

**Economic Commission for Europe**

**Inland Transport Committee**

**22 January 2013**

**Working Party on the Transport of Dangerous Goods**

**Joint Meeting of Experts on the Regulations annexed to the  
European Agreement concerning the International Carriage  
of Dangerous Goods by Inland Waterways (ADN)  
(ADN Safety Committee)**

**Twenty-second session**

Geneva, 22–25 January 2013

Item 4 (b) of the provisional agenda

**Special authorizations, derogations and equivalents**

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**"Status of LNG fuelled IWW vessels"**

**Power point presentation by Mr. Bas Joormann of Lloyd's Register**

# Status of LNG fuelled IWW vessels

Bas Joormann  
Inland Waterway Product Manager  
Lloyd's Register EMEA Rotterdam

22-1-2013

ADN Safety Committee, Geneva January 2013

# Content

- Annual evaluation report 'Argonon'
- Status 'I-Tankers'
- Present projects under construction
- Present projects in engineering stage
- Questions ?



# Annual evaluation report 'Argonon'

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- Derogation granted in January 2012
- Obligations in derogation
- Document WP15-AC2-22-inf21





# Annual evaluation report 'Argonon'

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- System failure:
  - None
- Leakage:
  - None
- Bunkering data:
  - By truck, 15 tons LNG in 1.5 hours
  - 81% LNG and 19% gasoil
  - 148 tons LNG and 36 m3 gasoil
  - 1300 running hours
- Pressure data:
  - 3.5 bar average tank pressure
  - 1.0 bar into engine room



# Annual evaluation report 'Argonon'

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- Repairs and modifications:
  - Outlet of safety relief valve changed
- Operations data:
  - Limited sailing time
  - Bunkering services in Rotterdam, Amsterdam and Antwerp
- Survey report:
  - Survey according Lloyd's Register Rules for Natural Gas fuelled ships



# Annual evaluation report 'Argonon'

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- Emission data:
  - 157 tons of CO<sub>2</sub> saved
  - NO<sub>x</sub> 3.4 gr/kWhr (= 50% of CCNR II)
  - PM 0.04 gr/kWhr (< CCNR IV)
  - SO<sub>x</sub> -80%
  - 2 Capstone microturbines:
    - NO<sub>x</sub> 0.29 gr/kWhr
  - 25% fuel costs saving
- Promotional activities:
  - Often used for promotional activities such as Rotterdam Harbour Days



# Status 'I-Tankers'

- Building started:  
spring 2012
- First vessel:  
delivered March 2013
- Second vessel:  
delivered June 2013
- Scania gas engines tested:
  - CO2 reduction is 25 %
  - NOx 5.4 gr/kWhr
  - No SOx
  - No particulates





