

Module: Introduction

Page: Introduction

0.1

Introduction

Please give a general description and introduction to your organization

Dampskibsselskabet NORDEN A/S (NORDEN) operates globally in dry cargo and product tankers with one of the most modern and competitive fleets in the industry. NORDEN operates a total of 244 vessels.

In addition, vessels from third parties are operated in pools of which NORDEN is either co-owner or manager. These are Norient Product Pool, NORDEN Post-Panamax Pool and NORDEN Handysize Pool.

In Dry Cargo, NORDEN is active in all major vessel types. NORDEN is one of the world's largest operators in Panamax and Handymax, and also has growing activities in the Handysize and Post-Panamax vessel types as well as activities in Capesize. NORDEN Handysize Pool and NORDEN Post-Panamax Pool operate the Company's owned vessels in addition to tonnage from Interorient Navigation Company Ltd. (INC).

In Tankers, NORDEN's activities comprise Handysize, MR and LR1 product tankers. NORDEN's vessels are operated commercially by the 50% owned Norient Product Pool, which also operates vessels from INC and is one of the largest product tanker pools in the world.

NORDEN's core fleet consists of owned vessels and vessels on long-term charter with purchase option. The core fleet is supplemented by vessels chartered on a short-term basis or for individual voyages, and this mix allows NORDEN to rapidly adjust the size and costs of the fleet to changing market conditions. Purchase and extension options on many chartered vessels increase flexibility of the fleet and also contribute to the value creation.

NORDEN has its headquarters in Denmark, offices in Singapore, China, India, the USA and Brazil, a network of port captains as well as site offices at shipyards in Korea, China, Vietnam and Japan. NORDEN has 274 employees on shore and 884 on board owned vessels. In addition, Norient Product Pool has 44 employees at its offices in Denmark, Cyprus, Singapore, the USA and Brazil.

NORDEN was founded and listed in 1871 and is one of the oldest listed shipping companies in the world. Management focus is long-term and rooted in NORDEN's vision, mission and values. The goal is for NORDEN to continuously develop for the benefit of its stakeholders and to achieve high, stable earnings. The share is listed on NASDAQ OMX Copenhagen A/S, and NORDEN has approximately 16,300 registered shareholders.

(Numbers are stated at 31 December 2012).

0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Sun 01 Jan 2012 - Mon 31 Dec 2012

0.3

Country list configuration

Please select the countries for which you will be supplying data. This selection will be carried forward to assist you in completing your response

Select country

Denmark

Brazil

China

India

Singapore

Select country
United States of America
International Waters

0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

0.6

Modules

As part of the request for information on behalf of investors, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sectors, companies in the oil and gas industry and companies in the information technology and telecommunications sectors should complete supplementary questions in addition to the main questionnaire.

If you are in these sectors (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the navigation bar when you save this page. If you want to query your classification, please email respond@cdproject.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see <https://www.cdproject.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

Module: Management [Investor]

Page: 1. Governance

1.1

Where is the highest level of direct responsibility for climate change within your company?

Individual/Sub-set of the Board or other committee appointed by the Board

1.1a**Please identify the position of the individual or name of the committee with this responsibility**

Dampskibsselskabet NORDEN A/S (NORDEN) has set up a Corporate Social Responsibility Executive Body (the CSR Executive Body) appointed by the Board of Directors in April 2008. The CSR Executive Body has the overall responsibility for ensuring that NORDEN has a systematic management approach to environmental and social sustainability (in which the issues of climate change is included).

The CSR Executive Body holds frequent meetings, approximately every 2 months, where climate change is discussed when relevant. Climate change issues are discussed in connection with NORDEN's strategy, annual reports, completion of the CDP Questionnaire, Corporate Social Responsibility (CSR) reports and similar. The Chairman of the CSR Executive Body is NORDEN's Chief Financial Officer Michael Tønnes Jørgensen, and he is therefore ultimately responsible for handling issues relating to climate change. The Chief Financial Officer reports directly to the Board of Directors. Besides the Chairman, the CSR Executive Body also consists of Lars Lundegaard who is Senior Vice President and Head of the Technical Department, Thomas Jarde, Vice President in the Dry Cargo Department and Steven Sandorff, Director in the Tanker Department. This mix of competences ensures that all aspects of NORDEN's business which might have an impact on climate change or might be impacted by climate change are discussed. The CSR Executive Body debates, approves and reviews NORDEN's CSR strategy, policies, measures and new initiatives relating to CSR. The CSR Executive Body also ensures implementation of future initiatives with regard to climate change and reports to the Board of Directors.

The Technical Department oversees the climate-related and environmental efforts regarding the ongoing operation and development of the owned fleet. In addition, as of 1 January 2011, NORDEN has established a new dedicated corporate CSR Department, which is in charge of creating and implementing NORDEN's CSR strategy, policies, Code of Conduct and action plan. It is also in charge of CSR reporting, internal and external communication on CSR and initiating new CSR activities. The CSR Department presents their work and ideas to the CSR Executive Body, who is in charge of approving, debating and reviewing them. The CSR Executive Body reports to the Board of Directors, and the Board of Directors discusses the main lines and essential new initiatives at least twice a year in connection with the strategy and budget process and approval of the CSR report.

1.2**Do you provide incentives for the management of climate change issues, including the attainment of targets?**

No

1.2a

Please complete the table

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
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Page: 2. Strategy

2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

2.1a

Please provide further details

The shipping business is cyclical. Identification of the greatest risks and opportunities is therefore an integral part of NORDEN's strategy formulation and the presentation of all important decisions to the Board of Directors.

NORDEN's Corporate Secretariat Department focuses on looking into future regulation, risks and opportunities. The department also looks at customer relations and requirements, risks and opportunities due to climate change – including rough weather and severe ice conditions, trading patterns, attracting new customers and legal requirements which may improve or worsen the foundation on which NORDEN operates. The findings are presented to the Executive Management on a monthly basis.

NORDEN has a number of plans and procedures in order to manage commercial, financial, credit, market and other risks and opportunities. These plans and procedures are presented to and approved by the Board of Directors. The Executive Management reports to the Board of Directors on the monitored risks and the development within the specific areas on a monthly basis. Risk management in NORDEN is described in detail in our Annual Report 2012 on pages 61-63 (please see attached) and on our website.

Seaborne transportation is recognised as the most carbon friendly means of moving cargo, and NORDEN is constantly looking for opportunities to service new customers who wish to take advantage of the environmental benefits of seaborne transportation.

2.2

Is climate change integrated into your business strategy?

Yes

2.2a

Please describe the process and outcomes

NORDEN's vision, mission and values are the cornerstone of our management. The management focus is long-term, and the goal for NORDEN is to continuously develop for the benefit of its stakeholders and to achieve high, stable earnings within the risk framework set out by the Board of Directors. Since the Corporate Social Responsibility (CSR) and climate efforts originate from NORDEN's values, these efforts are a method to advance the goal of living our values. The Danish Shipowners' Association has set a long-term general target for reducing CO2 emissions from the Danish shipping industry. The target is to reduce the relative CO2 emissions for owned vessels by 25% by 2020 compared to the 2007 level, of which 15% should be as a result of technical improvements and another 10% as a result of speed reductions.

Since 2007, NORDEN has taken several initiatives, including a Climate Action Plan targeted at our owned vessels, to support continuous CO2 reductions and to reduce SOx and NOx emissions. The initiatives benefit the climate by reducing propulsion resistance and optimising engine fuel efficiency which are important factors in reducing emissions to air. The initiatives in the Climate Action Plan are evaluated on an ongoing basis. Some have proven to have only a minor effect on emissions reductions and it has therefore been decided not to continue with these initiatives.

The following are the initiatives in the Climate Action Plan which reduce emissions of CO2, SOx and NOx and which are being introduced on all newbuildings and acquired vessels on an ongoing basis:

1. Slide fuel valves for main engines – these improve the combustion of the main engine and ensure a cleaner engine.
2. CASPER system (Computer Analysis of Ship PERFORMANCE) – the system monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication system – the system ensures an effective dosage of cylinder lubrication oil, and a reduction of the cylinder oil consumption can be obtained.
4. M/E cylinder oil scrape down analysis for the main engines – the analysis ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained.
5. Shaft torque monitoring system – the system ensures online real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters – these improve energy efficiency.
7. Advanced hull coating – this coating reduces marine growth on the underwater hull.
8. Propeller cleaning – adoption of propeller cleaning on an average 6 months' basis.
9. Increased service and check of main engine performance – more frequent check and service intervals of the turbo charger, fuel oil pump and air cooler.
10. Funding of environmental research – for instance Green Steam, which is an onboard decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel as the trim can have significant effect on the resistance of the vessel.

The short-term target for 2012 (short-term is here defined as 1 year) was to reduce CO2 emissions from owned vessels by 3.5%, compared to not applying any initiatives, based on the above action items. With an actual reduction of 7.7%, this target was met. For 2013, the target is 4%.

Besides the above described climate action plan, NORDEN is also taking other initiatives to reduce CO2 emissions, including the shift to new bottom paint which will decrease the vessels' propulsion resistance in water. The effect is a reduction of bunker oil consumption of up to 2% and thereby a corresponding reduction of CO2 and SOx emissions.

In addition, Norient Product Pool, which operates all of NORDEN's tankers, has developed the system MOEPS (Master's Operations Environmental Performance System), which is a tool for voyage optimisation and thereby reduction in the consumption of bunker fuel and consequently CO2 emissions. In 2011, the system was implemented in a special version in the dry cargo fleet.

