



# Sustainability Report 2024

Heerema Marine Contractors  
May 2025 | Leiden





## Protecting Marine Mammals During Pile Driving: The He Dreiht Wind Farm Project

The He Dreiht wind farm project, located in the German Bight of the North Sea, is a groundbreaking project aimed at harnessing wind energy while ensuring the protection of marine life.

This ambitious project involves the installation of 64 XL monopiles, each with a diameter of 9.2 meters, a length of 68 meters, and a weight of approximately 1350 metric tons. These massive piles form the foundations of the wind turbines and need to be driven into the seabed using immense force, which generates significant noise. To protect the surrounding marine mammals from potential harm, including deafness and even death, extraordinary measures have been implemented.

To meet the stringent underwater noise limit of 160 decibels, measured at a distance of 750 meters from the source, the He Dreiht project employs the Template Noise Mitigation System (T-NMS). This innovative system is designed to completely isolate the monopile from the sea, effectively creating a private swimming pool for the monopile. The T-NMS consists of a massive steel structure with an inner steel tube, roughly 12 meters in diameter, and an outer steel tube, roughly 13 meters in diameter, held at a fixed distance by rubber blocks. Air compressors push out the water column between these tubes, creating an air column over the full water depth. This setup makes pile driving at He Dreiht more akin to driving piles on the beach rather than in the sea.

**The T-NMS serves two crucial purposes:**

- 1. Noise Mitigation:** By isolating the monopile from the sea, the T-NMS prevents the noise generated inside the system from reaching the outside environment. This is essential for protecting marine life from the harmful effects of underwater noise, which can travel much further and louder than noise in the air.
- 2. Structural Integrity:** As foundations for large 14.2 MW wind turbines, the verticality of the monopiles is essential for the structural integrity of the turbines. The monopiles need to be installed within a 0.25-degree vertical tolerance. The T-NMS creates a secure and stable environment for correcting the inclination of the monopile, without having to deal with the dynamic loading from the sea or vessel. Additionally, the installation process can be paused at any time to address equipment breakdowns or incidents.

The He Dreiht wind farm project exemplifies how innovative engineering solutions can balance the need for renewable energy with the protection of marine life. By employing the world's largest hammer and the Template Noise Mitigation System, the project not only meets stringent noise restrictions but also ensures the structural integrity of the wind turbines. This approach sets a new standard for offshore wind farm installations, demonstrating that it is possible to achieve sustainable energy goals while safeguarding the environment. Read more on He Dreihts noise mitigation measures in 6.3.1.

- 9 SDG 9 (Industry, Innovation and Infrastructure)**  
by supporting technological development and encouraging innovation.
- 14 SDG 14 (Life Below Water)** by mitigating the impacts on marine life.



Scan and watch  
the short movie





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# 1 Introduction

**Reflecting on the past year, our commitment to sustainability has propelled us to new heights in offshore innovation.**

In 2024, we proudly installed our first XL monopiles for the wind sector, an achievement that not only showcases our technical capabilities but also reinforces our role in advancing the energy transition. Coupled with a record-breaking year in decommissioning steel structures, we continue to push boundaries and turn bold ambitions into offshore realities.

Our journey towards a more sustainable future is guided by our core values and the principles that have defined Heerema for more than sixty-five years: excellence, innovation, and safety. These principles are now more important than ever as we navigate the complexities of our environmental responsibilities and strive to create lasting positive impact.

Our commitment to net-zero greenhouse gas emissions by 2050 remains unwavering. This year, we have taken concrete steps towards this goal, such as the Carbon Capture and Storage prototype onboard Sleipnir for the EverLong project. We also made significant progress on our Healthy Oceans ambition, underscoring our dedication to mitigating our impact on marine life and enhancing conservation efforts.

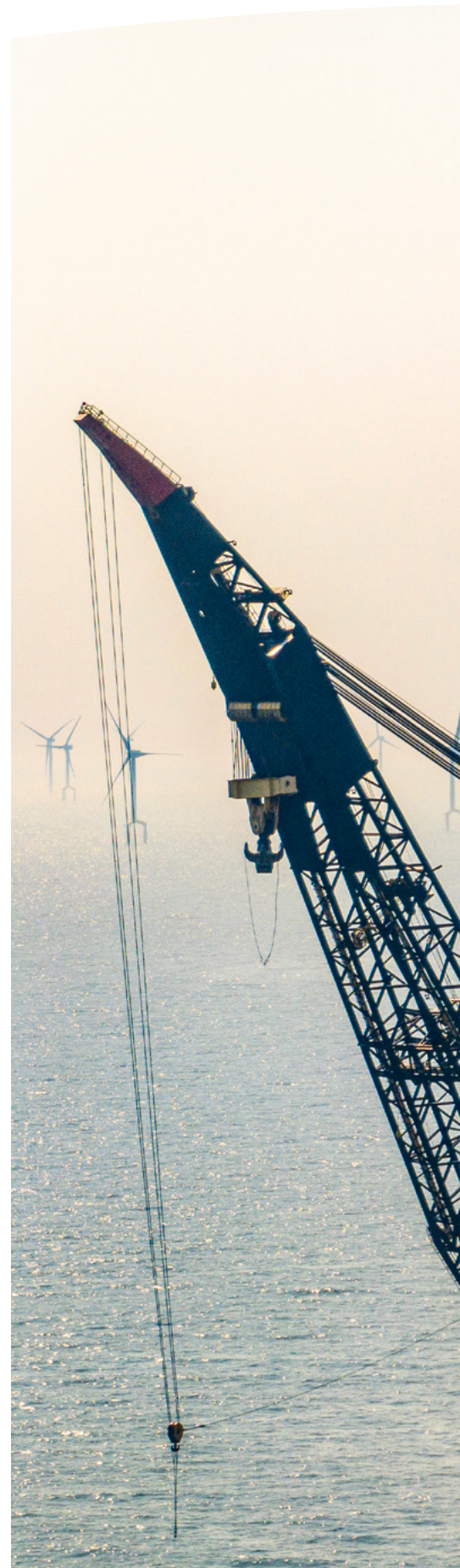
The achievements detailed in this report are a testament to the collective efforts of our team. As we look to the future, we remain committed to reflecting on our challenges, learning from our experiences and adapting our strategies to ensure a sustainable future for Heerema and the communities we serve around the world.

I invite you to explore the 2024 Sustainability Report, which demonstrates our ongoing commitment to sustainability and highlights the progress we have made together, across the company.

Pieter Heerema  
Chief Executive Officer



**Pieter Heerema**  
Chairman







**To be the leading marine  
contractor creating sustainable  
value(s) for clients and  
stakeholders**

Our Mission Statement





# Heerema Highlights of 2024

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Heerema's contribution to the energy transition

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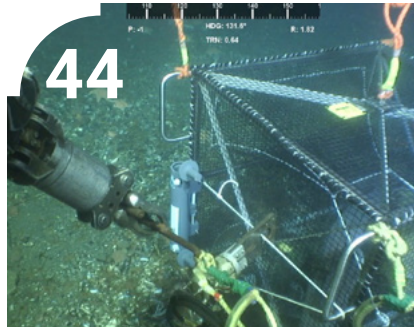
Q1 Re-use of Steel

42



He Dreiht Noise mitigation

44

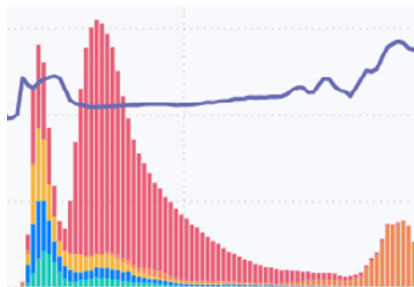


No Regrets - Building on Ambition

35



Software upgrade for Aegir



Successful execution of Double Materiality Assessment for CSRD



# 34 Heerema Decarbonization Fund

Awarded internal funding on your decarbonization initiative

AWARDED PROJECT

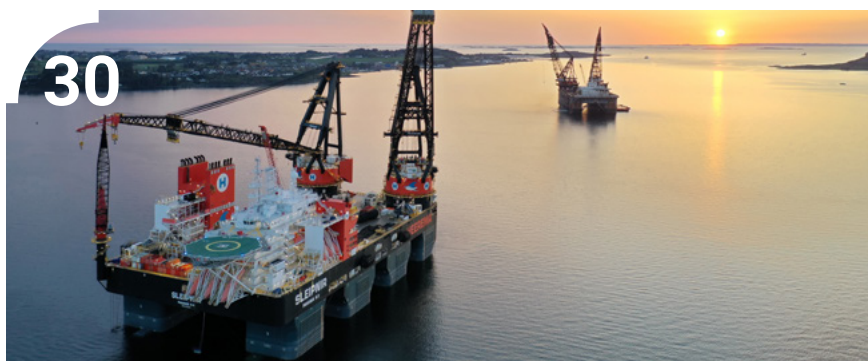
Heerema Decarbonization fund

22

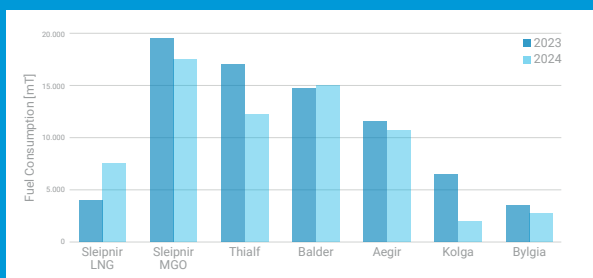


Promoting Wellbeing and Social Safety at Heerema

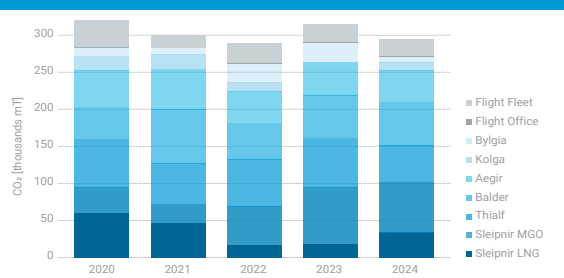
30



Carbon Capture Pilot onboard Sleipnir



Fleet consumption of fuel in mT



Fleet emissions in mT CO<sub>2</sub> eq.

Check the website for more information about our projects [heerema.com](https://heerema.com)

# 3

## Our company at a glance

Making the impossible possible offshore

**Our mission is to be the leading marine contractor creating sustainable value(s) for clients and stakeholders.**

We deliver innovative and sustainable solutions for the transportation, installation, and removal of offshore infrastructure. We do so by managing the entire supply chain of project execution, offering solutions that include design and front-end engineering, planning, logistics, project management, and the execution of projects worldwide.

Our most valuable assets are the people who work at Heerema. Their passion and skills are the driving force behind the company's vision to make the impossible possible offshore. A highly skilled workforce working worldwide on a fleet of the world's largest crane vessels.

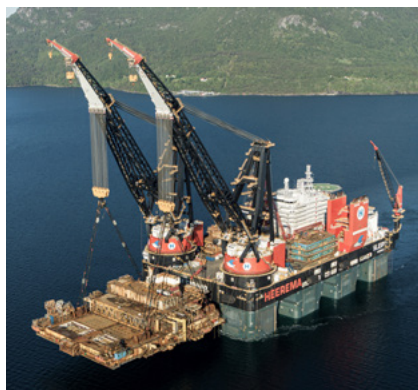
Across our fleet, there are various options to increase the sustainability performance of a project with a sustainable approach, one of them being our semi-submersible crane vessel Sleipnir, which runs on LNG. In the table you can read more about our sustainability efforts on board our vessels.



**Making the impossible possible offshore**

Our Vision





## Wind

Driving the global energy transition by bringing Heerema's experience to the offshore wind industry.

## Decommissioning

Heerema has been removing offshore facilities safely, predictably, and sustainably for over thirty years.

## Transport and Installation

Heerema transports and installs offshore structures in a safe, cost-effective, and sustainable manner.



