

WORKSHOP 01

Ship-to-Ship bunkering of LNG Safety in theory and in real life

May 20-21/22, 2013

MAKE A DIFFERENCE

A TRANS-EUROPEAN TRANSPORT NETWORKS (TEN-T) PROJECT
Contract No. 2011-EU-92079-S

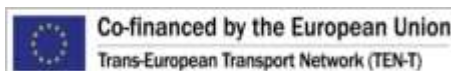
PARTNERS



SUPPORTERS



CO-FINANCED BY



WORKING METHOD



ASSOCIATED PARTNERS



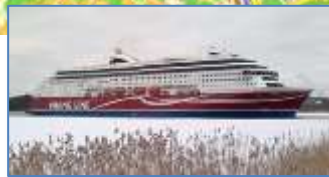
THE LOCATIONS

DAY 01

Ports of Stockholm, Frihamnshallen (Magasin 9) Frihamnsgatan 66 More info: www.stockholmshamn.se/en/About-us/Head-Office/



Stockholm
Central Station



DAY 02

Boarding M/S VIKING GRACE, Stadsgårdskajen More info: www.sales.vikingline.com/en/international/book-pay-change/good-to-know/port-info/stockholm/

WELCOME

Welcome to our first workshop of the Make A Difference project, this time it is held in Stockholm.

May 20: Ports of Stockholm.

“Ship-to-Ship bunkering of Liquid Natural Gas in the middle of Stockholm, simultaneously with passenger & cargo handling.”

May 21/22: M/S VIKING GRACE.

“The latest developments with focus on LNG bunkering operation & safe and efficient technology (both ferry- & tanker ships).”

Hosting this event is Swedish Shipowners' Association. We like to take this opportunity to thank our Co-hosts Ports of Stockholm and Viking Line for their generous hospitality these two days.

We are glad that you take the opportunity to join us during the two days on LNG bunkering and safety. We look forward to interesting presentations, active discussions and fruitful meetings with other stakeholders.

*Capt. Tryggve Ahlman, SSA,
Workshop Host and Moderator
+46 (0) 708 68 29 66*



Launch of Make A Difference in December 2012



Hazard identification workshops for an LNG fuelled product tanker (Activity 1) and parallel bunkering and handling of cargo and passengers (Activity 6), May 6-7th 2013.

AGENDA DAY 01

May 20, Ports of Stockholm, Frihamns Hallen (Magasin 9) Frihamnsgatan 66

13:30 Registration and Coffee

Session 01 Key notes and Introduction

14:00	Welcoming address	Johan Castwall, Ports of Stockholm
14:10	Make A Difference in context of the shipping industry	Susanne Abrahamsson, SSPA Sweden AB
14:25	Swedish Action plan for Shipping	Ingela Bendrot, Ministry of Enterprise, Energy and Communications, Sweden
14:50	Shipping, a logistic chain	Christer Schoug, Swedish Shipowners' Association (SSA)
15:10	Coffee break (and time for press interviews)	

Session 02 Shipping and LNG bunkering in practice

15:40	LNG in the Ports of Stockholm	Henrik Cars, Port of Stockholm
15:55	Viking Grace - Experience from running on LNG	Kari Granberg, Viking Line
16:10	The LNG bunker vessel SEAGAS	Jonas Åkermark, AGA Gas AB
16:25	Ship-to-Ship bunkering - first experience gained	Anders Bejre, Sirius Shipping AB
16:45	Summary and information about tomorrow	Tryggve Ahlman, SSA
17:00	Closing of Day 01	
17:00	See the LNG bunker vessel SEAGAS, - Mingle and buffet	See the vessel outside before the buffet

AGENDA DAY 02

Day 02: May 21–22, M/S VIKING GRACE Stadsgårdskajen (Stockholm-Åbo-Stockholm)

06:15	Boarding Watch the LNG bunkering process	Stadsgårdskajen Broadcast
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07:30 Check-in and breakfast