One part of the long-term strategy (long-term is here defined as 3 years or more) is to focus on ECO vessels. NORDEN's long-term aim is to replace existing non-ECO vessels with ECO vessels, so our core fleet only consists of ECO vessels. In 2012, NORDEN ordered 2 ECO Handysize tankers at the GSI Shipyard in China. They have approximately 20% lower fuel consumption than comparable existing designs. NORDEN owns 16 tankers and, in addition, has a total of 6 ECO tankers for delivery. In 2012, NORDEN also ordered 1 ECO Panamax ice-class dry cargo vessel with about 25% lower fuel consumption than comparable designs. At the end of 2012, NORDEN's fleet consisted of a total of 16 ECO vessels for delivery.

Focus on improving climate and environment has proven a competitive advantage when negotiating contracts. Moreover, the decision to implement fuel efficient measures on existing vessels as well as focusing on energy efficiency when contracting new vessels or entering into agreements on long-term chartered tonnage, reduces our bunker consumption and costs as these vessels consume less bunker oil and thereby emit less CO2. Our operational costs decrease, which then enables us to be more competitive and be an attractive business partner.

2.2b

Please explain why not

2.3

Do you engage in activities that could either directly or indirectly influence policy on climate change through any of the following? (tick all that apply)

Trade associations

2.3a

On what issues have you been engaging directly?

Focus of legislation	Corporate Position	Details of engagement	Proposed solution
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2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association"s position	How have you, or are you attempting to influence the position?
Danish Shipowners' Association	Consistent	<p>The Danish Shipowners' Association, which NORDEN is an active member of, is the only association which has collected and published its members' fleets' fuel consumption data. Instead of waiting for a political compromise to combat climate change, the Danish Shipowners' Association and NORDEN want the whole shipping industry to be more proactive. A way to do so is by creating more transparency by registering fuel consumption and CO2 emissions, like NORDEN does. The Danish Shipowners' Association has set a long-term general target for reducing CO2 emissions from the Danish shipping industry. The target is to reduce the relative CO2 emissions for owned vessels by 25% by 2020 compared to the 2007 level, of which 15% should be as a result of technical improvements and another 10% as a result of speed reductions.</p>	<p>Climate change and CO2 emissions are global challenges requiring global solutions, and NORDEN considers it important to find international solutions to this global problem as such solutions will result in the best environmental improvements and ensure equal competition for all shipping companies worldwide. NORDEN engages with policy makers through its membership of and active engagement in the Danish Shipowners' Association, the International Association of Independent Tanker Owners (Intertanko) and International Chamber of Shipping (ICS). Through these organisations, NORDEN supports that the International Maritime Organization (IMO) be given the mandate to enforce global climate and environmental requirements and regulations for all shipping companies worldwide. NORDEN believes that a coherent and comprehensive future IMO framework should be:</p> <ul style="list-style-type: none"> •effective in contributing to the reduction of total GHG emissions •binding and equally applicable to all Flag States in order to avoid evasion •cost efficientable to limit or effectively minimise distortion of competition •environmentally sustainable without penalising global trade and growth •target-based and not prescribing specific method •promoting and facilitating technical innovation and R&D in the shipping industry •accommodating to front runners in the field of energy efficient technologies •practicable, transparent, fraud free and easy to administer <p>These principles have been laid down by IMO's Marine Environment Protection Committee. In addition, when appropriate, NORDEN provides input to relevant policies and discussions regarding the shipping industry's contribution to</p>

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to influence the position?
			<p>climate change and how to best minimise the adverse impact of climate change. Finally, NORDEN is a partner in "Green Ship of the Future" which is a partnership established in 2008 between the Danish government and companies from the Danish maritime industry. The partners have joined forces in order to develop strategies to reduce air emissions from vessels by 30% on CO₂, 90% on SO_x (sulphur oxide) and NO_x (nitrogen oxide). NORDEN is currently involved in two projects under "Green Ship of the Future", and NORDEN continues to assess whether the technologies included in the projects under "Green Ship of the Future" are viable in the fleet and in NORDEN's normal operating modes.</p>

2.3d

Do you publically disclose a list of all the research organizations that you fund?

2.3e

Do you fund any research organizations to produce public work on climate change?

2.3f

Please describe the work and how it aligns with your own strategy on climate change

2.3g

Please provide details of the other engagement activities that you undertake

2.3h

What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

NORDEN has developed a Corporate Social Responsibility (CSR) strategy, which transparently describes NORDEN's 7 CSR focus areas and future targets, among other things CO2 efficiency and environmental management. The focus areas and targets set guide NORDEN's work within e.g. climate and thereby ensure that our input to relevant policies and discussions are in line with our ambitions, position and targets. For instance our target to reduce CO2 emissions from owned vessels, exclusive of vessels on contract to third parties, by 25% by 2020 compared to the 2007 level, is aligned with the target set by the Danish Shipowners' Association. To support this target, we actively engage in a working group to define how Danish shipowners, who have committed to reaching the target set forth by the Danish Shipowner's Association, can transparently communicate their results and ensure common methods of calculating based on IMO's standard EEOI (energy efficiency operational indicator).

2.3i

Please explain why you do not engage with policy makers

Attachments

[https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/InvestorCDP2013/2.Strategy/Annualreport2012.pdf](https://www.cdproject.net/sites/2013/69/22369/Investor%20CDP%202013/Shared%20Documents/Attachments/InvestorCDP2013/2.Strategy/Annualreport2012.pdf)

Page: 3. Targets and Initiatives

3.1

Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?

Absolute target

3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions (metric tonnes CO2e)	Target year	Comment
1	Scope 1	99%	25%	2007	362000	2020	NORDEN aims at reducing the relative CO2 emissions from dry cargo vessels by 25% by 2020 compared to the 2007 level, and from tankers by 25% by 2020 compared to the 2007 level. Out of the 25%, 15% should be a result of technical improvements and 10% a result of speed reduction. This target is in line with the target set by The Danish Shipowners' Association. In order to assess how close NORDEN is to reaching this target, we use the International Maritime Organisation's (IMO) Energy Efficiency Operational Indicator (EEOI) when calculating our CO2 emissions. The EEOI enables us to compare our yearly CO2 reduction regardless of changes in the fleet size, as EEOI is defined as CO2 emitted per metric ton of cargo transported, per nautical miles sailed. In 2012, NORDEN reduced CO2 emissions by 19.3% for owned tankers but increased CO2 emissions by 0.7% for owned dry cargo vessels due to changes in trading patterns, i.e. more ballast voyages than in 2007, longer port stays and the use of smaller vessels. The reduction of CO2 emissions is a result of a combination of various focus areas and activities: the initiatives included in NORDEN's Climate Action Plan (technical improvements), right steaming and virtual arrival voyages (speed optimisation) and investments in fuel efficient vessels (maintaining a young and modern fleet).

3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions	Target year	Comment
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3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
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3.1d

Please provide details on your progress against this target made in the reporting year

ID	% complete (time)	% complete (emissions)	Comment
1	38.5%	37%	NORDEN aims to reduce the relative CO2 emissions from dry cargo vessels by 25% by 2020 compared to the 2007 level, and from tankers by 25% by 2020 compared to the 2007 level. Out of the 25%, 15% should be a result of technical improvements and 10% a result of speed reduction. This target is in line with the target set by The Danish Shipowners' Association. In order to assess how close NORDEN is to reaching this target, we use the International Maritime Organisation's (IMO) Energy Efficiency Operational Indicator (EEOI) when calculating our CO2 emissions. The EEOI enables us to compare our yearly CO2 reduction regardless of changes in the fleet size, as EEOI is defined as CO2 emitted per metric ton of cargo transported, per nautical miles sailed. In 2012, NORDEN reduced CO2 emissions by 19.3% for owned tankers but increased CO2 emissions by 0.7% for owned dry cargo vessels, due to changes in trading patterns, i.e. more ballast voyages than in 2007, longer port stays and the use of smaller vessels. The reduction of CO2 emissions is a result of a combination of various focus areas and activities: the initiatives included in NORDEN's Climate Action Plan (technical improvements), right steaming and virtual arrival voyages (speed optimisation) and investments in fuel efficient vessels (maintaining a young and modern fleet).

3.1e

Please explain (i) why not; and (ii) forecast how your emissions will change over the next five years

3.2

Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

3.2a

Please provide details (see guidance)

Seaborne transportation is the most environmentally friendly means of transport. If the same amount of goods were to be transported by airfreight instead of by ship, the CO₂ emissions would be 100 times greater. If lorries were to replace seaborne transportation, global CO₂ emissions would increase tenfold. Hence, NORDEN's customers reduce their CO₂ emissions when transporting their goods by ship instead of by air or on lorries.

However, the shipping industry emitted about 2.7% of the global emissions of CO₂ in 2007 (source: Second IMO GHG Study 2009), and therefore, NORDEN will continuously work towards reducing emissions to air.

The 10 fuel saving initiatives in NORDEN's Climate Action Plan are applied on vessels owned by NORDEN, and since we charter many of our vessels out to other companies, these companies will benefit from the applied initiatives, thereby gaining advantage from the reduced consumption of bunker fuel as a result of NORDEN's fuel saving initiatives.

Since the size of the fleet continuously changes, NORDEN sets a new target for the reduction of CO₂ emissions as a result of the Climate Action Plan's fuel saving initiatives on owned vessels every year.