		SLEIPNIR		THIALE	BALDER	AEGIR	KOLGA BYLGIA
Lifting capabilities		2 x 10,000 mT		2 x 7,100 mT	6,300 mT	5,000 mT	-
Average Fuel Consumption per day [mT] 3 year average		14 LNG	61 MGO	43 MGO	37 MGO	31 MGO	12 MGO
Emission Factors (mT/mT) For example 1 mT LNG produces 3.887 mT CO <sub>2</sub> Emission factors under constant review	CO <sub>2</sub> eq.* WTW	4.47025	3.86998	3.86998	3.86998	3.86998	3.86998
	TTW	3.5619	3.2551	3.2551	3.2551	3.2551	3.2551
	NOx	0.01020	0.05090	0.05886	0.05375	0.04080	0.05076
<b>Operational Footprint</b>							
Alternative Low Emission Fuels (LNG/GTL/HVO)		LNG		HVO/GTL	In progress	In progress	In progress
Marine Gas Oil low sulphur		✓		✓	✓	✓	✓
UREA system to reduce NOx emissions on MGO		✓		X	X	X	X
Optional noise mitigation during pile driving		✓		✓	✓	✓	-
Occupational health measurements		✓		✓	✓	✓	✓
Biodegradable oils non-floating spread and ROVs		✓		✓	✓	✓	-
Environmentally friendly cleaning products		✓		✓	✓	✓	✓
Highly effective bilge water separators		✓		✓	✓	✓	✓
Green Dynamic Positioning (DP) mode or equivalent		✓		✓	✓	✓	✓
State-of-the-Art Crane Power Management System		✓		✓	-	-	-
Optional sailing on one engine		-		-	-	-	✓
LED lighting cranebooms, deck, and exterior accomo		✓		✓	✓	✓	-
Ship Energy Efficiency Management Plan (SEEMP)		✓		✓	✓	✓	✓
Strict waste separation procedures		✓		✓	✓	✓	✓
Deck rainwater collection / treatment		✓		-	-	-	-
High Performing Fluorine-Free Foams for Firefighting		✓		-	-	-	-
Dedicated waste management controller		✓		✓	✓	✓	✓
Green Passport EU Notation		✓		-	-	✓	✓

\* including methane slip



# Heerema's contribution to the energy transition

At He Dreiht, 64 wind turbine generator (WTG) foundations have been installed. Thialf lifted a total of 920,000 mT in 100 days to complete this installation. In addition, 224,000 mT of rock were installed as scour protection. Special attention was given to ensure that pile driving noise levels remained below 160 DB at all locations. For more details on the innovative noise mitigation measures at He Dreiht, check out chapter 6.3.2, page 44.

In 2024, we continued the Q1 decommissioning scope, building on last year's achievements by significantly reducing the hook-on period, leading to a record-breaking removal time. Moreover, the use of the Heerema Steel Marketplace facilitated the re-use of 95% of steel for outfitting 4 barges with grillages and support structures.





## 20 OLD PLATFORMS REMOVED

COMBINED  
TOTAL WEIGHT  
**170,000 MT**

This year, Heerema has completed the CAT3 decommissioning project. Removing 20 platforms from the North Sea, a combined weight of 170,000 mT, in 7 years time.

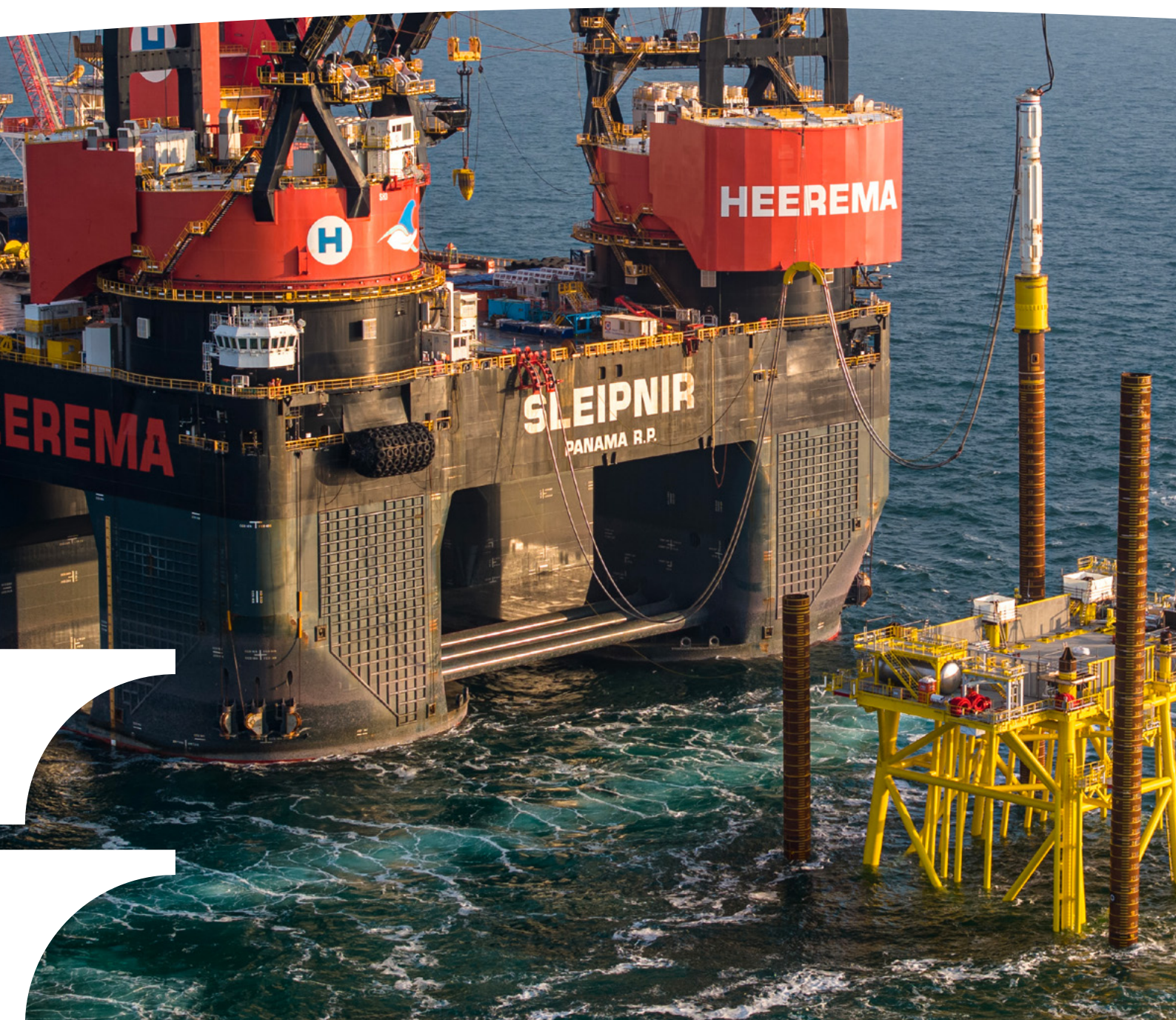
Two large offshore substation (OSS) installations were installed in 2024. An OSS is the heart of every offshore wind farm, combining the power of all wind turbines before directing the power to shore. The 11,000 mT OSS for Sofia is estimated to deliver 1.5 GW of renewable energy, supplying 1.2 million UK households with clean energy. Additionally, the OSS acts as an operational base for the Sofia wind farm, with permanent crew on-site.

On the other side of the world, with only four months of preparation time, Heerema safely and successfully removed the RTM at the Griffin field from the Australian seabed, and transported it to shore for decommissioning.

**11,000 MT**  
SOFIA OSS IS  
ESTIMATED TO DELIVER  
**1.4GW OF  
RENEWABLE  
ENERGY**



# 4





# Our commitment to Sustainability



# 4.1 Sustainability Beliefs

We act sustainably because we care

**Heerema, as a family-owned business, is dedicated to create value across generations. This long-term focus allows us to think beyond the day-to-day operations and is at the heart of our sustainability mindset.**

In marine contracting, the capabilities of your people and assets determine your performance and speed. Heerema consistently looks at long-term developments to keep its people, fleet and knowledge future-ready.

Sustainability embodies this vision, carefully balancing people, planet and profit. We are intrinsically motivated to contribute to sustainable solutions within our industry, ensuring that future generations have the same opportunities as we do today.

To achieve this, we monitor our global impact and share our findings to drive improvement. Our Sustainability

Strategy and roadmaps (chapter 4.2) help transform data into actionable steps, guiding all employees with clear ambitions and goals.

We view sustainability as a shared responsibility, driven by collaboration rather than competition. It is not a competition but a collective responsibility. By working with partners across the industry, we are able to develop effective solutions.

Guided by our core values, we pursue sustainable partnerships throughout the value chain.



**Over the past sixty years, we have established a reputation for excellence, innovation, and safety. Today, we apply these principles and experiences to our sustainability ambitions. Our ability to continually reflect and adapt is a key factor to our success in a changing world.**

Pieter Heerema | Chairman







# 4.2 Sustainability Strategy

## Our own course

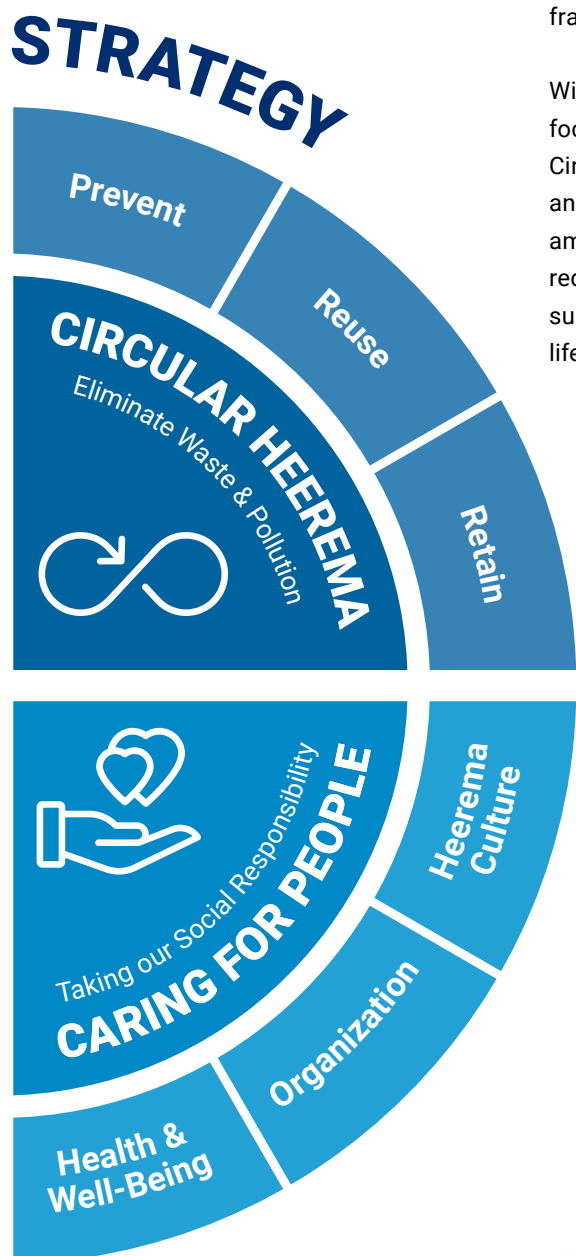
To move values into action, we use our Sustainability Strategy and corresponding Roadmaps. Based on existing targets and frameworks, they provide focus on our way forward.

Our approach is based on the United Nations' Sustainable Development Goals, the sustainable ambitions of the International Maritime Organization, and additional relevant legislative frameworks.

Within our Sustainability Strategy we focus on four ambitions: Net-Zero, Circular Heerema, Caring for People and Healthy Oceans. Not only do these ambitions set targets on emissions reduction, resource consumption, sustainable employability, and marine life, they also define the strategy on

how to get there. Ultimately, our initiatives move our sustainability agenda forward by creating sustainable values, awareness and involvement.

The pillars linked to the ambitions reflect the guidance given by our Sustainability Roadmaps. These roadmaps bundle our current initiatives and ongoing projects. They can be seen as the foundation on which we translate our values into action. Heerema's Sustainability Roadmaps all together achieve an optimal balance of the triple bottom line.



**Long-term viability  
lies in sustainability**

Jetto Dam | Manager Sustainability

# 5

## Caring for People







### Health & Well-Being | Organization | Heerema Culture

One of the ambitions in the Heerema Sustainability Roadmap is to Care for People by taking Social Responsibility seriously. To achieve sustainable employability, Heerema aims to create an environment where employees can feel happy, healthy, safe and motivated until retirement. All measures currently taken by various departments focus on three pillars: Health & Well-Being, Organization and Heerema Culture.



