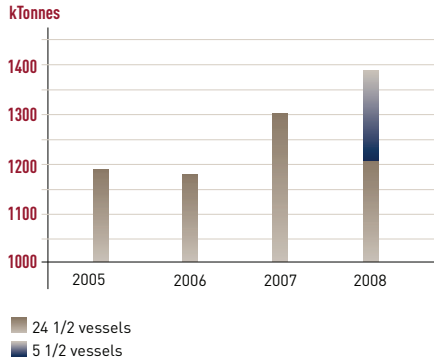
ENVIRONMENTAL ACCOUNTING 2008: TOWARDS A ZERO-EMISSION VISION

Fuel consumption and emission aspects

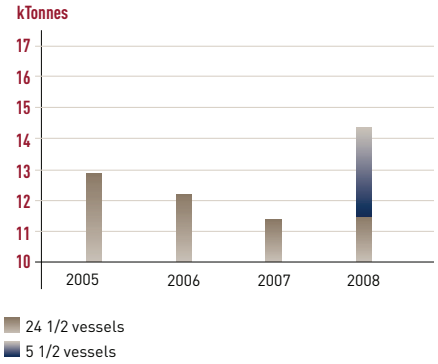
	2006	2007	2008
Number of vessels in the statistics (1)	24 1/2	24 1/2	**30**
Number of ro-ro carriers in the statistics	8	8	**8**
Number of car carriers in the statistics	14	14	**19**
Number of partly owned vessels (50%) in the statistics	5	5	**6**
■ Fuel consumption in tonnes:			
24 1/2 vessels	405 073	430 279	**401 303**
30 vessels	-	-	**459 324**
■ Fuel consumption in g/tonnes/nm:			
24 1/2 vessels	18.72	18.23	**17.34**
30 vessels	-	-	**19.25**
■ Reduction in fuel consumption in g/tonnes/nm (2)			
24 1/2 vessels	0.9%	(1.7%)	**(6.4%)**
30 vessels	-	-	**3.8%**
■ Average percentage sulphur content of fuel (3)			
24 1/2 vessels	1.55%	1.36 %	**1.47%**
30 vessels	-	-	**1.60%**
■ SO_x emission in tonnes:			
24 1/2 vessels	12 520	11 673	**11 760**
30 vessels	-	-	**14 658**
■ CO_2 emission in tonnes (IMO voluntary)			
24 1/2 vessels	1 195 140	1 318 199	**1 228 034**
30 vessels	-	-	**1 403 668**
■ NO_x emission in tonnes:			
24 1/2 vessels	36 801	36 411	**33 670**
30 vessels	-	-	**39 227**
■ Reduction in refrigerant leaks (4)	0.8%	27.6%	**46.2%**

Other environmental aspects	Achieved 2007	Target 2008	Achieved 2008
Ballast water treatment system	Supplier selected	Test equipment	One test installation on board
Bilge water treatment system, max five ppm Replace oily water separators	Replaced one	Replace two	No replacements
Global waste management project	Launched	Type of compactor decided	Awaiting Wilhelmsen Ships Service's project development
Inventory list for hazardous materials	Two vessels recieved green passport	All vessels by 2010	No new inventory lists in 2008
Test of alternative antifouling coating	Decide on type	Two vessels coated with Inter 900	Three vessels coated with Inter 900, awaiting further experience
Cooperation with Bellona foundation (NGO)	Ongoing	To be renewed	Renewed
Ship dismantling and recycling – business case		Study of sustainability and legal development	Draft dismantling policy ready