- In 2008, the objective was to reduce CO₂ emissions from owned vessels by 2.0%. This was met with an actual reduction of 2.4%.
- In 2009, the objective was to reduce CO₂ emissions from owned vessels by 2.0%. This was met with an actual reduction of 3.3%.
- In 2010, the objective was to reduce CO₂ emissions from owned vessels by 3.5%. This was met with an actual reduction of 4.7%.
- In 2011, the objective was to reduce CO₂ emissions from owned vessels by 3.5%. This was met with an actual reduction of 5.4%.
- In 2012, the objective was to reduce CO₂ emissions from owned vessels by 3.5%. This was met with an actual reduction of 7.7%.
- In 2013, the objective will be to reduce CO₂ emissions from owned vessels by 4%.

The fuel saving initiatives from the Climate Action Plan reduced CO2 emissions from owned vessels by 7.7% in 2012. This amounts to estimated annual CO2 savings of 99,728 metric tons of CO2 in 2012. This benefits the environment, NORDEN and the customer or company which charters NORDEN's vessels.

The effect of the Climate Action Plan initiatives are calculated based on assumptions about engine size, engine type and ballast conditions, and the effect of the initiatives is estimated based on guidelines from IMO and Intertanko. Det Norske Veritas (DNV) has verified the data and calculations of the emissions reductions for 2012.

NORDEN is not considering originating any credits.

3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and implementation phases)

Yes

3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	0	0
Implementation commenced*	0	0
Implemented*	10	99728
Not to be implemented	0	0

3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Annual monetary savings (unit currency - as specified in Q0.4)	Investment required (unit currency - as specified in Q0.4)	Payback period
Transportation: fleet	Slide fuel valves for main engines. These improve the combustion of the main engine and ensure a cleaner engine. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 46 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 46 vessels.	9816	1831957	3450000	1-3 years
Transportation: fleet	CASPER system – Computer Analysis of Ship PERFORMANCE. It monitors and makes it possible to achieve optimal speed in relation to fuel consumption. It ensures an overview of the development of the fuel efficiency for each individual vessel in the fleet. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 49 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 49 vessels.	5537	1033397	784000	<1 year
Transportation: fleet	Alpha lubricator system for the main engines. It ensures an effective dosage of cylinder lubrication oil and a reduction of the cylinder oil consumption can be obtained. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 46 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 46 vessels.	1941	362185	9200000	>25 years
Transportation: fleet	M/E cylinder oil scrape down analysis for the main engines. It ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 49 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 49 vessels.	2097	391394	588000	1-3 years
Transportation:	Shaft torque monitoring system. It ensures an online realtime monitoring of the	8423	1572001	900000	<1 year

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Annual monetary savings (unit currency - as specified in Q0.4)	Investment required (unit currency - as specified in Q0.4)	Payback period
fleet	propulsion power delivered to the propeller. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 36 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 36 vessels.				
Transportation: fleet	Electrical heater. Instead of using a large capacity oil fired boiler to “top up” steam at low engine loads and/or in cold weather, a small electrical heating system can be installed and will efficiently generate the required “top up” steam. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 9 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 9 vessels.	7715	1439979	765000	<1 year
Transportation: fleet	Advanced hull coating. It reduces marine growth on the underwater hull. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 39 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 39 vessels	26680	4979465	3900000	<1 year
Transportation: fleet	Propeller cleaning. Adoption of propeller cleaning on an average 6 months basis. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 38 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 38 vessels.	33497	6251787	456000	<1 year
Transportation: fleet	Increased service and check of main engine performance. More frequent check and service intervals of the turbo charger, fuel oil pump and air cooler. This activity is voluntary, fully developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 10 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 10 vessels.	3202	597606	300000	<1 year
Transportation:	Funding of environmental research, e.g. Green Steam, which is an onboard	820	153052	600000	4-10

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Annual monetary savings (unit currency - as specified in Q0.4)	Investment required (unit currency - as specified in Q0.4)	Payback period
fleet	decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel, as the trim can have significant effect on the resistance of a vessel. This activity is voluntary, developed, has an expected life time to be the same as that of the vessel, which is approximately 20 years, and affects Scope 1. It has been implemented on 4 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 4 vessels.				years

3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Employee engagement	NORDEN holds internal workshops in order to determine what new initiatives to take in order to optimise the vessels with a view to reducing the consumption of bunker fuel. NORDEN has previously initiated an internal project, "Eco vessel of the future", with participation of several departments. The aim of the project was to select a set of practicable emissions reductions technologies, using an MR product tanker as reference vessel.
Other	NORDEN makes use of knowledge sharing with other shipowners and suppliers, including yards, suppliers of sub-components and the classes. In addition, NORDEN participates in trade fairs in order to obtain new knowledge on emissions reduction activities.

3.3d

If you do not have any emissions reduction initiatives, please explain why not

Page: 4. Communication

4.1

Have you published information about your company's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Page/Section reference	Attach the document
In mainstream financial reports (complete)	Page 40-41, Corporate Social Responsibility	https://www.cdproject.net/sites/2013/69/22369/Investor_CDP_2013/Shared Documents/Attachments/Investor-4.1-C3-IdentifyAttachment/Investor-4.1-PublishedInformation1/Annualreport2012.pdf
In voluntary communications (complete)	Page 7, Transparency ; page 8-9 CO2 efficiency ; page 14-15, Environmental Management ; page 18, Annex 1 GRI, facts and figures, Table 1 Environmental Performance	https://www.cdproject.net/sites/2013/69/22369/Investor_CDP_2013/Shared Documents/Attachments/Investor-4.1-C3-IdentifyAttachment/Investor-4.1-PublishedInformation2/NORDEN_CSR_2012_WEB_FINAL_72.pdf

Module: Risks and Opportunities [Investor]

Page: 5. Climate Change Risks

5.1

Have you identified any climate change risks (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation

Risks driven by changes in physical climate parameters

Risks driven by changes in other climate-related developments

5.1a

Please describe your risks driven by changes in regulation

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
2	Fuel/energy taxes and regulations	Levies on bunker fuel, which will increase NORDEN's operational costs as we purchase bunker fuel for our vessels.	Increased operational cost	Unknown	Direct	About as likely as not	Low-medium
3	Air pollution limits	Accelerating limitations of sulphur content in bunker fuel. NORDEN's operational costs will increase as we will have to buy bunker fuel with less sulphur content to ensure that we comply with regulations.	Increased operational cost	1-5 years	Direct	Virtually certain	Medium-high

5.1b

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk and (iii) the costs associated with these actions

ID 2:

(i)

There are currently several proposals put forward in the International Maritime Organisation (IMO) concerning market-based mechanisms to reduce greenhouse gas emissions from the shipping industry. One of these proposals concerns the introduction of a levy on bunker fuel. A proposal of a levy on bunker fuel is in the region of USD 25 per ton of bunker fuel; however, this is still very uncertain.

There is currently no overwhelming support for the various proposals among the IMO countries. Therefore, the timeframe for the introduction of the levy is very uncertain, but we expect it to be more than 10 years in the future.

If a levy on bunker fuel is introduced, it would increase NORDEN's operating costs as bunker fuel costs account for approximately 60-70% of total voyage costs. In 2012, NORDEN's fuel consumption amounted to 1,014,000 metric tons. If a levy on bunker fuel of USD 25 per ton was introduced, NORDEN would in 2012 have had an increase in bunker costs of approximately USD 25 million.

(ii)

To ensure that NORDEN is more resistant to increasing fuel prices as well as future levies on bunker fuel, NORDEN focuses greatly on CO2 efficiency and fuel efficiency, which are directly linked to each other.

NORDEN has decided to focus on three areas to become more fuel and CO2 efficient and thereby also minimise the financial impact that future levies on bunker fuel would have on NORDEN. These areas are: technical improvements, speed optimisation and investments in fuel efficient vessels.

For instance, within the area of technical improvements, NORDEN has developed a Climate Action Plan in 2007 consisting of 10 fuel saving measures described below:

1. Slide fuel valves for main engines – these improve the combustion of the main engine and ensure a cleaner engine.
2. CASPER system (Computer Analysis of Ship PERFORMANCE) – the system monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication system – the system ensures an effective dosage of cylinder lubrication oil, and a reduction of the cylinder oil consumption can be obtained.
4. M/E cylinder oil scrape down analysis for the main engines – the analysis ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained.
5. Shaft torque monitoring system – the system ensures online real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters – these improve energy efficiency.
7. Advanced hull coating – this coating reduces marine growth on the underwater hull.
8. Propeller cleaning – adoption of propeller cleaning on an average 6 months' basis.
9. Increased service and check of main engine performance – more frequent check and service intervals of the turbo charger, fuel oil pump and air cooler.
10. Funding of environmental research – e.g. Green Steam, which is an onboard decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel as the trim can have significant effect on the resistance of the vessel.

(iii)

The costs of the activities vary depending on the focus area, i.e. whether we invest in new ECO vessels or performance systems to optimise our speed.

With the above described Climate Action Plan, NORDEN has had non-recurring investment costs in the amount of approximately USD 20.9 million since 2007 by implementing the 10 initiatives on owned vessels. However, these investments have resulted in savings of 99,728 metric tons of CO2 and USD 18.6 million solely in 2012.

ID 3:

(i)

Two SOx regulations came into effect in 2012. These included the introduction of a global limit on sulphur content in bunker fuel to 3.5% and the introduction of a new Emissions Control Area (ECA) comprising Canada and the USA, where the sulphur content limit is 1%.

