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*Kva må til for lukkast med realisering av null- og lågutsleppsløysningar i hurtigbåttrafikk?*

Dialogseminar EKOHYD, Sogndal 26.01.2018



**Brødrene Aa - MANCRAFT - Florø skyssbåt - Flora municipality**



## EU-utlysning

TOPIC : Demonstration of Fuel Cell applications for mid-size passenger ships or inland freight

**Topic identifier:** FCH-01-2-2018

**Publication date:** 16 January 2018

**Types of action:** FCH2-IA Innovation action

**DeadlineModel:** single-stage

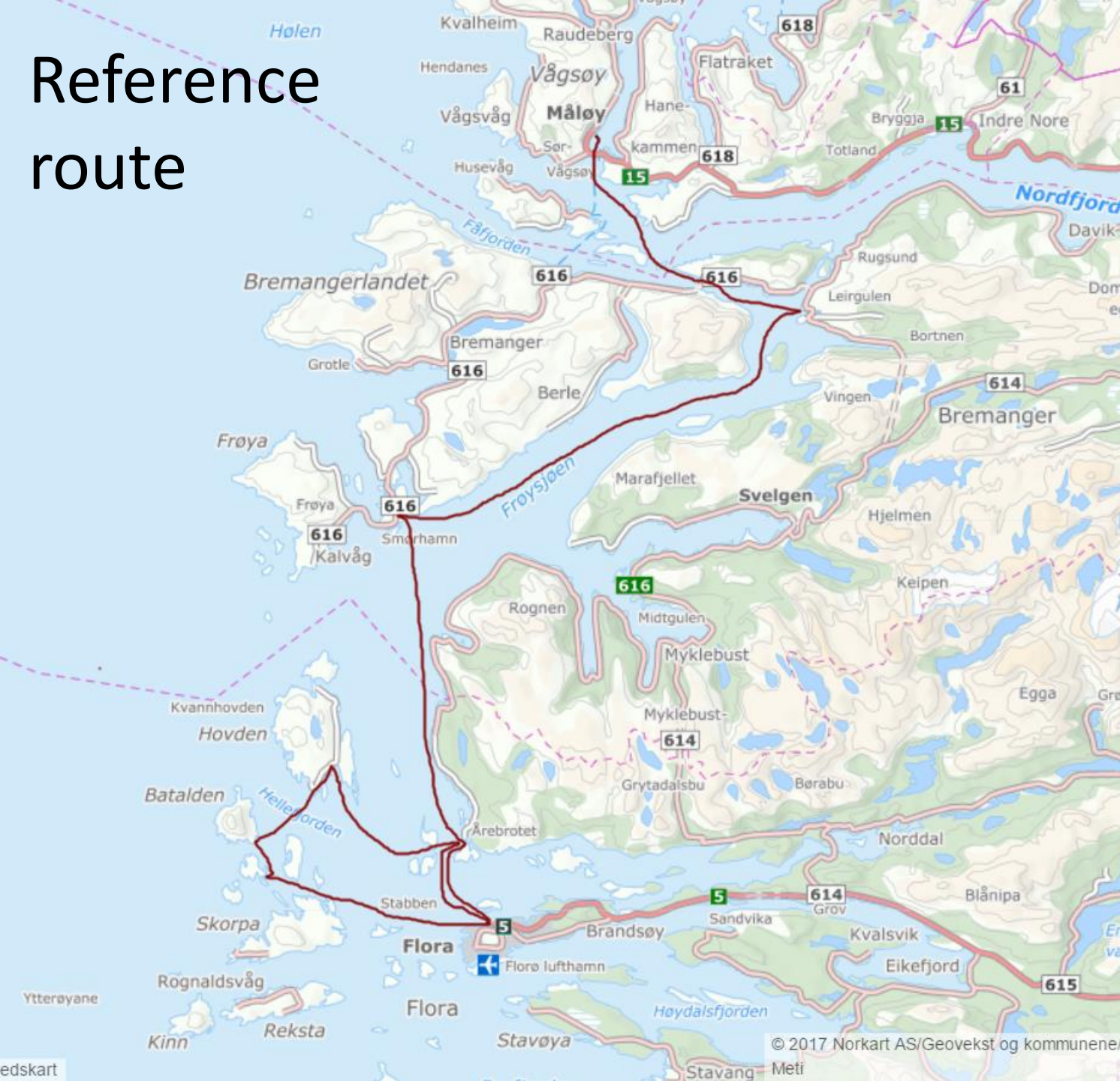
**Opening date:** 16 January 2018

**Deadline:** 24 April 2018 17:00:00

Time Zone : (Brussels time)

[.....] Lately, several initiatives have been taken for utilising fuel cells at higher power ranges and in high-speed vessels. [.....]