# 5

## Caring for people

**HEALTH & WELL BEING | ORGANIZATION | HEEREMA CULTURE** The Heerema Sustainability Strategy includes the Caring for People Roadmap divided into three pillars; Health & Well Being, Organization and Heerema Culture



### Safety, Health & Well-Being

At Heerema, the well-being of our colleagues is at the heart of our “Caring for People” ambition. We prioritize safety, ensuring every employee can perform their job safely and return home at the end of the day. Through Dare to Care we have established a clear framework to promote a proactive safety culture, where every individual feels empowered to speak up, look out for one another, and take ownership of creating a safe and healthy work environment. But our commitment goes beyond safety. We focus on the welfare quality of food and facilities available both onboard and in

the office, and we dedicate significant attention to employee well-being. We regularly seek employee feedback and facilitate events and sessions that encourage open dialogue about their well-being. This year, we shared knowledge across departments through our Lunch and Learn, organized Round Table sessions on sustainability topics, and hosted special events on Mental Health, Project Management, and Women’s Networking.

### Organization

At Heerema, we ensure our new colleagues get a strong start with our comprehensive onboarding program. We empower our people to take ownership of their career journeys through Personal Development Plans, our internal mobility site (MOVE), and the Heerema Development Program. Continuous improvement and internal partnerships that span departments, locations, and vessels are the cornerstones of our learning organization.

### Heerema Culture

Operating globally in rapidly changing environments, we tackle the most challenging projects for our clients. Success comes from working as One Heerema, leveraging our global presence, including foreign offices, and maintaining close connections between our offices and fleet. We emphasize collaboration and sharing experiences to prevent silos.

Personal leadership is essential at Heerema. Leadership isn’t just for managers; everyone is a leader. We expect our people to take responsibility, treat resources as their own, have a bias for action, and make changes stick— all principles of the Founder’s Mentality that guide our business conduct.



## 5.1 LEARNING MINDSET

## 5.2 PROMOTING WELLBEING AND SOCIAL SAFETY AT HEEREMA

## 5.3 FRONTLINE FEEDBACK

Personal leadership also means using one's circle of influence to share ideas, help others, and connect across silos.

We share a great passion for our work and take immense pride in making the impossible possible offshore. While we take our work seriously, we also believe in having fun, which brings good spirits and energizes our team, both onshore and offshore.

To tackle tough challenges and adapt to ever-changing markets, we need everyone to perform at their best. Different perspectives drive better solutions when we are curious, listen, and learn from each other. It is exciting to see how 45 nationalities at Heerema come together effectively. Although our industry is typically male-dominated, with 22% of our office employees being female, we have established female participation at both Board and Director levels during 2024.



**At Heerema, we take pride in our work and in caring for one another. Our top priority in everything we do is ensuring everyone stays safe and healthy.**

**Ivonne Verlinde-van Rijswijk** | Chief Human Resources & Special Projects Officer





## Caring through sharing

## FIT WITH SDGs

**17 SDG 17 (Partnerships for the Goals)** by sharing knowledge, expertise, technology and resources, to support the achievement of the Sustainable Development Goals.



way to net zero by developing KPIs for measurable progress. It was encouraging to see key stakeholders recognize the value of early engagement in setting KPIs, ensuring Heerema's accountability in driving change. KPIs are essential for self-reflection and measuring progress. The session resulted in a fruitful discussion with the employees who will be working towards these measurable goals, ensuring Heerema's accountability in driving change. The Net Zero team is actively developing these KPIs and hopes to share them soon.

### Project Management Day

In October, the Project Management department held their annual two-day conference, with the second day dedicated to HSE performance, mental wellbeing, social safety, and sustainability. The day was interactive and engaging, with concrete steps identified to further embed the safety awareness program 'Dare to Care' in projects.

Project Managers and Project Directors from global offices, along with HSE experts, engaged in dynamic and for interactive discussions. They reflected on incidents, managed subcontractor safety, and incorporated sustainability

into projects. Following the workshops, working groups formed action plans for 2025. Project Director Andries Mastenbroek noted, "The day concluded with many Project Managers committed to collectively raising the bar in regards to HSE and Operational Performance in 2025. This day was exemplary for good cross-departmental cooperation".

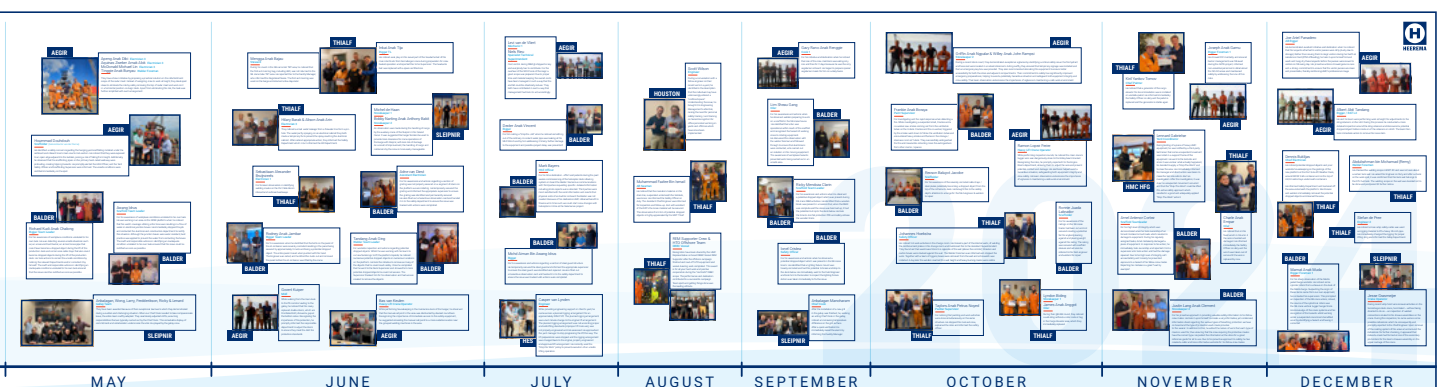
### Women's Networking Event

On International Women's Day, Roos van Dalen, a Dutch researcher and presenter, delivered a keynote on gender imbalance within corporate organizations. Her speech covered topics such as a women's quota for senior management, the different approaches around masculinity and femininity, and maintaining work/life balance.

Following the keynote, attendees discussed how Heerema addresses diversity and inclusion. A general reflection was the importance of sharing household responsibilities, with a notable percentage of male colleagues working part-time to support this balance.

Our people are our most valuable assets, and our goal is to protect every person by creating an incident and injury-free workplace. That is a challenging ambition because we work in conditions where the risks can be high. Dare to Care is Heerema's Safety Awareness Program built on three pillars: caring, speaking up and inviting others to do the same, and leading by example. At the foot of the following pages, you will see the x (number) of recognitions awarded to our people that have been leaders in safety by demonstrating the Dare to Care values.

Scan the QR code to enlarge the Recognitions 2024 poster





# 5.2

## Promoting Wellbeing and Social Safety at Heerema

**At Heerema, we believe that a sustainable future begins with our people. By fostering a culture of care and accountability, we ensure that every individual thrives both personally and professionally.**

### **FIT WITH SDGs**

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

These initiatives contribute to a number of Sustainable Development Goals, among others:

**3 SDG 3** (Good health and well-being) by focusing on health, mental health and social safety.

**4 SDG 4** (Quality Education) by promoting learning opportunities that better the way we work and balance our lives.

**17 SDG 17** (Partnerships for the Goals) by collaborating across all medical and social disciplines within Heerema we create a broad base to support our Caring for People initiatives.

### **FIT WITH STRATEGY**

As part of the Caring for People roadmap, medical protocols where updated, people were educated on mental health, social safety was discussed within the organization and social safety protocols where updated.

As we continued strengthening our commitment to improve social safety across our organization, we focused on our multidisciplinary medical forum, and specifically the topic Mental Health.

### **Multidisciplinary Medical Meeting: BREed MEDisch Overleg (BREMEO)**

Our biannual multidisciplinary medical forum, BREMEO for short, plays a pivotal role in safeguarding the health and wellbeing of Heerema's workforce. This forum brings together representatives from HR, HSE, our fleets' registered nurses, our company doctors, the crewing department, and medical specialists to review and refine our health policies and practices.

During the meetings in March and December, BREMEO addressed critical topics such as:

#### **• Seafarer Medical Care Compliance:**

In alignment with MLC 2006 regulations, we ensured readiness to provide onboard medical care for international voyages of all durations.

#### **• Vaccination Protocols:**

We revised our vaccination guidelines, emphasizing adherence to World Health Organization standards and addressing region-specific challenges.

#### **• Biological Monitoring Programs:**

Recognizing the health risks

associated with specific roles, such as welders on decommissioning projects, we initiated a program for a standardized biological monitoring program.

Other topics include the 2024 health trends and reporting, evaluation of pilot health programs and improving sustainable employability for the fleet as a whole. By fostering cross-departmental collaboration, the BREMEO ensures that our health policies not only meet global standards but also address the unique needs of our diverse workforce. This proactive approach to health management underscores Heerema's dedication to sustainable employability and the wellbeing of our employees.

**Through these efforts, we have created a workplace culture where everyone feels respected, valued, and empowered to thrive.**

### **Mental Health Day: A Global Initiative**

Focus on mental health is one of Heerema's key commitments to its people. In recognition of World Mental Health Day on October 10, 2024, we organized a series of 18 live, online, and interactive expert sessions accessible to employees worldwide. These sessions covered topics such as stress management, resilience, and the potential of artificial intelligence as a life coach.

### Highlights of the initiative included:

- **Diverse Topics:** Sessions like “Stress in Teams” by Kilian Wawoe and “Supercharge Your Personal Resilience” by Scott Davenport resonated with employees across different roles and regions.
- **Flexibility and Accessibility:** Recognizing the global nature of our workforce, sessions were scheduled across time zones and remained available for three months, ensuring no one missed the opportunity to participate.
- **Measuring Impact:** Feedback collected through our Frontline Feedback system revealed that 81.4% of employees felt their personal wellbeing was cared for, reflecting the success of our initiatives.

This day not only reinforced Heerema’s focus on mental health but also equipped employees with tools to navigate challenges, fostering resilience and a sense of community across the organization.

### Improving Social Safety at Heerema

Social safety is integral to a productive and respectful workplace. In 2024, we implemented several initiatives to enhance social safety, aligning with our management agenda’s “Focus on People” theme.

### Key Initiatives:

- **Annual Dare to Care Days:** By leveraging Frontline Feedback, we identified areas for improvement and created actionable plans to address social safety concerns. These insights were shared and discussed during our Dare to Care Days, fostering collective accountability.



- **SpeakUp Platform:** Launched globally, this anonymous reporting tool empowers employees to report concerns related to fraud, bullying, health and safety, and harassment. By lowering barriers to reporting, SpeakUp ensures that everyone’s voice is heard.
- **Harassment Protocol:** This newly introduced protocol outlines clear processes and responsibilities for addressing suspected harassment cases, reinforcing our zero-tolerance stance.
- **Expanded Pool of Confidential Counselors:** With additional counselors joining the team, employees now have more accessible support options available to them.

### Why Social Safety Matters

Social safety matters because it ensures that everyone feels respected, valued, and empowered to thrive—creating an environment where people can contribute their best without fear or exclusion. Our social safety efforts are making a difference, demonstrating Heerema’s unwavering commitment to addressing workplace challenges

proactively. In this way it results in:

- **Enhanced Productivity:** Employees who feel safe and supported are more engaged and productive.
- **Stronger Collaboration:** Trust and respect among colleagues improve teamwork.
- **Talent Retention:** A socially safe environment attracts and retains top talent.

### Looking Ahead

As we move forward, Heerema remains steadfast in its mission to prioritize wellbeing and social safety. Initiatives like the BREMEO, focus on Mental Health, and our Social Safety programs exemplify our dedication to our people and values. By fostering a culture of care, accountability, and innovation, we ensure that Heerema continues to be a place where everyone can excel — today and in the future.





# 5.3 Frontline Feedback

## Strengthening ourselves as a learning organization

### FIT WITH SDGs

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

These initiatives contribute to a number of Sustainable Development Goals, among others:

**3 SDG 3** (Good health and well-being) by creating knowledge on the well-being of our employees and stimulating action.

**4 SDG 4** (Quality Education) by sharing the survey results internally and by discussing the next steps with the organization.

### FIT WITH STRATEGY

As part of the Caring for People roadmap, knowledge on our employees wellbeing, motivation and feedback is essential.