The first regulation did not have a business impact on NORDEN as we have mainly purchased bunker fuel with a sulphur content of less than 3.5% since October 2011. The second regulation increased our bunker costs as bunker fuel with a sulphur content limit of 1% is approximately 5-15% more expensive than that containing 3.5% depending on where you purchase it. As predicted, more ports have begun offering bunker fuel with a sulphur content of maximum 1%, but it is still in the early stages, and the price level has consequently not been affected much. In the coming year, we expect that more ports in the USA will supply bunker fuel with maximum 1% sulphur content, which may lead to a decrease in costs.

In January 2015, all ECAs will introduce a sulphur content limit of 0.1%, which is a huge challenge as it is doubtful that enough low sulphur fuel oil will be available in 2015. Consequently, we will have to use gas oil instead of fuel oil, and this may result in an increase of more than 50% in bunker costs when sailing in the ECAs.

For NORDEN and the rest of the shipping industry, this increase is likely to cause rising freight rates in all ECAs.

(ii)

In order to obtain bunker fuel with a low sulphur content, NORDEN will disperse the purchase of bunker fuel to more parts of the world. Furthermore, NORDEN has taken several steps in making our fleet more energy efficient, including initiatives aimed at reducing the sulphur content in bunker fuel. Reduction methods are included in NORDEN's Climate Action Plan, which consists of the following:

1. Slide fuel valves for main engines – these improve the combustion of the main engine and ensure a cleaner engine.
2. CASPER system (Computer Analysis of Ship PERFORMANCE) – the system monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication system – the system ensures an effective dosage of cylinder lubrication oil, and a reduction of the cylinder oil consumption can be obtained.
4. M/E cylinder oil scrape down analysis for the main engines – the analysis ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained.
5. Shaft torque monitoring system – the system ensures online real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters – these improve energy efficiency.
7. Advanced hull coating – this coating reduces marine growth on the underwater hull.
8. Propeller cleaning – adoption of propeller cleaning on an average 6 months' basis.
9. Increased service and check of main engine performance – more frequent check and service intervals of the turbo charger, fuel oil pump and air cooler.
10. Funding of environmental research – e.g. Green Steam, which is an onboard decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel as the trim can have significant effect on the resistance of the vessel.

(iii)

Since 2007, NORDEN has had non-recurring investment costs in the amount of approximately USD 20.9 million by implementing the initiatives in our Climate Action Plan on NORDEN's owned vessels. However, the investments in these have resulted in savings of 99,728 metric tons of CO2 and USD 18.6 million solely in 2012.

5.1c

Please describe your risks that are driven by change in physical climate parameters

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
4	Other physical climate drivers	Rough and abnormal weather conditions as forecasted by the Intergovernmental Panel on Climate Change (IPCC) are likely to alter the intensity and significance of physical challenges (e.g. as a result of an increase in the frequency of severe storms, freak waves (>25 meters) floods and droughts. These will affect NORDEN's operations.	Increased operational cost	Current	Direct	Likely	Low

5.1d

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

ID 4:

(i)

The physical risks relating to rough and severe weather conditions can be divided into two categories:

1) Small events which impact a vessel or a voyage

2) Large events which impact a large part of the market for a period

1) Small events may increase the risk of damage to the vessels, which then may imply more days in dock and fewer days for making earnings. In addition, more damage to vessels resulting from rough and severe weather conditions may increase maintenance and insurance costs. The range of costs from small damages to total loss damages, i.e. vessels that are beyond repair, lies between USD 0-40 million per event.

Rough and abnormal weather conditions can also cause delayed arrival and departure times for vessels as well as late discharge and loading of cargoes, and cancellation of cargoes due to force majeure. This could imply additional expenses for NORDEN since the operator of the vessel bears the costs related to bad weather conditions.

Moreover, rough and abnormal weather conditions can lead to delayed port arrivals. In cases such as these, two risks are involved. One is the risk of missing out on business opportunities as the cargo holder might choose another cargo carrier (shipping company). The other risk is the possibility of missing the discharge date, which will result in lower earnings.

2) In general, large events which have an impact on a large part of the market for a period can have both positive and negative financial implications. The following two events have had negative financial implication.

During 2012, two weather situations in particular received a lot of attention. One occurred in the beginning of 2012 and the other in the late summer. The first related to heavy rainfall in Latin America, particularly Brazil, which caused the large mining company Vale to lower the production of iron ore. Consequently, production during the first month of 2012 was 20% lower compared to the 23 million tons produced in 2011. Iron ore is primarily transported on the largest dry cargo vessels (Capesize), which NORDEN has little exposure within. However, there will often be some sort of spill-over effect from the larger vessel types to the smaller ones, as it is possible to substitute vessels if one is cheaper than the other. Thus, the second largest vessel type (Panamax) experienced lower earnings as well. The Panamax earnings therefore decreased by 57% during January 2012, which is a considerably larger decrease than the year before, where Panamax earnings only decreased by 28% (source: Baltic Exchange). It should be kept in mind that Panamax earnings are usually on a downward trend during January, and NORDEN therefore focused on being covered during this period.

The other major issue for the dry cargo market this year was the drought in the USA, which affected crops. In the end, the drought was less severe than expected, but still the corn harvest in particular decreased by 13% from last year to less than 274 million tons, where it during the past five years had been more than 300 million tons. Thus, Panamax earnings decreased by more than 50% from August to October.

It should be kept in mind that earnings in general are very volatile and that 2012 was a very challenging year for shipping. In 2012, a record amount of vessel deliveries took place, and the market in general held back due to economic uncertainty and low growth, thus the decreases are not completely due to the weather conditions.

(ii)

Below is a description of the methods we use to manage the specific risks described in the above two categories:

1) Handling of physical challenges related to extreme weather conditions are integrated into NORDEN's daily operation of owned and chartered vessels – e.g. use of the best available technology for constant monitoring of the position of vessels (using GPS), monitoring of weather conditions, weather routing, route planning, type of vessel in operation (i.e. special requirements regarding construction) and well-trained, educated and qualified staff. Hence, different types of physical challenges

posed by climate change are already factored in. An increase in intensity and significance of those risks can immediately be responded to by escalating the activities already in place. It is clear to NORDEN that new technology and training of staff are necessary to be able to ensure proper management of extreme weather events both in the short and long term.

In addition, adequate insurance is important, and therefore NORDEN continuously makes sure that our insurance is up to date and relevant in relation to the different incidents which NORDEN might face.

2) NORDEN is normally protected against temporary market disruptions due to our high coverage. In the two described situations, heavy rainfall in Latin America and drought in the USA, and other similar circumstances such as these, NORDEN continuously monitors the production estimates. Particularly the US drought was closely monitored with harvest estimates from the US Department of Agriculture. Situations such as these provide a lot of volatility in the market, and thus the forecasts are used as guidance for vessel positioning.

(iii)

Costs associated with managing these risks are depicted below and categorised in the two categories mentioned in (i) and (ii):

1) As the physical challenges related to extreme weather conditions are already integrated into NORDEN's daily operations and operational costs, it involves zero additional costs (USD 0) for NORDEN to monitor these. In case an incident requires NORDEN to make use of our insurance, NORDEN has an excess of approximately USD 100,000 per incident.

2) In 2012, NORDEN was fully covered in the Panamax vessel type, neither of the situations therefore had any significant effect on NORDEN – less than 1% of earnings.

5.1e

Please describe your risks that are driven by changes in other climate-related developments

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
5	Uncertainty in social drivers	Both changes in the demand for transportation as well as the reputation of the shipping industry and thereby NORDEN as a shipping company	Reduced demand for goods/services	Current	Direct	Unlikely	High
6	Other drivers	Possible gradual transition from fossil fuels to other energy sources, which affects NORDEN as our cargo volumes consist to a great extent of fossil products, such as coal and oil.	Other: decrease income	Unknown	Direct	Likely	High

5.1f

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; (iii) the costs associated with these actions

ID 5:

(i)

Due to the debate about the shipping industry's contribution to climate change, climate change may be perceived by the public and politicians as a reputation issue for the shipping industry. Shipping accounts for 80-90% of all transport (source: Review of Maritime Transport, United Nations Conference on Trade and Development (UNCTAD), 2008). There are no exact figures on the amount of CO₂ presently emitted by shipping, but it is estimated to be approximately 2.7% of global CO₂ emissions in 2007 (source: Second IMO GHG Study, 2009). Despite the fact that shipping is the most environmentally friendly means of transport emitting far less CO₂ and thus having less environmental impact per transported ton of cargo than e.g. train, lorry or air transport, it is essential that the industry continuously takes measures to reduce emissions and participates in the debate in order not to risk damaging its reputation and license to operate.

Climate change can also cause market-related impacts as demand for transportation of different types of goods to and from different geographical regions of the world may change, which could lead to changes in earnings for NORDEN.

(ii)

NORDEN takes part in the debate through its involvement in the Danish Shipowners' Association, the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (Intertanko), and directly through our own external communication and other channels.

To NORDEN, the reputational challenges imply constant and high awareness of developments in the debate and increasing efforts to communicate actively. It is important that stakeholders know that NORDEN makes efforts to address environmental and climate-related issues through e.g. efficiency measures. Our fifth response to the Carbon Disclosure Project (CDP) questionnaire is an example of NORDEN's awareness and of our wish to communicate our efforts.

NORDEN's flexible business model implies that we can adapt to changes easily and thereby adjust to changes in market conditions. NORDEN has both owned and chartered vessels (NORDEN owns approximately 20% of the operated fleet). This implies that NORDEN, to a great extent, is equipped to meet changes and demands in the market place. Hence, the impact is currently manageable and not considered to be significant in the foreseeable future.