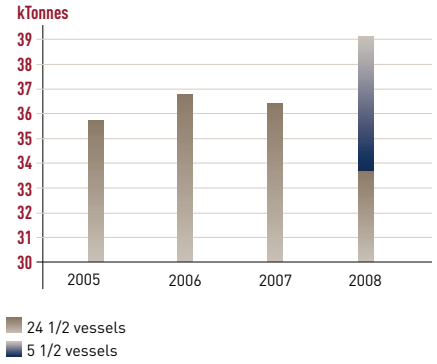
TOTAL CO_2 EMISSION



TOTAL SO_X EMISSION



TOTAL NO_X EMISSION



Future targets

Future targets	Target 2009	Target 2010-2020
Maximum sulphur in fuel	1.5% average	Further development to meet IMO requirements towards 0.5% in 2020
Fuel consumption and CO_2 emission reduction in g/tonnes/nm	4% reduction from 2008	30% reduction by 2020
Ballast water treatment system (BWT)	All large car and truck carriers delivered after 2009 and all ro-ro vessels to be delivered in 2011 and 2012 will have a BWT system installed	All newbuildings to have BWT systems installed
Bilge water treatment system max five ppm	When replaced, new oily water separators to have five ppm	All newbuildings to have oily water separators with five ppm
Global waste management project	Develop waste management plan	Waste service on all vessels
Dismantling of vessels	One vessel will be dismantled as of March 2009 Develop dismantling procedure as a business case for Wilhelmsen Marine Consultants	Use dismantling policy in case of vessel recycling

NOTE 1

WW owned or controlled a total of 44 vessels at 1 March 2009. The environmental accounting includes 30 ships: eight ro-ro vessels and 19 car carriers owned or controlled by WW as well as its 50% share of Tellus and five ro-ro carriers owned by Mark I Shipping (a total of three vessels). Not included in the environmental accounting are three vessels delivered to WW in late 2008 (Tomar, Toreador and Tijuca). Also excluded are eight vessels belonging to American Roll-on Roll-off Carrier (owned 50% by WW). An increase in the number of reported vessels has contributed to a rise in fuel consumption and associated emissions.

NOTE 2

The reduction in fuel consumption is based on average consumption in 2005-06, which was 18.55 for 24 ½ vessels. A 6.4% reduction from the average for 2005-2006 was recorded in 2008 when including vessels WW owns or controls and which are operated by WWL. A slight increase was recorded when including vessels owned or controlled by WW and which are operated by EUKOR because car carriers (which account for the additional vessels compared with 2007) have a higher fuel consumption in terms of g/tonnes/nm.

NOTE 3

The average sulphur target for vessels operating in WWL is 1.5%, while the average for vessels operated by EUKOR is 2.5%. The 2008 average for vessels owned or controlled by WW was 1.47% when operated by WWL, and 1.6% when such ships also operated by EUKOR are included. The average for the industry was 2.7%, while the target set by the IMO is 3.5%.

NOTE 4

The reduction in refrigerant leaks is based on the base year of 2004, when the fleet (24 ½ vessels) emitted 6 327 kilograms of refrigerants. The 2008 figures were 30 vessels emitting 3 402 kilograms.

Targets for 2009

- Reduce CO_2 emissions by 4% measured in g/tonnes/km compared with 2008
- Reduce NO_x emissions by 25% measured in g/tonnes/km compared with 2000
- Keep the sulphur content in fuel consumed below 1.5% for WWL and 2.5% for EUKOR


OUR VISION
IS TO IMPROVE
OPERATIONS
CONTINUOUSLY
IN SEEKING TO
ACHIEVE ZERO
EMISSIONS

REALISING THE VISION

Shipping is regarded as the most environment-friendly way of transporting commodities around the world. At the same time, the industry must overcome several challenges to ensure that it takes even better account of environmental considerations.

As a shaper of the maritime industry, we are pursuing numerous initiatives aimed at reducing the environmental impact of our business.

1: Fuel

We aim to reduce our fuel consumption measured in g/tonnes/km by 4% in 2009 compared with 2008.

Fuel saving initiatives include:

- choosing the most efficient speed when possible
- an energy management test installation which helps the crew to identify optimum sailing conditions (speed and trim)
- a fuel quality project with Marintek and other large shipowners
- installing weather routing systems on all our vessels to ensure efficient route planning and safe sailing
- an extensive newbuilding programme with fuel efficient vessels (new design with improved propulsion systems)
- crew awareness and training.

2: Waste

All waste on our vessels will be sorted and recycled.

We launched a waste management programme during 2006 in cooperation with Norway's Bellona environmental foundation. This project turns waste into value. A recycling system will therefore be implemented on all the vessels we own or control. Land-based facilities for receiving the waste are being developed.