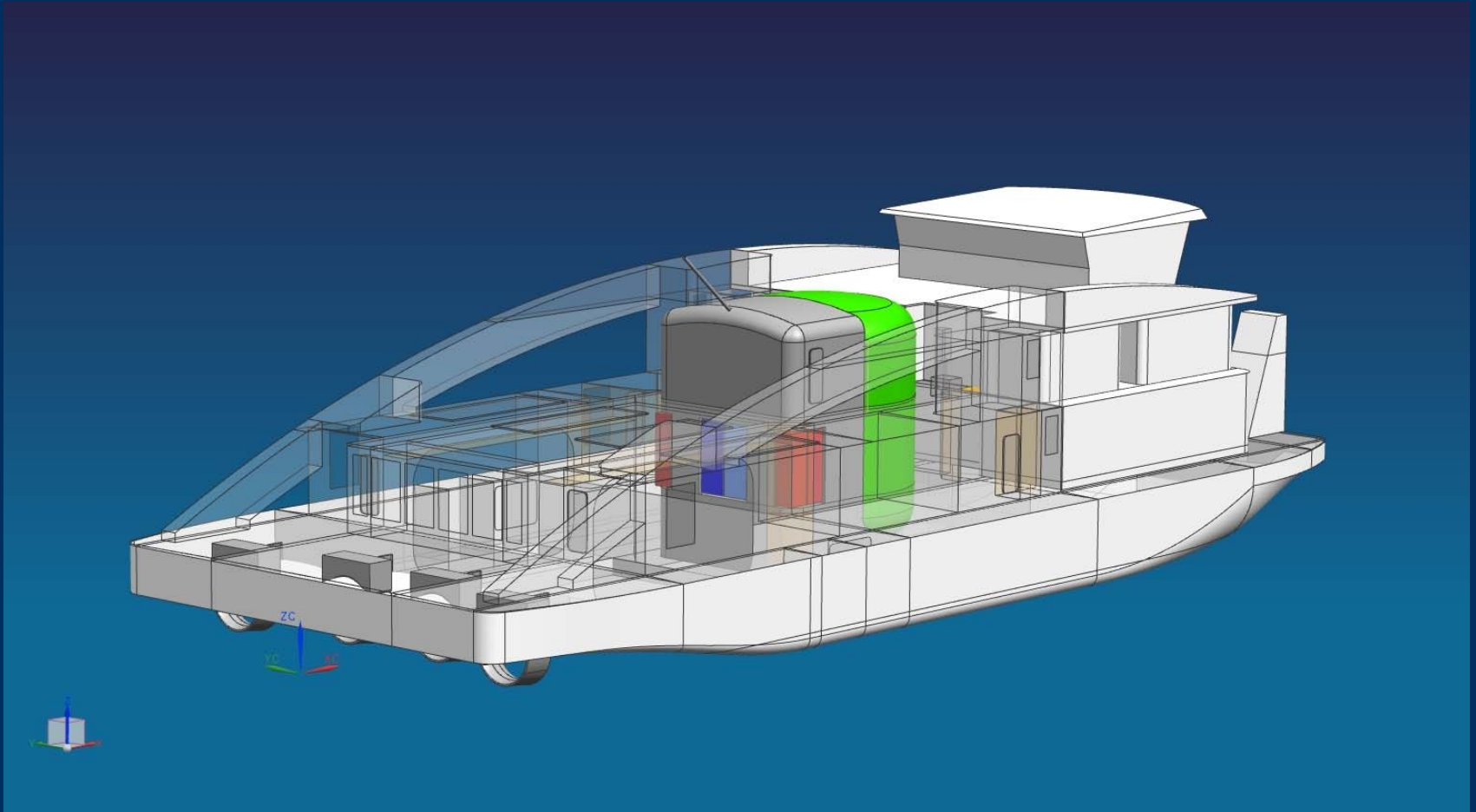
# Present projects (almost) under construction with Lloyd's Register

- I-Tankers 3 and 4
- New building dual fuel pushboat
- Conversion of container vessel 'Eiger'



# New building dual fuel pushboat

1/3

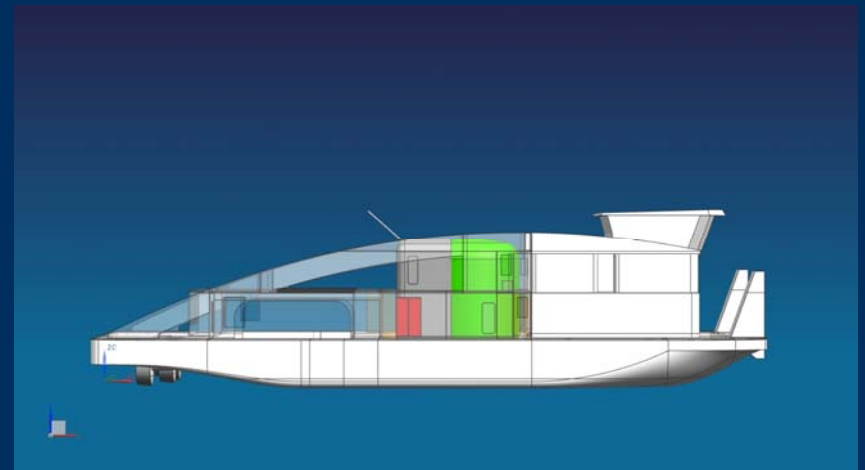


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# New building dual fuel pushboat