The market challenges imply that NORDEN constantly monitors, and in doing so is aware of, the development in market demand and supply. This enables NORDEN to adapt our business to changing market conditions which may potentially lead to changes in earnings.

(iii)

The active involvement in relevant discussions and decision forums as well as the focus on communicating climate-related issues, e.g. through the completion of the Carbon Disclosure Project (CDP) questionnaire, have resulted in extra costs in the form of working hours. It is estimated that the completion of the CDP questionnaire alone annually requires between 150 and 300 hours, entailing costs of approximately USD 6,000 to 12,000.

NORDEN already conducts risk and market analyses and therefore the continued focus on monitoring will not entail any additional costs (USD 0). NORDEN has one department for conducting risk and market analysis. The specific department consists of two full-time employees and costs approximately USD 150,000 annually.

Moreover, there are zero additional costs (USD 0) for NORDEN in continuing to focus on a flexible business model consisting of owned and chartered vessels.

ID 6:

(i)

During the past years, climate changes, e.g. extreme weather conditions, have increased focus on alternative energy sources in order to decrease pollution and greenhouse gas emissions. Previously, it has primarily been the developed countries, which made the transition from fossil fuels to alternative energy sources as the costs of the latter are much higher. However with the extensive pollution experienced in major cities in China and other areas, developing countries are now considering the transition as well.

The increased focus on alternative energy sources may potentially impact NORDEN in the very long term as one of our current core focus areas is transporting energy based on fossil fuels. In Tankers, our business is primarily devoted to refined oil products while in Dry Cargo, coal constitutes approximately 40% of our transported volumes. However, we see no immediate risk as it, despite being a key focus area in the developed world, has only gone one way for the past many years, which is up, and also, the transition period is very long.

As NORDEN's largest commodity is coal, we have much contact with energy companies, and in their efforts to become more environmentally friendly, we have a good footing. Thus in 2012, we have signed a major contract transporting biomass from the USA to Europe.

As mentioned, the transition is very slow and far off in the future, therefore NORDEN will have time to adapt and target other commodities, thus taking advantage of the opportunities it brings.

(ii)

NORDEN continuously monitors the market developments, e.g. drilling activities, power plant developments, demand, prices, rules and regulation, etc., but also the new trading patterns and commodities within the market. This will enable us to position us properly in order to deal with the transition in due time.

(iii)

We are currently not incurring any costs as monitoring the development of and demand for alternative energy sources and conventional fossil fuels is already integrated into our existing market analysis. NORDEN has one department for this specific task, but the segments are also monitoring developments. The specific department consists of two full-time employees and costs approximately USD 150,000 annually.

5.1g

Please explain why you do not consider your company to be exposed to risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

5.1h

Please explain why you do not consider your company to be exposed to risks driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

5.1i

Please explain why you do not consider your company to be exposed to risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Page: 6. Climate Change Opportunities

6.1

Have you identified any climate change opportunities (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

6.1a

Please describe your opportunities that are driven by changes in regulation

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
7	General environmental regulations, including planning	Introduction of port cost reductions due to emissions reduction activities. This may reduce NORDEN's operational costs, as we have great focus on reduction emissions activities.	Reduced operational costs	Current	Direct	Virtually certain	Low-medium

6.1b

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity and(iii) the costs associated with these actions

ID 7:

(i)
Several ports, such as for instance the Port of Rotterdam, have already introduced reductions in port costs for vessels which have energy efficient and fuel saving initiatives implemented and/or so-called "green certificates". A possible reduction in port costs will reduce operational costs for NORDEN as we have implemented various fuel saving measures in connection with our Climate Action Plan on our own vessels.

(ii)

NORDEN's has developed a Climate Plan Action consisting of 10 initiatives that reduce our vessels CO2 emissions and fuel consumption. They are:

1. Slide fuel valves for main engines – these improve the combustion of the main engine and ensure a cleaner engine.
2. CASPER system (Computer Analysis of Ship PERFORMANCE) – the system monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication system – the system ensures an effective dosage of cylinder lubrication oil, and a reduction of the cylinder oil consumption can be obtained.
4. M/E cylinder oil scrape down analysis for the main engines – the analysis ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained.
5. Shaft torque monitoring system – the system ensures online real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters – these improve energy efficiency.
7. Advanced hull coating – this coating reduces marine growth on the underwater hull.
8. Propeller cleaning – adoption of propeller cleaning on an average 6 months' basis.
9. Increased service and check of main engine performance – more frequent check and service intervals of the turbo charger, fuel oil pump and air cooler.
10. Funding of environmental research – e.g.Green Steam, which is an onboard decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel as the trim can have significant effect on the resistance of the vessel.

These initiatives are continuously evaluated based on impact and whether they could profitably be combined with other initiatives. Moreover, NORDEN also assesses on a ongoing basis if other reduction emissions initiatives could be relevant to implement.

NORDEN also monitors the development of new ports which introduce port cost reductions.

(iii)

There are zero additional costs (USD 0) associated with monitoring new ports, as the monitoring process is included in existing market analyses. NORDEN has one department for this specific task, but the segments also monitor the developments. The specific department consists of two full-time employees and costs approximately USD 150,000 annually.

The implementation of NORDEN's climate initiatives, which constitute our Climate Action Plan, on owned vessels has required a non-recurring investment of approximately USD 20.9 million since 2007. The annual savings of these climate initiatives on owned vessels in 2012 were approximately USD 18.6 million and 99,728 metric tons of CO2.

6.1c

Please describe the opportunities that are driven by changes in physical climate parameters

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
8	Other physical climate opportunities	Melting ice in the northern hemisphere results in an opportunity for NORDEN to use new trading patterns. One could be to transport cargo via the Northern Sea Route instead of the Suez Canal. There will still be a need to operate vessels classed to sail in ice-filled waters. NORDEN has numerous	New products/business services	>10 years	Direct	Likely	Low-medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		ice-reinforced vessels and the premium on these vessels can lead to an increase in revenue for NORDEN when there is a need for ice-reinforced vessels.					

6.1d

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

ID 8:

(i)

Climate change may lead to the possibility of using new trading patterns – an example is the Northern Sea Route being used as an alternative to the Suez Canal. According to National Snow and Ice Data Center, the minimum Arctic ice cap in 2012 was 50% lower than the average minimum for the years 1979-2000. In 2012, 46 vessels used the Northern Sea Route compared to 34 in 2011 and 4 in 2010. In order to sail the Northern Sea Route, ice-reinforced vessels, which are able to sail in ice-filled waters, are required.

This is an opportunity for NORDEN as we have a number of ice-reinforced vessels, and since there is a premium offered for these vessel types, this is likely to have a significant financial impact for NORDEN.

It is estimated that the new trading patterns will have a positive financial impact of maximum 1% of NORDEN's revenue, corresponding to a maximum of USD 21.3 million in 2012.

(ii)

As part of NORDEN's risk and strategy analyses, new possible trading patterns, including the Northern Sea Route, are also monitored.

NORDEN has invested in a number of ice-reinforced vessels. In 2012, NORDEN thus operated 8 ice-reinforced dry cargo vessels, and Norient Product Pool, which operates all NORDEN's tankers, operated 30 ice-reinforced tankers.

(iii)

There are zero costs (USD 0) associated with monitoring this risk, as the monitoring process is included in existing market and risk analyses. NORDEN has one department for this specific task, but the segments also monitor the developments. The specific department consists of two full-time employees and costs approximately USD 150,000 annually.

The investments required to ice-reinforce vessels vary depending on whether it is a new vessel which is ice-fitted during the building process or an existing vessel which is fitted with ice-reinforcement technology. The last vessel NORDEN fitted with ice-reinforcement technology cost approximately USD 2.5 million.

6.1e

Please describe the opportunities that are driven by changes in other climate-related developments

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
9	Reputation	Reputational opportunities seen as shipping is the most environmentally friendly means of cargo transport. This is very possible for NORDEN as we have a young fleet and also have taken several initiatives to reduce emissions of CO2.	Increased demand for existing products/services	Current	Direct	Likely	Low
10	Other drivers	Gradual transition from fossil fuels to other energy sources in advanced economies, which free up fossil products to be shipped to emerging economies, which could lead to increased income for NORDEN. NORDEN's cargo volumes consist to a great extent of fossil products, such as coal and oil.	Other: Increase income	Current	Direct	Likely	High

6.1f

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions

ID 9:

(i)

There is an increased focus on companies which decrease their environmental footprint and are being environmentally responsible. This focus is an advantage for NORDEN as we have strong focus on energy efficiency and the reduction of CO2 emissions.

To the extent that NORDEN's customers find it important that we have a modern and energy efficient fleet, it will have positive financial implications for NORDEN. Customers who presently consider this an important factor mainly include oil majors and, though to a lesser but increasing extent, large dry cargo companies. NORDEN has the opportunity to gain a competitive edge by actively increasing our profile as a responsible shipping company which continuously works towards reducing CO2 emissions. This is a factor of influence for obtaining future customers, which is likely to increase in significance due to increasing fuel prices and focus on decreasing companies' environmental footprint. In addition, NORDEN likes doing business with customers who are interested in informing consumers, etc. of transportation-specific emissions.

(ii)

For NORDEN, the reputational opportunity implies a constant and high awareness of developments in the debate and increasing efforts to communicate new initiatives. It is important that stakeholders know that NORDEN makes an effort to address climate issues through e.g. CO2 efficiency measures. NORDEN communicates both internally and externally about our climate initiatives. Externally, NORDEN's Corporate Social Responsibility (CSR) report and Carbon Disclosure Project (CDP) questionnaire are used.

