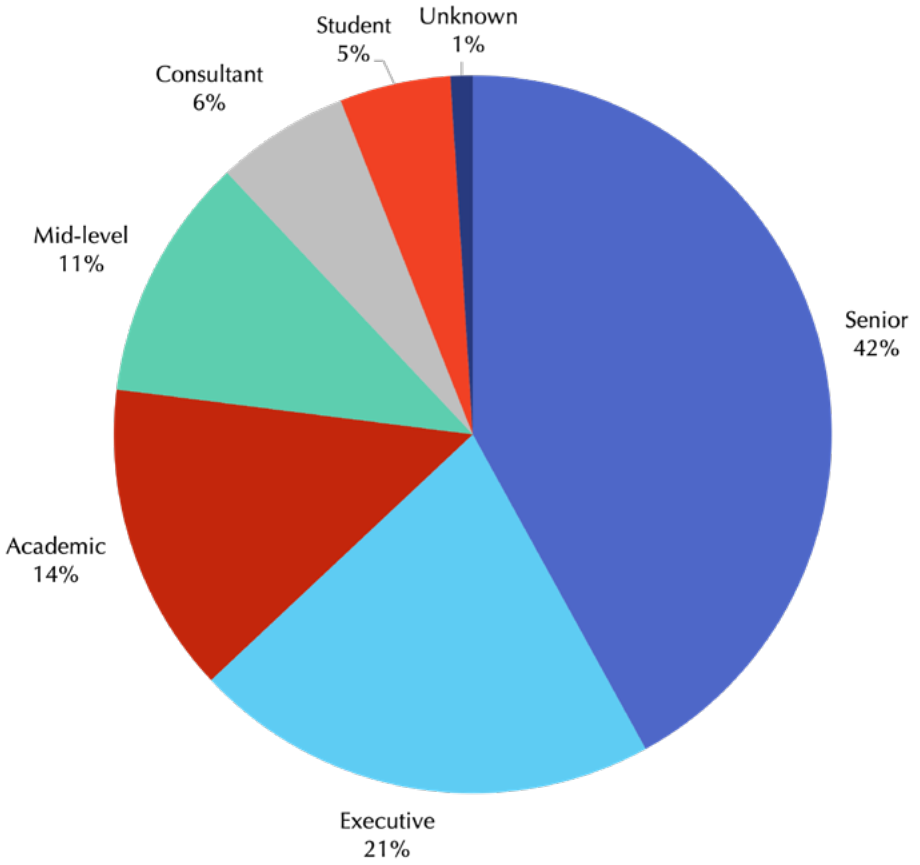

Figure 2 – Attendees by experience level

Many audience members came from very small companies while very large companies with over 1,000 employees made up another quarter. Figure 3 shows how we brought together cutting-edge innovators, medium-sized players and motivated industry giants into one room to work towards a common goal.

