

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 238 vessels.

In addition, vessels from 3rd parties are operated in pools of which NORDEN is either co-owner or manages. 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, and 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 259 employees on shore and 793 on board owned vessels. In addition, Norient Product Pool has 47 employees at its offices in Denmark, Cyprus, Singapore, the USA and Brazil (being established).

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 17,500 registered shareholders.

(Numbers are stated at 31 December 2011).

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
Sat 01 Jan 2011 - Sat 31 Dec 2011

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
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(\$)

0.5

Please select if you wish to complete a shorter information request

0.6

Modules

As part of the Investor CDP information request, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sectors and companies in the oil and gas industry 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 be marked as default options to your information request. 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>.

Further Information

NORDEN operates on international waters and therefore the above selected countries (Denmark, Brazil, China, India, Singapore and the United States of America) will only be relevant in relation to emissions from electricity, district heating and car activity relating to NORDEN's offices.

Module: Management [Investor]

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 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 that 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.

Furthermore, as of 1 January 2011, NORDEN has established a new dedicated corporate CSR Department that 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 of 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	Incentivised performance indicator
---	------------------------	------------------------------------

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 (see guidance)

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 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 Board of 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 2011 on pages 64-65 (please see attached) and on our website.

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 that can improve or worsen the foundation on which NORDEN operates.

Seaborne transportation is recognised as the most carbon friendly means of moving cargo and NORDEN is constantly looking for opportunities to bring on 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 (see guidance)

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 – improves the combustion of main engine and ensures a cleaner engine.
2. CASPER system - Computer Analysis of Ship PERFORMANCE monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication 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 - 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 - ensures an on-line real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters - improve energy efficiency.
7. Advanced hull 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 - on board 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 2011 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 5.4%, this target was met. For 2012, the target is again 3.5%.

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 consumption of up to 2% and thereby a corresponding reduction of CO2 and SOx emissions.

Furthermore, Norient Product Pool, which operates all of NORDEN's tanker vessels, 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 on the dry cargo fleet.

Besides the initiatives on existing vessels, on which NORDEN can implement measures to a certain extent, we have made energy efficiency an important parameter when contracting new vessels or entering into agreements on long-term chartered tonnage. This is good for the environment but also for NORDEN's bottom line. NORDEN is in dialogue with shipyards and business partners regarding optimisation of vessel designs. For instance, NORDEN has in collaboration with a shipyard and business partners optimised two Handysize vessels on order by installing a larger main engine and a larger propeller. The changes reduce the consumption of bunker fuel by 12-13% compared to previous sister vessels. Moreover, these vessels will be fitted with our before-mentioned fuel saving measures from our climate action plan which will further reduce fuel consumption by approximately 5%.

We have also implemented energy efficient measures on 4 MR product tankers. Lastly, we have entered into two long-term agreements to charter new Japanese-built Panamax vessels, so-called "eco-ships" which will result in reduction of fuel consumption of approximately 15% compared to standard designs, which in turn reduces CO2 emissions.

NORDEN also has an ongoing research project called ECO vessel of the future where the aim is to design a vessel with reduced fuel consumption of at least 25%. The knowledge and experience we acquire from the research project are used when deciding on implementing energy efficient measures on vessels.

The focus on improving the climate and the 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 bunkers and thereby emit less CO2. Our operational costs decrease which enables us to be more competitive and be an attractive business partner.

2.2b

Please explain why not

2.3

Do you engage with policy makers to encourage further action on mitigation and/or adaptation?

Yes

2.3a

Please explain (i) the engagement process and (ii) actions you are advocating

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.

The Danish Shipowners' Association, which NORDEN is an active member of, is the only association that has collected and publicised 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.

Moreover, 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) is 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:

- effective in contributing to the reduction of total GHG emissions
- binding and equally applicable to all Flag States in order to avoid evasion
- cost efficient
- able to limit or effectively minimise distortion of competition
- environmentally sustainable without penalising global trade and growth
- target-based and not prescribing specific methods
- 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

These principles have been laid down by IMO's Marine Environment Protection Committee.

Furthermore, when appropriate, NORDEN provides input to relevant policies and discussions regarding the shipping industry's contribution to 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 ships by 30% on CO2, 90% on SOx (sulphur oxide) and NOx (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.

Attachments

<https://www.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/2.Strategy/NORDENAnnualreport2011.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 to reduce the relative CO2 emissions from dry cargo vessels by 25% by 2020 compared to the 2007 level, and from tanker vessels 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 2011, NORDEN has reached 55% of the 25% target for owned dry cargo vessels and 38% of the 25% target for owned tanker vessels. NORDEN has reached these reductions by implementing 10 fuel saving initiatives on owned vessels which constitute NORDEN's Climate Action Plan, as well as engaging in slow/right steaming, which is sailing with the optimal speed according to the framework set, i.e. time versus costs.