09:00	The Make a Difference Project	Edvard Molitor, SSPA Sweden AB
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Session 03 Safety concerns for LNG as a maritime fuel

09:20	LNG certification process for vessels and operators (MaD Activity 1)	Johan Gärdin, DNV Sweden AB
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10:10 Coffee break

10:30	Risk assessment of parallel bunkering and passenger handling on a ferry (MaD Activity 6.1)	Johannes Hüffmeier, SSPA Sweden AB
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10:50 Risk assessment of parallel bunkering and bulk cargo handling on a tanker (MaD Activity 6.2)
Johan Gärdin, DNV Sweden AB

11:30	Lunch	Buffet Aurora
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Session 04 The Viking Grace

13:45	Safety and reliability of LNG fuelled engines	Sören Karlsson, Wärtsilä
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14:00 Experience of operating an LNG fuelled vessel so far
Kari Granberg, Viking Line

14:10	Tour of the engine room and facilities of Viking Grace	Kari Granberg, Viking Line
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15:40 Coffee break

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AGENDA DAY 02

Day 02: May 21–22, M/S VIKING GRACE (Stockholm-Åbo-Stockholm)

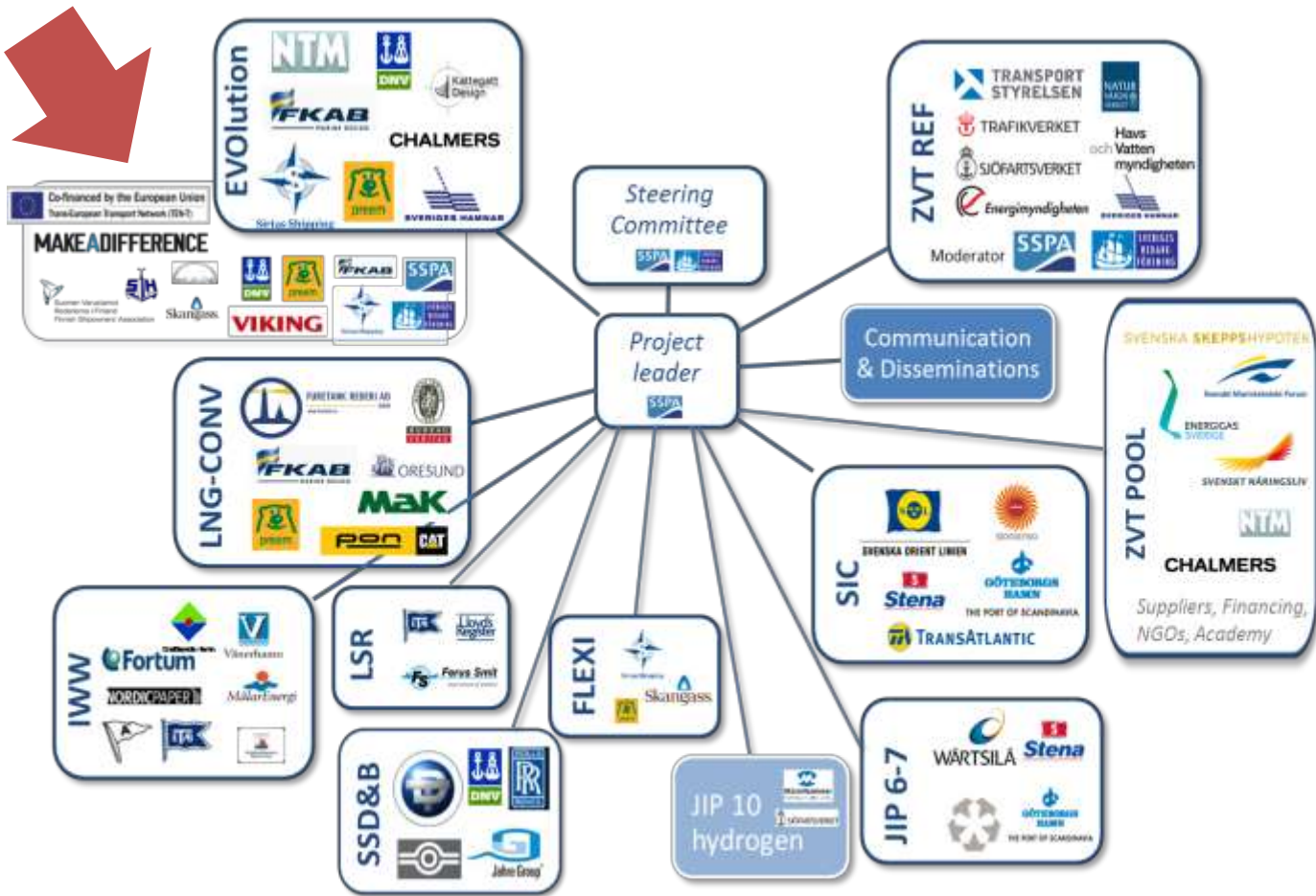
Session 05 An overview of European projects on use of LNG