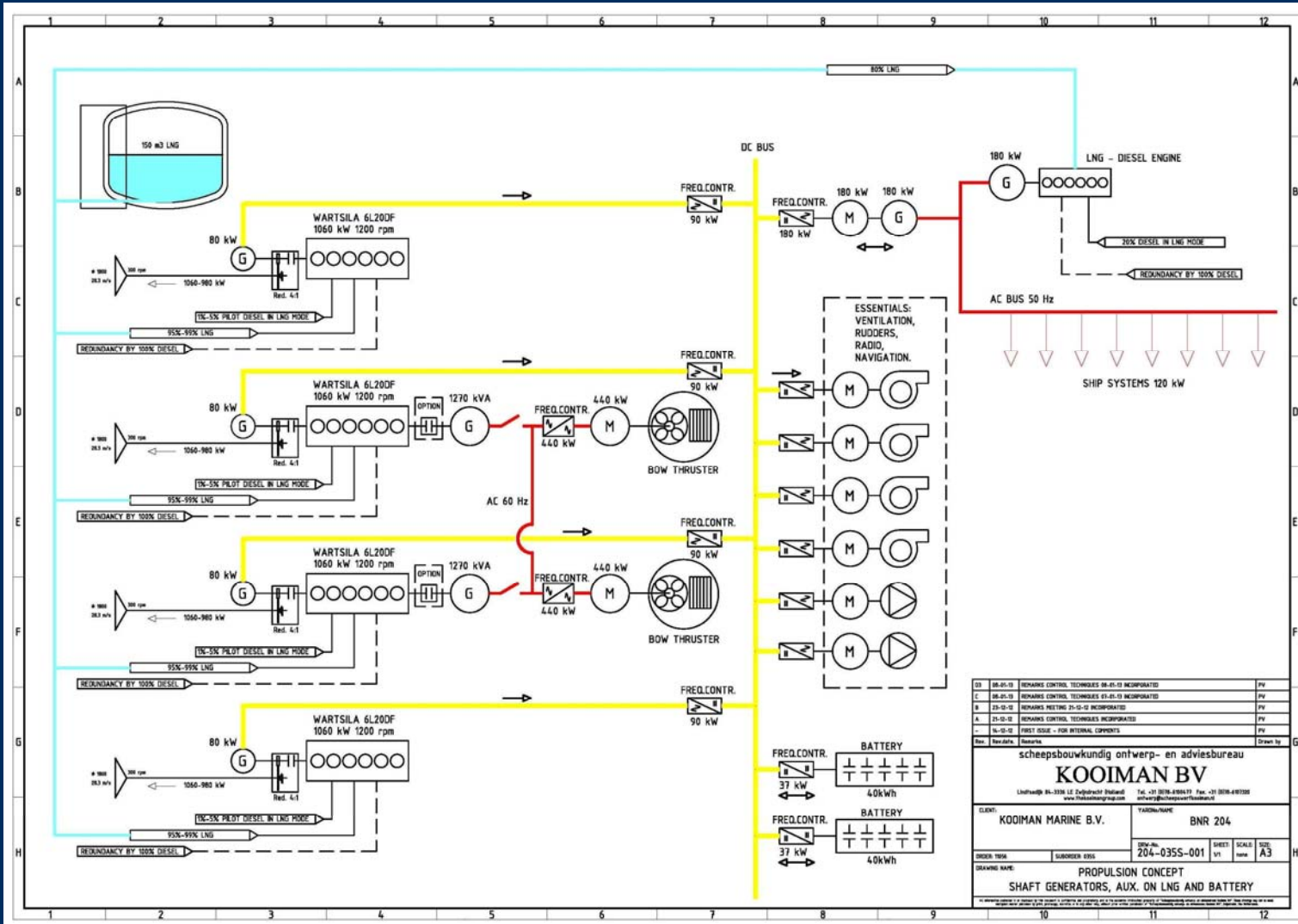
2/3

- General data:
  - Length 40 m
  - Breadth 18 m
  - Depth 2.8 m
  - Draught 1.6 m
  - 4 x Wartsila 6LDF 1060 kW
  - 95% LNG + 5% gasoil
  - 150 m<sup>3</sup> LNG tank + 80 m<sup>3</sup> gasoil
  - 6 x Europe II type barges (17.000 t)
  - Shipyard Kooiman, The Netherlands
  - Owner Veerhaven Thyssen Krupp
  - Delivery summer 2014



# Newbuilding dual fuel pushboat

3/3



03	08-05-13	REMARKS CONTROL TECHNOLOGIES 08-05-13 INCORPORATED	PV
C	08-05-13	REMARKS CONTROL TECHNOLOGIES 07-05-13 INCORPORATED	PV
B	23-02-12	REMARKS MEETING 23-02-12 INCORPORATED	PV
A	23-02-12	REMARKS CONTROL TECHNOLOGIES INCORPORATED	PV
-	16-02-12	FIRST ISSUE - FOR INTERNAL COMMENTS	PV
Rev.	Revdata	Revisie	Drawn by
scheepsbouwkundig ontwerp- en adviesbureau <b>KOOIMAN BV</b> Lindendreef 84-1338 LE Dordrecht Nederland Tel: +31 (0)20-4984471 Fax: +31 (0)20-497339 www.kooiman.nl info@kooiman.nl			
CLIENT:	KOOIMAN MARINE B.V.	YARD/NAME:	BNR 204
ORDER NO:	204-0355-001	SHEET:	1/1
SCALE:	1:1	SIZE:	A3
DRAWING NAME: PROPULSION CONCEPT SHAFT GENERATORS, AUX. ON LNG AND BATTERY			

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# Conversion of container vessel 'Eiger'

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# Conversion of container vessel 'Eiger'