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
----	-------	-------------------------	----------------------------	--------	-----------	--------------------------------	-------------	---------

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	Comments
----	---	--	---	--	----------

3.1d

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

ID	% complete (time)	% complete (emissions)	Comment
1	30	40	NORDEN aims to reduce the relative CO2 emissions from dry cargo vessels by 25% by 2020 compared to the 2007 level, and from tanker vessels 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

ID	% complete (time)	% complete (emissions)	Comment
			transported, per nautical miles sailed. In 2011, NORDEN has reached 55% of the 25% target for owned dry cargo vessels and 38% of the 25% target for owned tanker vessels. NORDEN has reached these reductions by implementing 10 fuel saving initiatives on owned vessels which constitute NORDEN's Climate Action Plan, as well as engaging in slow/right steaming, which is sailing with the optimal speed according to the framework set, i.e. time versus costs.

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)

Transport by ship 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 perform the same function, the world's CO2 emissions would increase tenfold. Hence, NORDEN's customers can reduce their CO2 emissions by transporting their goods via ship transport instead of air or 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 of 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 due to 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 will be to reduce CO2 emissions from owned vessels by 3.5%.

The fuel saving initiatives from the Climate Action Plan reduced CO2 emissions from owned vessels by 5.4% in 2011. This amounts to estimated annual CO2 savings of 64,465 metric tonnes of CO2 in 2011. This benefits the environment, NORDEN and the customer or company that 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 2011.

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/or implementation phases)

Yes

3.3a

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

Stage of development	Number of projects	Total estimated annual CO2e savings (only for rows marked *)
Under investigation	1	
To be implemented*		
Implementation commenced*		

Stage of development	Number of projects	Total estimated annual CO2e savings (only for rows marked *)
Implemented*	10	64465
Not to be implemented		

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	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
Transportation: fleet	Slide fuel valves for main engines. It improves the combustion of main engine and ensures a cleaner engine. This activity is voluntary, fully developed, has an expected life time of the vessels life 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.	7653	1520790	2925000	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 of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 43 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 43 vessels.	4175	829748	680000	<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 of the vessels life 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	1437	285498	7600000	>3 years

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
	all 38 vessels.				
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 of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 41 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 41 vessels.	1515	301048	492000	<1 year
Transportation: fleet	Shaft torque monitoring system. It ensures an online realtime monitoring of the propulsion power delivered to the propeller. This activity is voluntary, fully developed, has an expected life time of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 29 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 29 vessels.	6222	1236536	225000	>3 years
Transportation: fleet	Electrical heater. Instead of using the 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 efficiently generate the required “top up” steam. This activity is voluntary, fully developed, has an expected life time of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 8 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 8 vessels.	4841	964100	680000	1-3 years
Transportation: fleet	Advanced hull coating. It reduces marine growth on the underwater hull. This activity is voluntary, fully developed, has an expected life time of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 24 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 24 vessels.	10880	2162072	2400000	<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 of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 26 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 26 vessels.	24190	4808682	312000	>3 years
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 of the vessels life which is	2144	426070	240000	1-3 years

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
	approximately 20 years and affects Scope 1. It has been implemented on 8 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 8 vessels.				
Transportation: fleet	Funding of environmental research, for instance Green steam which is an board 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 of the vessels life which is approximately 20 years and affects Scope 1. It has been implemented on 7 vessels. All the figures stated in this question (annual CO2 savings, annual monetary savings, investment required and payback period) are for all 7 vessels.	1408	270000	1050000	>3 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 initiated an internal project, "Eco vessel of the future", with participation of several departments. The aim of the project is 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. Furthermore, NORDEN participates in trade fairs in order to obtain new knowledge on emissions reductions.

3.3d

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

Further Information

Annual monetary savings in 3.3.b are calculated based on Rotterdam fuel price of USD 622 on the 30th of December 2011.

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 other places than in your CDP response? If so, please attach the publication(s)

Publication	Page/Section Reference	Identify the attachment
In annual reports (complete)	Corporate Social Responsibility, page 40-42	NORDEN's Annual Report 2011
In voluntary communications (complete)	Energy and Climate, page 5-9. Status and Future, page 17-18. Environmental performance table page 21	NORDEN's Corporate Social Responsibility (CSR) Report 2011

Attachments

[https://www.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/4.Communication/NORDENAnnualreport2011.pdf](https://www.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/4.Communication/NORDENAnnualreport2011.pdf)
[https://www.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/4.Communication/NORDEN_CSR_2011_72.pdf](https://www.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/4.Communication/NORDEN_CSR_2011_72.pdf)

Module: Risks and Opportunities [Investor]**Page: 2012-Investor-Risks&Opps-ClimateChangeRisks**

5.1

Have you identified any climate change risks (current or future) that have 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 bunkers for our vessels.	Increased operational cost	>10 years	Indirect (Supply chain)	More likely than not	Low
3	Air pollution limits	Accelerating limitations of sulphur content in bunker fuel. NORDEN's operational costs will increase as we have to buy bunkers with less sulphur content to ensure that we comply with the 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)

Levies on bunker fuel would increase NORDEN's operating costs. A suggestion of a levy on bunker fuel is in the region of USD 40-80 per tonne of bunker fuel, however, this is very uncertain.

(ii)

If levies on bunker fuel are introduced, the costs will be distributed on the customers to the extent possible, although there will be a delay before this will happen.