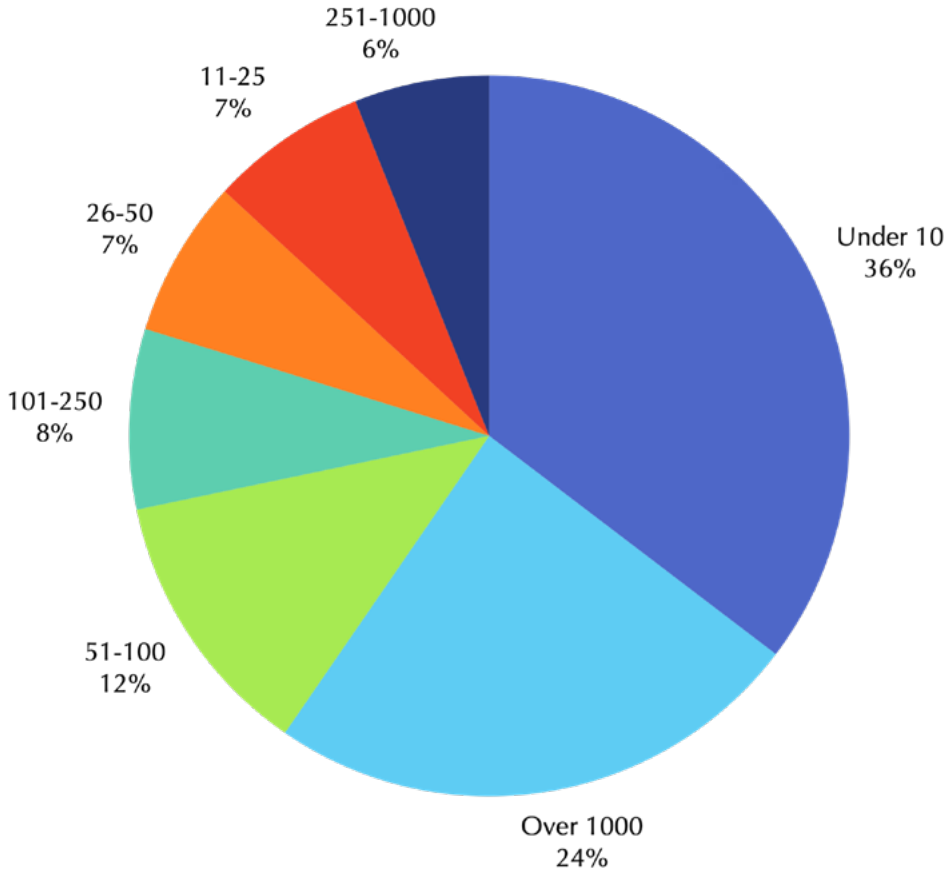

Figure 3 – Attendees by organisation size

Due to Covid-19 travel restrictions at the time, it is unsurprising that most delegates came from the UK. Nevertheless, we had a diverse mix of shipping representatives from across the world, as shown in Figure 4. We are proud that our event hosted voices from Developing Countries such as Costa Rica and Kenya and Small Island Developing States (SIDS) such as Solomon Islands and Marshall Islands. We were also delighted to host the Prime Minister of Greenland Múte Bourup Egede at our Burn's Supper, a powerful indigenous leader who's government pledged to end fossil fuel extraction and an ambitious voice in the development of renewable, ZE shipping fuel in a nation affected more than almost any other by the onslaught of climate crisis.

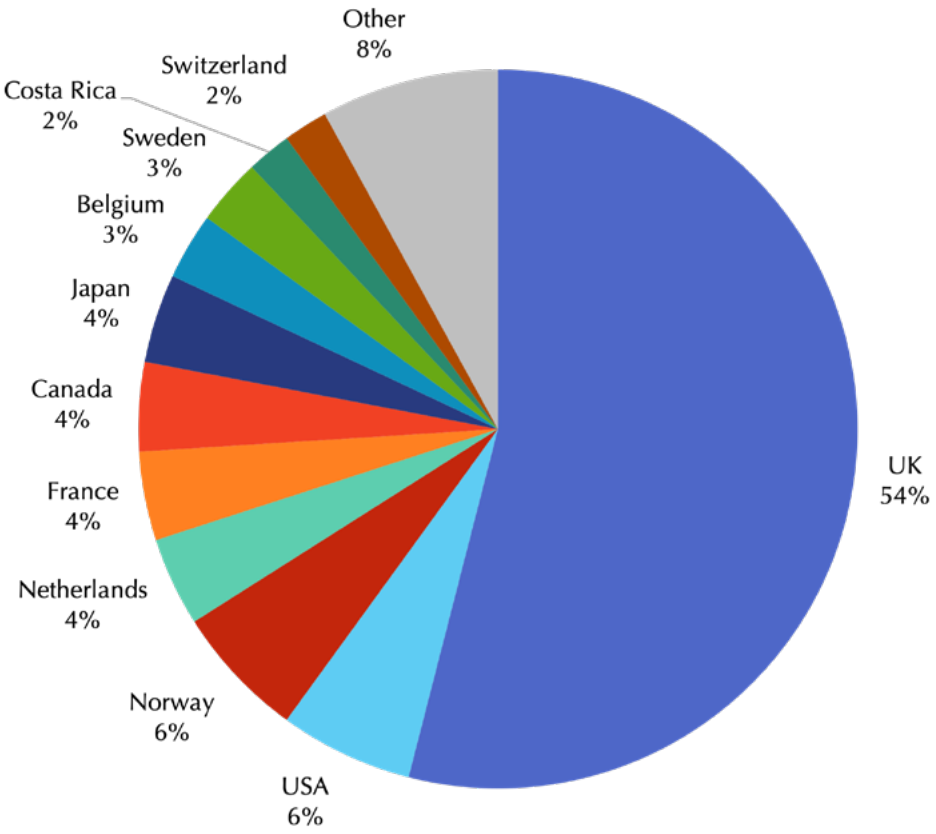

Figure 4 – Attendees by country of origin

Speakers

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Partners

Ship Zero 26 would have not been possible without the generous contribution from sponsors who catalysed the unprecedented work that was achieved in bringing shipping closer to zero emissions.

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