

# LNG – issues to be considered by Harbour Masters

7th EHMC Seminar

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Bremen, April 17

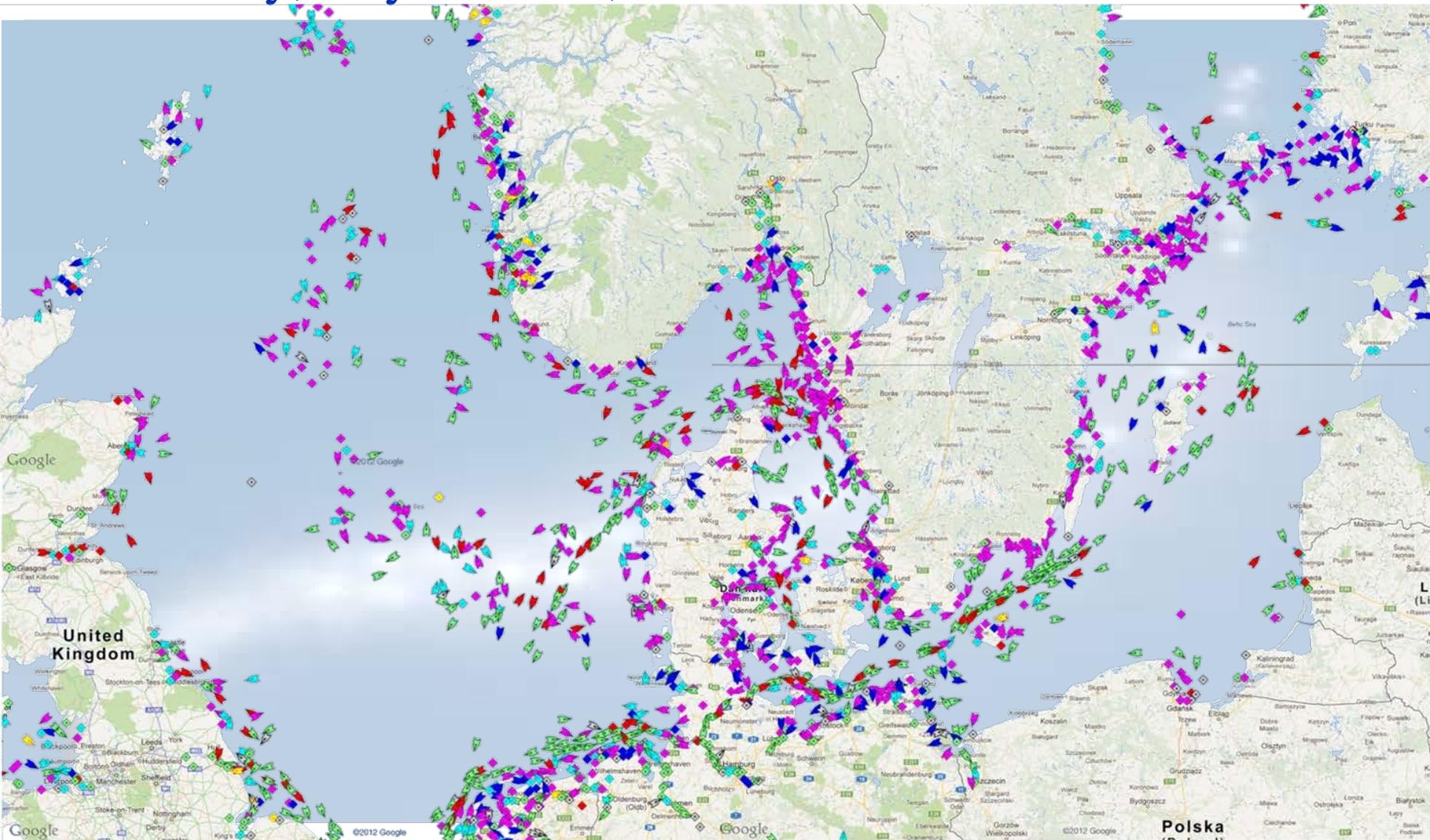


MANAGING RISK

DNV

- The market trends perspective
- The safety perspective
- Conclusions for harbour masters

# Wednesday, July 14 2012, 14:40h UTC



LNG – issues to be considered by Harbour Masters

Bremen, April 17

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# Two most important drivers...



