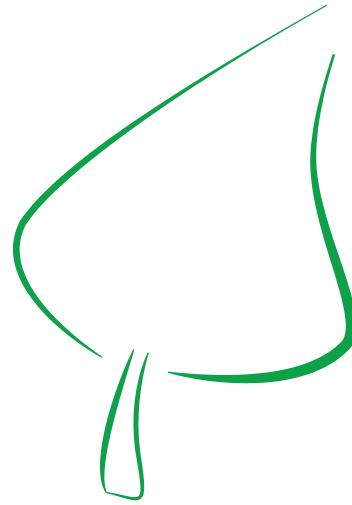
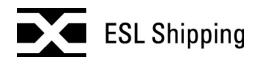


# World's best dry bulk vessel to the Baltic Sea



Mikki Koskinen  
Managing Director  
ESL Shipping Ltd

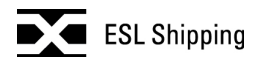


## ESL Shipping in short

Leading carrier of dry bulk cargo in the Baltic Sea

Part of ASPO Plc, a company listed in Helsinki stock exchange

Net sales 2015	<b>76 MEUR</b>	Cargo volume 2015	<b>11,1 MT</b>
Operating profit 2015	<b>14.7 MEUR</b>	Established	<b>1949</b>
Personnel	<b>230</b>	No. of vessels	<b>14</b>



## Present fleet

Supramax-class  
2 x 56 000 dwt  
Iceclass 1A



Eira-class  
3 x 20 000 dwt  
Iceclass 1A Super

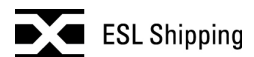
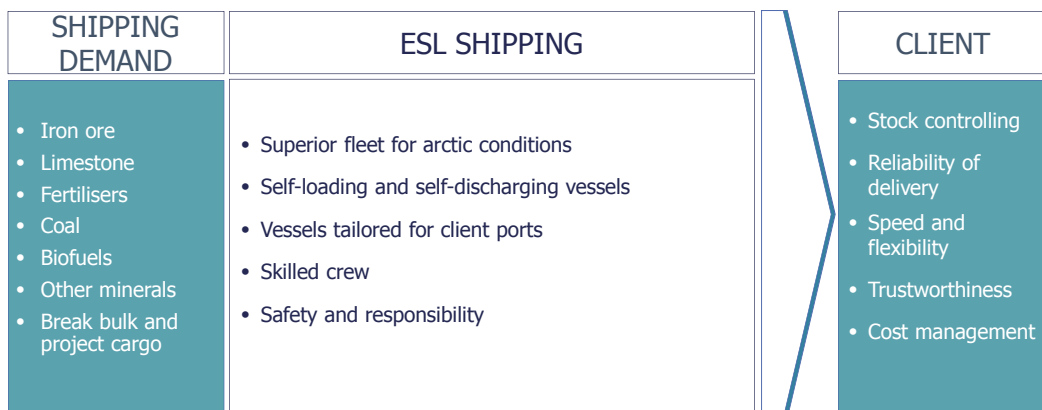
Pasila-class  
2 x 13 000 dwt  
Iceclass 1A  
Super



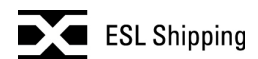
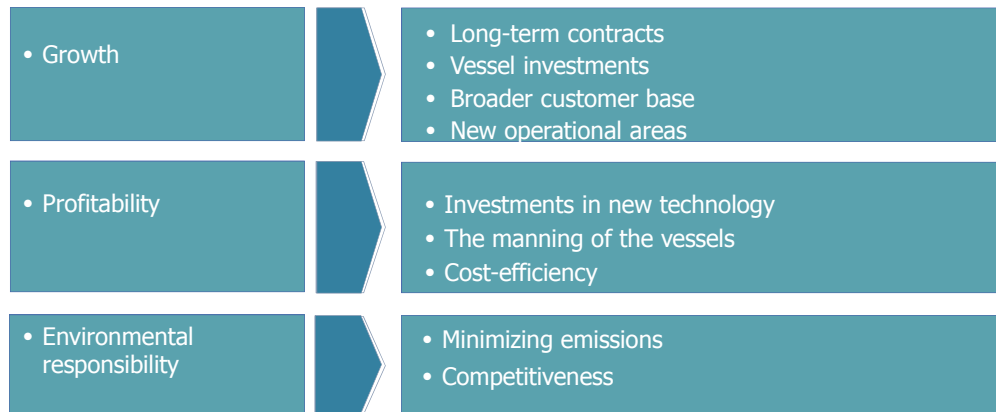
Two pusher vessels and  
barges 5 x  
9 000 – 14 000 dwt  
Iceclass 1A Super