### **A data-driven approach to reflect & act on key organizational drivers**

Our rapidly changing environment drives us to be more agile, curious, and resilient: maintaining our culture and strengthening our learning organization is vital. These principles are embedded in everything we do. As our owner puts it, "Our ability to continually reflect and adapt is a key factor to our success in a changing world." With Frontline Feedback we adopt a data-driven approach to reflect on, and adapt to, key organizational drivers by measuring our workforce's perception on strategic themes such as the Heerema sustainability strategy.

Frontline Feedback surveys are sent to our global workforce quarterly, onshore and offshore. The survey results are analyzed to identify trends, highlight successes and initiate discussions on areas for improvement. Our analysis goes beyond departmental distinctions, considering factors such as location, age, years in service, gender and function level.

This comprehensive approach helps us to pinpoint where we excel and where we need to enhance our key organizational drivers. We work together with an external partner to guarantee anonymity, validity of the analysis and to incorporate latest insights from organizational science.

Reflecting on 2024, here are some Frontline Feedback highlights related

to the sustainability strategy:

- Sustainability: 70.8% can see sustainability becoming of increasing value for Heerema (+13.7% since Q1'23)
- 81% feel their personal wellbeing is cared for
- Where we outperform the external benchmark: proud to work for Heerema, role clarity, energized at work & job satisfaction

In the period ahead we will continue to scale our data-driven insights of Frontline Feedback to strengthen ourselves as a learning organization.





# 6

## Our impact on the environment









# 6.1 Net-Zero

**OPTIMIZE | REPLACE | OFFSET** The Heerema Sustainability Strategy includes our Net-Zero ambition, which contains the commitment for Net-Zero Greenhouse Gases by 2050. We are exploring a variety of projects, such as Shore Power, alternative fuels and hybridization to reach this target.



Within our Net-Zero ambition, we commit to decarbonizing Heerema by means of optimizing, replacing and offsetting towards Net-Zero Greenhouse Gas Emissions by 2050. For example, emissions will be reduced by optimizing our fuel use and increasing efficiency or eliminated by replacing fuel with alternative power systems. Additionally, we implement and invest in projects and technologies to offset the remaining emissions, where feasible, in collaboration with clients and stakeholders.

We are proud to report a continued decline in CO<sub>2</sub> emissions compared to 2023 and 2020. Marking an important milestone on our journey to Net-Zero, we successfully completed a Ship-Based Carbon Capture pilot onboard our SSCV Sleipnir. The pilot exceeded expectations. Learn more about this initiative in section 6.1.1. Alongside this, our Vessel Analytics team has significantly enhanced our understanding of energy consumption.

Their advanced dashboards offer valuable insights into our operations, supporting further reductions in fuel use and emissions.

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**6.1.1**  
**CARBON CAPTURE PILOT**  
**ONBOARD SLEIPNIR**

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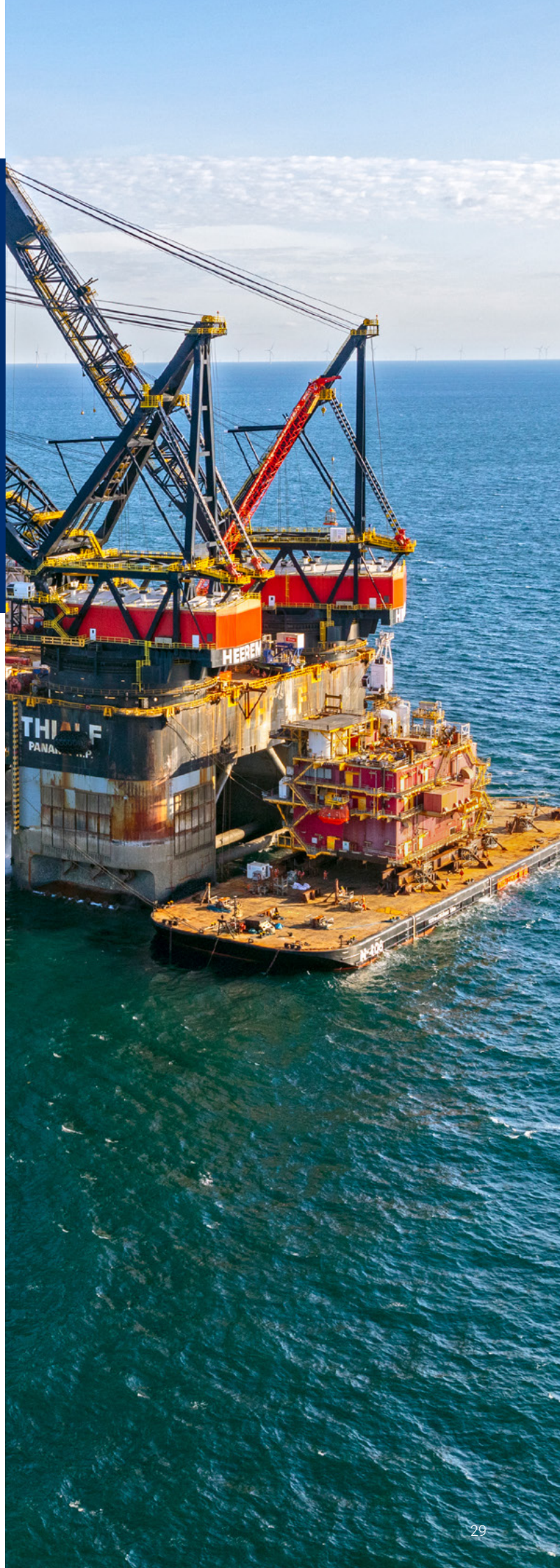
**6.1.2**  
**VESSEL ANALYTICS**

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**6.1.3**  
**THE DECARBONIZATION FUND**



We are proud to report  
a continued decline  
in CO<sub>2</sub> emissions compared  
to 2023 and 2020.





# 6.1.1 Carbon Capture Pilot Onboard Sleipnir

## Heerema's Role in EverLoNG

The maritime industry is on a bold mission to reduce CO<sub>2</sub> emissions from international shipping by at least 50% by 2050. One of the innovative approaches to achieve this is Ship-Based Carbon Capture (SBCC), a cost-effective alternative to zero-emission fuels such as ammonia and hydrogen.

### FIT WITH SDGs

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

This sustainability initiative contributes to a number of Sustainable Development Goals, among others:

**12 SDG 12** (Responsible Consumption and production) by working on a solution that contributes to a circular fuel use.

**13 SDG 13** (Climate Action) by reducing our emission through carbon capture.

**17 SDG 17** (Partnership for Goals) by working in a consortium across industries.

The EverLoNG consortium was formed and the project launched to accelerate the adoption of SBCC technology, with a focus on demonstrating its feasibility on LNG-fueled ships and optimizing its integration into existing ship infrastructure.

As part of its Net-Zero Ambition, Heerema joined the EverLoNG consortium, collaborating with key partners such as Carbotreat and VDL, responsible for designing and implementing the SBCC prototype, and TNO, which managed emissions measurement and data analysis.

### Demonstrating SBCC in Action

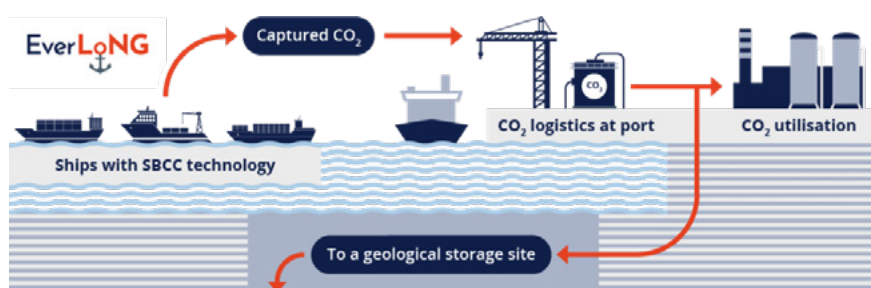
In Work Package 1 (WP1) of the EverLoNG project, the goal was to test the SBCC system aboard two LNG-fueled vessels: an LNG carrier operated by Total Energies and Heerema's

flagship vessel, Sleipnir. The first demonstration aboard the LNG carrier concluded in Q1 2024, achieving 1,000 hours of operation. Following this milestone, the SBCC prototype underwent inspection and preparation for the next phase aboard Sleipnir. In Q2 2024, the SBCC prototype was mobilized on Sleipnir, achieving 500 hours of runtime.

Over these 500 hours more than 80% of the CO<sub>2</sub> was filtered from the exhaust gasses by the carbon capture plant, a total of 4804 kilograms. During the pilot different engine loads and conditions were tested with the systems. Measurements were performed on all contents of the exhaust gasses to see the effect of the system.

### Overcoming Challenges, Delivering Results

The testing campaign demanded significant effort across key departments asset management, logistics, operations, and crewing. Although unforeseen challenges frequently arise in innovative contexts, leading to delays, the collaborative problem-solving spirit of all parties ensured the campaign's safe and successful conclusion in July. TNO collected valuable data to progress on SBCC development.





Work Package 1 of the EverLoNG project stands as a strong example of Heerema's ability to bring value and pragmatic solutions to a rapidly evolving industry.



Upon completion, the SBCC prototype was demobilized when Sleipnir returned to the Calandkanaal, marking the end of the North Sea summer campaign. To consolidate the achievements, Heerema hosted lessons-learned sessions with the EverLoNG partners, ensuring future work packages and projects will benefit from the insights gained.

#### Building a Sustainable Future

Work Package 1 of the EverLoNG project stands as a strong example of Heerema's ability to bring value and pragmatic solutions to a rapidly evolving industry. By leveraging its rich history

of offshore expertise, Heerema has proven it can significantly contribute to the decarbonization of the maritime sector.

This campaign not only demonstrated the possibilities of the SBCC technology but also emphasized the importance of collaboration, resilience, and a shared vision for sustainability. The lessons learned will lay the foundation for even greater achievements in future efforts.

This effort represents a meaningful step forward, driving us closer to a cleaner and more sustainable maritime



**More than 80% of the CO<sub>2</sub> was filtered from the exhaust gasses by the carbon capture plant.**

future. Carbon Capture could provide CO<sub>2</sub> for the making of E-methanol or E-LNG. Completing an important step in the chain towards a circular Fuel. Although these developments might seem far away now they might be the key to a sustainable future.



# 6.1.2

## Vessel Analytics

### Data for a deeper understanding of our fleet

Formed in late 2023, the Vessel Analytics team started as a small group with a shared vision: to fully harness vessel data for a deeper understanding of our fleet.

Although the team composition evolved throughout 2024, the primary focus remained on establishing a platform for storing vessel data, transforming and analyzing vessel data.

#### **FIT WITH SDGs**

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

This sustainability initiative contributes to a number of Sustainable Development Goals, among others:

- 9 SDG 9** (Industry, innovation and infrastructure) by facilitating innovation through data insights.
- 13 SDG 13** (Climate Change) by enabling operative improvement, competition and efficiency through data analysis.

#### **FIT WITH STRATEGY**

As part of the Net-Zero roadmap, laying the groundwork for future development is crucial in reaching our ambitions.

In order to create insight into operations of the HMC fleet, the Vessel Analytics team has started creating dashboards showing key vessel performance indicators. One of the best examples of using dashboards to generate insight into our operation of the HMC fleet is our daily progress reports (DPR) dashboard. The source of the DPR dashboard is one that has been available for decades at HMC but has yet to be represented visually. Figure 1.1 is one of the tabs for this dashboard that is still in development.

This dashboard transforms data from SharePoint tables into a more accessible and filterable format. Allowing us to take a quick look back and forth. Other tabs of the DPR dashboard includes vessel position data, where daily coordinate logs are mapped to show global routes. Additionally, fuel, water and lubrication oil consumption as well as vessel personnel are logged and visually represented in the final tabs.

Several business cases in 2024, have already utilized vessel data, most notably the hybrid vessel concept. Installing a large battery into an even larger semi-submersible crane vessel can certainly be seen as a unique project with very few (if any) similar projects to use as an example.

In order to justify the possible significant investment, it was essential to demonstrate that the battery would reduce vessel fuel consumption. By using a year's worth of minute-level data, potential savings were simulated, providing a credible proof of concept. With a large database of historical vessel data, predicting the impacts of such projects becomes possible, supporting the investment decisions.