NORDEN also communicates about our strategy to own a modern fleet which is traditionally more fuel efficient and which had an average age of operation of 3.4 years in 2012. Moreover, NORDEN communicates about our Climate Action Plan with various climate initiatives on owned vessels which reduced CO2 emissions on owned vessels by 7.7 % in 2012, as well as other fuel efficiency measures.

(iii)

Focus on communicating climate-related issues, e.g. through the completion of the Carbon Disclosure Project (CDP) questionnaire and NORDEN's Corporate Social Responsibility report (CSR), has resulted in extra costs in the form of working hours. It is estimated that the completion of both the CDP questionnaire and the CSR report annually costs approximately USD 30,000.

Moreover, there are zero additional costs (USD 0) for NORDEN in continuing to focus on a flexible business model consisting of owned and chartered vessels.

ID 10:

(i)

During the last decade, climate changes have led to an increased focus on alternative energy sources in order to reduce pollution and greenhouse gas emissions. It is primarily the developed countries which are making the transition as the cost of alternative energy is much higher than fossil fuels. This means that developed countries in Europe and North America are gradually substituting fossil fuels with other energy sources, thus freeing up their resources for export, while emerging markets and developing countries in Asia and South America are increasing their demand for conventional energy forms such as coal. For NORDEN, coal constitutes approximately 40% of our transported dry cargo volumes.

The increased demand from developing countries and emerging markets for conventional energy forms such as coal will thus have a significant financial impact on NORDEN's revenue due to longer voyages and thereby higher earnings. For instance, the USA has begun developing major amounts of shale gas resulting in decreasing gas prices. The country has also begun phasing out the usage of coal. In 2012, the USA exported more than 100 million tons of coal – a level not seen for the past 20 years.

(ii)

NORDEN continuously monitors market developments in order to assess whether these developments will result in changing product demands and/or trading patterns.

(iii)

There are zero additional costs (USD 0) associated with monitoring market developments, as the monitoring process is included in existing market analyses.

NORDEN has one department for this specific task, but the segments also monitor the developments. The specific department consists of two full-time employees and costs approximately USD 150,000 annually.

6.1g

Please explain why you do not consider your company to be exposed to opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

6.1h

Please explain why you do not consider your company to be exposed to opportunities driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

6.1i

Please explain why you do not consider your company to be exposed to opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading [Investor]

Page: 7. Emissions Methodology

7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Base year	Scope 1 Base year emissions (metric tonnes CO2e)	Scope 2 Base year emissions (metric tonnes CO2e)
Mon 01 Jan 2007 - Mon 31 Dec 2007	362000	
Sat 01 Jan 2011 - Sat 31 Dec 2011		451.4

7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

Other

7.2a

If you have selected 'Other', please provide details below

The following 2 methodologies have been used:

- 1) The Second IMO GHG Study 2009
- 2) CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency

7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	Other: Second IMO GHG Study 2009 and CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency

7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data

Fuel/Material/Energy	Emission Factor	Unit	Reference
Residual fuel oil	3.13	metric tonnes CO2 per metric tonne	Second IMO GHG Study 2009
Diesel/Gas oil	3.19	metric tonnes CO2 per metric tonne	Second IMO GHG Study 2009
Electricity	303	Other: Gram CO2 per kWh	CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency, Conversion indicators for Denmark
Electricity	64	Other: Gram CO2 per kWh	CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency, Conversion indicators for Brazil
Electricity	743	Other: Gram CO2 per kWh	CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency, Conversion indicators for China
Electricity	951	Other: Gram CO2 per kWh	CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency, Conversion indicators for India
Electricity	519	Other: Gram CO2 per kWh	CO2 emissions from fuel combustion highlights 2011 edition, International Energy Agency, Conversion indicators for Singapore

Further Information

NORDEN's emissions reporting relates to all CO2 emissions from our shipping operations at sea, the car fleet (17 owned and 51 leased), the land-based administrative activities (both head office and overseas offices) and emissions from business travel activities.

Shipping itself is NORDEN's primary and most significant source of CO2 emissions. The CO2 emissions from land-based activities and business travel activities are highly insignificant compared to the CO2 emissions from the shipping operations at sea. But by including these emissions, NORDEN involves our employees in the CO2 debate which motivates the long-term effort needed from the employees.

At the end of 2012, NORDEN owned 41 vessels (all under NORDEN's full control). "Full control" in this connection means that NORDEN owns the vessels, has the right to impose own standards, has the decision-making rights and has the opportunity to invest in the best available technology. Some of the owned vessels were chartered out to other companies. All of the owned vessels are part of Scope 1.

As a result of NORDEN's flexible business model, we also operated some 203 vessels held on charter for shorter or longer periods of time at the end of 2012. NORDEN only controls these vessels commercially. These chartered vessels are part of Scope 3, which also includes business travel by air transport and leased company cars.

Scope 1 includes CO2 emissions from the vessels which were owned by NORDEN in 2012. When NORDEN owns the vessels, we have full financial and operational control within the boundaries of the international shipping rules, regulations and planning to which all shipping companies are subject. NORDEN's CO2 emissions from owned vessels are calculated by multiplying the bunker fuel quantity (metric tonnes) consumed by the CO2 emissions factor for each bunker type, and CO2 emissions from the combustion of biologically sequestered carbon have been excluded as prescribed by the Greenhouse Gas Protocol. Scope 1 CO2

emissions also include emissions from 17 owned company cars. The emissions from owned company cars are calculated based on the following assumptions: all the cars are diesel cars with a yearly usage of 20,000 km per car, 12 km/l, and CO2 emissions of 2.65 kg/l. The conversion factor is from Key2Green.

Scope 2 includes CO2 emissions from land-based activities at NORDEN's offices worldwide. Emissions included in Scope 2 are emissions from electricity and district heating. The methodology used to calculate NORDEN's CO2 emissions under Scope 2 is based on the amount of electricity and district heating used during 2012. Electricity is already measured in kWh and therefore the total estimated amount of electricity used in 2012 is multiplied by the CO2 emissions factor valid for the different countries in which NORDEN has offices. These factors are from the International Energy Agency's conversion indicators for 2009 stated in the publication "CO2 emissions from fuel combustion, highlights 2011 edition" for the specific countries we are located in.

District heating is measured in Mwh at NORDEN's overseas offices, but in GJ at its head office in Denmark. The amount of district heating used in GJ at the head office in Denmark is converted to kWh by using the Global Reporting Initiative's conversion standard.

Page: 8. Emissions Data - (1 Jan 2012 - 31 Dec 2012)

8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

716473

8.3

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

456.4

8.4

Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

Yes

8.4a

Please complete the table

Source	Scope	Explain why the source is excluded
Emissions from electricity and heating from NORDEN's office in the United States of America	Scope 2	Utilities from the office in the USA are integrated in the rental costs and provided at no additional assessment by the landlord. The landlord has not been able to specify what part of the rent relates to electricity and heating and what part relates to rent of office. However, electricity and heating emissions from the office are estimated to be in the region of the emissions from the other overseas offices and therefore represent a rather insignificant part of NORDEN's total CO2 emissions from Scope 1, 2 and 3 combined.

8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
More than 2% but less than or equal to 5%	Assumptions	The main sources of uncertainty in the total Scope 1 data refer to the assumptions concerning owned cars. The CO2 emissions from owned company cars are calculated based on the following assumptions: all the cars are	Less than or equal to 2%	Data Gaps	The main source of uncertainty in the total Scope 2 data relates to the data provided by NORDEN's electricity and district heating

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
		diesel cars with a yearly usage of 20,000 km per car, 12 km/l, and CO2 emissions of 2.65 kg/l. The conversion factor is from Key2Green. As CO2 emissions from owned company cars are insignificant compared to CO2 emissions from owned vessels, NORDEN believes that this assumption can be used.			providers, whether they have measured the accurate energy consumption.

8.6

Please indicate the verification/assurance status that applies to your Scope 1 emissions

Third party verification or assurance complete

8.6a

Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.6b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-8.6b-C3-RelevantStatement/Investor-8.6b-VerificationDetails1/CDPverificationtemplateNORDENfilledoutbyDNV.pdf
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-8.6b-C3-RelevantStatement/Investor-8.6b-VerificationDetails2/DNV Assurance_Statement_Norden_2012.pdf

8.6c

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emissions Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission

8.7

Please indicate the verification/assurance status that applies to your Scope 2 emissions

Third party verification or assurance complete

8.7a

Please indicate the proportion of your Scope 2 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.7b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-8.7b-C3-RelevantStatement/Investor-8.7b-VerificationDetailsS21/CDPverificationtemplateNORDENfilledoutbyDNV.pdf
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-8.7b-C3-RelevantStatement/Investor-8.7b-VerificationDetailsS22/DNV Assurance_Statement_Norden_2012.pdf

8.8

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

8.8a

Please provide the emissions in metric tonnes CO2

19570.7

Further Information

Based on estimates from the oil industry, diesel oil, used primarily for auxiliary engines, contains between 0% and 5% of fatty acid methyl ester (FAME) which is biologically sequestered. However, the advantage of adding biologically sequestered carbon in the form of FAME for auxiliary engine fuel is offset to a certain extent by the detrimental effect on engine durability.

The percentage used to calculate CO2 emissions from biologically sequestered carbon is 2.5% since diesel oil contains between 0% and 5% of biologically sequestered carbon.