16:10	Make a Difference – Next step and future activities	Magnus Wikander, FKAB Richard Robertsson, Preem AB
16:20	The LNG in Baltic Sea Ports Project	Per-Olof Jansson, Port of Helsingborg
16:35	The Tornio ManGa LNG Project	Tuomo Rytkölä, Tornio ManGa LNG
16:50	Coffee break	

Session 06 Panel discussion and Summary

17:10	Panel discussion and questions	Anders Bejre, Sirius Shipping AB Henrik Cars, Ports of Stockholm Kari Granberg, Viking Line Johan Gärdin, DNV Sweden AB Roger Karlsson, SSPA Sweden AB Katarina Sundvall, Preem (TBC)
17:50	Summary and way forward	Johannes Hüffmeier, SSPA Sweden AB
18:00	Closing of day 02	
20:00	Dinner	Restaurant Oscar, à la carte
06:30	Return	Stadsgårdskajen, Stockholm

MAKE A DIFFERENCE – ONE OF THE ZVT JIPs



To read more about the Collaboration Method ZVT see page 08

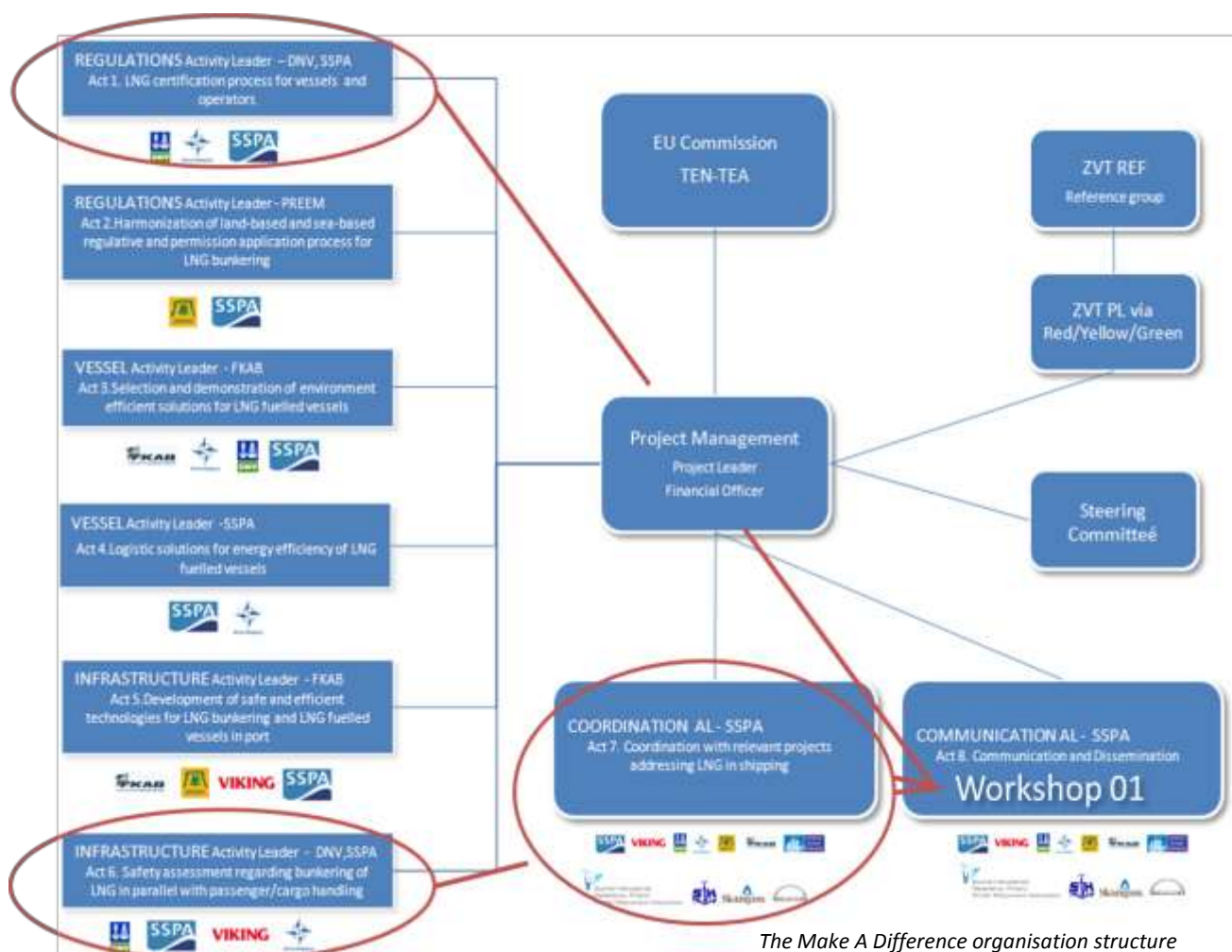
As Swedes and Finns we live in an Emission Control Area, which has been selected to hold a higher level of protection against pollution. For shipping this means that new technologies need to be tested, safety issues need to be assessed and the necessary infrastructure needs to be in place. The balance act is to conduct this work while maintaining competitive industry prices for transporting goods, so that quality of life for the citizens can remain stable.

One of the ways forward is to use LNG as fuel. An application was sent to the Trans