Geo-politics

Demographic  
development

Economic  
development

Environmental  
response

Technology  
development

Energy  
availability

# ... define four scenarios



LOW ECONOMIC GROWTH

STRONG ENV RESPONSE



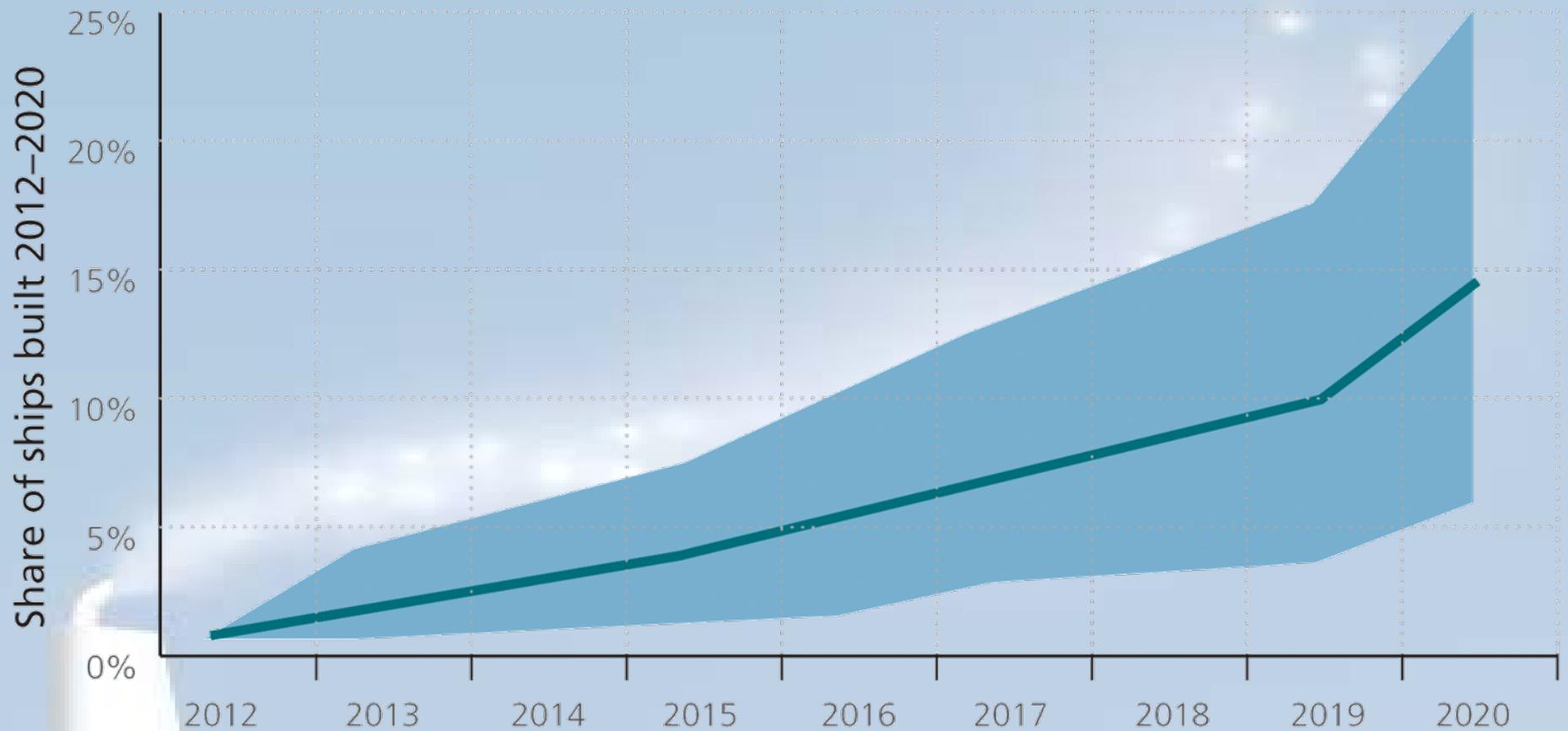
HIGH ECONOMIC GROWTH



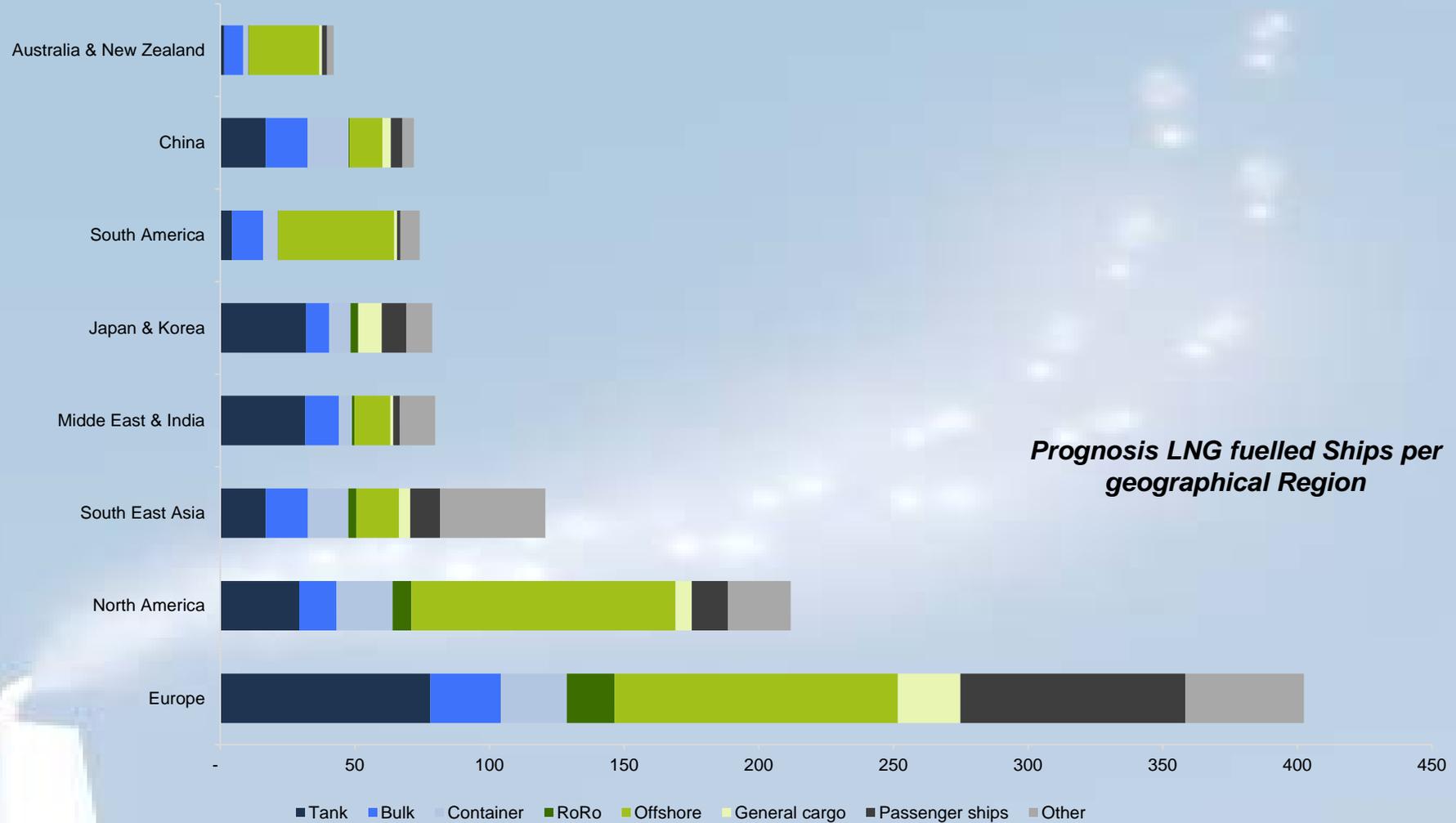
LIMITED ENV RESPONSE



# Prognosis LNG fuelled fleet, global

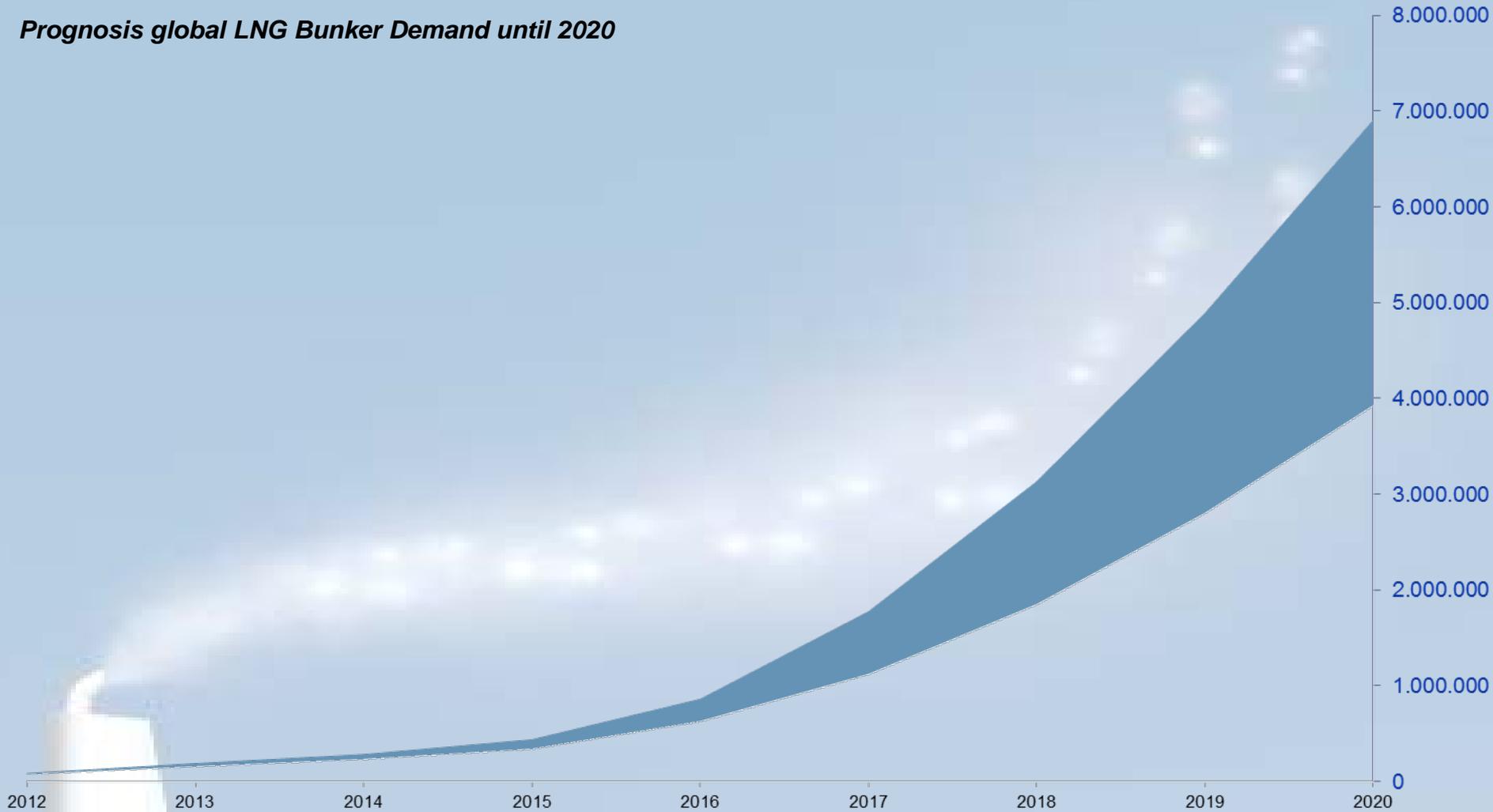