(iii)

As the costs are distributed to the customers to the extent possible, NORDEN will not have any significant costs.

ID 3:

(i)

In the next 8 years, there will be 4 major regulations concerning global limitations of sulphur content that will have various financial impact on NORDEN's business.

In January 2012, the global limitation of sulphur content went from 4.5% to 3.5%. This did not have any significant business impact on NORDEN as we were already striving to purchase bunkers with less sulphur. Since October 2011, we had mainly bought bunkers with a sulphur content of less than 3.5%.

In August 2012 two new Emission Control Areas (ECA) are established, with a sulphur content limit of 1%. These are Canada and the United States of America. This will have a medium business impact on NORDEN as the USA is an important market for us. Hence our bunker costs will increase as bunkers with 1% sulphur is approximately 10% more expensive than that containing 3.5%. However, the low-sulphur bunkers might become cheaper as more ports in the new ECA will have to supply it.

In January 2015, all ECAs will have a sulphur content limit of 0.1%. This is a huge impact and challenge for NORDEN as bunkers containing 0.1% sulphur does not exist in today's market. It is uncertain whether or not there will be sufficient quantities and what the price level will be. Moreover, if sufficiency proves to be a problem, gas oil will be used instead, resulting in increases of more than 50% in bunker costs. For NORDEN and the rest of the shipping industry, this increase is likely to cause rising freight rates in all ECAs.

In January 2020, the global limitation of sulphur content will go from 3.5% to 0.5%. This target will be revised in 2018 and if impossible to reach, postponed until 2025. This will have an even greater impact and be a challenge for NORDEN, and might result in us having to consider alternative means of minimising sulphur emissions. Such alternatives could be investment in new technologies such as scrubbers.

(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 initiatives which make our fleet more energy efficient, including initiatives aimed at reducing the sulphur content in bunker fuel. Reductions methods are included in NORDEN's Climate Action Plan, which consists of the following:

1. Slide fuel valves for main engines – improves the combustion of main engine and ensures a cleaner engine.
2. CASPER system - Computer Analysis of Ship PERFORMANCE monitors and makes it possible to achieve optimal speed in relation to fuel consumption.
3. Alpha-lubrication 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 - 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 - ensures an on-line real-time monitoring of the propulsion power delivered to the propeller.
6. Electrical heaters - improve energy efficiency.

7. Advanced hull 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 - on board 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)

NORDEN has had one time investment costs of approximately USD 16.6 million by implementing the initiatives in our Climate Action Plan on NORDEN's owned vessels.

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	Snow and ice	Melting of ice in the northern hemisphere creating, which results in an ability for NORDEN to transport cargo via the Northern Sea Route	Other: decrease in income	Unknown	Direct	Very unlikely	High
5	Tropical cyclones (hurricanes and typhoons)	Rough weather such as cyclones and high sea affect NORDEN's ability to sail.	Increased operational cost	Current	Direct	Likely	Medium-high
6	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 and freak waves (>25 meters)). These will affect NORDEN's operations.	Increased operational cost	Current	Direct	Likely	Medium-high

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)

Climate change may lead to the Northern Sea Route being used as an alternative to the Suez Canal. This can lead to decreasing income for NORDEN, as the Northern Sea Route enables shorter voyages and thus lower freight rates.

(ii)

As part of NORDEN risk and strategy analysis, the Northern Sea Route is also monitored.

(iii)

There are zero costs associated with monitoring this risk, as the monitoring process is included in existing market and risk analyses.

ID 5 +6:

(i)

The physical risks relating to rough and severe weather conditions may increase the risk of damage to the vessels, which may imply more days in dock and fewer days for earnings. Furthermore, more damage to vessels resulting from rough and severe weather conditions is likely to increase maintenance and insurance costs. Rough and abnormal weather conditions can also cause delayed arrival and departure of vessels as well as late discharge and load 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 longer voyages and therefore lower earnings since NORDEN bears the risks relating to changing weather conditions. It might also result in NORDEN missing business opportunities as we are delayed by rough weather and therefore miss the next cargo.

Sea level pressure below average and sea surface temperatures above average in the western tropical Pacific and eastern Indian Ocean resulting from La Niña (La Niña implies abnormal weather conditions) have led to rainfall much above average in parts of Australia, Indonesia and Southeast Asia. It is estimated that the flooding in Queensland, Australia, has caused a loss of coal exports of 30 million tonnes.

(ii)

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. NORDEN considers the physical challenges to be manageable in a foreseeable future. It is clear that the newest technology and training of staff are mandatory to be able to ensure proper management of extreme weather events both in the short and long run.

(iii)

These methods are not expected to entail additional costs for NORDEN, as they are integrated into NORDEN's daily operations and operational costs.

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
7	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
8	Other drivers	Possible gradual transition from fossil fuels to other energy sources. NORDEN uses fossil fuels such as bunkers to operate our vessels.	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 7:

(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 precise figures on how much CO2 is presently emitted by shipping, but it is estimated to be around 2.7% of global emissions of CO2 in 2007 (source: Second IMO GHG Study 2009). Despite the fact that shipping is the most environmentally friendly means of transport causing far lower CO2 emissions, and thus less environmental impact per transported tonne of cargo, than for example 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 income 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 the our own media and other channels.