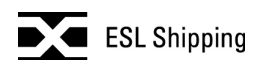
## Value chain and earning logic



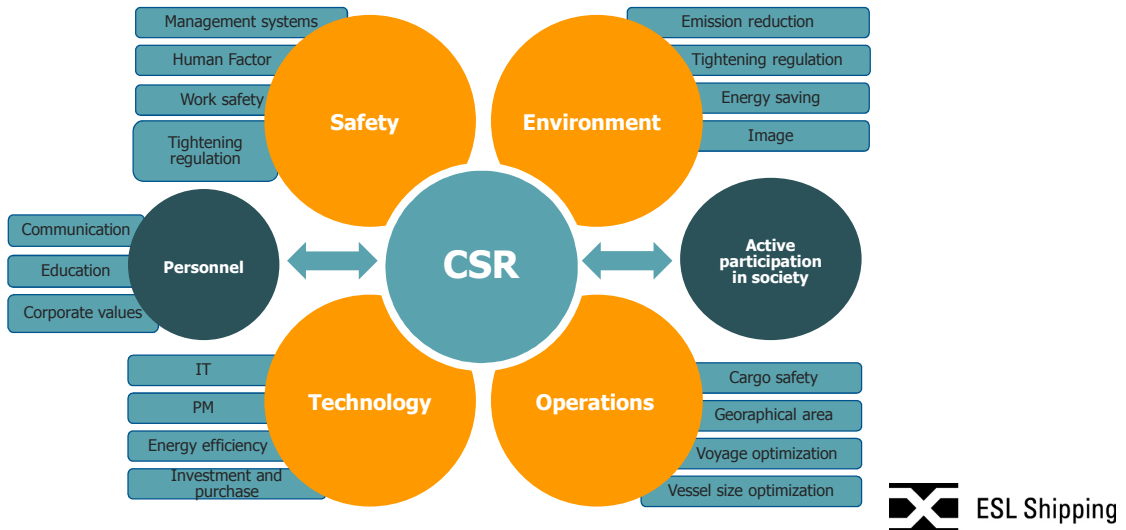
## Targets and measures



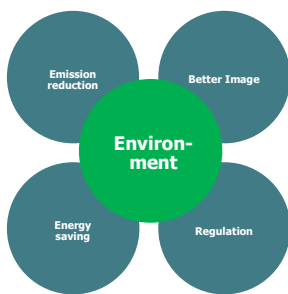
## Values



# CSR - ESL propeller model



# Environment



**Target: Reduction of all emissions and environmentally more sustainable company**

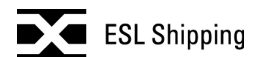
**Emission reduction:**

- Optimized speed and consumption
- Optimized electricity consumption
  - Energy efficient fleet
  - With investment 50 % less CO2
- Reduction of other emissions to air and sea

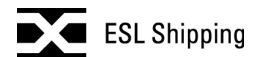
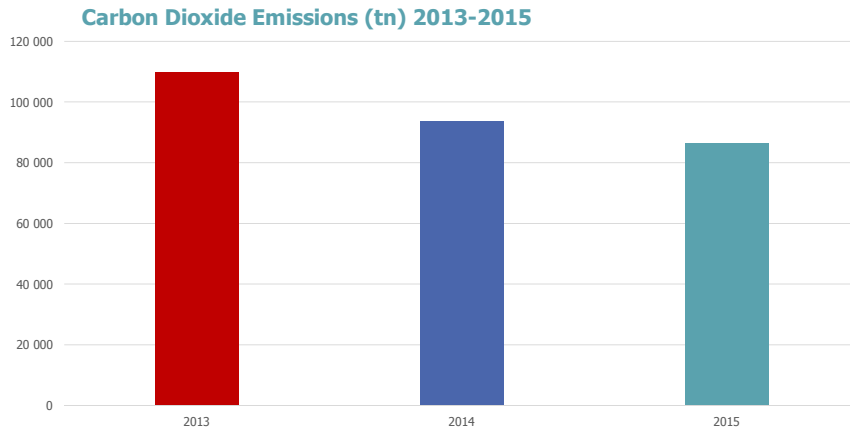
Green image marketing