# 2020 – 1.000 Ships on LNG

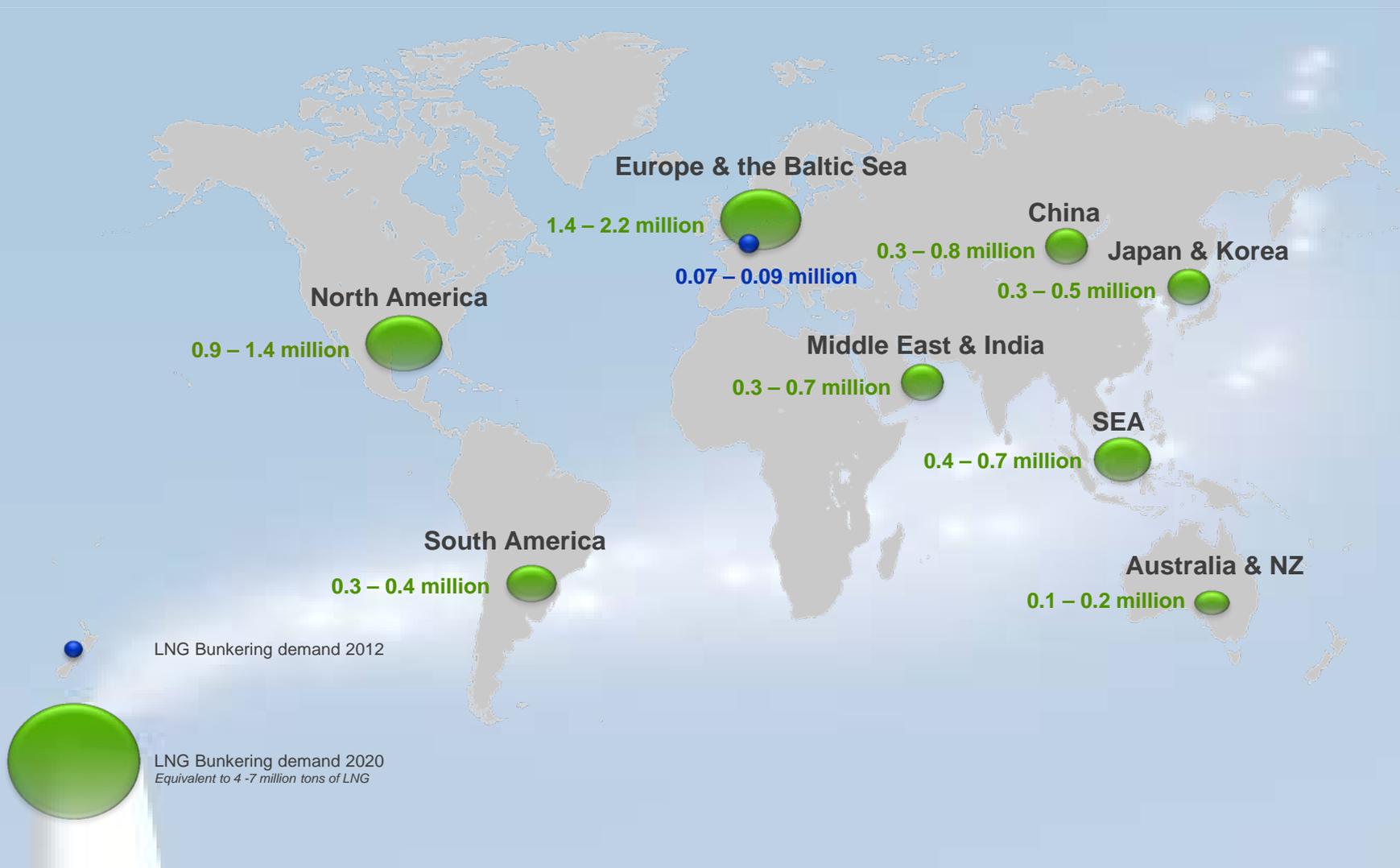


# 2020 – 1.000 Ships on LNG

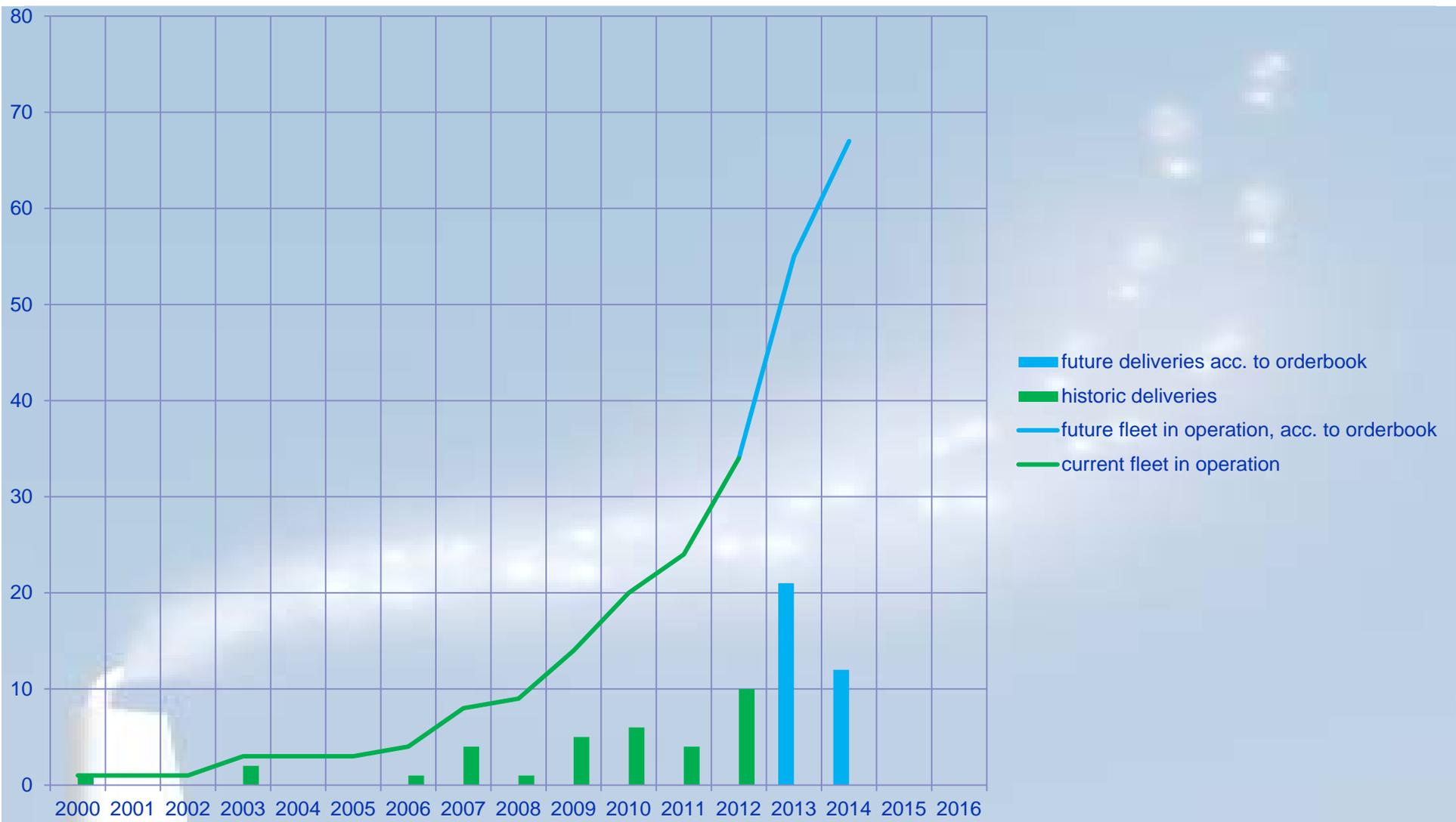
*Prognosis global LNG Bunker Demand until 2020*