European Network, TEN-T, asking to co-fund the Make a Difference project, which main aim is to identify, minimize and if possible eliminate some of the thresholds when it comes to building and operating a dual fuel vessel, with LNG in focus and respect to integrated operation in port. EU agreed and is now co-financing the project via TEN-T.

At this first Make a Difference Workshop we will share first results and discuss the outcome. For more project information please visit www.zerovisiontool.com/MaD

MAKE A DIFFERENCE – REGULATIONS & INFRASTRUCTURE



The Make A Difference organisation structure

The Joint Industry Project (JIP) Make a Difference is a cooperation between: Sirius Shipping, Preem, Viking Line, FKAB, DNV, Swedish Shipowners' Association and SSPA. It is supported by Finnish Shipowners' Association, Ports of Stockholm, MAN and Skangass.

It is cofunded by EU via Ten-T and it is using the Zero Vision Tool Collaboration method for guidance, dissemination and sharing results.

At this first Workshop we also appreciate the contribution from AGA and Wärtsilä as

associated partners, from the Swedish Ministry of Enterprise, Energy & Communications and from two other ongoing LNG projects; LNG in the Baltic Sea and Tornio Manga LNG.

Make a Difference is organised according to the ZVT method for JIPs where the different planned activities look into the areas of either Vessel, Infrastructure, Finance, Regulation and/or R&D. At Workshop 01 we will give an introduction to the project itself, aims and share first results from Activity 01 (Regulations) and Activity 6 (Infrastructure).