Over the year, the initial dataset of two weeks of sensor data expanded to a full year of sensor data from the Thialf. Having vessel data readily available offers three main benefits:

- Creating insights into vessel operations
- Supporting business cases for projects
- Simplify data gathering for reporting obligations
- These advantages positively impact not only the Sustainability Department but also all other departments within HMC

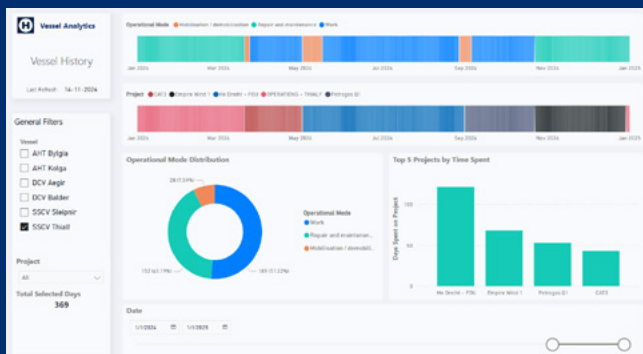


Figure 1.1: Vessel history tab in DPR dashboard

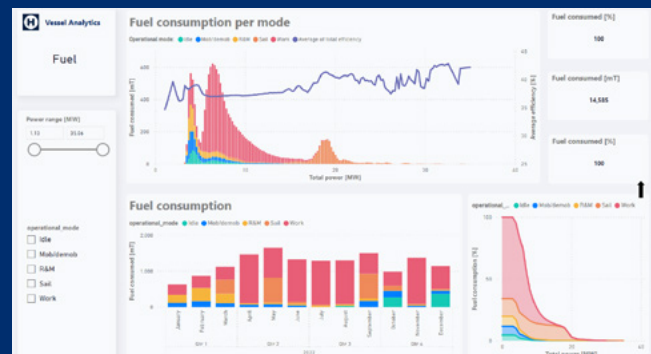
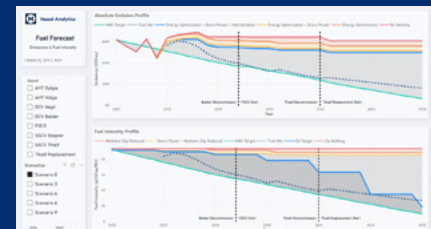
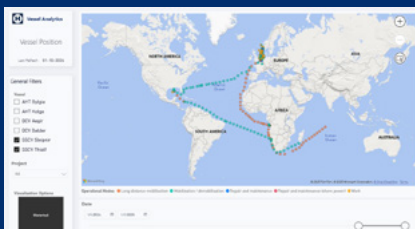


Figure 1.2: Fuel/energy usage tab in Power & Energy Profiles dashboard



Future lifetime extension projects for the Balder and Thialf will also benefit from this historical data, helping to minimize costs and maximize efficiency. Figure 1.2 shows the power profile of the Thialf.

This year, all departments have worked diligently to determine the Corporate Sustainability Reporting Directive (CSRD) data points. In the future, we will need to report on a wide range of KPIs, from office personnel statistics to fleet operation metrics, such as fuel consumption. The availability of a database containing this data will make the reporting obligation for certain CSRD topics more streamlined. Additionally, we can use the same database for other sustainability reporting to avoid duplication and expedite the data gathering process.

We plan to build on our 2024 achievements and aim for even greater success in 2025. With the transition to the official Vessel Analytics team within the IT & Services department, our plan for this year is to load in all historical vessel data to enhance our analyses and business cases. One key business case to explore this year is the hybridization of the Sleipnir. A challenge we anticipate is ensuring the validation of all vessel data so that we can trust the results to guide our decisions. Once this is achieved, we can fully leverage this data goldmine and create true value.

Overall, it has been an extremely productive year for the Vessel Analytics team, with significant progress in both data collection, storage, analysis, and presentation. 2025 will promise even more opportunities as we share our

progress with the company, generate more useful insights, support more business cases, and simplify reporting processes.



**We plan to build on our 2024 achievements and aim for even greater success in 2025. Several business cases have already utilized vessel data.**



## 6.1.3

# The Decarbonization Fund

Engaging colleagues in the ambition of emission reduction

At Heerema, sustainability is more than a goal—it's a guiding principle that shapes every decision. With a strong commitment to balancing people, planet, and prosperity, Heerema has taken bold steps to reduce its environmental impact. This article explores the company's journey toward the decarbonization fund.

### FIT WITH SDGs

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

This sustainability initiative contributes to a number of Sustainable Development Goals, among others:

**13 SDG 13** (Climate Action) by funding and enabling decarbonization projects with Heerema.

**17 SDG 17** (Partnerships for the goals) by engaging in collaborations with clients to reduce our common emissions.

### FIT WITH STRATEGY

As part of the Net-Zero roadmap, by focusing on reducing our GHG emissions.

### Decarbonization at Heerema

Carefully balancing between people, planet, and prosperity, is what Sustainability means for Heerema. Due to its intrinsic motivation to care for the environment it works in, Heerema decided early on to act on reducing our environmental impact. Already since 2011 Heerema maintains its sustainability ambitions, with the bold move in 2020 to become the first Climate Neutral certified marine contractor.

This certification involved an emission reduction plan verified by a third party, combined with all scope 1, scope 2 and partly scope 3 emissions being compensated. The reduction plan contained yearly targets that either prevent or reduce emissions at the source. In 2022, Heerema applied its learning mindset to reflect on its decarbonization plan. This reflection created the opportunity to pause and reassess the factors within and outside its control, such as the significant change in the predicted costs and global availability of bio-fuels since 2020, slower than anticipated progress in

decarbonization technologies, and the uncertain landscape of regulations and financing possibilities that have guided decision-making. Therefore, in 2023 Heerema proudly presented its revised Net-Zero ambition, including its roadmap to navigate towards a Net-Zero Heerema - an ambitious, robust, but above all achievable decarbonization plan.

### Decarbonization Fund

With the introduction of the Net-Zero ambition, Heerema also introduced its Heerema Decarbonization Fund, build on resources that previously applied to compensate emissions. This fund is committed to yearly emission reduction via the use of investments in decarbonization technologies, like Software Upgrade or the use of alternative fuels like Hydrotreated



**It demands quite some work to get the concept to a decent level.**



### AEGIR LED LIGHTS

Rene proposed retrofitting the Aegir with more energy efficient LED lights. This saves energy onboard, meaning less fuel consumption and less CO<sub>2</sub> emissions per year. A simple but effective and easily actionable proposal. Thank you Rene!



### CIRCULAR SLINGS

Marcel's idea was to use partly recycled Dyneema slings for our lifting. Yearly many Dyneema slings go to waste due to wear and tear on the most intensively used part of the sling. Breaking down the good parts into small components and mixing it in the fabrication process to create new Dyneema results in a product of the same quality as a new Dyneema sling, with less use of recourses and a smaller carbon footprint.



### NUCLEAR DRIVE JIP

Marius's idea of joining the Nuclear Drive Joint Industry Project took some months of lobbying before getting approved. This is a great example of a long term project with very large potential for emission reduction. The fund lends itself perfectly for this initiative, which requires financial involvement and presence with industry partners.

Vegetable Oil. All Heerema colleagues, onboard or in the office, can apply for the use of the fund on their assets, tenders or projects. In this way the Decarbonization Fund was started as integral part of the roadmap, creating a budget for the workforce, to fund initiatives and ideas with potential that are not there yet to have a clear business case.

### Success stories

Over the year 2024 the Sustainability Department received fund applications on 19 different projects proposals, from colleagues that took the effort to submit their ideas and support emission reduction of Heerema's activities. This article showcases ideas that received funding and moved to action.



**Remember, having  
an idea doesn't mean  
you're responsible  
for its implementation;  
we have a dedicated  
team for that.**



# 6.2

## Circular Heerema

**PREVENT | REUSE | RETAIN** Heerema contributes to a circular economy by eliminating waste, pollution and unnecessary use of resources through prevention, reuse, and retention. These three pillars form the foundation of our Circular Heerema Roadmap, facilitating an overview of circular strategies.



### Prevent

Prevention measures are classified as those that prevent unnecessary and unsustainable purchases and, therefore, prevent waste. Heerema aims to expand its sustainable procurement practices by obtaining clear insights into our supply chain.

### Reuse

The projects within the reuse pillar focus on extending the lifespan of products, parts and materials. Resource management is a key focus area, exemplified by Heerema's steel marketplace, our internal marketplace for steel products procured on previous projects. Additionally, the incorporation of circular slings, made from post-consumer plastic, serves as an excellent example of our commitment to conserving the value of materials.

### Retain

Retain measures are classified as useful applications of materials at their end of life to retain their maximum value. One focus is waste stream management, supported by a multidisciplinary workgroup focusing on several waste related initiatives offshore. Additionally, standardizing project demobilization ensures focus on which end-use of material and equipment is considered in the engineering phase.

## 6.2.1 RE-USING STEEL



Resource management  
is a key focus area,  
exemplified by Heerema's  
steel marketplace.





# 6.2.1 Re-using Steel

## A Practical Approach to Circularity

The Q1 project spanned two seasons in 2023 and 2024, focusing on the removal of eight platforms and three bridges from the Dutch sector.

### FIT WITH SDGs

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

These initiatives contribute to a number of Sustainable Development Goals, among others:

**12** SDG 12 (Responsible consumption and production) by aiming to retain value of consumed products through effective circular design and asset management.

### FIT WITH STRATEGY

As part of the Circular Heerema roadmap, circular design plays an important role in preserving the value of materials, thereby supporting our Retain pillar.

With extensive planning and operations spanning 86 days, this project showcased the effective integration of sustainable practices into large-scale offshore decommissioning, with 97% of the materials set to be recycled at the Sagro scrapyard. Key to this success was the Steel Marketplace, our internal material bank based in Flushing. It enabled the reuse, repurposing, and remanufacturing of beams, grillages, guides, lift points, rigging & access platforms, and protection roofs for key project elements. The structural grillage designs optimized for reduced sea states further streamlined operations, reducing costs and waste, but also came with some challenges, particularly through use of additional engineering resource in adapting designs to varying project conditions.

### The Results in Numbers

In 2023, 82% of the steel used for the Q1 project – 1,596 metric tons, equivalent to the weight of over 10 fully loaded Boeing 747s – was reused, while 18% (362 metric tons) was new steel. In 2024, reuse increased to 94% (3,290 metric tons), comparable to the weight of nearly 50 blue whales, leaving only 6% (223 metric tons) as new material. Across both years, 4,886 metric tons of steel – 89% of the total – came from reused materials, showcasing the immense environmental and resource-saving impact of our circular approach.

### Embedding Circularity

Reuse was integrated from start to finish and encouraged by the project leads. Materials were carefully allocated from existing assets via





our ERP system and components via the Steel Marketplace. At close-out, components were categorized for future use or recycling, ensuring nothing was wasted. Verification of materials against as-built conditions safeguarded project quality and usability for future applications.

#### Future Opportunities

Looking ahead, the alignment of as-built conditions in 3D-models with the real-world state of reused components could further streamline operations. Expanding the Steel Marketplace to include materials en route to Flushing would enhance inventory management. Standardizing grillage length to match frame spacing across vessels and barges would also simplify reuse and improve compatibility. Closing the loop of our materials could be improved if the loop gets also closed in our digital workspace. Automation offers additional potential. Generating cutting plans tailored to

project needs could reduce errors, while a centralized system for reuse certifications would ensure compliance and build client confidence.

#### Collaboration Drives Success

The project's achievements were enabled by close collaboration. Procurement teams worked seamlessly with Engineering and Drawing Office to verify materials and optimize designs. Intermediate design checks conducted by HFG ensured constructability and practicality, while clear material tracking enabled efficient planning and execution.

#### Setting the Standard

The Q1 project demonstrates once again that circularity is not just aspirational but achievable. While reuse has been a longstanding practice within our decommissioning operations, the Q1 project stands out as a good example of how we can not only reduce our environmental footprint

but also create tangible value for the business. By reimagining material use and working as a team, we've created a framework for sustainable offshore operations that enhances both sustainability and profitability. Importantly, the client's support in enabling the reuse of materials was a key differentiator, highlighting a level of collaboration that we often see in decommissioning projects but less frequently in other areas.



**89% of the total amount  
of used steel came  
from reused materials.**



# 6.3 Healthy Oceans

**MITIGATE | CONSERVE | ENHANCE** As the world's oceans form our primary operational area, it is crucial that we contribute to their health. Heerema's fourth sustainability ambition, Healthy Oceans, focuses on mitigating, conserving, and enhancing our impact on marine life.