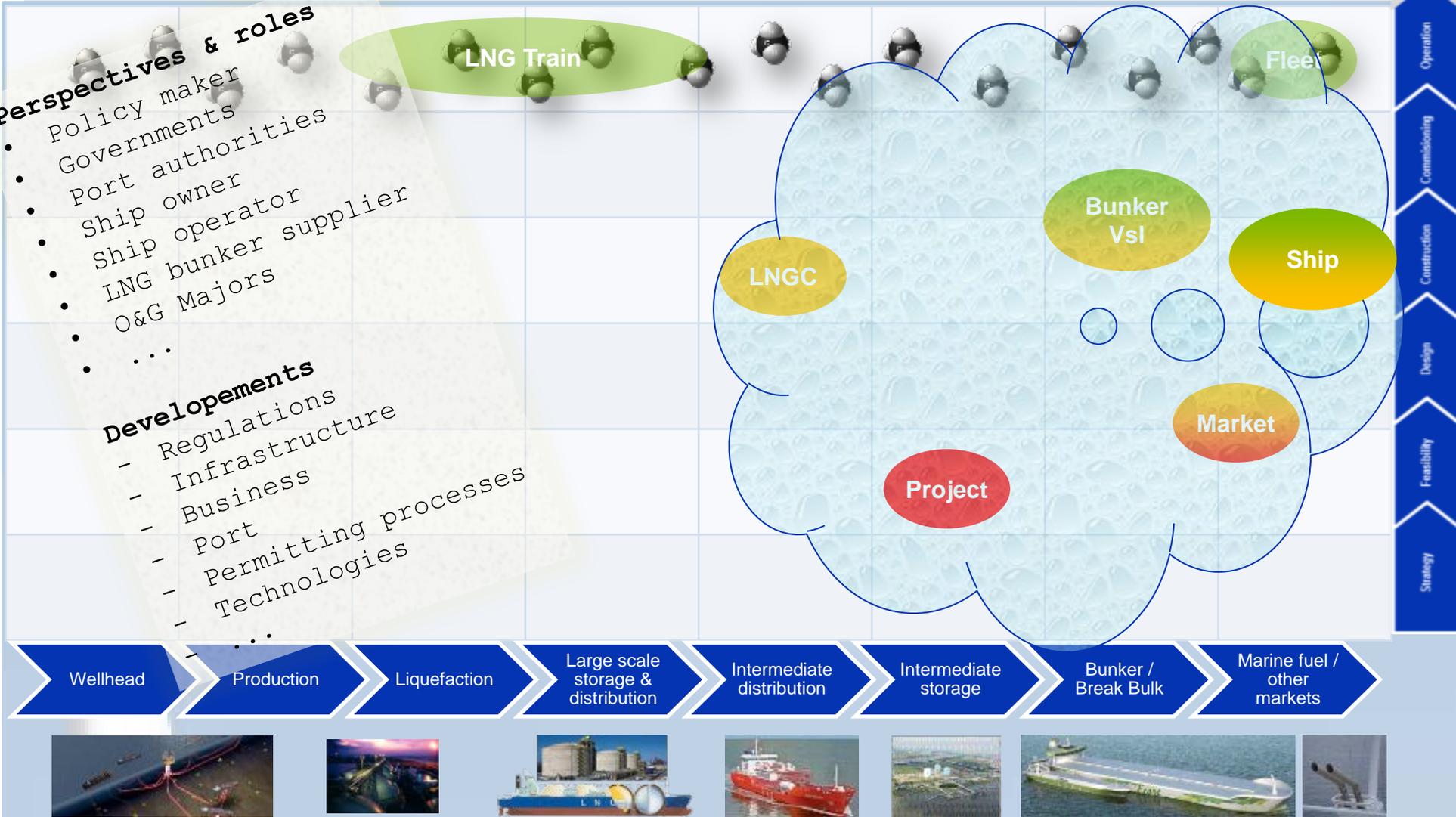
# Outlook – global LNG bunker demand by 2020