CO2 emissions from biologically sequestered carbon from owned vessels under scope 1 are estimated to be 749.7 metric tonnes.

CO2 emissions from biologically sequestered carbon from operated vessels under scope 3 are estimated to be 18,821 metric tonnes.

Page: 9. Scope 1 Emissions Breakdown - (1 Jan 2012 - 31 Dec 2012)

9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

9.1a

Please complete the table below

Country/Region	Scope 1 metric tonnes CO2e
Denmark	4.3
Brazil	8.7
China	4.3
India	0
Singapore	8.7
United States of America	52
International Waters	716395

9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By facility

9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
-------------------	--

9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
Owned vessels	716395		
Owned company cars	78		

9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
----------	--

9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
----------	--

9.2e

Please break down your total gross global Scope 1 emissions by legal structure

Legal structure	Scope 1 emissions (metric tonnes CO2e)
-----------------	--

Page: 10. Scope 2 Emissions Breakdown - (1 Jan 2012 - 31 Dec 2012)

10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

10.1a

Please complete the table below

Country/Region	Scope 2 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling (MWh)
Denmark	386.2	1274.5	757.8
Brazil	0.9	13.9	0
China	12.5	16.9	0

Country/Region	Scope 2 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling (MWh)
India	36.7	38.6	0
Singapore	20.1	38.8	0

10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2 emissions (metric tonnes CO2e)

10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2 emissions (metric tonnes CO2e)

10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2 emissions (metric tonnes CO2e)
----------	--

10.2d

Please break down your total gross global Scope 2 emissions by legal structure

Legal structure	Scope 2 emissions (metric tonnes CO2e)
-----------------	--

Page: 11. Energy

11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 65% but less than or equal to 70%

11.2

Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Fuel	12086394
Electricity	865.9
Heat	516.7
Steam	0
Cooling	0

11.3

Please complete the table by breaking down the total 'Fuel' figure entered above by fuel type

Fuels	MWh
Residual fuel oil	11681869
Diesel/Gas oil	404525

11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comments
Tracking instruments, Guarantees of Origin	757.8	Since 2011, NORDEN has entered into a partnership with the Danish energy group DONG Energy, which implies that all electrical consumption at our head office in Copenhagen, Denmark emanates from renewable energy, more specifically from windmills. DONG Energy provides NORDEN with certificates with reference to the international standard RECS: Renewable Energy Certificate System.

Page: 12. Emissions Performance

12.1

How do your absolute emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

12.1a

Please complete the table

Reason	Emissions value (percentage)	Direction of change	Comment
Emissions reduction activities	14	Decrease	<p>NORDEN has implemented 10 emission reduction activities as part of NORDEN's Climate Action Plan. These 10 initiatives are: 1. Slide fuel valves for main engines – these improve the combustion of the main engine and ensure a cleaner engine. 2. CASPER system (Computer Analysis of Ship PERFORMANCE) – the system monitors and makes it possible to achieve optimal speed in relation to fuel consumption. 3. Alpha-lubrication system – the system ensures an effective dosage of cylinder lubrication oil, and a reduction of the cylinder oil consumption can be obtained. 4. M/E cylinder oil scrape down analysis for the main engines – the analysis ensures an effective dosage of cylinder lubrication oil via the Alpha Lubricating System and a reduction of the cylinder oil consumption can be obtained. 5. Shaft torque monitoring system – the system ensures online real-time monitoring of the propulsion power delivered to the propeller. 6. Electrical heaters – these improve energy efficiency. 7. Advanced hull coating – this coating reduces marine growth on the underwater hull. 8. Propeller cleaning – adoption of propeller cleaning on an average 6 months' basis. 9. Increased service and check of main engine performance – more frequent check and service intervals of the turbo charger, fuel oil pump and air cooler. 10. Funding of environmental research – e.g. Green Steam, which is an onboard decision making system that can guide the master to achieve the best possible trim for the actual condition of the vessel as the trim can have significant effect on the resistance of the vessel. These 10 initiatives have resulted in total CO2 emissions reductions of 99,728 metric tons solely in 2012.</p>
Divestment			
Acquisitions			
Mergers			
Change in output			
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

12.2

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO₂e per unit currency total revenue

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
0.00034	metric tonnes CO ₂ e	unit total revenue	6.25	Increase	During 2012, NORDEN's Scope 1 and Scope 2 emissions constituted 716,929 metric tons CO ₂ and revenue constituted USD 2,131.4 million. During 2011, NORDEN's Scope 1 and Scope 2 emissions constituted 727,169 metric tons CO ₂ and revenue constituted USD 2,272.8 million. The small increase in the intensity figure is due to a decrease in revenue and, at the same time, NORDEN's core fleet constituted the same number of vessels in 2012 as in 2011. Moreover, the reported intensity figure is not representative and meaningful as income from chartered vessels is included in revenue, but the CO ₂ emissions associated with chartered vessels are part of Scope 3 and not Scope 1 and Scope 2.

12.3

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO₂e per full time equivalent (FTE) employee

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
619.11	metric tonnes CO ₂ e	FTE employee	6	Decrease	During 2012, NORDEN's Scope 1 and Scope 2 emissions constituted 716,929 metric tons CO ₂ . At year end, NORDEN had 1158 full time equivalent employees. During 2011, NORDEN's Scope 1 and Scope 2 emissions constituted 727,169 metric tons CO ₂ . At year-end, NORDEN had 1,099 full-time equivalent employees. The decrease in the intensity figure in 2012 is due to the increase in employees from 2011 simultaneous with a decrease in CO ₂ emissions from 2011. Moreover, the reported intensity figure is not

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
					representative and meaningful as the employees of NORDEN operate both owned and chartered vessels which not only relate to Scope and Scope 2 CO2 emissions, but also Scope 3 CO2 emissions

12.4

Please provide an additional intensity (normalized) metric that is appropriate to your business operations

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
3.13	metric tonnes CO2e	Other: Tonne of bunker fuel	1	Increase	During 2012, NORDEN's Scope 1 and Scope 2 emissions constituted 716,929 metric tons CO2 and bunker fuel constituted 228,700 tons. During 2011, NORDEN's Scope 1 and Scope 2 emissions constituted 727,169 metric tons CO2 and bunker fuel constituted 232,000 tons. The intensity figure has increased slightly even though the total absolute CO2 emissions and bunker emissions have both decreased since 2011 due to NORDEN's emission reduction activities comprising of the 10 initiatives in NORDEN's Climate Action Plan. There is no clear explanation for the slightly increased intensity figure.

Page: 13. Emissions Trading

13.1

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
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13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

13.2

Has your company originated any project-based carbon credits or purchased any within the reporting period?

No

13.2a

Please complete the table

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits retired	Purpose, e.g. compliance
---------------------------------------	--------------	------------------------	----------------------------	---	--	-----------------	--------------------------

14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
Purchased goods and services	Not relevant, explanation provided				As a shipping company, NORDEN's primary purpose is to transport commodities between different locations. NORDEN operates both in the dry cargo and tanker segment and thereby transports commodities such as coal, grain, steel, cement, iron ore, fuel oil, gas oil, gasoline, naphtha etc. NORDEN does not purchase the above commodities but merely provides transportation. The only commodity, which NORDEN purchases, is fuel to enable operation of its vessels. This is included in Scope 1 for NORDEN owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities". Consequently, the category "purchased goods and services" has been deemed not relevant.
Capital goods	Not relevant, explanation provided				NORDEN purchases vessels which are used to transport our customers' commodities between different locations. Emissions from the use of these vessels, which arise from fuel consumption, are included in Scope 1 for owned vessels and in Scope 3 for chartered vessels

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					under the category "Fuel and energy related activities". Consequently, the category "capital goods" has been deemed not relevant.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	2563008	<p>Due to replacement of the internal shipping system in 2012, fuel figures for the year are based on both the old and new shipping system for both tankers and dry cargo vessels. GLOMARIS/MOEPS (January 1st 2012 – November 1st 2012): Fuel figures for tankers when arriving/bunkering/departing at ports are automatically updated from MOEPS (Master's Operation Environmental Performance System) by synchronization of the fuel figures. In MOEPS, the figures are updated manually partly by the operators and automatically by the vessels' captains through the MOEPS Client. For dry cargo vessels, the fuel figures are entered manually by the operator into GLOMARIS (Global Maritime Information Suite). The total fuel consumption for tankers and dry cargo vessels is calculated by adding the fuel which is already on the vessel at the beginning of the voyage with the bunker oil purchased during the voyage. Finally, the remaining fuel on the vessel when the voyage ends is subtracted. This is done for each vessel and registered in the MOEPS and GLOMARIS systems. IMOS (October 1st 2012 – December 31st 2012) Fuel figures for tankers and dry cargo vessels are registered when arriving/bunkering/departing a port in IMOS (Integrated Maritime Operating System). For tankers, the figures are partly updated manually by the operators or the operators can import the fuel figures stated by the Captain via MOEPS through an established integration to IMOS. For dry cargo vessels, the fuel figures are manually entered by the operator into IMOS. The total</p>		