To NORDEN, the reputational challenges imply a constant and high awareness of the developments in the debate and an increasing effort to communicate actively. It is important that stakeholders know that NORDEN makes efforts to address environmental and climate-related issues through for example 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 a foreseeable future.

The market challenges imply that NORDEN constantly monitors, and thereby 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 income.

(iii)

The active involvement in relevant discussions and decision forums, as well as the focus on communicating climate-related issues, for instance through the completion of the Carbon Disclosure Project (CDP) questionnaire, has 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. Moreover, there are zero additional costs for NORDEN in continuing to focus on a flexible business model comprising owned and chartered vessels.

ID 8:

(i)

Climate change has caused a limited number of advanced economies to suggest a gradual transition from fossil fuels, such as coal and oil, to other energy sources.

The increased focus on renewable energy may potentially impact our business in the long run as one of our current core focus areas is transporting energy based on fossil fuels. In Tanker, our business is primarily devoted to refined oil products while in Dry Cargo, coal constitutes approximately 40% of our transported volumes. We foresee future global disparities where European countries and eventually North America substitute fossil fuels with other energy sources while the emerging markets in Asia and South America increasingly demand conventional energy forms, such as coal.

If global restrictions on fossil fuels come into force, it will initially lead to a decrease in income for NORDEN. However, if global restrictions are imposed, fossil fuels will be substituted by other kinds of energy sources.

(ii)

NORDEN is already targeting contracts on the transportation of such substitutes. NORDEN has entered into a number of biomass contracts for European utility companies while NORDEN's contract portfolio for coal to Asian utilities continues to grow.

(iii)

There are zero costs associated with targeting either fossil fuel or other energy source contracts.

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: 2012-Investor-Risks&Opps-ClimateChangeOpp

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
9	General environmental regulations, including planning	Possible reduction of port costs for energy efficient vessels. The Port of Rotterdam has already introduced reductions in port costs for energy efficient vessels. NORDEN has energy	Reduced operational costs	Current	Direct	Virtually certain	Low-medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		efficient vessels and therefore will benefit from this regulation.					
10	General environmental regulations, including planning	The shipping industry is likely to be included in greenhouse gas regulations which will affect NORDEN as a shipping company.	Reduced operational costs	>10 years	Indirect (Supply chain)	More likely than not	Low
11	Other regulatory drivers	Possible gradual transition from fossil fuels to other energy sources. NORDEN both uses fossil fuels to operate our vessels but also transports fossil fuels and other energy sources.	New products/business services	>10 years	Indirect (Supply chain)	About as likely as not	Medium

6.1b

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)

The Port of Rotterdam has already introduced reductions in port costs for vessels that have a "Ship Energy Efficiency Management Plan" (SEEMP) approved by the Class (reduction of costs depends on the size of the vessel). Besides the Port of Rotterdam, other ports are expected to follow suit by introducing the same possible reduction of port costs. A possible reduction in port costs will reduce operational costs for NORDEN when vessels with a SEEMP implemented call at these ports.

(ii)

The SEEMP is a set of operational initiatives to reduce emissions, and several of these are already part of NORDEN's own climate initiatives to reduce emissions. NORDEN deploys the SEEMP on most of our owned vessels. NORDEN also monitors the development of new ports that introduce port cost reductions.

(iii)

The monitoring of new ports does not present any additional costs, as it is integrated in our risk and market analyses.

The implementation of NORDEN's climate initiatives, which constitute our Climate Action Plan, on owned vessels has required a one time investment of approximately USD 16.6 million. The annual savings of these climate initiatives on owned vessels in 2011 was approximately USD 12.8 million and 64,465 metric tonnes of CO₂.

ID 10:

(i)

This is the fifth year NORDEN is answering the CDP Questionnaire and like the previous years, the shipping industry is not subject to greenhouse gas regulations. The disappointing outcomes of the UN Climate Change Conference in 2009 and 2010 did not result in regulation of the shipping industry. However, considering the industry's contribution to climate change as a whole and the related ongoing debate amongst various stakeholders, including politicians, regulation is expected to follow eventually.

The Kyoto Protocol places regulation of the shipping industry in the hands of the UN international shipping organisation the International Maritime Organization (IMO). Whether regulation will have a financial impact on NORDEN depends on the scope of the regulation.

(ii)

NORDEN supports international regulation of the shipping industry and is of the opinion that only a global regulation scheme can reduce the risk of regional regulation schemes being used. NORDEN supports IMO's work through the Danish Shipowners' Association, the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (Intertanko). NORDEN supports that IMO is given a mandate to enforce regulation with equal requirements for all shipping companies worldwide.

NORDEN welcomes global industry-specific regulation given that it is transparent, global and fair in scope and thus does not affect the competitive market mechanisms. Under these circumstances, regulation will favour the shipping companies which are most carbon efficient, e.g. in terms of fuel efficiency. NORDEN would consider such regulation an opportunity rather than a risk since NORDEN has a modern and efficient fleet.