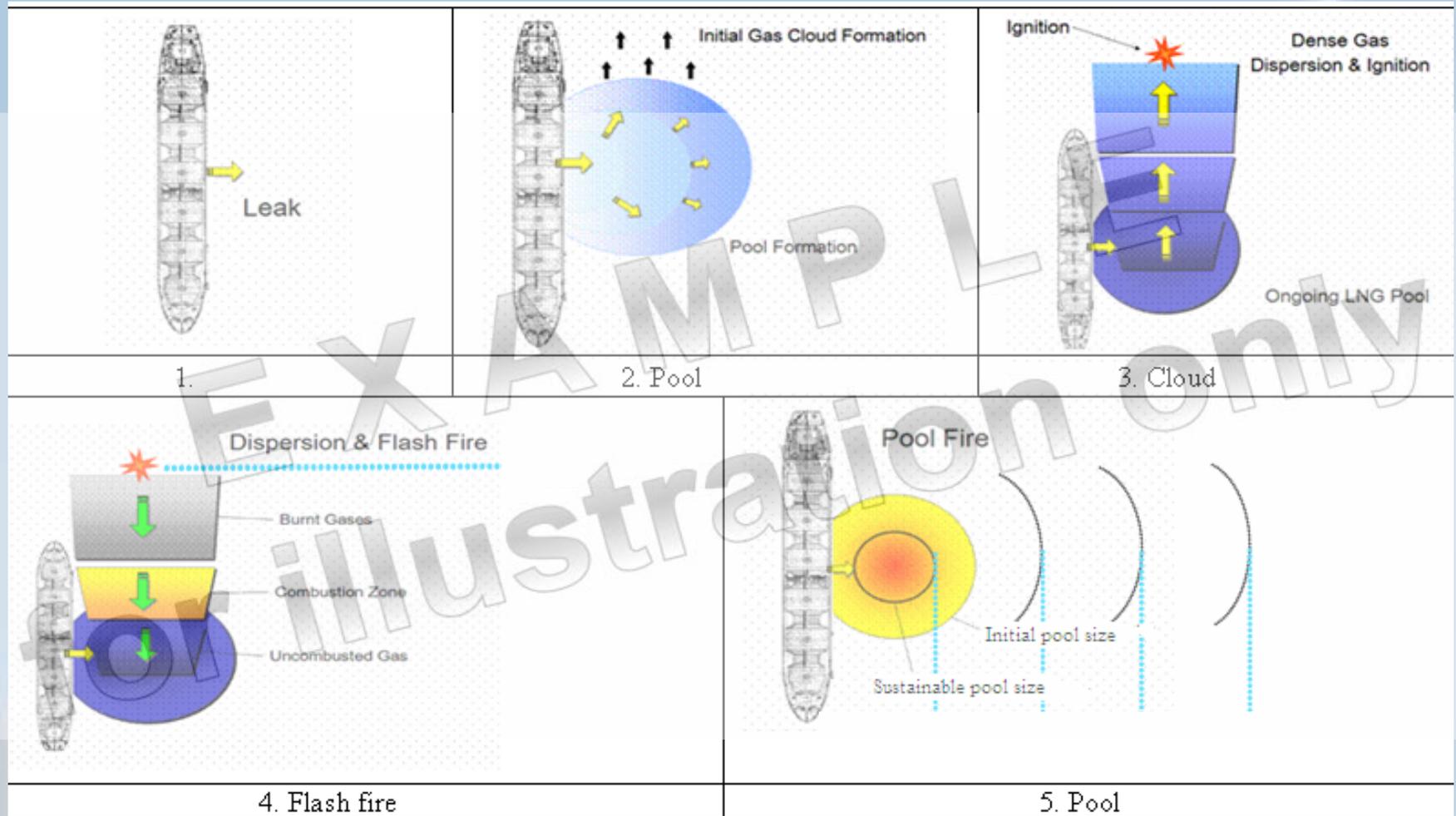
# 2013 – 55 Ships on LNG (year end)