14:

Carbon dioxide

We aim to reduce our carbon footprint by reducing fuel consumption, and we are involved in shaping the International Maritime Organisation's (IMO) new carbon index.

Our goal is to reduce CO_2 emissions measured in g/tonnes/nm by 4% in 2009 compared with 2008. This will primarily be achieved by cutting fuel consumption per tonne of cargo carried over a distance sailed.

No regulations currently govern CO_2 emissions from ships. However, we are engaged in work being pursued by the IMO to create a carbon design and operational index for vessels as a contribution to developing operationally efficient ships for the future.

13:

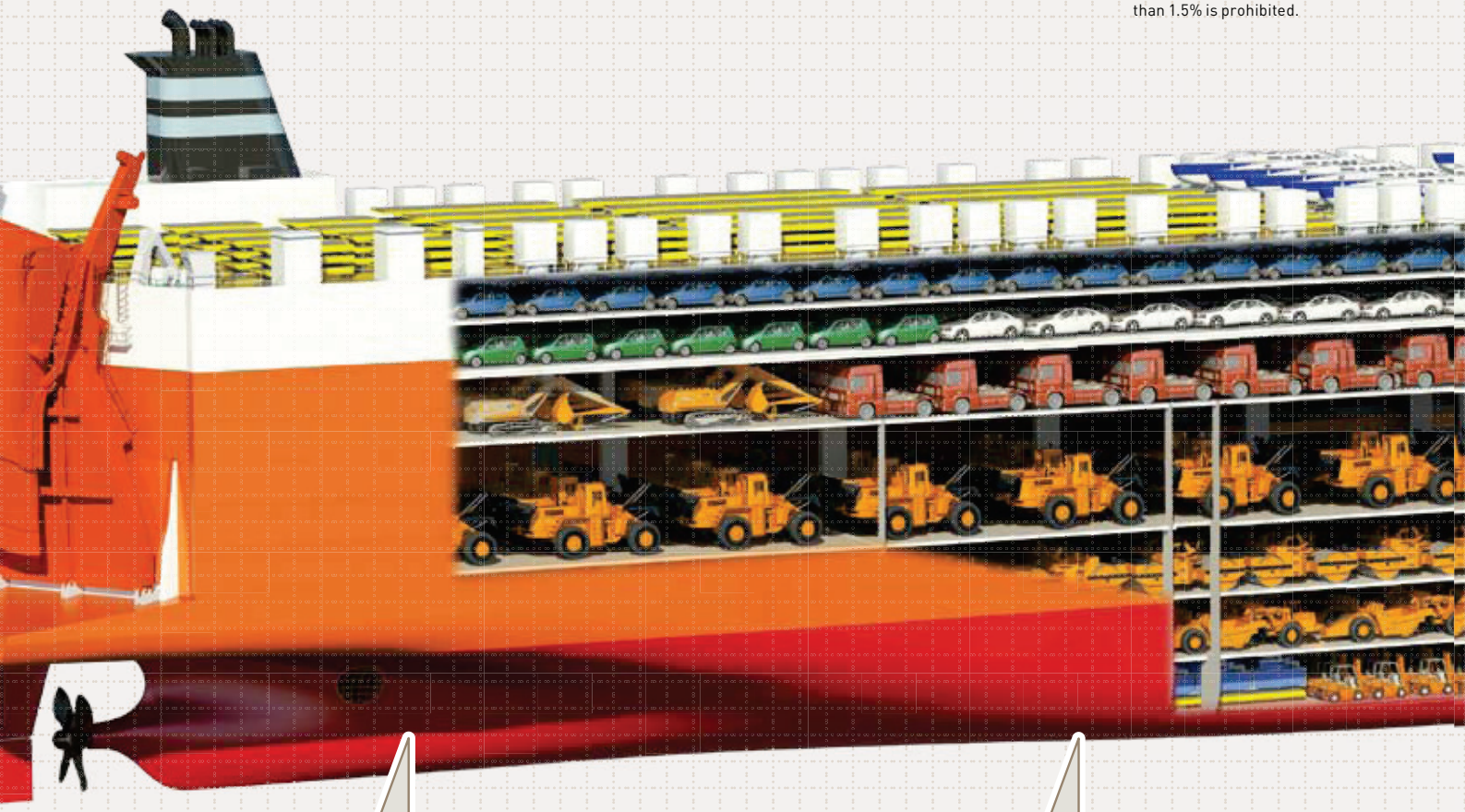
Sulphur oxides

Our vessels operated by Wallenius Wilhelmsen Logistics (WWL) have a policy of holding sulphur content in fuel to 1.5%, while vessels in EUKOR Car Carriers have a 2.5% policy.

WWL is the first worldwide merchant shipping operator to sail with a 1.5% sulphur policy, launched in 2005. Using such low-sulphur fuel incurred an additional cost of USD 15 million (WW's share) in 2008.

EUKOR's 2.5% policy has been in place since 2007.

From 2008, the IMO has set a 3.5% limit for sulphur content worldwide. In addition come two sulphur emissions controlled areas covering northern Europe and the Baltic, where bunkers with a sulphur content higher than 1.5% is prohibited.



3:

Ballast water

Our fleet satisfies the applicable regulations for ballast water exchange, and we also distribute state-of-the-art ballast water treatment systems.

One of our vessels is testing a ballast water treatment system.

We have also joined forces with BW Gas to test the system which prevents the transfer of marine organisms from one part of the world to another. Due to be sold through WMS, this solution is simple and has a low energy consumption compared with its competitors. It is expected to receive IMO approval during 2009.

4:

Antifouling

All our vessels use tin-free antifouling and are cleaned below the waterline once a year.

In line with international regulations, our ships have all been tin-free since 2002.

To ensure a clean and efficient hull, each of our vessels will have its hull cleaned below the waterline once a year using an environment-friendly system.

Three vessels were coated in 2007 and 2008 with a non-toxic silicone-based antifouling. By contributing to a smoother hull surface, this product is expected to reduce fuel consumption by up to 5% compared with a vessel using a standard antifouling.

