



IAPH

International Association
of Ports and Harbors

Who's afraid of LNG

Port Good Governance

(With the right preparation a Ports shouldn't be afraid of LNG)



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- 3 x 180,000 m3 tank storage
- 2 jetties for vessels > 7,000 m3
- 2 share holders
- 5 capacity holders



• 2011: GATE TERMINAL - LNG IMPORT & RE-EXPORT: → HUB



- Loading facility vessels < 7,000m³
- Connected to tanks by cryogenic pipeline
- Launching customer Shell



2016: GATE 3TH JETTY - LOADING FOR EXPORT & BUNKERING



- 2011: TRUCK TO BARGE BUNKERING SEINEHAVEN

- 2017: (MULTIPLE) TRUCK TO SHIP BUNKERING WAALHAVEN





- Ship-to-ship transfer
- LNG bunkering

• 2016: DOLPHINS CALAND CHANNEL WITH LNG PRIORITY

MULTIFUEL BUNKER STATION

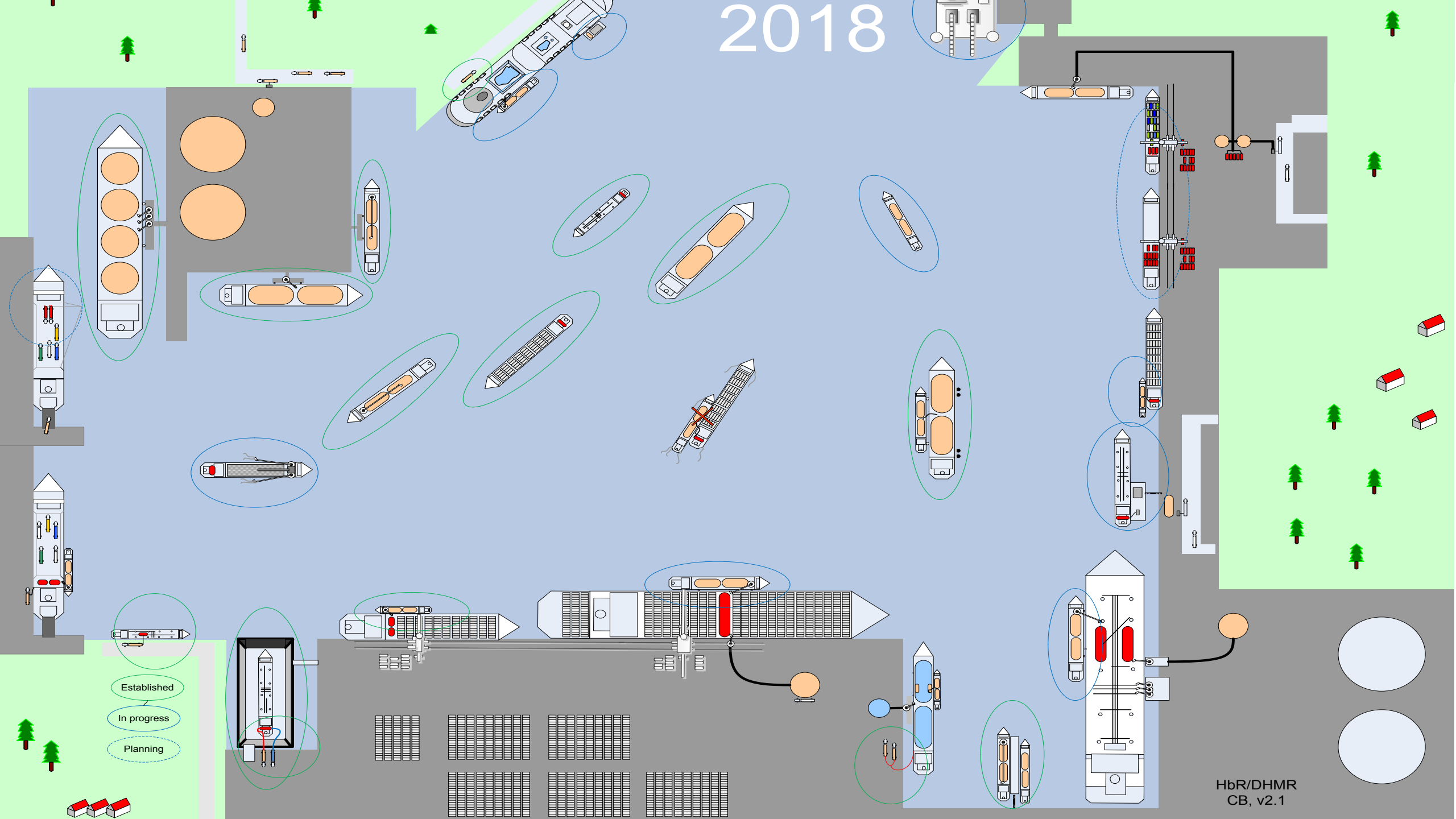




- Capacity 6,800 m³
- Operated & owned by Shell
- Home Port Rotterdam
- Ship-to-ship bunkering