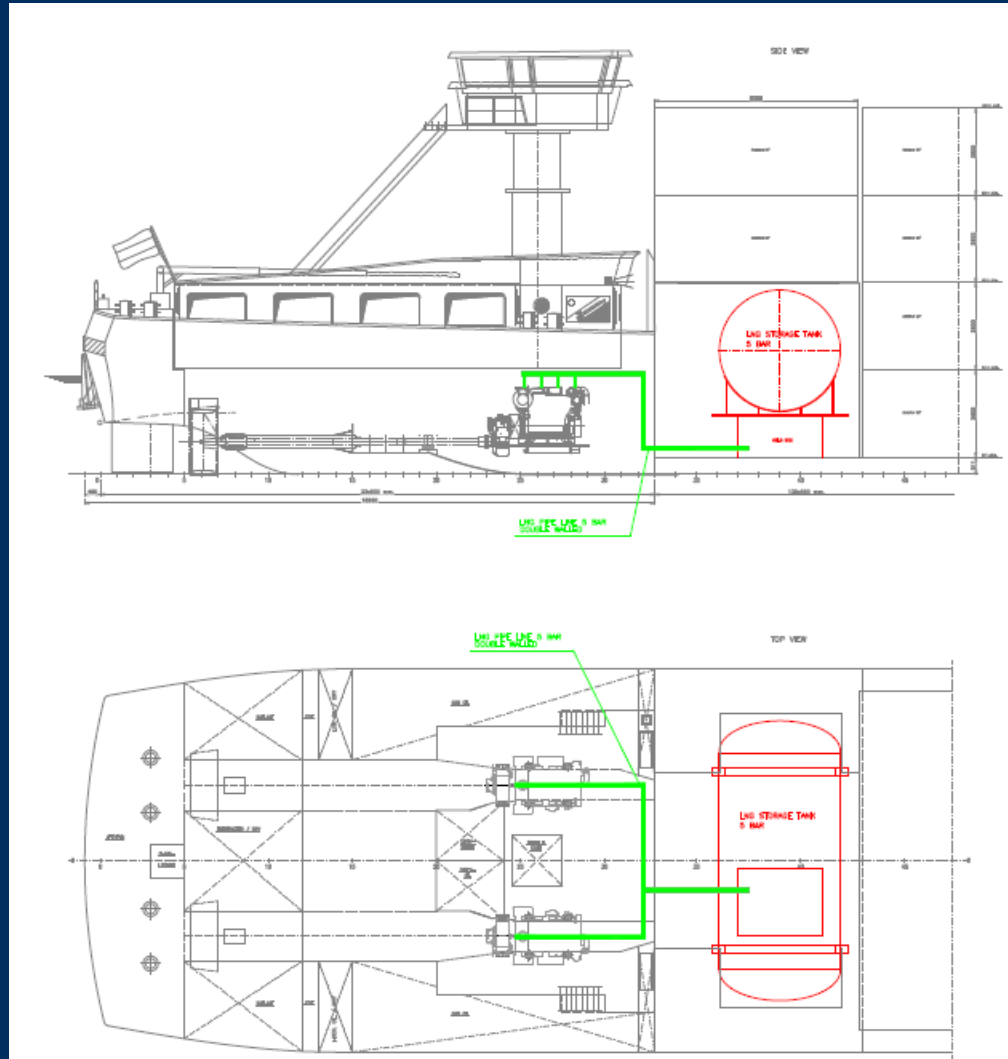
2/3

- General data:
  - L x B x D =  
105 x 11.45 x 2,55 m
  - 1960 tons
  - Year of build 2000
  - 2 x Caterpillar  
DF 750 kW
  - 60 m<sup>3</sup> LNG tank



# Conversion of container vessel 'Eiger'

3/3



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# Present projects in engineering stage with Lloyd's Register

1/2

- Dual fuel Type G tanker for LNG transport
  - 86 x 10.5 x 2.6 m
  - 2 x 500 kW dual fuel engines
  - 2250 m<sup>3</sup> LNG (1000 tons)





# Present projects in engineering stage with Lloyd's Register

2/2

- LNG-electric Type G tanker for LNG + gasoil bunkering services
  - 110 x 13.5 x 6.3 m, 1300 m<sup>3</sup> LNG + 1200 m<sup>3</sup> gasoil
- LNG-electric dry cargo vessel
  - 135 x 11.45 x 5.1 m, 4000 tons
- 2 x dual fuel Type C tankers
  - 110 x 11.45 x 5.2 m, 3200 tons
- 2 x LNG-electric car/passenger ferry
  - 600 passengers + 70 cars
- Dual fuel car/passenger ferry
  - 1750 passengers + 340 cars

# Questions ?

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