Global regulations targeting the entire transport sector would be advantageous for the shipping industry which has far lower CO₂ emissions (and thus less environmental impact per transported cargo) than for example train, lorry or air transport.

Moreover, NORDEN has a strategy to own a modern fleet, which is traditionally more fuel efficient, with an average of 3.1 years of operation. Since newer vessels traditionally consume less bunker fuel, such a fleet will produce less CO₂ and SO_x emissions per tonne-mile. Lastly, NORDEN's Climate Action Plan comprising 10 climate initiatives on owned vessels is also a way to minimise CO₂ emissions and become more competitive and hence benefit from the implementation of a greenhouse gas regulation. Both these will prove to be an advantage for NORDEN if new regulation is imposed on the shipping industry.

(iii)

NORDEN has strategically decided to own a modern fleet, which is traditionally more fuel efficient. If the new regulations are enforced then it will not have a significant impact or cost on NORDEN's owned vessels, as we have already implemented a whole range of climate initiatives on these vessels that we believe will give us an advantage compared to shipping companies that have not implemented any climate initiative and/or possess a fleet with a high consumption of bunker. However, the implementation of NORDEN's climate initiatives which constitute our Climate Action Plan has required a one time investment of approximately USD 16.6 million. The annual savings in 2011 of these climate initiatives were approximately USD 12.8 million and 64,465 metric tonnes of CO₂.

ID 11:

(i)

If the use of fossil fuels is to be gradually reduced in certain Western European countries, a substitution towards bio fuels is likely to occur. The increased focus on renewable energy may potentially impact our business in the long run 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. We foresee future global disparities where European countries and eventually North America substitute fossil fuels with other energy sources while the emerging markets in Asia and South America increasingly demand conventional energy forms such as coal.

Moreover, such a gradual transition may imply more energy efficient vessels in the future, which will reduce operating costs. In relation to operation of vessels, bio fuel is not a possible substitute for bunker fuel in vessel engines today.

(ii)

NORDEN will continue targeting new business such as transportation of biomass. In 2009, NORDEN signed its first wood pellet contract, a 15-year contract on the transportation of wood pellets from the US to the Netherlands. And in 2010, NORDEN signed its first wood chips contract, a 3-year contract on the transportation of wood chips from Liberia to Continental Europe. Biomass and wood products constitute the second largest commodity in NORDEN's cargo book going forward.

(iii)

There are zero additional costs associated with targeting either fossil fuel or biomass contracts.

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
12	Snow and ice	Unusually cold winters mean that the waters in for instance the northern part of Europe, North America and Asia can quickly ice over and that the ice can get thicker than usual. This will entail that to be able to sail in these area, there is a need to operate vessels classed to sail in ice-filled waters. NORDEN has numerous ice-reinforced vessels.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium-high
13	Other physical climate opportunities	Rough weather leading to changes in sailing patterns, which increases NORDEN's voyage duration and consequently our income.	Other: Increased income	Current	Direct	Likely	Medium-high

6.1d

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 12:

(i)

Unusually cold winters mean that the waters in for instance the northern part of Europe, North America and Asia can quickly ice over and that the ice can get thicker than usual, as was the case in the winter of 2010. This effectively closes off certain ports for vessels that are not classed to navigate in ice-filled waters and simultaneously increases demand for ice-reinforced vessels, which are able to sail in ice-filled waters.

Cold winters and rough weather will therefore have a significant financial impact for NORDEN as it will lead to increased demand for our ice-reinforced vessels and hence an increase in income, as premiums are offered for ice-reinforced vessels.

(ii)
 NORDEN has invested in ice-reinforced vessels. In 2011, NORDEN operated 6 dry cargo ice-reinforced vessels and Norient Product Pool, which operates all NORDEN's tanker vessels, operated 34 ice-reinforced vessels.

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

ID 13:

(i)
 Rough weather may imply that several areas cannot be navigated in. This makes transport distances longer, and is in turn likely to increase NORDEN's income.

(ii)
 NORDEN uses the best available technology for constant monitoring of the position of vessels (using GPS), monitoring of weather conditions, weather routing, route planning, type of vessels in operation (i.e. special requirements regarding construction) and well-trained, educated and qualified staff. Hence, different types of physical opportunities posed by climate change are already factored in. It is clear that the newest technology and training of staff are mandatory to be able to ensure proper management of extreme weather events both in the short and long run.

(iii)
 These methods are not expected to entail additional costs for NORDEN, as they are already integrated into NORDEN's daily operation of owned and chartered vessels.

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
14	Reputation	Reputational opportunities since shipping is the most environmentally friendly means of cargo transport. This is particularly possible for NORDEN specifically since we have a young fleet and furthermore have taken several initiatives to reduce emissions of CO2.	Increased demand for existing products/services	Current	Direct	Likely	Low
15	Other drivers	Introduction of new commodities to be transported. New business opportunities for NORDEN to transport these commodities.	New products/business services	Current	Direct	Likely	Low

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 14:

(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 since we have a strong focus on energy efficiency and reducing our 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 to a lesser but increasing extent large dry cargo companies.