## Mitigate

Mitigation measures focus on avoiding or minimizing negative impacts on marine life. Within our Mitigate pillar, we have focused on reducing noise pollution, for instance by engineering templates and bubble curtains. In addition we are looking into the water discharges of all our vessel and ensure they are future proof.

## Conserve

Conservation focuses on methods to preserve marine biodiversity, habitats, and ecosystems. As part of our commitment to conservation, we place a strong emphasis on Education & Awareness. We gather knowledge and spread it within our organization and beyond. Our aim is to raise awareness of the importance of protecting the diversity of marine life.

## Enhance

Enhancement focuses on creating a net positive impact on marine life. We strive to discover possibilities for using artificial reefs and integrating eco-engineering into our designs to change the impact a installed structure has on the environment. Additionally, we aim to exchange knowledge with other organizations in the industry through our Research & Partnerships initiative.

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### 6.3.1 NOISE MITIGATION AT HE DREIHT

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### 6.3.2 BUILDING ON AMBITION



I see working collaboratively with other contractors, companies, and institutes as the guiding force leading us towards a sustainable and thriving future for marine biodiversity.

**Joost van Arkel** | Engineer,  
Healthy Oceans team member





# 6.3.1

## Noise mitigation at He Dreiht

### The challenge

For the foundation installations at EnBW's He Dreiht Offshore Wind Farm a strict noise level limit of 160 dB SEL05 at 750m was enforced. To meet this threshold, significant noise reduction in the water column was necessary. This project has been the most challenging noise mitigation effort for Heerema to date, pushing our available technologies to their limits.

#### FIT WITH SDGs

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This sustainability initiative contributes to a number of Sustainable Development Goals, among others:

**9 SDG 9** (Industry, innovation and infrastructure) by noise engineering to predict the noise impact and by mechanical engineering to mitigate.

**14 SDG 14** (Life below water) by protecting marine mammals from the noises we produce during installation.

#### FIT WITH STRATEGY

As a component of the Healthy Oceans roadmap, the mitigate pillar strives to prevent our impact on the Oceans. Noise mitigation is a perfect example how we can mitigate the impact of our installation activities.

#### Project Preparation

Heerema's noise team started by using in-house models to predict the necessary decibel reduction. Based on these predictions, the appropriate noise mitigation devices were selected. Since the pile is the primary sound source, a combination of techniques is needed to address the sound waves as they travel through both the water column and the soil. Through noise engineering Heerema estimated that a total noise reduction of 24 dB was required to comply with German limits.

#### Noise Mitigation Devices

##### Hammer dampening system

The PULSE system reduces noise directly at the source the Hammer. The system has a volume of fluid between the hammer ram weight and anvil, which elongates the force of each hammer strike, thus reducing source sound levels. This volume can be altered, allowing the system to optimize the noise attenuation levels and energy losses.

**Near-pile system** The Template-Noise Mitigation System (T-NMS) works by confining noise emitted directly from the pile into the water. This leaves the ground born noise to be dealt with by the Far-field system.

**Far-field system** A Double Big Bubble Curtain (DBBC) consists of two rings of hoses with nozzles connected to a series of air compressors that provide a "wall" of air bubbles. This technique has been proven to be quite effective for many offshore campaigns and is the only system that captures ground-borne noise. The system effect decreases at greater water depths meaning He Dreiht at 41 meters was quite the achievement.

#### Offshore Support

Noise monitoring is conducted during pile driving to allow the noise team to see in real-time if sound level limits are being approached. If noise levels near the limit, then the offshore crew will assess whether reducing the hammer energy is required to prevent an exceedance.



Additionally, there is a driving duration limitation 180 minutes for each monopile, which includes 30 minutes of acoustic deterrence to scare any marine mammals from the area. If the operation does not go smoothly, a report must be submitted to the authorities within 24 hours, detailing the reasons for exceeding the time limit.

### Results

No noise level limits were exceeded throughout the duration of the project which set a new industry standard and was a huge success for Heerema.





## 6.3.2

# Building on Ambition

Developing our capacity to conserve and enhance the biodiversity in the waters we work in.

The first complete year of our Healthy Ocean ambition saw us explore the landscape of conservation and enhancement of life below water. Creating awareness and developing solutions to work on our subsea imprint.

### FIT WITH SDGs

To move values into action, we use our Sustainability Roadmap. Based on the United Nations' Sustainable Development Goals (SDGs), it provides focus on our achievements, ongoing projects, and ambitions.

This sustainability initiative contributes to a number of Sustainable Development Goals, among others:

**9 SDG 9** (Industry, innovation and infrastructure) by executing innovative engineering designs.

**14 SDG 14** (Life below water) by enhancing marine life.

### FIT WITH STRATEGY

As a component of the Healthy Oceans roadmap, the Enhance pillar strives to contribute to the enrichment of marine ecosystems, notably through rig-to-reef initiatives that support the development of Artificial Reefs and Decommissioning Research.

### NO-REGRETS

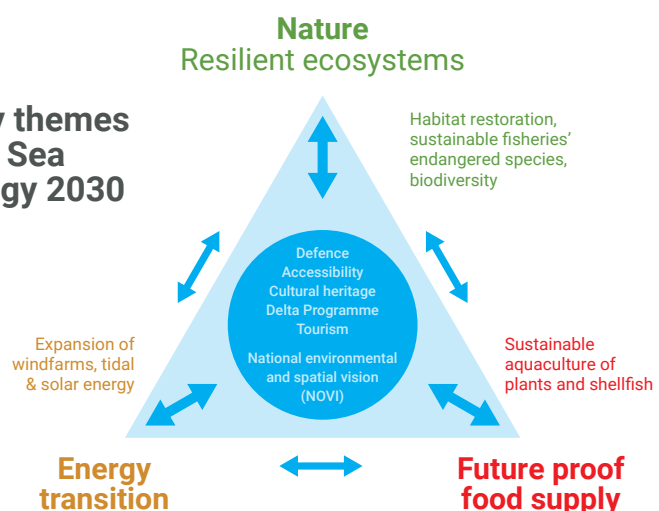
NO-REGRETS stands for: North Sea Renewable Energy: Gaining the Required Ecological Knowledge for the 'TranSition'. The spatial planning and use of the North Sea over the next 30 years will be fundamentally shaped by the ongoing shift away from fossil fuel extraction to renewable energy generation. Across the broader North Sea region user countries, an offshore wind pact was signed for the North Sea to supply 150 GW by 2050.

Meanwhile, Europe is the largest single market for fish and fish products in the world by value. Current policies for the North Sea revolve around three main transitions: food, energy and nature, and together these require a careful balance.



NO-REGRETS contributes to this transition by enhancing our understanding of the North Sea ecological and economic systems, providing relevant ecological and socio-economic data, and the development of information integration tools to support the process of policy making (i.e. [North Sea Program 2022-2027](#)) and stakeholder involvement ([North Sea Consultation](#)).

### Policy themes North Sea strategy 2030



Source: [www.noordzeeloket.nl](http://www.noordzeeloket.nl)

Since this research involves a diverse range of partners, it presents an excellent opportunity for Heerema to establish a network in this unfamiliar field.

Heerema will facilitate sea-going research by providing space on our vessels during offshore construction and removal activities. In 2022, we undertook a similar project with Wageningen Marine Research during the Dunlin Alpha project, collecting samples of marine growth, seabed, fish, and water. The initial findings from this project are expected to be published later this year.

### Developing Artificial Reefs and Eco-Engineering Solutions

In 2024, we continued developing our approach to enhancing marine life, focusing on two key methods: Artificial Reefs and Eco-Engineering. While both are still in the early stages, their first impacts are expected to become visible in 2025.

#### Artificial Reefs

These man-made, standalone structures will be created to support specific species by providing habitats that encourage their growth and survival. Artificial reefs can be constructed from repurposed materials, or developed by repurposed decommissioned oil and gas structures.

Developing artificial reefs involve the following steps:

1. Select location & identify target species
2. Design & construct artificial reefs
3. Deploy artificial reefs
4. Monitoring

To initiate the development of artificial reefs, we conduct market research and engage with start-ups and companies in this sector. As part of this effort, we visited Coastruction to explore their 3D-printed artificial reef solutions and are actively working to integrate our ideas into ongoing Heerema projects.

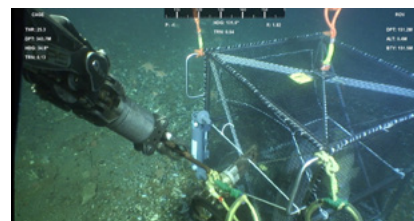
#### Eco-Engineering

This year, we began shaping our strategy for Eco-Engineering—an approach that integrates ecological features into structures or enhances existing ones to support marine ecosystems. By using custom shapes, textures, orientations, and materials, we aim to foster biodiversity through solutions such as fish hotels and eco-friendly scour protection.

#### Future

In the coming year, we will expand our research and partnerships to launch a pilot project focused on installing artificial reefs and eco-engineered solutions. For industry examples, click this link:

<https://toolbox.therichnorthsea.com/nature-enhancements/>



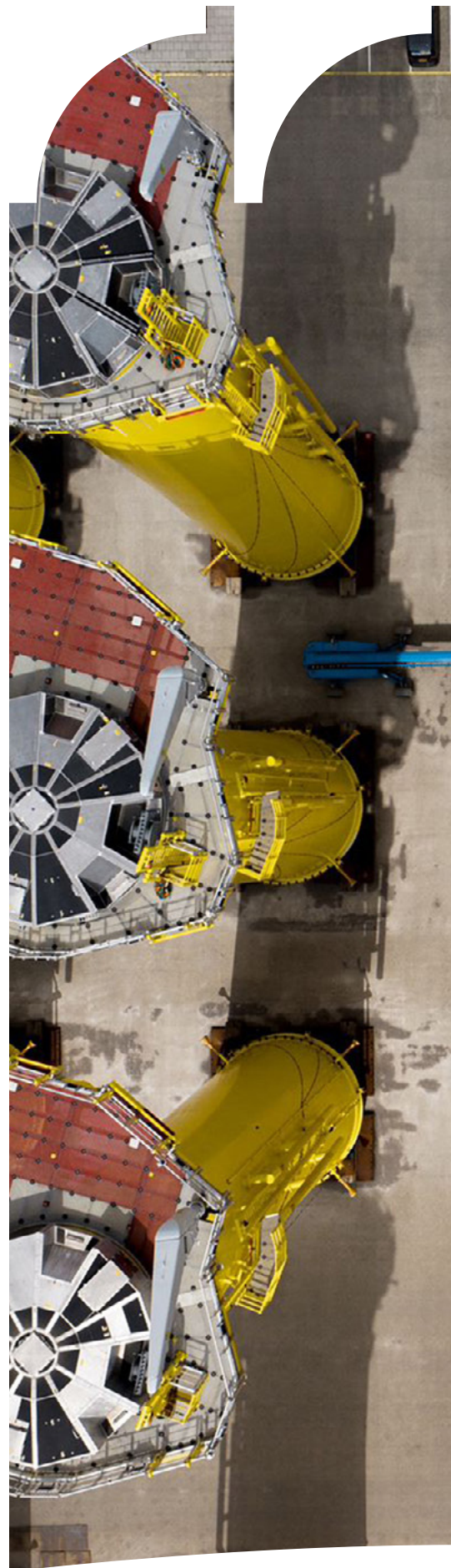
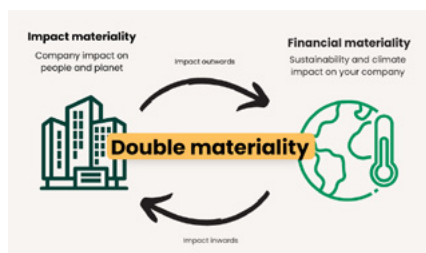
A consortium of Dutch scientists start a five-year research project on the effects of offshore wind farms on North Sea ecology and economic activities. NWO awarded the NO-REGRETS project 6.7 million euros. Check [Nloz.nl](https://nloz.nl)



# 7

## Our impact in numbers

In line with our long standing commitment to sustainability reporting. Heerema has launched a company-wide program to transform its sustainability reporting practices in line with CSRD. Beyond meeting regulatory requirements, Heerema recognizes that collective reporting on sustainability is essential to drive a shift towards a greener economy and long term business value.