THE PROJECT ACTIVITIES



Activity 1: LNG certification process for vessels and operators

The objective of this activity is to use the IMO guidelines (Resolution MSC.285(86); Interim Guidelines on Safety for Natural Gas-fuelled engine installations in ships) in a real case, where also the input from port countries will be incorporated. The suggested regulations in the draft "International Code of Safety for Gas-fuelled Ships" (IGF Code) that is under development at IMO will also be used and analysed during the work. This work will aim at certification of a specific vessel. This way, the practical problems and possible conflicting requirements can be identified and suggestions for changes/improvements in the regulation can be made.

Activity 2: Harmonization of land-based and sea-based regulative and permission application process for LNG bunkering

The ship owner faces regulations and technical limitations in ports when bunkering LNG. Several of the obstacles of the permit process are associated with the land side of the infrastructure needed. For example, the construction of LNG terminals needs building permits in most countries. This implies that municipalities of national building or planning authorities are involved in the process. The participation of ports in this study therefore gives valuable input and transfer of knowledge and experience from the land side.

Activity 3: Selection and demonstration of environment efficient solutions for LNG fuelled vessels

Many ships built today are far from optimal when it comes to energy efficiency and environmental performance. Selecting the most suitable available technology will bring significant improvements. This activity foresees the preparation of an inventory of available and emerging technologies, focusing on LNG. Some of the identified solutions will be implemented and demonstrated in the design of the EVolution vessel. The identification and ranking of technologies will be done in a work-group meeting. By using groups of experienced designers together with ship-owners, researchers and makers a balance between performance, economy and possibility to use in practice will be found.

Activity 4: Logistic solutions for energy efficiency of LNG fuelled vessels

About half of the envisaged energy savings in shipping are supposed to come from operational improvements. Apart from the solutions onboard, there are many external circumstances affecting the operation, e.g. the choice of LNG bunkering method affects the overall logistics and operation of the vessel. In this activity the logistic solutions and their effect on the environmental efficiency will be studied. The aim is to demonstrate ways to plan and perform the transport in the best possible way, taking into account all the stakeholders along the route. The commercial, legal and traditional

THE PROJECT ACTIVITIES

set-up of sea transportation and its impact on the efficiency will be studied. Suggestions of organizational and technical areas where changes can make a difference will be presented.

Activity 5: Development of safe and efficient technologies for LNG bunkering

The main obstacle to the introduction of LNG as fuel for ships is the bunkering process and the technical equipment needed. The technical and operational problems and obstacles with LNG bunkering are most often connected to the harmonization of different technical systems. This activity will identify, analyse and demonstrate technical solutions for efficient and safe bunkering. Risk and safety issues will be analysed, looking at possible technical solutions and risk reduction measures.

Activity 6: Safety assessment regarding bunkering of LNG in parallel with passenger/cargo handling

Bunkering must be performed without unnecessary time loss to make LNG operations competitive. Bunkering processes are aimed to take place in parallel with passenger and cargo operations.

Activity 7: Coordination with relevant projects addressing LNG in shipping

The project contains a large number of stakeholders and issues for implementation of LNG infrastructure. It is positioned in a flow of ongoing activities, rule-making and political measures planned to prepare for a more environmentally-efficient shipping and transport development in Europe. It is therefore crucial that the results, work, and findings are coordinated with other relevant projects and initiatives to avoid overlapping and obtain consolidated and consistent conclusions.

Activity 8: Communication and Dissemination

Workshops prel. topics

1. Regulation & Infrastructure: Safety in theory and real life
2. Vessel
3. Infrastructure
4. A Final Dissemination Conference

Prel. Dates and Prel. Host

1. 20–21/22 May 2013, hosted by Swedish Shipowners' Association. Co-hosts Ports of Stockholm and Viking Line.
2. Q4 2013, Sirius
3. Q2 2014, Preem
4. December 2014