NORDEN has an opportunity to gain a competitive edge by actively increasing our profile as a responsible shipping company which continuously works towards lowering our CO2 emissions. This is a factor of influence for obtaining future customers that is likely to increase in significance. Furthermore, NORDEN would look forward to 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 the developments in the debate and an increasing effort to communicate new initiatives. It is important that stakeholders know that NORDEN makes an effort to address climate issues through for example efficiency measures.

NORDEN communicates both internally and externally on 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 in 2011 had an average age of operation of 3.1 years. Moreover, NORDEN communicates about our Climate Action Plan with various climate initiatives on owned vessels that reduced our CO2 emissions on owned vessels by 5.4% in 2011, as well as other fuel efficient measures.

(iii)

Focusing on communicating climate-related issues, for instance 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 for NORDEN in continuing to focus on a flexible business model comprising owned and chartered vessels.

ID 15:

(i)

Climate change has introduced new commodities to be transported such as biomass, including wood pellets and wood chips. This has provided more business opportunities for NORDEN and hence increase in income.

In 2009, NORDEN signed its first contract of transportation of wood pellets, a 15-year contract to transport wood pellets from the US to the Netherlands. In 2010,

NORDEN signed its first contract for transportation of wood chips, a 3-year contract to transport wood chips from Liberia to Continental Europe.

NORDEN is constantly focusing on finding new commodities to be transported and will continue to target new business such as transportation of different types of biomass.

(ii)

NORDEN is already targeting contracts on the transportation of such substitutes. NORDEN has entered into a number of biomass contracts for European utility companies while NORDEN's contract portfolio for coal to Asian utilities continues to grow.

(iii)

There are zero additional costs associated with targeting new commodities, as it is included in our market analyses.

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)
------------------	---	---

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	
Fri 01 Jan 2010 - Fri 31 Dec 2010		387

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 3 methodologies have been used:

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

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 (18 owned and 48 leased), the land-based administration activities (both head office and overseas offices) and emissions from business travel activity.

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. However, 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 2011, NORDEN owned 44vessels (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 Scope1.

As a result of NORDEN's flexible business model, we also operated some 194vessels held on charter for shorter or longer periods of time at the end of 2011. 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 that were owned by NORDEN in 2011. 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 18 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 the whole of 2011. Electricity is already measured in kWh and therefore the total estimated amount of electricity used in 2011 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 in NORDEN's overseas offices but in GJ in its headquarters in Denmark. The amount of district heating used in GJ in the head office in Denmark is converted to kWh by using the Global Reporting Initiative's conversion standard.

Page: 8. Emissions Data - (1 Jan 2011 - 31 Dec 2011)

8.1

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

Financial control

8.2a

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

726718

8.2b

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

Boundary	Gross global Scope 1 emissions (metric tonnes CO2e)	Comment
----------	---	---------

8.2c

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

Gross global Scope 1 emissions (metric tonnes CO2e) – Part 1 Total	Comment
--	---------

8.2d

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 2

Boundary	Gross global Scope 1 emissions (metric tonnes CO2e)	Comment
----------	---	---------

8.3a

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

451.4

8.3b

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 breakdown

Boundary	Gross global Scope 2 emissions (metric tonnes CO2e)	Comment

8.3c

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 Total

Gross global Scope 2 emissions (metric tonnes CO2e) - Total Part 1	Comment

8.3d

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

Boundary	Gross global Scope 2 emissions (metric tonnes CO2e) - Other operationally controlled entities, activities or facilities	Comment

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?

8.4a

Please complete the table

Reporting Entity	Source	Scope	Explain why the source is excluded
------------------	--------	-------	------------------------------------

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 United States of America 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 Scope 2 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 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.	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 providers, whether they have measured the accurate energy consumption.

8.6

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

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

Level of verification or assurance	Relevant verification standard	Relevant statement attached
Limited assurance	AA1000 Assurance Standard	1) CDP verification template NORDEN filled out by DNV 2) DNV assurance statement

8.7

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

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

Level of verification or assurance	Relevant verification standard	Relevant statement attached
Limited assurance	AA1000 Assurance Standard	1) CDP verification template NORDEN filled out by DNV 2) DNV assurance statement

8.8

Are carbon dioxide emissions from the combustion of biologically sequestered carbon (i.e. carbon dioxide emissions from burning biomass/biofuels) relevant to your company?

Yes

8.8a

Please provide the emissions in metric tonnes CO2e

16269

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 degree 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 638 metric tonnes.

CO2 emissions from biologically sequestered carbon from operated vessels under scope 3 are estimated to be 15631 metric tonnes.