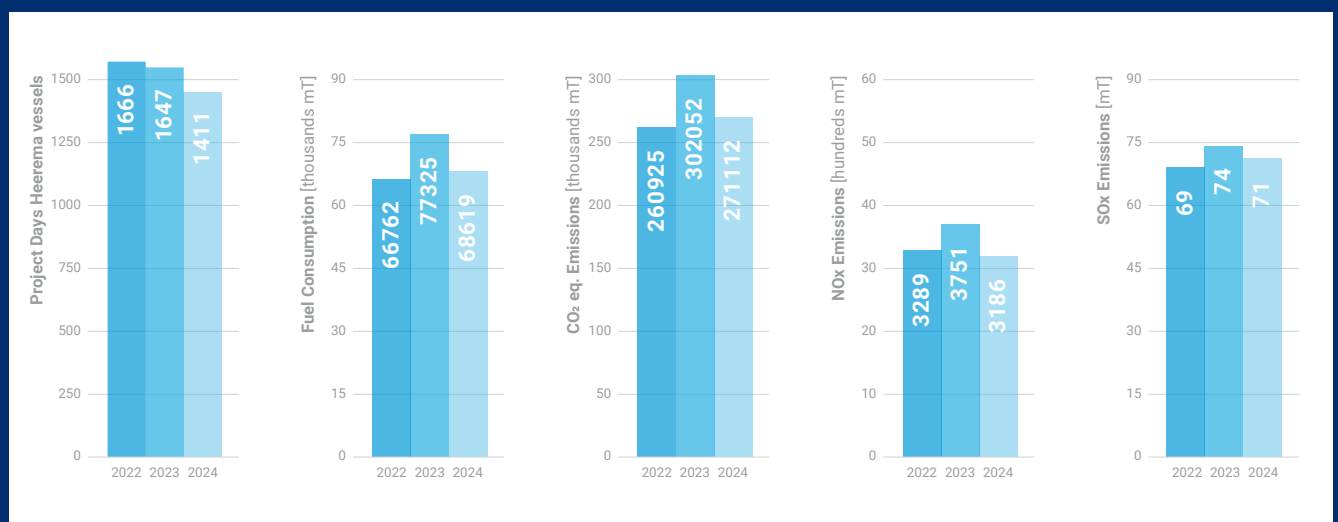
# 7.1

## Reduce Footprint & Emissions

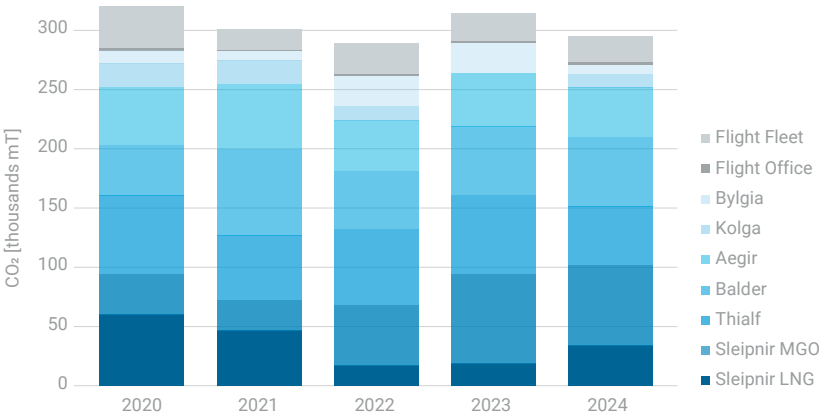
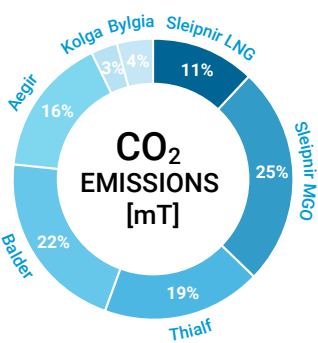
### Transit & Work per Vessel

	Consumption (mT)		CO <sub>2</sub> eq. emissions (mT)		NOx Emissions (mT)		SOx Emissions (mT)	
	2023	2024	2023	2024	2023	2024	2023	2024
Sleipnir LNG	4,078	7,418	18,584	33,190	42	76	0.08	0.15
Sleipnir MGO	19,520	17,457	75,543	67,559	994	889	14	24.8
Thialf	17,121	12,838	66,257	49,684	1,008	756	24.5	11.2
Balder	14,896	15,031	57,648	58,171	801	808	13	12.3
Aegir	11,631	10,858	45,013	42,020	475	443	10.3	16
Bylgia	3,587	2,843	13,882	11,003	154	122	3.4	4.4
Kolga	6,492	2,173	25,125	8,408	279	93	8.5	2.1
<b>Total</b>	<b>77,325</b>	<b>68,618</b>	<b>302,052</b>	<b>270,035</b>	<b>3,753</b>	<b>3,187</b>	<b>73.78</b>	<b>70.95</b>

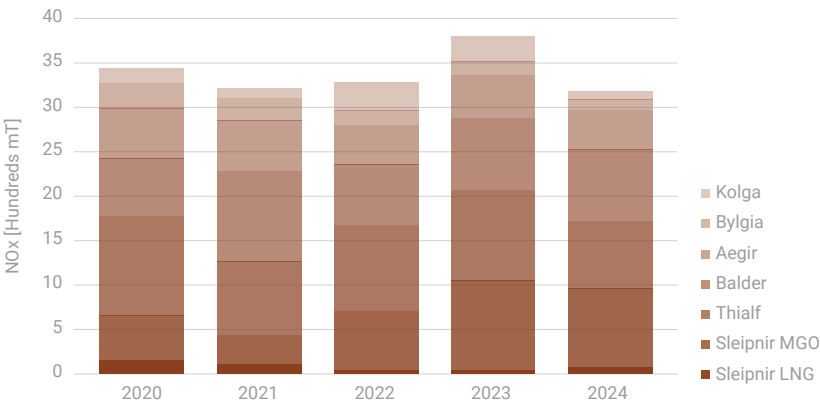
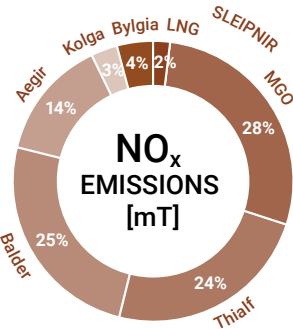
### Yearly Reduction Footprint (Scope 1)



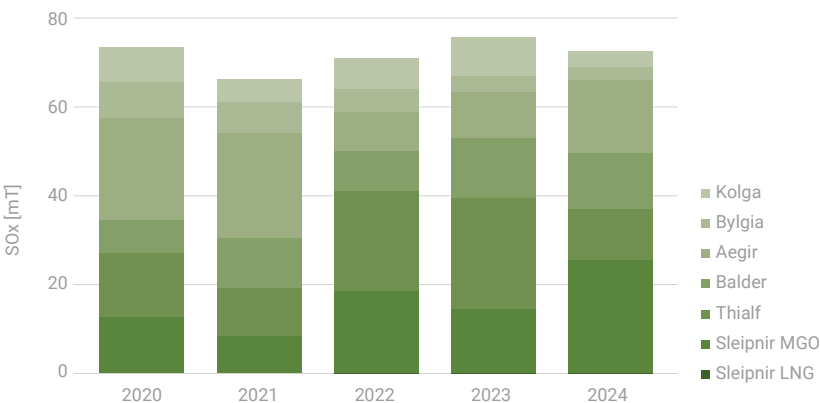
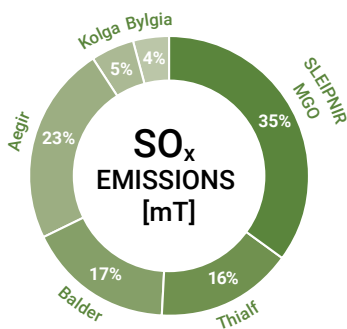
# CO<sub>2</sub> eq. emissions



# NO<sub>x</sub> emissions fleet



# SO<sub>x</sub> emissions fleet





# 7.2

## Waste Management

### Total amount of waste

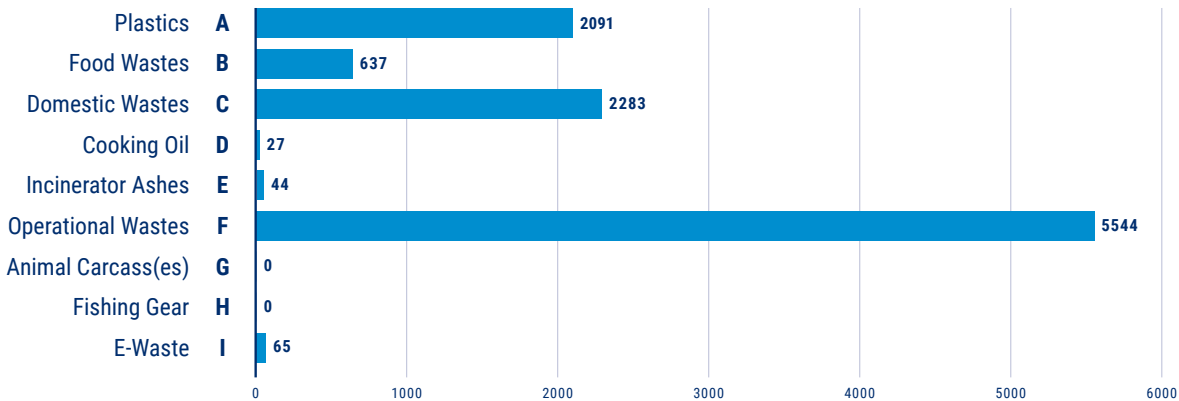
from Heerema vessels in 2023

10,690 m<sup>3</sup>

### Environmental incidents

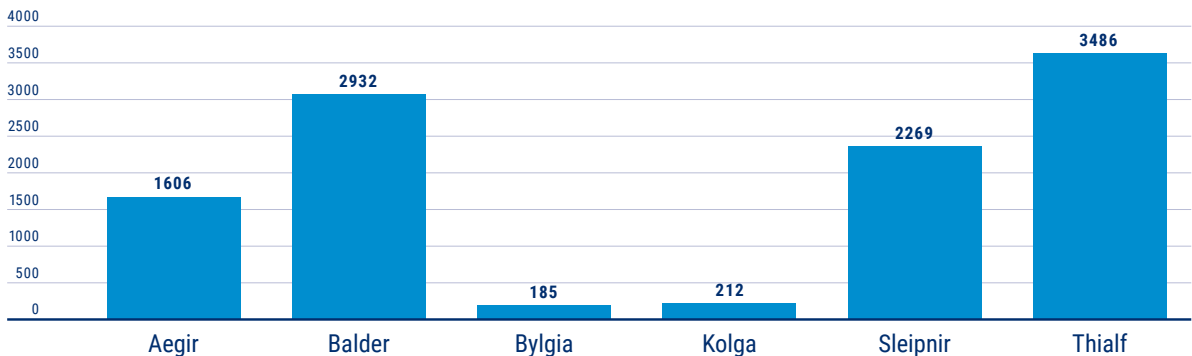
	2022	2023	2024	3 year average
Environmental Fines	0	0	0	0
Total recorded oil spill incidents	8	1	4	4.3
Contained Spill	2	0	2	1.3
Uncontained Spill	6	1	2	3
Amount of oil spilled uncontained	93	6	11	36.7

### Total waste per category (in m<sup>3</sup>)



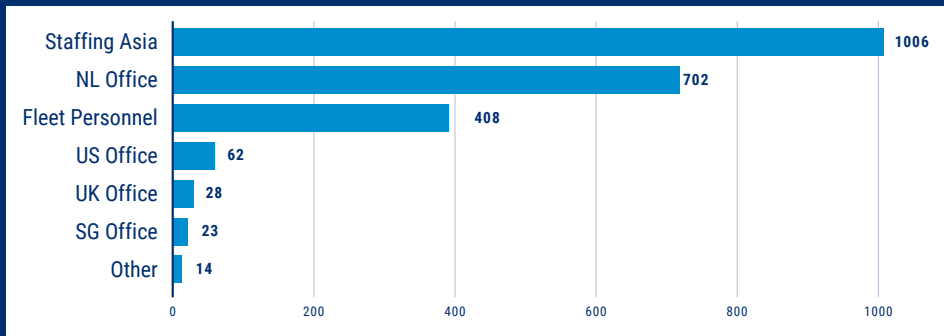
Operational waste includes waste related to project execution

