



# WPCI LNG Fuelled Vessels Working Group

## Terms of Reference

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World  
Ports  
Climate  
Initiative

DRAFT

Working paper of the WPCI LNG workinggroup

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# 1 MEMBERS OF WPCI LNG WORKING GROUP

## 1.1 Confirmed Active Ports

Carla	Jong	Amsterdam
Peter	Alkema	Amsterdam
Tessa	Major	Antwerp
Karina	Wieseler	Bremen
Carsten	Lorleberg	Brunsbüttel
Kristen	Ziegler	Brunsbüttel
Sven	Hargens	Brunsbüttel
Masoud	Tamer	Fujairah
Pablo	Fernandez	Gijón
José Antonio	Lago	Gijón
Ainhoa	Puebla	Gijón
Susann	Dutt	Gothenburg
Hendrik	Hollstein	Hamburg
Fer	Van de Laer	IAPH
Jean-Paul	Raffini	Le Havre
Nicolas	Chervy	Le Havre
Carter	Atkins	Los Angeles
Eric	Caris	Los Angeles
Alan	Dirks	Rotterdam
Cees	Boon	Rotterdam
Ingrid	Römer	Rotterdam
Maurits	Prinssen	Rotterdam
Renate	Westendorf	Rotterdam
Wim	Hoebee	Rotterdam
Ola	Joslin	Stockholm
Henrik	Cars	Stockholm
Jan-Hinnerk	Faida	Wilhelmshaven
Amedé	Van Herreweghe	Zeebrugge
Paul	Schroé	Zeebrugge

## 1.2 Confirmed Consulting Ports

Taranaki	Valencia	Adelaide
NY & NJ	Broome	Singapore
Valencia	Long Beach	Talinn
Flinderports	La Spezia	

## 1.3 Interested Ports

Peel Ports Medway	Gibraltar	Jacksonville
San Francisco	Peel Ports Liverpool	Nagoya
Marseille	Barcelona	Busan

Oslo	Everglades	Tanzania
Frederikstadt	Lisbon	Longview
Dublin	Oakland	Indonesia
Dover	Gent	Tacoma
Livorno	Gibraltar	Jeddah
Johor	Marseille	Mauritus
Cork	Lubeck	

## 1.4 Industry Reference Group

SGS Oil, Gas and Chemicals	US Flag Carriers	Fluxys
Haesaerts Intermodal NV	Veka-Group	Shell
SeaTechnik	Maritime Consults	Gasnor
Gladstein	Brittany Ferries	AGT
Dabba Energy	Moffatt Nichol	DNV/GL Group
John W. Stone Oil Distributor LLC	Gaztransport & Technigaz	....
Clean Energy	SP-SMA	
Buss Port Logistics	NABU	
Zeus Development Corporation	Chevron	
NASSCO	Matson	
Boskalis	Chart Industries	
EACOM	Associated British Ports	

# 2 INTRODUCTION AND GOAL

## Background

The shipping industry is showing increased interest in the use of LNG (Liquefied Natural Gas) as a fuel for vessels. It is generally expected that by 2015 a number of progressive shipping lines will lead the way and will have LNG-powered vessels in their fleet, presenting a challenge for Ports around the world and shipping lines. Some vessels today are already LNG-powered and more are on order. According to a recent study from the Danish Maritime Authority the current use of natural gas within the SECA-zone is expected to increase by 140% by 2020, due to the use of LNG as a shipping fuel and usage on land by trucks and buses. LNG offers substantial environmental benefits in comparison to conventional fuels. Sulphur and particle emissions would be reduced to almost zero, nitrogen oxide emissions by 85-90 per cent and net greenhouse gases by 15-20 per cent.

## Objectives

Focusing on the use of LNG as a marine fuel, an "LNG Fuelled Vessels Working Group", has been established under the auspices of IAPH's World Ports Climate Initiative (WPCI). The Working Group is tasked for one to harmonize rules and regulations concerning LNG as a fuel between ports and raise awareness in the port community of the need for action concerning LNG as fuel. This is accomplished by developing an implementation guideline on safe procedures for LNG bunkering operations creating LNG awareness in ports and producing a website on LNG, that provides a one stop shop for all LNG related questions that ports may have.

LNG is a clean and cost competitive fuel meeting the upcoming 2015 IMO regulations. LNG is a ship's fuel of the future. Ports are preparing to offer safe storage and bunkering of LNG for shipping lines in or near their port areas.