12:

Nitrogen oxides

Our aim has been to reduce our NO_X emissions measured in g/tonnes/km by 25% between 2000 and the end of 2008.

NO_X emissions from our vessels have been cut by 35% from 2000 to 2008 through a combination of fleet renewal and technical improvements. New vessels are designed with lower NO_X emissions from their engines than existing tonnage. In addition, some of our ships are equipped with more efficient fuel valves which optimise combustion and reduce NO_X emissions. All our vessel engines must be below the NO_X curve set by the IMO.

Yarwil, owned 50% by WMS, is developing a new technology which can reduce such emissions by 95%.

11:

Solar power

We took delivery of our first vessel equipped with solar cells in 2008.

Such devices have been installed on Toreador to supply the accommodation area with electricity. This is part of an R&D project being pursued with Mitsubishi Heavy Industries to gain experience with and learn more about the fuel-saving potential. Utilising solar cells is part of our long-term vision of developing a zero emission fleet.

5:

Bilge water

All new vessels will have separators which reduce oil in water to five ppm (parts per million).

In addition, all separators on existing vessels which need to be replaced will be exchanged with five-ppm separators. At present, nine of the vessels we own or control are fitted with such equipment.

International regulations require that less than 15 ppm oil remain when bilge water is discharged to the sea.

6:

Oil spills

Oil spills from our vessels are continuously monitored and solutions for reducing accidents are kept under constant assessment.

Total oil spilt from vessels controlled and/or owned by us in 2008 was 18.5 litres, which derived from accidental leaks in ramp hydraulic systems and spillage during bunkering.

10: Energy management system

With real-time decision support, an energy management system can guide the crew in identifying the optimum sailing conditions.

We have installed a decision-making tool developed by Iceland's Marorka on Tortugas. This system provides the officers with real-time decision support and guidance in identifying the trim, speed and energy consumption for optimum sailing. It is expected to cut fuel consumption and associated emissions by 3%-5%.

The system also serves as an excellent reporting tool from vessel to the on shore staff and information bank on the vessel.