### Waste per vessel (in m<sup>3</sup>)



# 7.3 People

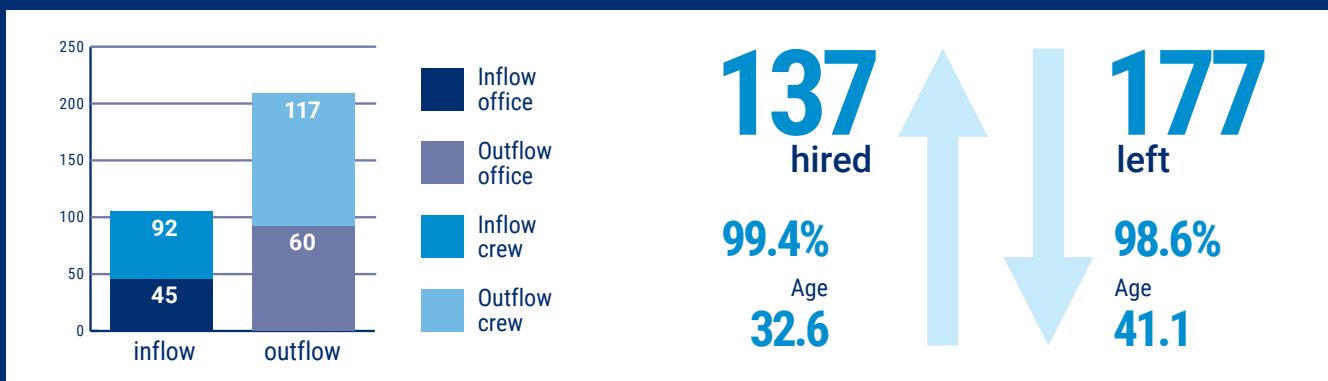
## Population by location



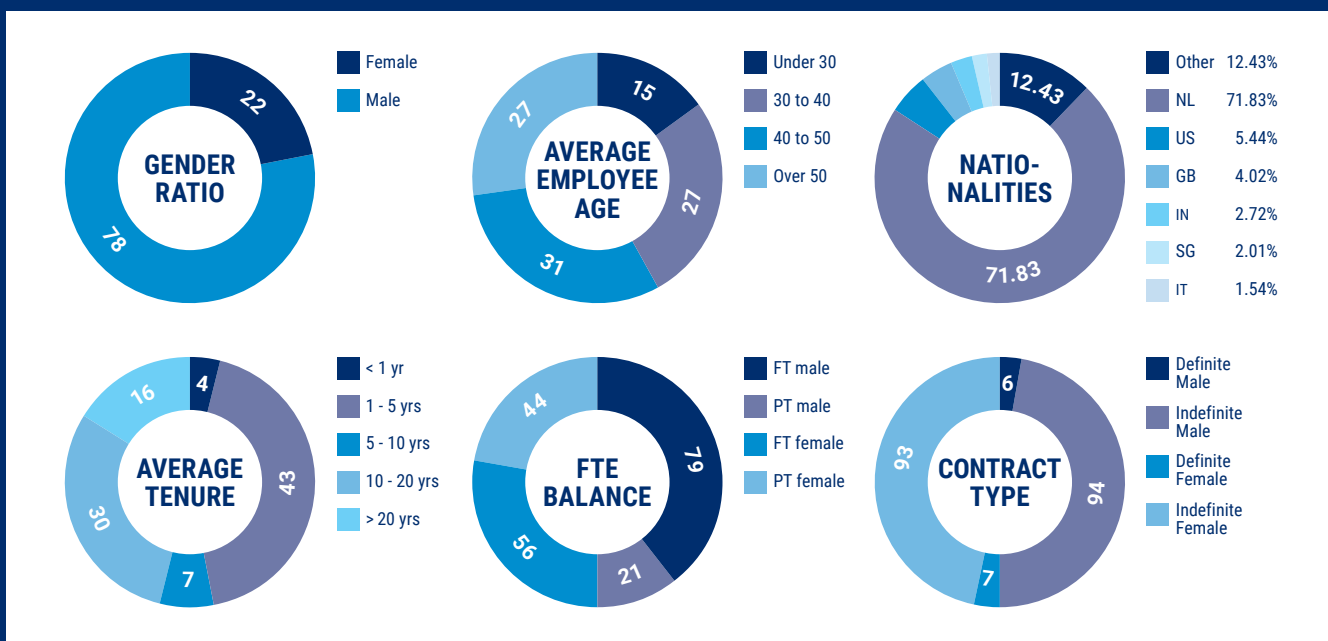
## Total workforce

Workforce	2214
FTE's	2188
Average age	43.6
Different nationalities	46

## Inflow / outflow employees

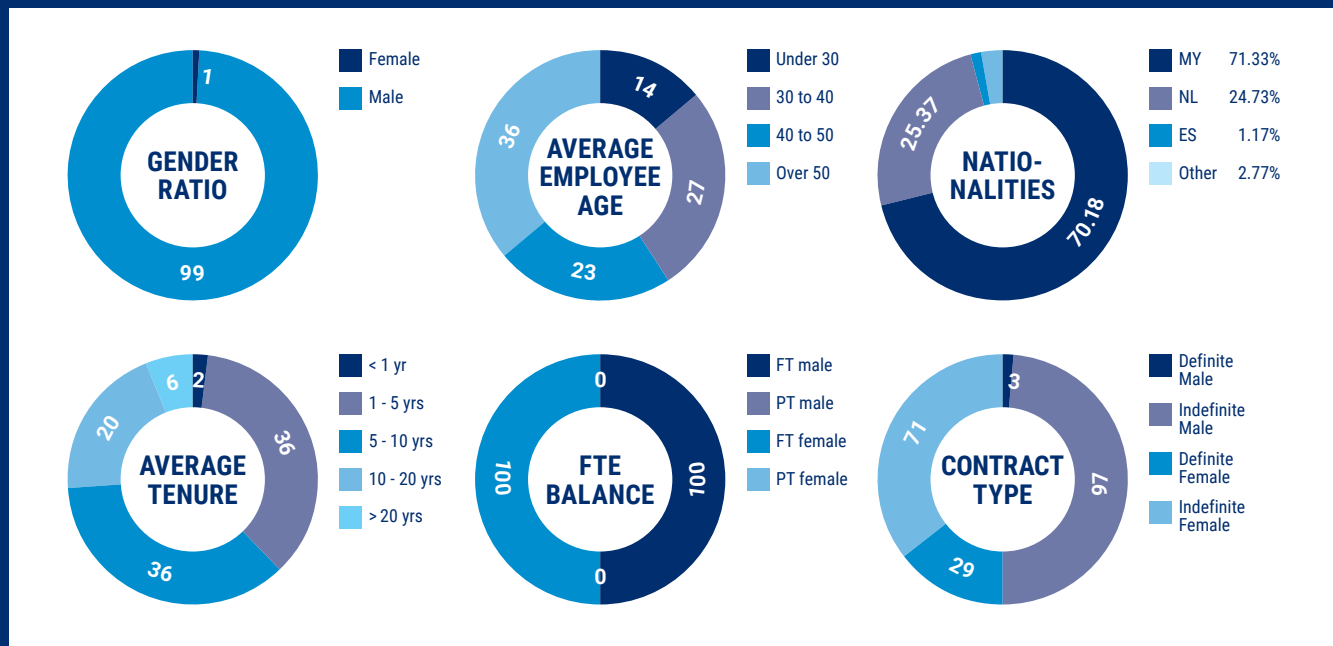


## Offices (in percentages)





## Fleet (in percentages)



# 7.4 Safety

## Total workforce statistics

Manhours	6,365,695 hours
LTIFR (Lost Time Incidents / manhours * 1,000,000)	0.45
TRIR (Recordable injuries / manhours * 1,000,000)	1.55
Total accidents	80 <ul style="list-style-type: none"> <li>• 45 equipment asset</li> <li>• 29 people</li> <li>• 5 environment</li> <li>• 1 security</li> </ul>
Total near misses	25 <ul style="list-style-type: none"> <li>• 10 equipment asset</li> <li>• 12 people</li> <li>• 1 environment</li> <li>• 1 reputation Ethics &amp; Compliance</li> <li>• 1 security</li> </ul>
# DaretoCare training sessions	66 (889 participants)
# Safety boosts (fleet)	139 (all vessels)
# Safety instructions (fleet)	253
# Drills (fleet)	559



MARINE  
CONTRACTORS



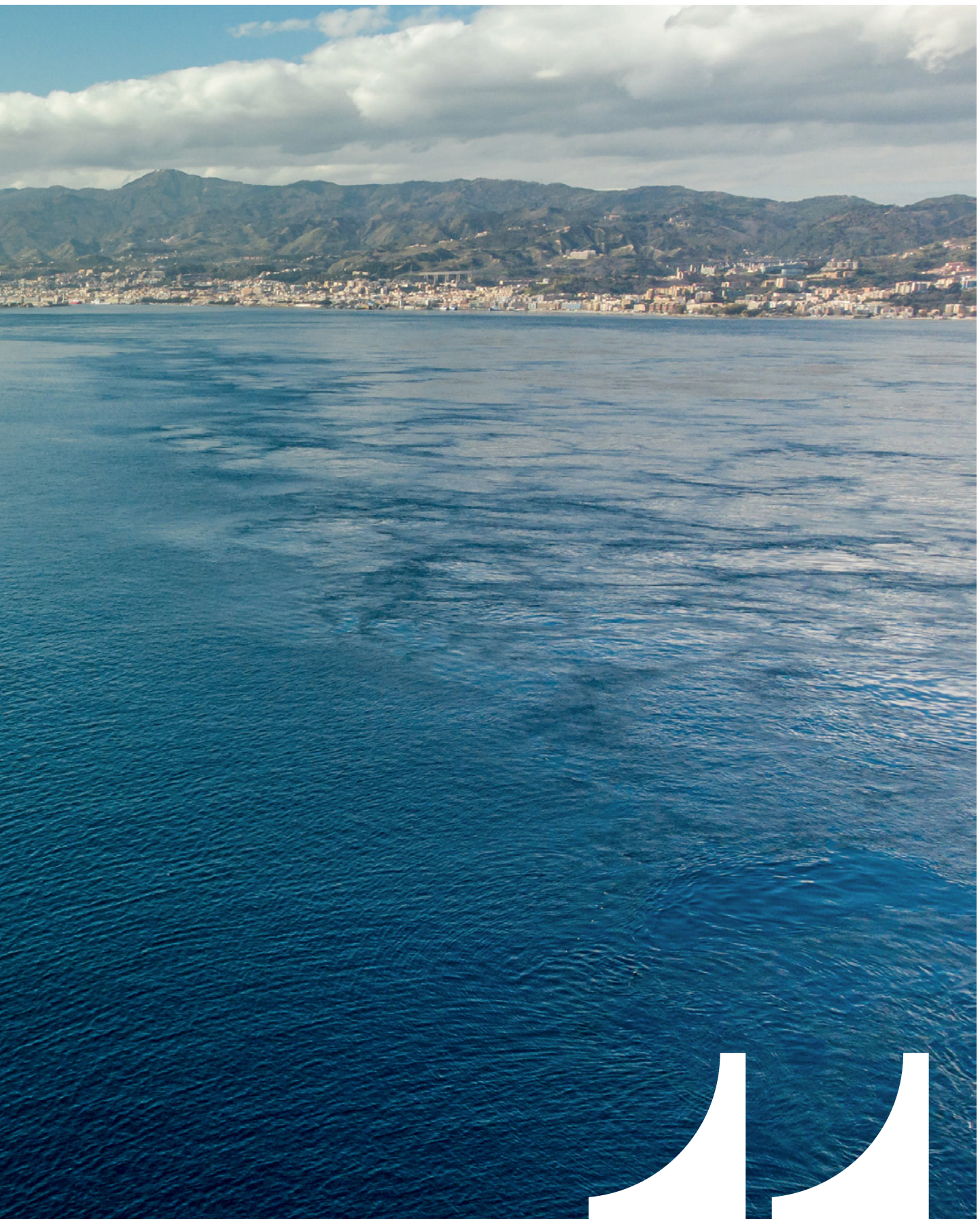




**To be the leading  
marine contractor  
creating sustainable  
value(s) for clients  
and stakeholders.**

**Our Mission Statement**







**This Heerema Marine Contractors  
Sustainability Report covers our  
relevant projects and performance  
on the four Sustainability  
Ambitions over the year 2024**

Sustainability Report 2024



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