Attachments

[https://webadmin.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/8.EmissionsData\(1Jan2011-31Dec2011\)/CDP-verification-template NORDEN filled out by DNV.pdf](https://webadmin.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/8.EmissionsData(1Jan2011-31Dec2011)/CDP-verification-template%20NORDEN%20filled%20out%20by%20DNV.pdf)

[https://webadmin.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/8.EmissionsData\(1Jan2011-31Dec2011\)/DNV assurance statement.pdf](https://webadmin.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/8.EmissionsData(1Jan2011-31Dec2011)/DNV%20assurance%20statement.pdf)

9.1

Do you have Scope 1 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

9.1a

Please complete the table below

Country	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	726640

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 metric tonnes CO2e
-------------------	----------------------------

9.2b

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

Facility	Scope 1 metric tonnes CO2e
Owned vessels	726640
Owned company cars	78

9.2c

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

GHG type	Scope 1 metric tonnes CO2e
----------	----------------------------

9.2d

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

Activity	Scope 1 metric tonnes CO2e
----------	----------------------------

10.1

Do you have Scope 2 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

10.1a

Please complete the table below

Country	Scope 2 metric tonnes CO2e
Denmark	380.5
Brazil	4.0
China	12.2
India	33.9
Singapore	20.8

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 metric tonnes CO2e
-------------------	----------------------------

10.2b

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

Facility	Scope 2 metric tonnes CO2e
----------	----------------------------

10.2c

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

Activity	Scope 2 metric tonnes CO2e
----------	----------------------------

Page: 11. Emissions Scope 2 Contractual

11.1

Do you consider that the grid average factors used to report Scope 2 emissions in Question 8.3 reflect the contractual arrangements you have with electricity suppliers?

Yes

11.1a

You may report a total contractual Scope 2 figure in response to this question. Please provide your total global contractual Scope 2 GHG emissions figure in metric tonnes CO2e

11.1b

Explain the basis of the alternative figure (see guidance)

11.2

Has your organization retired any certificates, e.g. Renewable Energy Certificates, associated with zero or low carbon electricity within the reporting year or has this been done on your behalf?

No

11.2a

Please provide details including the number and type of certificates

Type of certificate	Number of certificates	Comments
---------------------	------------------------	----------

Further Information

According to NORDEN's Danish energy provider, DONG Energy, approximately 25% of the electricity used by NORDEN's head office in Denmark is produced from renewable energy sources, such as wind, water, sun, waste, biomass and biogas. At this stage NORDEN is not able to estimate a total percentage of purchased MWh from renewable energy for all land-based operations (overseas offices)

In 2011, NORDEN has entered into a climate partnership with DONG Energy, which entails that from 2012, all electricity purchased for the head office in Denmark will come from renewable energy, specifically from windmills.

Page: 12. Energy

12.1

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

More than 60% but less than or equal to 65%

12.2

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

Energy type	MWh
Fuel	12226397
Electricity	913.7
Heat	497.2
Steam	0
Cooling	0

12.3

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

Fuels	MWh
Residual fuel oil	11888067
Diesel/Gas oil	338330

Further Information

The interval provided in question 12.1 relates only to offshore operations, specifically owned vessels in Scope 1.

Page: 13. Emissions Performance

13.1

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

Increased

13.1a

Please complete the table

Reason	Emissions value (percentage)	Direction of change	Comment
Acquisitions	42.4	Increase	The number of owned vessels which contribute to the predominant share of Scope 1 CO2 emissions had grown by 42.8% at year-end 2011 compared to year-end 2010. The absolute emissions from owned vessels therefore naturally increased. More specifically, the emissions increased by 42.4% from 2010. However, compared to the growth of the fleet, the increase in CO2 emissions from owned vessels is proportionally smaller, which is due to the emissions reduction activities implemented on owned vessels as part of NORDEN's Climate Action Plan.
Emissions reduction activities	5.4	Decrease	NORDEN has a Climate Action Plan comprising 10 different fuel efficient saving measures and emission reduction activities. These initiatives are implemented on all NORDEN's owned vessels which are part of Scope 1. By investing in these activities, NORDEN reduced its CO2 emissions from owned vessels by 5.4% in 2011. The effect is 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.
Emissions reduction activities	3.5	Decrease	NORDEN has introduced a number of climate initiatives to minimise the consumption of electricity at our offices. In our headquarters in Hellerup, Denmark we have changed our light bulbs to energy efficient ones and virtualised our IT systems to save energy. The annual electricity consumption in kilowatt hour (kwh) per employee at our headquarters in Hellerup, Denmark went from: 4,881.1 kwh per employee in 2010 to 4,711.8 kwh per employee in 2011, which is a decrease of approximately 3.5% from 2010.

13.2

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
0.00032	metric tonnes	unit total revenue	33.3	Increase	During 2011, NORDEN's scope 1 and scope 2 emissions constituted 727,169 metric tonnes CO2 and revenue constituted USD 2,272.8 million. During 2010, NORDEN's

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for Change
	CO2e				scope 1 and scope 2 emissions constituted 528,820 metric tonnes CO2 and revenue constituted USD 2,189.6 million. This increase in the intensity figure is due to a growth in NORDEN's own fleet of 42.8% combined with decreasing freight rates from 2010. This means that NORDEN owned more vessels in 2011 but earned less per voyage per vessel compared to 2010. Moreover, the reported intensity figure is not representative and meaningful since income from chartered vessels is included in revenue but the CO2 emissions associated with chartered vessels are part of Scope 3 and not Scope 1 and Scope 2.