9: Weather routing

To reduce fuel consumption and ensure safer sailing, we have installed a weather routing system on all our vessels.

This solution will assist crew in route planning in order to optimise a voyage with the assistance of weather forecasts and information on currents. That will reduce fuel consumption and ensure safer sailing.

The weather forecast provider is also part of a high-performance reporting tool which enhances our understanding of when to clean the vessel hull and of making comparisons between sister ships.

8: Chemicals and refrigerants

We are concerned to use the least harmful chemical products and to reduce consumption of refrigerants.

In cooperation with Bellona, we established an improved list of greener chemicals in 2007 for use on all the vessels we control.

We want to reduce the volumes of chemicals and refrigerants used, and keep statistics of purchases and consumption. Refrigerants on our vessels are also being replaced by more environment-friendly products.

In addition, Unitor Chemicals (owned by WMS) is one of the world's leading suppliers of marine chemicals. This ensures its customers the most environmentally-adapted chemicals available.

7: Ship recycling

One of our vessels will be recycled in 2009 with a limited impact on the environment and permitting safe and healthy working conditions.

We have decided to recycle a ship at China's Yiangyin yard, where the recycling process takes place alongside a craned berth. Cranes and concrete work fields permit safer handling and working conditions. The yard has the infrastructure required to dismantle the vessel and handle its materials as well as its normal and hazardous waste in a safe and proper manner which limits the environmental impact. We will also have representatives on site to monitor the recycling process.

The European Commission and Bellona have acclaimed the use of this recycling facility for being in the spirit of corporate social responsibility.

ADDITIONAL ENVIRONMENTAL INITIATIVES

Other operating companies

EUKOR Car Carriers

EUKOR launched several fuel saving projects in 2008:

- choosing the most efficient speed when possible
- underwater hull cleaning and propeller polishing
- optimising hull and machinery.

These initiatives have reduced fuel consumption and thereby CO_2 emissions by 7.8% compared with 2006 levels, NO_x emissions by 10.7% rand SO_x emissions by 12.8%.

The average sulphur content in fuel consumed by the EUKOR fleet in 2008 was 2.66%.

EUKOR is also replacing existing refrigerants in cooling systems with more environmentally adapted solutions. And the company will publish its first environmental report for 2008.

American Roll-on Roll-off Carrier (ARC)

ARC's fuel-saving initiatives in 2008 comprised:

- choosing the most efficient speed when possible
- introducing mandatory use of weather routing
- using smooth-surface antifouling to reduce hull resistance.

In addition, ARC burned fuel with an average sulphur content of 1.95% during the year and bought bunkers with 1.5% sulphur or less whenever possible. It will also implement a reporting system for emissions during 2009.

THE NEED FOR A CLEANER MARINE ENVIRONMENT CREATES OPPORTUNITIES FOR THOSE WITH A CLEAR VISION AND RESOURCES TO ACT. WE HAVE BOTH.

Getting our act together

The environment is a major opportunity
Awareness and legislation to protect the marine environment are increasing steadily. In addition to its ethical aspects, the environment represents a major emerging opportunity. Wilhelmsen Maritime Services (WMS) is well positioned to capture a significant share of this market potential.

Act is the name given to WMS' environmental business concept. It collects all initiatives in the group related to the environment under one umbrella encompassing emissions to the air, water treatment and waste management.

Solutions to reduce emissions to the air include a programme for converting to less harmful refrigerants, achieving better fuel burning efficiency, removing sulphur dioxide and nitrogen oxide from exhaust gases, reducing the need for diesel power generators in port, optimising onboard power systems and solutions to ensure compliance with environmental regulations in the different markets.

Water treatment solutions include a system which effectively removes micro-organisms from ballast water, marine chemicals that keep the ship clean and while being harmless to the environment, equipment for cleaning oil spills and an economic system for capturing oil from bilge water.

Solutions for getting more value from shipboard waste include a complete onboard waste management system, fuel homogenisers, trash compactors and regulation compliance service.

WMS aims to be a frontrunner in the environmental market by offering the best available technology which helps customers to solve problems in a greener way and to reduce their vessel operating costs.