The Working Group consists of three sub-Working Groups:

- LNG Bunkering Checklist and Accreditation
- LNG Bunkering Risk Perimeters
- LNG Awareness

### **Invitation to participate (in the reference group)**

The Port of Antwerp is chairing the project. The Ports of Amsterdam, Bremen/Bremerhaven, Brunsbüttel, Gothenburg, Hamburg, Le Havre, Los Angeles, Rotterdam, Stockholm and Zeebrugge are active participants in the Working Group. Participation in the Working Group is open to all ports, as an active participant or member of the reference group. The Working Group maintains close contacts with industry stakeholders currently using and/or handling LNG, as well as government agencies.

Industry partners are invited to be part of the reference group, allowing immediate feedback and validation of outcomes. Industry experts are also invited to be active contributors and share their expertise in the sub-Working Group “LNG Bunkering Checklist and Accreditation”.

## **3 WORKING GROUPS**

### **3.1 SWG 1: Bunker Checklist and Accreditation**

#### **Action leader**

Port of Rotterdam

#### **Participants**

- Amsterdam
- Antwerp
- Brunsbüttel
- Hamburg
- Stockholm
- Zeebrugge
- Gothenburg

#### **Objective**

The Bunker Checklist and Accreditation Sub-Working Group (BCA-SWG) will create a guidance document to promote harmonized LNG bunker checklists for known LNG bunkering scenarios. These checklists will reflect the extra requirements of ports with regards to LNG bunkering operations in or near their port environment.

A majority of participating ports within the BCA-SWG recognize the need for a method or instrument of accreditation for bunker companies. The aim of this accreditation system is to obtain and maintain a high level of quality and responsibility of the LNG bunker operators. A guideline for the content of this accreditation system will be elaborated in this BCA-SWG, and should mirror as much as possible already existing accreditation systems.

#### **Benefits**

Implementing harmonized bunker checklists in ports will be of great benefit to the vessels (and their crew) bunkering in LNG in other ports as well by reducing the potential of confusion caused having to comply to different rules and regulations in different ports.

The objective of this guideline for accreditation is that if a bunker company receives an accreditation of one port, that this accreditation as much as possible can also be accepted in other ports across the globe. Additionally, an accreditation system will help

to secure a minimum safety level of the LNG bunkering companies operating in the ports and as such help to maintain the very good safety record of the LNG industry.

### **Limitations**

It is clear that there are differences between ports as ports inherently have different characteristics (in layout, types of activities, location, traffic density,...). This may have an impact on the extent in which the bunker checklists can be harmonized between ports, e.g. in size of the minimum risk perimeter for LNG bunker operations (cfr 3.2.1).

If the bunker checklist is too extensive it could lead to the checklist to being a tick-and-flick document.

LNG bunkering companies can be conventional bunkering companies expanding their activities to include this new fuel for shipping and can also be existing LNG distribution and sales companies that include LNG as fuel in their business. The profiles of these two types of companies are not the same, yet the guideline for the accreditation system should not differentiate between these two types of companies nor create a benefit for one of these types of companies. As such the guideline for accreditation should be non-discriminatory in this respect.

### **Scope**

The BCA-SWGI proposes harmonized LNG bunker checklists for all known LNG bunkering scenarios. These checklists will reflect the extra requirements of ports with regards to LNG bunkering operations in or near their port environment.

The checklists under development are for the following LNG bunkering operations:

- Truck-to-ship
- Ship-to-ship
- Shore-to-ship

The BCA-SWG does not propose harmonized checklists for the use of mobile tanks. This issue is mainly to be addressed by the shipping company and classification society.

Nevertheless the Working Group stresses the importance of a high quality of these mobile tanks and proposes them to be super vacuum insulated and the material of the outer vessel to be either stainless steel or carbon steel (i.e. with sufficient mechanical and thermal resistance up to temperatures of 700° C and even higher).

The checklists will include:

- A pre-Bunker Operations checklist and a pre-LNG Transfer checklist
- LNG Transfer Data
- Post-LNG Transfer checklist

In the checklist conditions concerning safe handling and communication will be included.

Some ports might choose the method of accreditation for bunker companies based on certain conditions. A guideline on the content of this accreditation system will be developed by the BCA-SWG. This guideline should mirror as much as possible the already existing accreditation systems, e.g. in Gothenburg and Antwerp, for the conventional bunkering companies. Hence the guideline will include criteria/items such as training, minimum safety levels, emergency response, etc. It is however not the goal of the Working Group to re-invent the wheel and/or redo work that is already being done by other groups and organizations working on LNG. Preferably the Working Group can refer to deliverables of other Working Groups in the guideline.