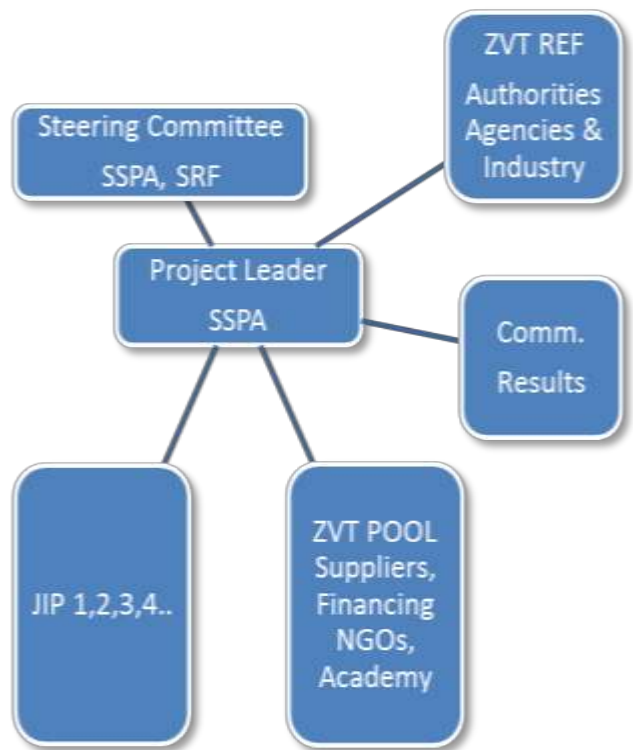
Updates and information spread at www.zerovisiontool.com/MaD

ZERO VISION TOOL (ZVT) in short

In 2009 the Swedish Shipowners' Association (SSA) decided, as the first Shipowners' Association in Europe, to support the EU Commission's vision of a maritime industry without negative impacts to air and water described in the Maritime Strategy 2009-2018. This decision led to different initiatives, for example the 2010 co-operation with Ports' of Sweden "Baltic Sea Position" (www.balticseaposition.com). The main conclusion from these initiatives was that to tackle the 2015 challenges and reach the vision, you have to cooperate on a broader basis, with all involved stakeholders.

With the aim to concretize the zero emission vision, the next step was therefore taken together with SSPA in 2011. SSPA acts as a bridge between theory and practice, between research and implementation in the maritime industry. Together they have established the Zero Vision Tool (ZVT), a collaboration method for a more safe, environmentally and energy efficient transport by sea.

Make a Difference is one of the Joint Industry Projects that is using the tool as well as the established ZVT organizational chart for Joint Industry Projects (JIP); Vessel, Infrastructure, Finance, Regulations and R&D . The different areas are looked into, activities are planned and representatives for the different areas are included in the project.



The ZVT organisation structure

For guidance and help the JIPs have access to ZVTREF, the ZVT reference group comprising representatives from the Transport Agency, Maritime Administration, Transport Administration, Agency for Marine & Water Management, Environmental Protection Agency, Energy Agency, Ports' of Sweden, SSA and it is moderated by SSPA.



The JIP organisation structure

PARTICIPANTS WORKSHOP 01

Name	Organisation	Country	Days
Jonas Åkermark	AGA	Sweden	Day 01
William Wayne	Argent Marine Management, Inc	USA	Both
Johan Lennartsson	Alfa Laval Lund AB	Sweden	Both
Emil Arolski	BPO / LNG in Baltic Ports	Poland	Both
Fredéric Pouget	Brittany Ferries	UK	Both
Vincent Delile	Brittany Ferries	UK	Both
Brice Robinsson	Brittany Ferries	UK	Both
Jean-Jacques Juenet	Bureau Veritas Head Office	France	Both
Bengt Sangberg	Bureau Veritas Marine & Offshore	Sweden	Both
Olivier Fouilland	Bureau Veritas Marine Division	France	Both
Valeria Novella	Calisa S.p.A.	Italy	Both
Lorenzo Maticena	Caronte & Tourist Spa	Italy	Both
Finn Vogler	Caterpillar Marine Power Systems	Germany	Both
Tomas Olsson Neptun	Chalmers	Sweden	Both
Bruno Mazzarello	Ciane S.p.A.	Italy	Both
Fiona Macrae	Crowcon Detection Instruments, Ltd	UK	Both
Jesper Adler	Crowcon Detection Instruments, Ltd	UK	Both
Anders Friberg	CRYO AB	Sweden	Both
Hans Gustavsson	CRYO AB	Sweden	Both
Christer Bruzelius	Destination Gotland	Sweden	Both
Johan Gärdin	Det Norske Veritas Sweden AB	Sweden	Both
Kari Elliot	Elliot Consulting Sweden Ltd	Sweden	Both
Osborne Johansson	FKAB Marine Design	Sweden	Both
Magnus Wikander	FKAB Marine Design	Sweden	Both
Nils Jarle Lindtner	Gasnor	Norway	Both
Elena Skoryna	Gazpromneft Marine Bunker, Ltd	Russia	Both
Andrey Vasilyev	Gazpromneft Marine Bunker, Ltd	Russia	Both
Elena Kapysh	Gazpromneft Marine Bunker, Ltd	Russia	Both
Dmitry Kine	Gazpromneft Marine Bunker, Ltd	Russia	Both
Pierre- Yves Duclos	GDF Suez SA	France	Both
Håkan Johansson	Gotlandsbolaget	Sweden	Both
Maurice Evain	Grand Port Maritime de Dunkerque	France	Both