13.3

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
661.66	metric tonnes CO2e	FTE Employee	0.5	Increase	During 2011, NORDEN's scope 1 and scope 2 emissions constituted 727,169 tonnes CO2. At year end, NORDEN had 1099 full time equivalent employees. During 2010, NORDEN's scope 1 and scope 2 emissions constituted 528,820 tonnes CO2 and full time equivalent employees at year-end constituted 803 employees. The reason for the increase in the intensity figure is that the growth in the number of owned vessels of 42.8% is higher than the increase in the number of employees of 36.9% since 2010. Moreover, the reported intensity figure is not representative and meaningful since the employees of NORDEN operate both owned and chartered vessels which not only relate to scope 1 and scope 2 CO2 emissions, but also scope 3 CO2 emissions.

13.4

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
3.11	metric tonnes CO2e	Other: Tonne of bunker fuel	0.7	Decrease	During 2011, NORDEN's scope 1 and scope 2 emissions constituted 727,169 tonnes CO2 and bunker fuel constituted 232,000 tonnes. During 2010, NORDEN's scope 1 and scope 2 emissions constituted 528,820 tonnes CO2 and bunker fuel constituted 168,799 tonnes. The reason for the decrease in the intensity figure from 3.13 in 2010 to 3.11 in 2011 is due to NORDEN's implementation of fuel efficiency measures and emission reduction activities, as part of NORDEN's Climate Action Plan, on owned vessels belonging to Scope 1.

Page: 14. Emissions Trading

14.1

Do you participate in any emission trading schemes?

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

14.1a

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
-------------	-----------------------------------	----------------------	----------------------	--	----------------------

14.1b

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

14.2

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

No

14.2a

Please complete the following 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
---------------------------------------	--------------	------------------------	----------------------------	---	--	-----------------	-------------------------

Further Information

However, again in 2011, NORDEN bought CO2 quotas in order for NORDEN's website to remain CO2 neutral.

Page: 2012-Investor-Scope 3 Emissions

15.1

Please provide data on sources of Scope 3 emissions that are relevant to your organization

Sources of Scope 3 emissions	metric tonnes CO2e	Methodology	If you cannot provide a figure for emissions, please describe them
Fuel- and energy-related activities (not included in Scopes 1 or 2)	2591564	NORDEN's CO2 emissions from the approximately 194 chartered and operated vessels are calculated as the bunker fuel quantity (metric tonnes) consumed on a voyage times the duration (number of days) of the voyage (calculated pro rata) times the CO2 emissions factor for each bunker type. The CO2 emissions factor used is found in the "Second IMO GHG Study 2009", which is 3.13 for residual fuel oil/intermediate fuel oil (IFO) and 3.19 for marine diesel oil (MDO) and marine gas oil (MGO). The result of this calculation is the reported annual CO2 emissions for vessels chartered and operated by NORDEN (including the tanker vessels operated by NORDEN via Norient Product Pool).	
Business travel	3186	The CO2 emissions from business travel are calculated according to the guidelines from the 3 travel agencies that 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. The travel agencies have provided NORDEN with the CO2 emissions data.	
Employee commuting	208	Leased 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. NORDEN had 48 leased cars in 2011.	

15.2

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

Verification or assurance complete

15.2a

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

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

15.2b

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

Level of verification or assurance	Relevant verification standard	Relevant statement attached
Limited assurance	AA1000 Assurance Standard	1) CDP verification template NORDEN filled out by DNV 2) DNV Assurance statement

15.3

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

Yes

15.3a

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 or 2)	Change in output	13.8	Increase	NORDEN increased the number of chartered vessels in 2011. NORDEN chartered 194 vessels year end 2011, while we only chartered 180 vessels year-end 2010. The number of chartered vessels in 2011 thus increased by 7.8% from 2010. Moreover, CO2 emissions are affected by a number of conditions: the number of ship days, voyage duration, speed (slow

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
				steaming) and routes, volumes transported, ballast voyages, weather conditions together with climate and environmental initiatives. These factors can explain the slight increase in CO2 emissions from 2010 to 2011.
Business travel	Change in output	92.9	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 owned vessels increased by 42.8% compared to 2010 and NORDEN increased its crew by 39.2% compared to 2010. The increase in crew and vessels inevitably leads to an increase in business travel.
Employee commuting	Change in output	6.7	Increase	NORDEN acquired more leased cars in 2011. The number of leased cars increased from 41 cars in 2010 to 48 cars in 2011, which is an increase of 17.1%. By using a methodology that assumes a fix CO2 emissions per leased car, then the emission value will inevitably increase with leasing more cars. However, the increase has been proportionally lesser than the increase in the number of leased cars, as NORDEN has chosen to lease more environmentally friendly cars.

Attachments

[https://www.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/15.Scope3Emissions/CDP-verification-template NORDEN filled out by DNV.pdf](https://www.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/15.Scope3Emissions/CDP-verification-template%20NORDEN%20filled%20out%20by%20DNV.pdf)

[https://www.cdproject.net/Sites/2012/69/22369/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/15.Scope3Emissions/DNV assurance statement.pdf](https://www.cdproject.net/Sites/2012/69/22369/Investor%20CDP%202012/Shared%20Documents/Attachments/InvestorCDP2012/15.Scope3Emissions/DNV%20assurance%20statement.pdf)

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 and Chairman of the CSR Executive Body

CDP