### **Result**

1. Harmonized LNG bunker checklists:

- Truck-to-ship
  - Ship-to-ship
  - Shore-to-ship
2. A guideline for an accreditation system for LNG bunkering companies operating in or near ports.

### **Schedule**

- April 2013: final feedback of ports on the truck-to-ship and ship-to-ship bunker checklist
- April 2013: initial feedback of ports on the shore-to-ship bunker checklist
- May – June 2013: completion of checklists
- October 2013: receive feedback of industry reference group on the bunker checklist
- December 2013: finalized 2<sup>nd</sup> draft of bunker checklist (taking feedback of industry reference group into account)
- Before summer 2014: finalization of bunker checklists (to be published on website of the working group cfr. § 3.3)
  
- January – February 2014: gather info on existing accreditation systems for bunkering companies operating in or near ports
- April 2014: draft guideline on accreditations systems for LNG bunkering companies in ports
- Before summer 2014: final guideline on accreditations systems for LNG bunkering companies in ports ((to be published on website of the working group cfr. § 3.3)

### **Target group**

- Ports
- Authorities
- Ship owners
- Existing bunkering companies
- Gas suppliers
- LNG terminal operators

## **3.2 SWG 2: Risk Perimeters**

### **Action leader**

Port of Antwerp

### **Participants**

- Amsterdam
- Bremen/Bremerhaven
- Brunsbüttel
- Hamburg
- Le Havre
- Los Angeles
- Zeebrugge

### **Objective**

Create an overview of currently implemented and enforced risk perimeters in or near ports, and provide guidance with regards to LNG bunkering operations.

### **Limitations**

It is apparent that there are national differences between the countries involved in the Risk Perimeters Sub-Working Group (RP-SWG) with regards to the risk assessment



methods, fail frequencies and the risk acceptance level among others. These differences limit the level of harmonization between the different ports regarding the approach to determine risk perimeters. It is however clear that there always will be some differences between ports as ports inherently have different characteristics (in layout, types of activities, location, traffic density,...) which may have an impact on the risk perimeters of LNG bunkering operations in or near the port environment as well.

Distances in combination with safety can be defined and named in different ways. Section 2.2.1 of this document provides an overview of the different definitions. The Working Group does not exclude any of the existing definitions in their end deliverables. The definitions of each of these 'distances' will be included in each deliverable of the Working Group.

## **Scope**

The scope involves four tasks.

### Task 1

Compile information on currently implemented and enforced LNG bunkering risk perimeters in ports. A questionnaire will be sent out to all IAPH members for this purpose.

The questionnaire will, among other topics address:

- Existing perimeters of conventional bunkering operations, LNG operations and LNG bunkering operations in the ports
- The modus operandi for determining perimeters for such operations in or near a port environment e.g. the approach to QRA's (including existing safety studies on LNG or conventional bunkering operations); what definitions are used for the establishment of perimeters
- ....

From the results of this questionnaire the Working Group will create part 1 of the end deliverable being an overview on currently implemented and enforced risk perimeters in or near ports with regards to (LNG) bunkering operations.

### Task 2

Provide a number of case studies of different ports on their modus operandi for the determination of risk perimeters of LNG bunkering operations in or near their port environment (and the implementation of these risk perimeters in their specific ports). These case studies will provide valuable information to other ports on what the possibilities are for determining risk perimeters for LNG bunkering operations in or near their port environment. These case studies could as such serve as inspiration and guidance for ports that have not yet determined risk perimeters for LNG bunkering operations.

### Task 3

Write a discussion paper explaining the necessity and importance of harmonization of risk perimeters between ports. Request the Reference Group to write a similar discussion paper from an industry perspective.

The intent is that relevant authorities would become aware of the differences of risk perimeters between countries, and to encourage developing common risk perimeters between ports. Harmonized risk perimeters will be of great benefit to the vessel operators and their crew while engaged in LNG bunkering operations in different ports by removing potential confusion caused by having to comply with different rules and regulations in different ports.