PARTICIPANTS WORKSHOP 01

Name	Organisation	Country	Days
Andrew Sheen	Irish Ferries Ltd	UK	Both
Jukka Oravainen	Kosek	Finland	Day 01
Ulf Bäckström	MAN Diesel & Turbo Sverige AB	Sweden	Both
Anders Eskilsson	Mann Teknik AB	Sweden	Both
Per Nyberg	Mann Teknik AB	Sweden	Both
Guanying Li	Mann Teknik AB	Sweden	Both
Przemyslaw Lenard	Maritime Office in Szczecin	Poland	Both
Julita Osadowska	Maritime Office in Szczecin	Poland	Both
Ulf Freudendahl	MARU Teknik AB	Sweden	Both
Ingela Bendrot	Ministry of Enterprise, Energy and Communication's	Sweden	Day 01
Magnus Swahn	NTM/Conlogic	Sweden	Day 01
Svein-Hugo Nielsen	NORLED	Norway	Both
Luca Stegagnini	Ottavio Novella S.p.A.	Italy	Both
Werner Weijts	Port of Antwerp	Belgium	Both
Tessy Vanhoenacker	Port of Antwerp	Belgium	Both
Jörgen Wallroth	Port of Gothenburg	Sweden	Both
P-O Jansson	Port of Helsingborg	Sweden	Both
Andreas Slotte	Port of Helsinki	Sweden	Both
Johan Castwall	Ports of Stockholm	Sweden	Both
Sandra Gegerfeldt	Ports of Stockholm	Sweden	Both
Henrik Cars	Ports of Stockholm	Sweden	Both
Ola Roslin	Ports of Stockholm	Sweden	Both
Gun Rudeberg	Ports of Stockholm	Sweden	Both
Kärt Madiberk	Port of Talinn	Estland	Both
Siiri Lõhmus	Port of Talinn	Estland	Both
Kalvin Baugh	Portsmouth International Port	UK	Both
Katarina Sundvall	Preem AB	Sweden	Both
Richard Robertsson	Preem AB	Sweden	Both
Ludovic Laffineur	Royal Belgian Shipowners' Association	Belgium	Both
Eric D Nilsson	Rederi AB Gotland	Sweden	Day 01
Lena Göthberg	SAI - The Istitute of Shipping Analysis	Sweden	Day 01
Giovanni Masucci	Scafi Società di Navigazione S.p.A.	Italy	Both