**Energy saving:**

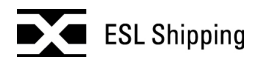
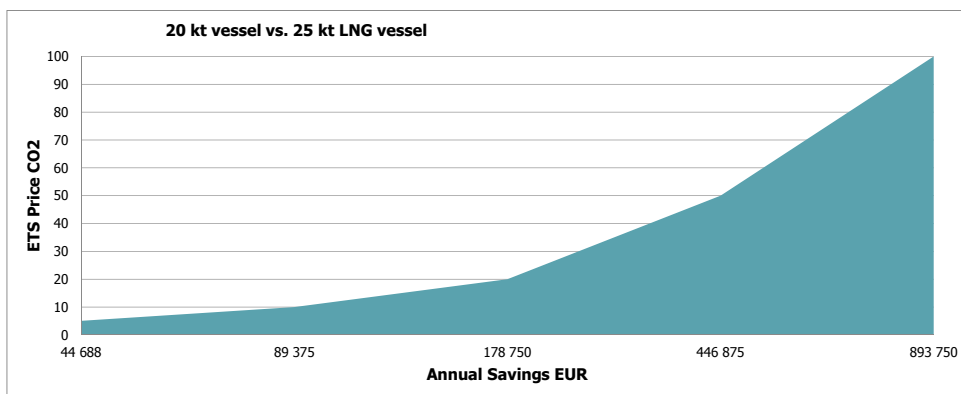
- Personnel awareness
- Education and training



## Continuous reduction of CO2 emissions



## Payback challenge - investment vs. savings



## Case Bothnia Bulk

### New era of raw material transportation in the Baltic Sea



#### Member states involved

- Finland
- Sweden

#### Implementation schedule

- 1.1.2016 – 30.6.2019
- EU co-funding recommended in the CEF Motorways of the Sea call in 2015



ESL Shipping

SSAB

PORT OF RAAHE  
RAAHEN SATAMA



Oxelösunds Hamn AB



RAAHEN VOIMA

## Objective

- Introducing the new Era of Raw Material Transport in the Baltic Sea
- Environmental upgrade of an existing maritime link
- More energy efficient, sustainable and low emission supply chain of dry bulk in the Baltic Sea
- Increase the good co-operation within dry bulk transport and handling
- Lower costs for the customer

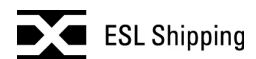
**57 %  
less  
CO<sub>2</sub>**

## Activity

- Procurement of additional environmental efforts for new vessels, including LNG technology for main and auxiliary engines + boiler
- Infrastructure and efficiency development in ports
  - Onshore power supply
  - LNG bunkering
  - Capital dredging

## Forerunner in energy efficiency


- World's first bulk carriers with complete LNG Dual Fuel power solution, including propulsion, electricity and heat production
- Two vessels, ready for service during the first half of 2018
- DWT 25 600
- LOA 160 m, Beam 26m, Max draft 10 m
- Ice class 1A, engine power = ice model tank test result + 73 % reserve
- The EEDI (Energy Efficiency Design Index) value will satisfy clearly the IMO reference line requirements even for the Phase 3, which is coming into force in 2025




## Forerunner in energy efficiency

- Extensive model testing performed for both open water and Ice Class 1A operations, in reputable testing basins such as SSPA in Sweden and Aker Arctic Technology in Finland
- Emissions will be below all current environmental requirements and CO<sub>2</sub> emissions per cargo tonne transported will be reduced by over 50 % in comparison to the present generation of vessels
- Total investment 60 Million euro, of which more than 60 % is EU-origin



 ESL Shipping



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## Objective

- Reduction of harmful air emissions at sea and in port and additionally noise in ports

LNG

+



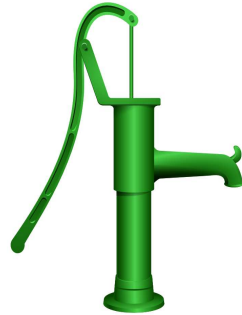
## Activity

- LNG fuelled main and auxiliary engines + boiler
- Sustainable shore side power supply capability shall be installed onboard

 ESL Shipping

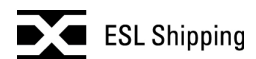
## Objective

- Minimize shipboard waste and eliminate pumping of dry bulk cargo residues into sensitive arctic and sub-arctic sea areas



## Activity

- Implementation of the most sustainable and adequate way to handle and storage dry bulk cargo residues on board
- Pump residues ashore into port reception facilities (MARPOL Annex V)



**Together we make dry  
bulk shipping more  
sustainable  
than ever before.**

**Thank You !**



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