## **Result**

- Part 1: report on the existing LNG risk perimeters in different ports

- Part 2: case studies of different ports on their modus operandi for the determination of risk perimeters of LNG bunker operations in or near their port environment (and the implementation of these risk perimeters in their specific ports)
  - Antwerp
  - Rotterdam
  - Stockholm
  - Zeebrugge
  - Le Havre
  - ...
- Part 3:
  - A: a discussion paper on the need of harmonization of risk perimeters written by the ports participating the WPCI LNG Fuelled Vessels Working Group
  - B: a discussion paper on the need of harmonization of risk perimeters written by the reference group of the WPCI LNG Fuelled Vessels Working Group
- Appendix: responses of different ports to the questionnaire (if agreed upon by the responding ports).

### **Schedule**

- Now –May 2014: draft questionnaire
- June 2014: send out questionnaire + draft discussion paper of WPCI LNG Fuelled Vessels Working Group
- July- August: case studies of ports
- September: receive feedback on questionnaire
- October: draft of part 1 of end deliverable

### **Target group**

- Ports
- Authorities
- Ship owners
- Existing bunkering companies
- Gas suppliers
- LNG terminal operators

## **3.3 SWG 3: LNG Awareness**

### **Action leader**

Port of Amsterdam

### **Participants**

- Antwerp
- Bremen/Bremerhaven
- Gothenburg
- Brunsbüttel
- Rotterdam
- Los Angeles

### **Objective**

Sub-Working Group 3 will be responsible for creating support for the work and the results of the WPCI LNG Fuelled Vessels Working Group and creating LNG awareness in ports by using clear and unbiased information regarding LNG as a shipping fuel.

### **Limitations**

Sub-Working Group 3 works via a Communication plan concerning the Main message of the WPCI LNG Fuelled Vessels Working Group, The approach and type of information provide to the different target groups and way to reach them via different products.

### **Scope**

Sub-Working Group 3 will be responsible for creating support for the work and the results of the WPCI LNG Fuelled Vessels. This is of utmost importance as it will keep the WPCI LNG Working Group in close contact with the port authorities, industry partners and Terminal operators.

The means of communication of the Working Group include:

- Regular press releases concerning milestones reached by the Working Group and upcoming events such as reference meetings.
- Communication with Industry Reference Group and Consulting Ports Group
- Standard presentations on the WPCI LNG Fuelled Vessels Working Group to be used at conference or during meetings by active and consulting ports.
- Terms of reference with general information about the WPCI LNG Fuelled Vessels Working for interested parties.
- A guidance document with the results of working group 1 Bunker checklists and Accreditation and working group 2 Risk Perimeters. And how to anticipate on the rising awareness concerning LNG.

Sub-Working Group 3 is also responsible for creating LNG awareness in ports and is developing the WPCI LNG Fuelled Working Group website. The website will mirror the Onshore Power Supply website of the WPCI and functions as a one stop shop for all LNG related questions that ports and interested parties may have. The aim is that the website is seen as a central information point on LNG and can be referred to by the Working Group and ports as such.

### **Result**

1. Communication Plan to structure the communication of the WPCI LNG Fuelled Vessels Working Group.
2. Regular press releases to draw broad attention on the milestones reached by the Working Group.
3. An extensive Industry Reference Group and Consulting Ports Group supporting the WPCI LNG Fuelled Vessels Working Group and its deliverables.
4. Standard Presentation and Terms of reference to give equal information about the work and the results of the WPCI LNG Fuelled Vessels Working Group.
5. A guidance document to carry out the results of the WPCI LNG Fuelled Vessels Working Group.
6. A WPCI LNG Fuelled Working Group website to provide LNG awareness in ports.

### **Schedule**

The different communications deliverables depends on results from SWG 1 and 2 and the Working Groups meeting schedule. Such deliverables are dynamic documents and needs to be updated periodically.

- Communication plan: December 2012
- Power point presentation: May 2013
- Terms of Reference: November 2013
- Guidance Document: depends on results of Sub Working groups 1 and 2.
- Industry Reference group meeting: 8<sup>th</sup> of October 2013

- Press releases:
  - 28 March 2012, International ports workgroup prepares for storage and bunkering of LNG, Port of Antwerp takes the lead
  - 6 March 2013, Ports work together on cleaner fuels for shipping
- Website:
  - Sept 2013 - Oct 2013: draft call for tender web developer
  - Oct 2013: call for tender launched
  - Nov 2013: assignment is granted to 1 web developer + kick-off meeting
  - Nov 2013 – May 2014: development of website
  - Before summer 2014: WPCI LNG website goes live

**Target group**

- Port authorities
- Regulatory agencies
- Shipping industry
- Gas and oil industry
- Non-Governmental Organizations
- Private sector consultants

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