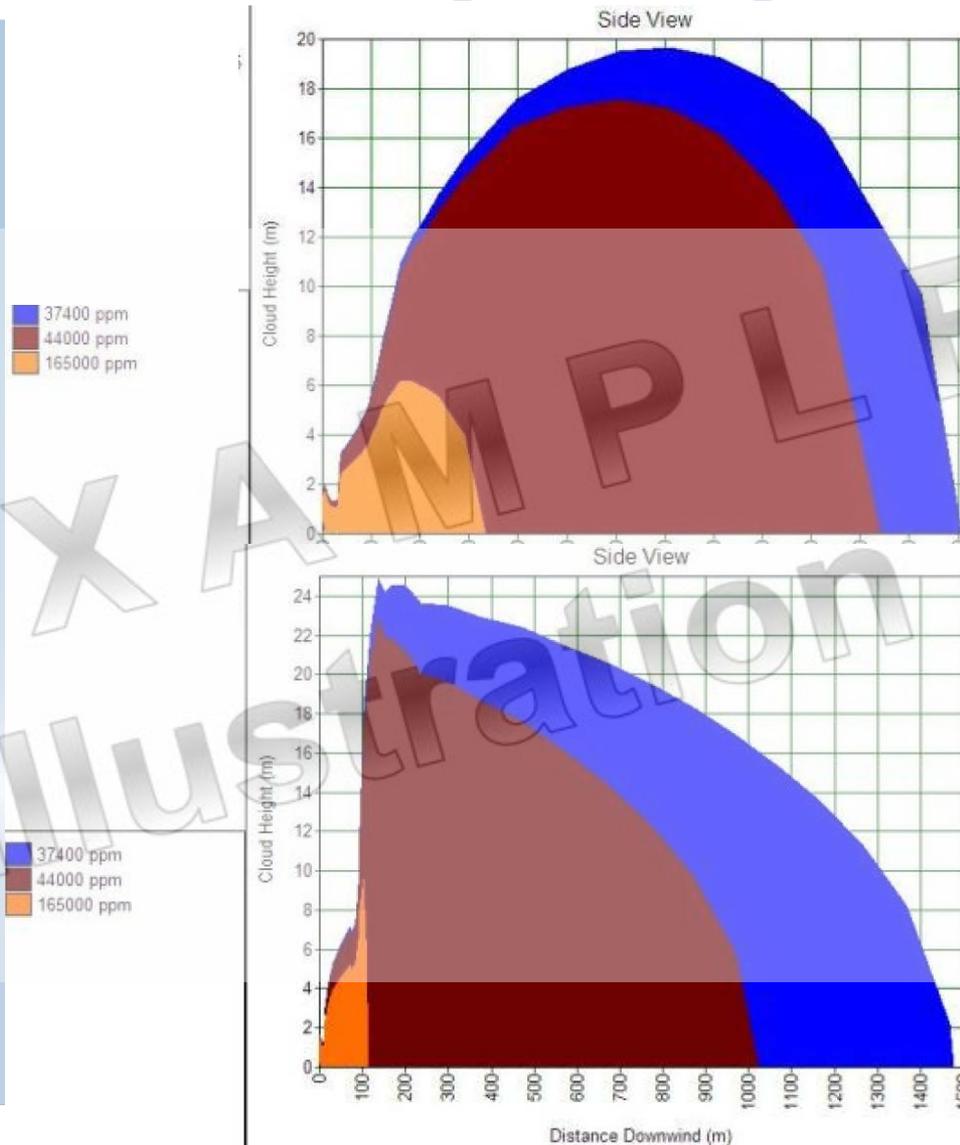
# The LNG train is moving



# What – If?

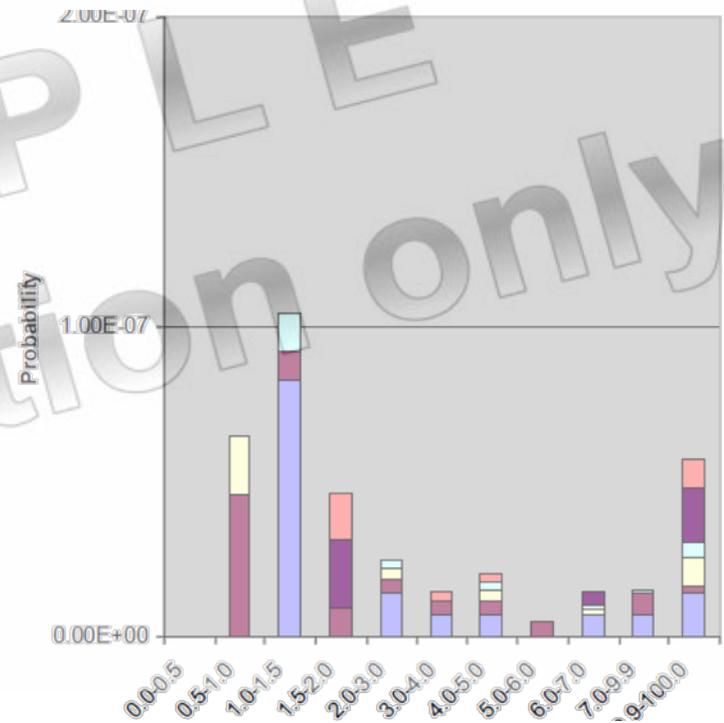
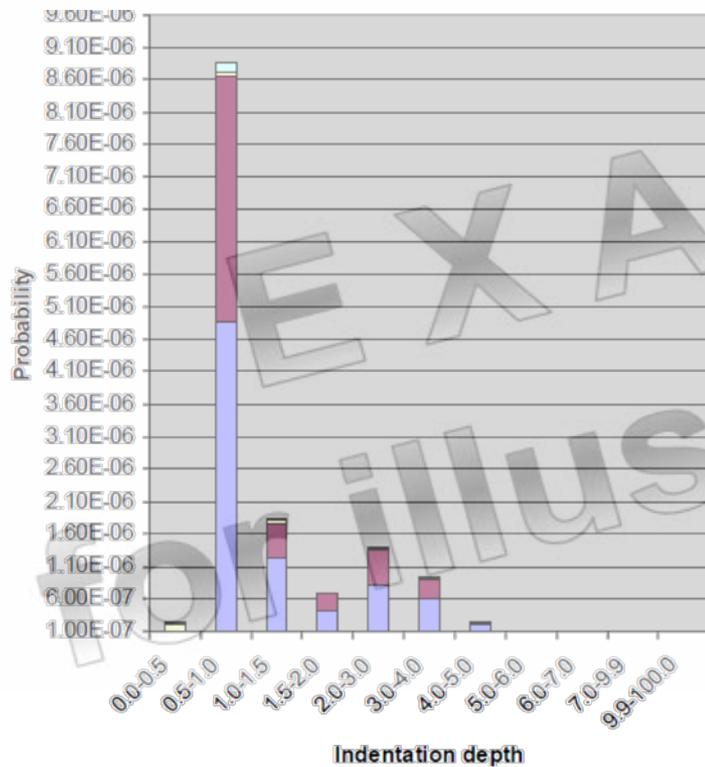


# Loss of containment – consequence dispersion



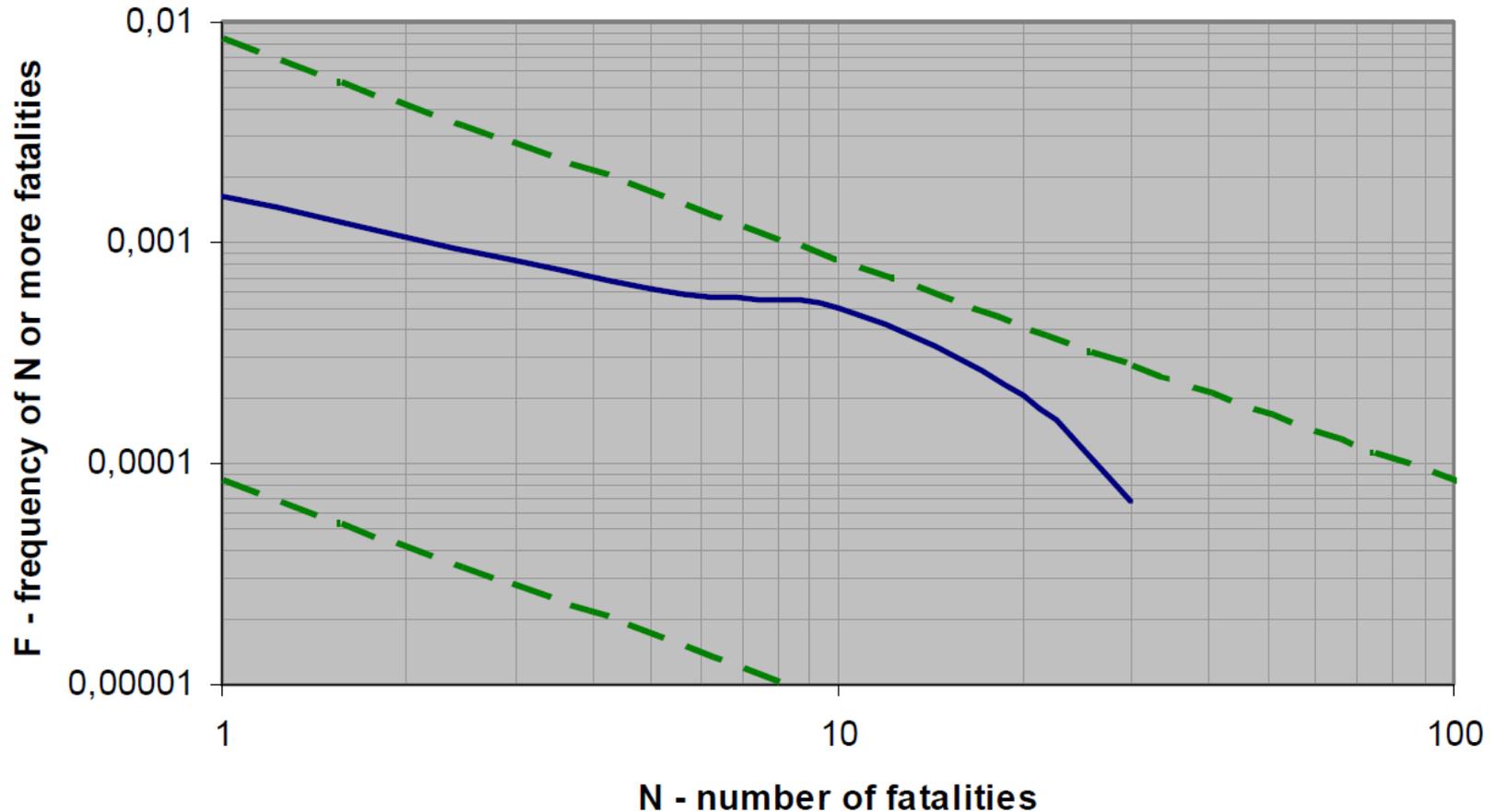
# Penetration of LNG Carrier - probability