PARTICIPANTS WORKSHOP 01

Name	Organisation	Country	Days
David Edwards	SeaTechnik/Trelleborg Marine Systems UK Ltd	UK	Both
Jonas Backman	Sirius Shipping AB	Sweden	Both
Anders Bejre	Sirius Shipping AB	Sweden	Both
Sara Eriksson	Sirius Shipping AB	Sweden	Both
Anna Hammargren	Sjöfartsforum	Sweden	Day 01
Henrik Wärnberg	Sjöfartshögskolan Kalmar	Sweden	Both
Christer Schoug	Swedish Shipowners' Association	Sweden	Both
Tryggve Ahlman	Swedish Shipowners' Association	Sweden	Both
Carl Carlsson	Swedish Shipowners' Association	Sweden	Both
Iréne Fällström	Swedish Shipowners' Association	Sweden	Day 01
Marie Talcott	Swedish Shipowners' Association	Sweden	Day 02
Susanne Abrahamsson	SSPA	Sweden	Both
Edvard Molitor	SSPA	Sweden	Both
Alexandra Bakosch	SSPA	Sweden	Both
Björn Forsman	SSPA	Sweden	Both
Roger Karlsson	SSPA	Sweden	Both
Helén Jansson	SSPA	Sweden	Day 01
Johannes Hüffmeier	SSPA	Sweden	Both
Wade Carson	STX Canada Marine	Canada	Both
Lars Johansson	Svenska Skeppshypotekskassan	Sweden	Both
Anders Korsgren	Svenska Skeppshypotekskassan	Sweden	Both
Alf Brodin	Trafikverket	Sweden	Both
Tuomo A. Rytkölä	Triangle Partners Oy	Finland	Both
Markku Alahäme	Turun Satama Oy/ Port of Turku Ltd	Finland	Both
Timo Laitinen	Turun Satama Oy/ Port of Turku Ltd	Finland	Both
Kari Granberg	Viking Line	Finland	Both
Sören Karlsson	Wärtsilä	Finland	Both
Göran Österdahl	Wärtsilä	Finland	Both
Christer Sandqvist	ÅF Industry	Sweden	Both

GOOD TO KNOW

Day 01

Venue

Please Note! The conference takes place in Frihamnshallen (Magasin 9, Frihamnsgatan 66) which is located in the far end of the pier in Frihamnen.

The building is accessible by taxi or walking (approximately 600 m from Ports of Stockholm main office and the Tallink terminal in Magasin 2).

Security

Regarding port security, the ISPS-code is applicable to the port facilities. Participants of the conference must closely follow the instructions from the port staff, especially when visiting the quay.

Public transport

Buses to Frihamnen are no 1, 72 or 76. For more information go to

<http://sl.se/en/Visitor/Plan-your-journey/>

It is also possible to get to Frihamnen by boat, "Sjövägen". For more information visit www.sjovagen.nu/web/page.aspx?refid=32 and for time table;

<http://sl.se/ficktid/vinter/hsjovagen.pdf>

Day 02

Times

All stated times in the agenda are given in Swedish time.

Official arrival and departure time in Turku/Åbo is Finnish local time.

Boarding M/S Viking Grace

We meet 06.15am at the Viking terminal. Tickets will be handed out before we board together.

General regulations

All passengers travelling between Sweden and Finland must be able to show a valid ID card upon request. This also applies to passengers for whom a passport and/or visa is not required.

MAKE A DIFFERENCE - WORKSHOP 01

PARTNERS

www.siriusshipping.eu

www.preem.se

www.vikingline.se

www.dnv.se

www.fkab.se

www.sweship.se

www.sspa.se

SUPPORTERS

www.skangass.no

www.stockholmshamn.se

www.man.com

www.shipowners.fi

ASSOCIATED PARTNERS

www.aga.se

www.wartsila.com

HARMONISATION WITH OTHER LNG PROJECTS

www.lnginbalticseaports.com

www.torniomangalng.fi/en/

MAKE A DIFFERENCE

www.zerovisiontool.com/MaD

THE SWEDISH ACTION PLAN FOR SHIPPING

<http://www.regeringen.se/sb/d/108/a/207453>



VIKING



Skangass



Suomen Varustamot
Rederierna i Finland
Finnish Shipowners' Association

AGA



LNG

**TORNIO
ManGaLNG**



REGERINGSKANSLIET
Government Offices of Sweden