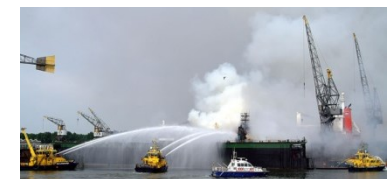
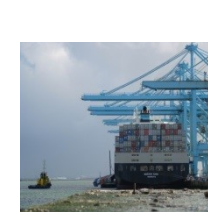
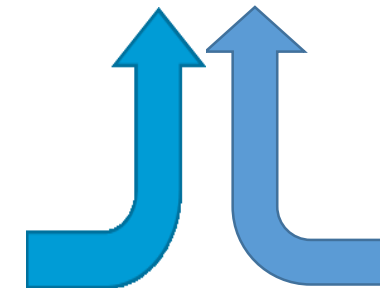
- 2017: 1ST LNG BUNKER VESSEL
- PROGNOSIS 2020: 6 LBV'S OPERATIONAL IN ROTTERDAM, + 3 LBV'S LICENSED

2018



LNG Good Governance in a port

- Regulatory framework: Port Bye Laws
- Nautical safety: Nautical Risk Atlas
- External safety: QRA on bunker scenarios
- Spatial planning: LNG bunker map
- Safety management audit: IAPH Audit tool
- SIMOPS check: Safety Control zone: Basil (SGMF) HAZID → BMP
- Established control zones ▼ ▲
- Operational safety check: LNG bunker checklist: IAPH
- Prepared enforcement officers (also for SIMOPS)
- Prepared Emergency Response Organization



Spatial planning

A LNG-Bunker location should comply with:

- Nautical Risk atlas: A safe nautical location;
- External Safety: Within the Port EV contour (10^{-6}); Spatial Planning: In Petrol- or LNG harbors or outside this safety regimes with extra precautions;
- Zoning system: The risk of the LNG-bunkering should be less than the Zone safety distance;
- Or an exemption with proven equal safety;



Simultaneous Operations (SIMOPS) are allowed in Rotterdam if safe and controlled:

HAZID + risk mitigation + approved documentation + control

During LNG bunkering it is prohibited to perform other operational activities on board an LNG-fueled ship, unless these simultaneous activities:

- a) are specified in the operational documentation of the ship;
- b) the relevant operational documentation has been approved by the flag state, and;
- c) take place in accordance with the provisions of the relevant operational documentation.

SIMOPS inland vessels not



LNG bunkering in a Port : Licence



Above the dilemma for large ports

**We focus the safety framework on the LNG bunker facility:
IAPH audit is the safety check**

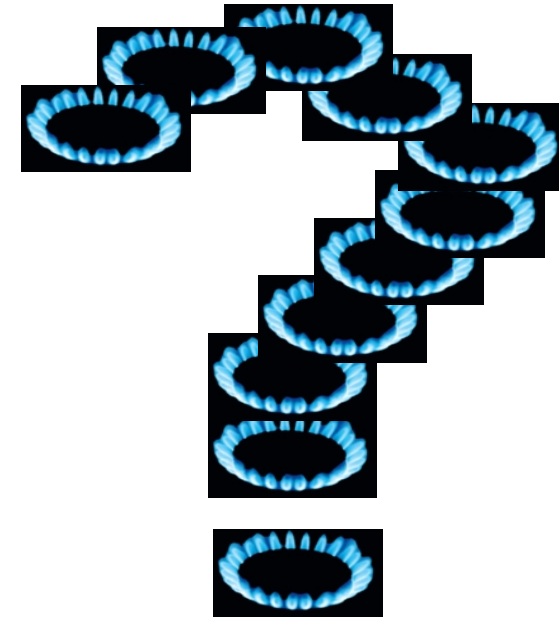
IAT procedure

- The LNG bunker vessel operator have to apply for a license by the competent authority;
 - We will ask for (draft) documentation;
 - We will perform a document desk study to prepare the audit;
 - Our audit items are based on the IAPH Audit Tool for LNG Bunker Facility Operators (IAT)
 - with reference to all standards and best practice guidelines;
 - We will perform a company audit to answer the open questions;
 - We will perform an audit on board of the LNG bunker vessel;
 - Not all audit questions have to be answered positive, but we will for an e
 - The IAPH port auditor will deliver an audit report.
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- Based on the audit result, and all other items in this presentation, the port will grant or refuse a license to the LNG bunker facility.



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Thank you for your attention



Questions?



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