- LNG spills may occur if LNGC is indented  $\geq 3$  meter
- Probability for indentation  $\geq 3$  meter is smaller than  $5E-8$  per year  $\rightarrow$  negligible risk

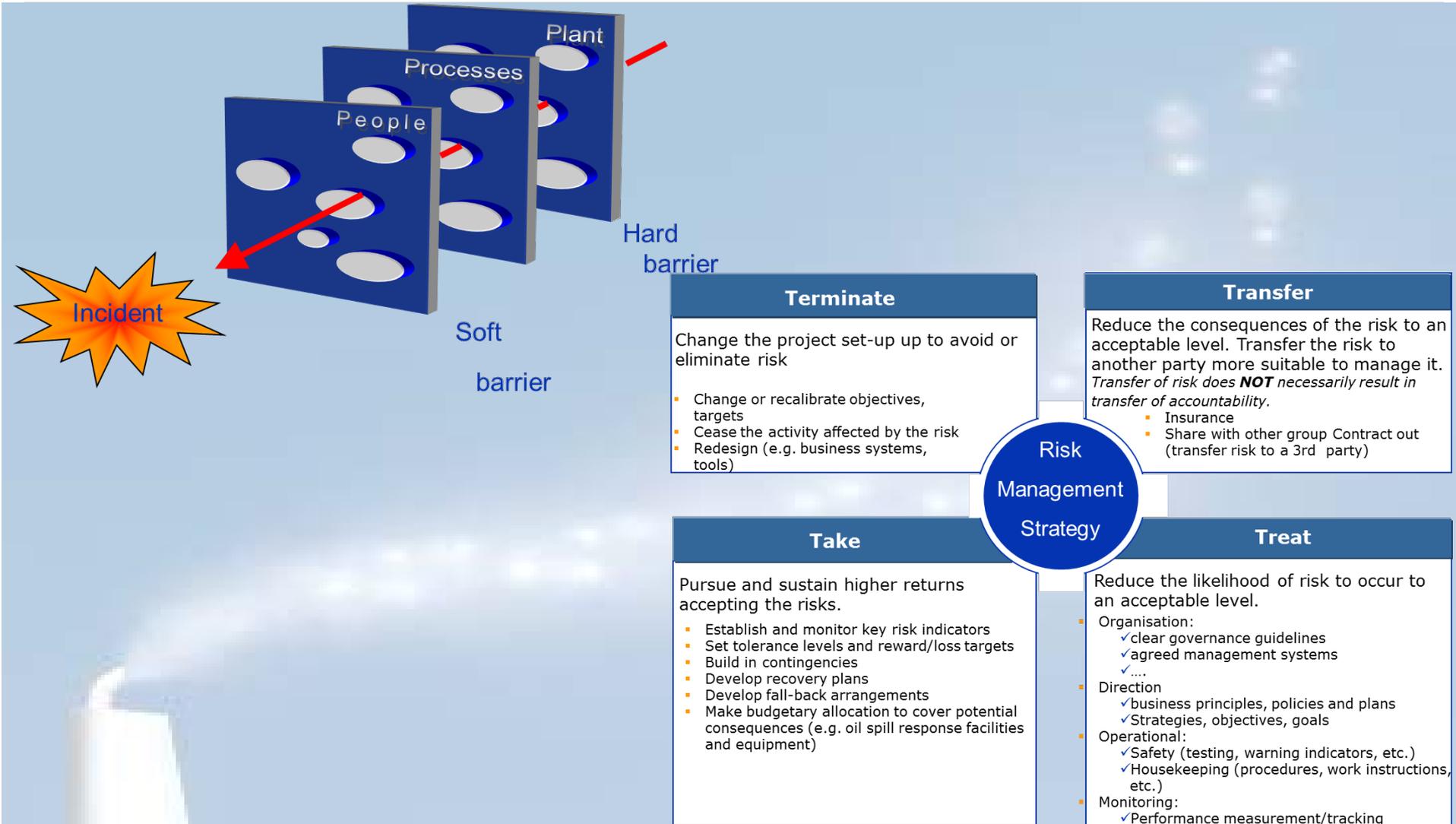


# Group risk, example Crew (IMO MSC 83/21/1, societal risk)

## Risk level - LNG carriers



# effective risk management strategies



# Port Roadmap

Why



Time

2012

2013

2014

2015

Logistical models for value chain

infrastructure

...

finance

Which logistical model fits best?

Regulatory Framework

Roles responsibilities

...

Permitting

Standardisation

Which regulatory framework should we develop & operate?

Public Engagement

Political aspects

...

What & how should we communicate & engage public?

Organisational Framework

competences

...

What & How should we organise our processes and capabilities ?

What

# How Todo

# Safeguarding life, property and the environment

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