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
			fuel consumption for tankers and dry cargo vessels is calculated by adding the fuel which is already on the vessel at the beginning of the voyage with the bunker oil purchased during the voyage. Finally, the remaining fuel on the vessel when the voyage ends is subtracted. This is done for each vessel and registered in IMOS. CO2 emissions from vessels are calculated on the basis of the fuel quantity consumed on a voyage multiplied by the duration of the voyage (calculated pro rata) multiplied by the CO2 emissions factor for each fuel type (for residual fuel oil, the CO2 emissions factor is 3.13, and for marine diesel oil and marine gas oil the CO2 emissions factor is 3.19. Source: "Second IMO GHG Study 2009").		
Upstream transportation and distribution	Not relevant, explanation provided				NORDEN transports commodities between different locations and thereby emissions arise from the consumption of fuel which enables operations of vessels. These emissions are included in Scope 1 for NORDEN owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities". Moreover, the use of air transport is accounted for in Scope 3 under the category "Business travel", and the use of leased cars is accounted for in Scope 3 under the category "Employee commuting". Consequently, the category "upstream transportation and distribution" has been deemed not relevant.
Waste generated in operations	Not relevant, explanation provided				NORDEN does not have any influence or control over waste disposal for vessels owned or operated by third parties, i.e. chartered vessels. NORDEN's business

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					model which comprises of a mix of long-term chartered vessels with purchase option and vessels chartered short term or for single voyages makes it a complex matter to define the boundaries for waste reporting. For a significant amount of the time, the data on waste for the different voyages is unavailable, which means that it is quite improbable to create a realistic overview of waste disposal for all vessels chartered by NORDEN in a given year. Therefore, the category "waste generated in operations" has been deemed not relevant.
Business travel	Relevant, calculated	3719	The CO2 emissions from business travels are calculated according to the guidelines from the 3 travel agencies which NORDEN uses. For voyage distances of less than 1,000 km, the factor 0.18 per km is used to calculate the CO2 emissions, while for voyage distances of more than 1,000 km, the factor 0.11 per km is used. NORDEN has received a report from each travel agency which illustrate the total number of voyages, kilometres and CO2 emissions aligned with the above calculation methodology.		
Employee commuting	Relevant, calculated	221	Leased company cars are calculated based on the following assumptions: all cars are diesel cars with a yearly usage of 20,000 km per car, 12 km/l, and CO2 emissions of 2.65 kg/l. The conversion factor is from Key2Green. NORDEN had 51 leased cars in 2012.		
Upstream leased assets	Not relevant, explanation provided				As the category "upstream leased assets" is only applicable to companies that operate leased assets (i.e. lessees) according to "the corporate value chain (scope 3) accounting and reporting

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					standard", NORDEN has deemed it not relevant as we do not operate leased assets. The vessels taken in on time charter are already accounted for in Scope 3 under the category "Fuel and energy related activities".
Investments	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "investments" is only applicable to investors (i.e. companies which make an investment with the objective of making a profit) and companies which provide financial services. NORDEN's core business is none of the above, but instead deals with transport of commodities between locations. Consequently, the category "investments" has not been deemed relevant.
Downstream transportation and distribution	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "downstream transportation and distribution" includes emissions from transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer in vehicles and facilities not owned or controlled by the reporting company. NORDEN does not sell any commodities but merely sells the transport of commodities to our customers. The emissions from transport of different

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					commodities are already accounted for in Scope 1 for owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities". Consequently, the category "downstream transportation and distribution" is not deemed relevant.
Processing of sold products	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "processing of sold products" includes emissions from processing of sold commodities by third parties subsequent to sale by the reporting company. NORDEN does not sell any commodities but merely sells the transport of commodities to our customers. The emissions from transport of different commodities are already accounted for in Scope 1 for owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities".
Use of sold products	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "use of sold products" includes emissions from the use of goods and services sold by the reporting company in the reporting year. End users include both consumers and business customers who use final products. NORDEN does not sell any commodities, but merely provides transportation of different commodities for our customers who sell them to end users.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					The emissions from transport of different commodities are already accounted for in Scope 1 for owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities". Consequently, the category "use of sold products" is not deemed relevant.
End of life treatment of sold products	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "end of life treatment of sold products" includes emissions from the waste disposal and treatment of products sold by the reporting company in the reporting year at the end of their life. NORDEN does not sell any commodities, but merely provides transport of different commodities for our customers who sell them to end users. The emissions from transport of different products are already accounted for in Scope 1 for owned vessels and in Scope 3 for chartered vessels under the category "Fuel and energy related activities". Consequently, the category "end-of-life treatment of sold products" is not deemed relevant.
Downstream leased assets	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard", the category "upstream leased assets" is only applicable to companies which receive payments from lessees (i.e. lessors). NORDEN has consequently deemed the category "downstream leased assets" not relevant as we do not lease

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanation
					assets.
Franchises	Not relevant, explanation provided				According to "the corporate value chain (scope 3) accounting and reporting standard" the category "franchises" is only applicable to franchisors or franchisees. NORDEN is neither a franchisor nor franchisee and consequently the category "franchises" is not deemed relevant.
Other (upstream)					
Other (downstream)					

14.2

Please indicate the verification/assurance status that applies to your Scope 3 emissions

Third party verification or assurance complete

14.2a

Please indicate the proportion of your Scope 3 emissions that are verified/assured

More than 90% but less than or equal to 100%

14.2b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-14.2b-C3-RelevantStatementAttached/Investor-14.2b-VerificationDetails1/CDPverificationtemplateNORDENfilledoutbyDNV.pdf
Limited assurance	AA1000AS	https://www.cdproject.net/sites/2013/69/22369/Investor CDP 2013/Shared Documents/Attachments/Investor-14.2b-C3-RelevantStatementAttached/Investor-14.2b-VerificationDetails2/DNV Assurance_Statement_Norden_2012.pdf

14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

14.3a

Please complete the table

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1	Emissions reduction activities	1	Decrease	NORDEN increased the number of chartered vessels in 2012. NORDEN chartered 203 vessels at the close of 2012, while we only chartered 194 vessels at the close of 2011. The number of chartered vessels in 2012 thus increased by 5% from 2011. One reason for the

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
or 2)				slight decrease in CO2 emissions, despite the increase in number of vessels, is NORDEN's focus on performance driven operation and speed optimisation to reduce CO2 emissions and fuel consumption. NORDEN makes use of right steaming which entails sailing with the optimal speed according to the framework set, i.e. time versus cost. Moreover, NORDEN also makes use of virtual arrival voyages, which is a partnership between NORDEN, the customer and a weather routing company with the aim of reducing CO2 emissions and thereby also fuel costs.
Business travel	Change in output	17	Increase	The increase of the CO2 emissions is due to an increase of the crew's business travel to and from NORDEN's owned vessels. NORDEN's crew increased from 793 in 2011 to 884 in 2012, which is an increase of 11%.The increase in crew inevitably leads to an increase in business travel.
Employee commuting	Change in output	6	Increase	NORDEN acquired more leased cars in 2012. The number of leased cars increased from 48 in 2011 to 51 in 2012, which is an increase of 6%. By using a methodology that assumes fixed CO2 emissions per leased car, the emissions value will inevitably increase when more cars are leased.

14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

No, we do not engage

14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Number of suppliers	% of total spend	Comment
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14.4c

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
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14.4d

Please explain why not and any plans you have to develop an engagement strategy in the future

As our engagement with suppliers will truly start in 2013, we have consequently decided to respond "no we do not engage" in 14.4 as the reporting year for this CDP is January to December 2012.

In 2012, NORDEN started focusing on cooperating and engaging in dialogue with suppliers to ensure decent social, economic, ethical and environmental conditions. In cooperation with other Danish shipowners, NORDEN has developed a common industry toolbox for responsible supply chain management, including a Supplier Code of Conduct, a Supplier Self Assessment Questionnaire and an implementation plan. The common tools are based i.a. on the general principles contained in the UN Global Compact, the UN Guiding Principles on Business and Human Rights and the International Bill of Human Rights.

The engagement strategy is based on dialogue and mutual development. Both NORDEN and the supplier should both develop and implement the following 3 processes within human and labour rights, environment and anti-corruption: a policy statement, due diligence and remediation.

In 2013, NORDEN will engage in dialogue with 5 first-tier suppliers. These suppliers will be selected based on spend, dependency and frequency. They will receive the Supplier Code of Conduct and the Self Assessment Questionnaire where the processes required within among other things the environment are explained.

Within the environment area, we expect suppliers to establish processes that covers all significant impacts on the external environment (including energy, natural resources, air, water, land and soil, noise, odour, waste, chemicals etc.) and supports the principles in the Rio Declaration on Environment and Development.

More specifically, they should ensure processes for:

- Air emissions and impact on global warming (greenhouse gases);
- Impact on the ozone layer (Montreal Protocol Annexes)

- Prohibition of use of certain materials and substances, hereunder safe handling/transport of dangerous substances;
- Distance to residential neighbourhoods for production sites;
- Soil, ground water and surface water contamination
- Treatment and reduction of waste water;
- Water consumption and leakage;
- 'Eco-efficiency', consumption of raw materials, and consumption of energy;
- Export of waste and re-use of material;
- Subsidising of environmental projects (e. g. protection of the rainforest etc.).
- Use and handling of GMOs (Genetically Modified Organisms);
- Animal welfare.
- Bio-Diversity: conservation, impact on diversity, use of genetic material, technology transfer.
- The Precautionary Principle (Do not let scientific doubt about negative environmental impacts of a given action to stop you from preventing and mitigating such possible impacts).

The engagement process is successful when the supplier has established the relevant processes within the environment among other things. This will be visible through reports, documentation and audits from the suppliers which support the fact that they have created relevant processes.

Module: Sign Off

Page: Sign Off

Please enter the name of the individual that has signed off (approved) the response and their job title

Michael Tønnes Jørgensen, Chief Financial Officer at NORDEN and Chairman of the CSR Executive Body

CDP 2013 Investor CDP 2013 Information Request