# Reference route



Per day:

Sailing distance 115 n.m.

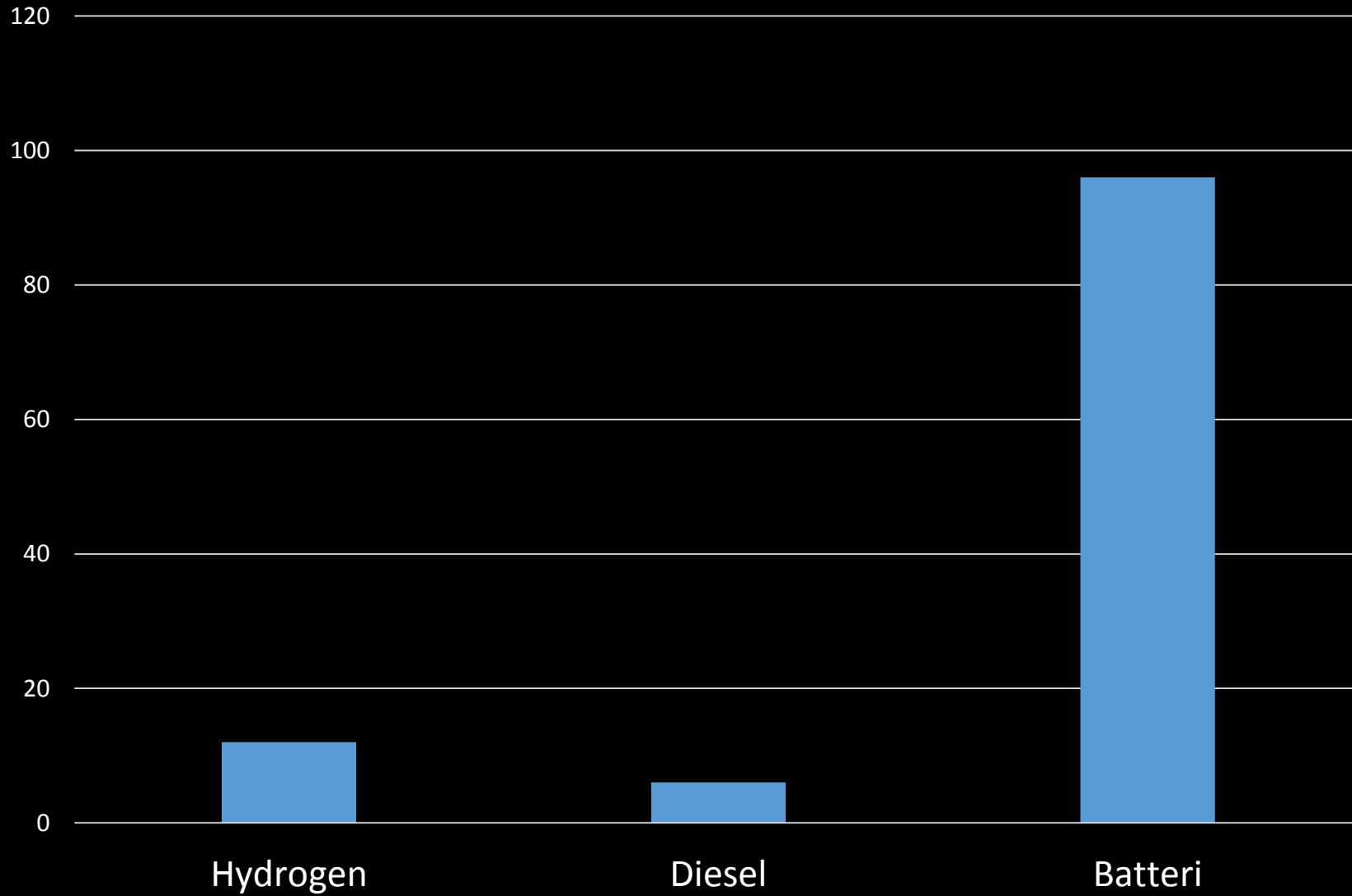
Energy consumption 6 509 kWh

Per year:

Diesel ca. 500 000 litres



# Weight different energy systems



Anskaffelsesforskriften

# Alminnelig kunngjøring av konkurranse

EØS-kunngjøring

## Del I: Oppdragsgiver

I.1) Navn og adresser

Sør-Trøndelag Fylkeskommune

## Del II: Kontrakten

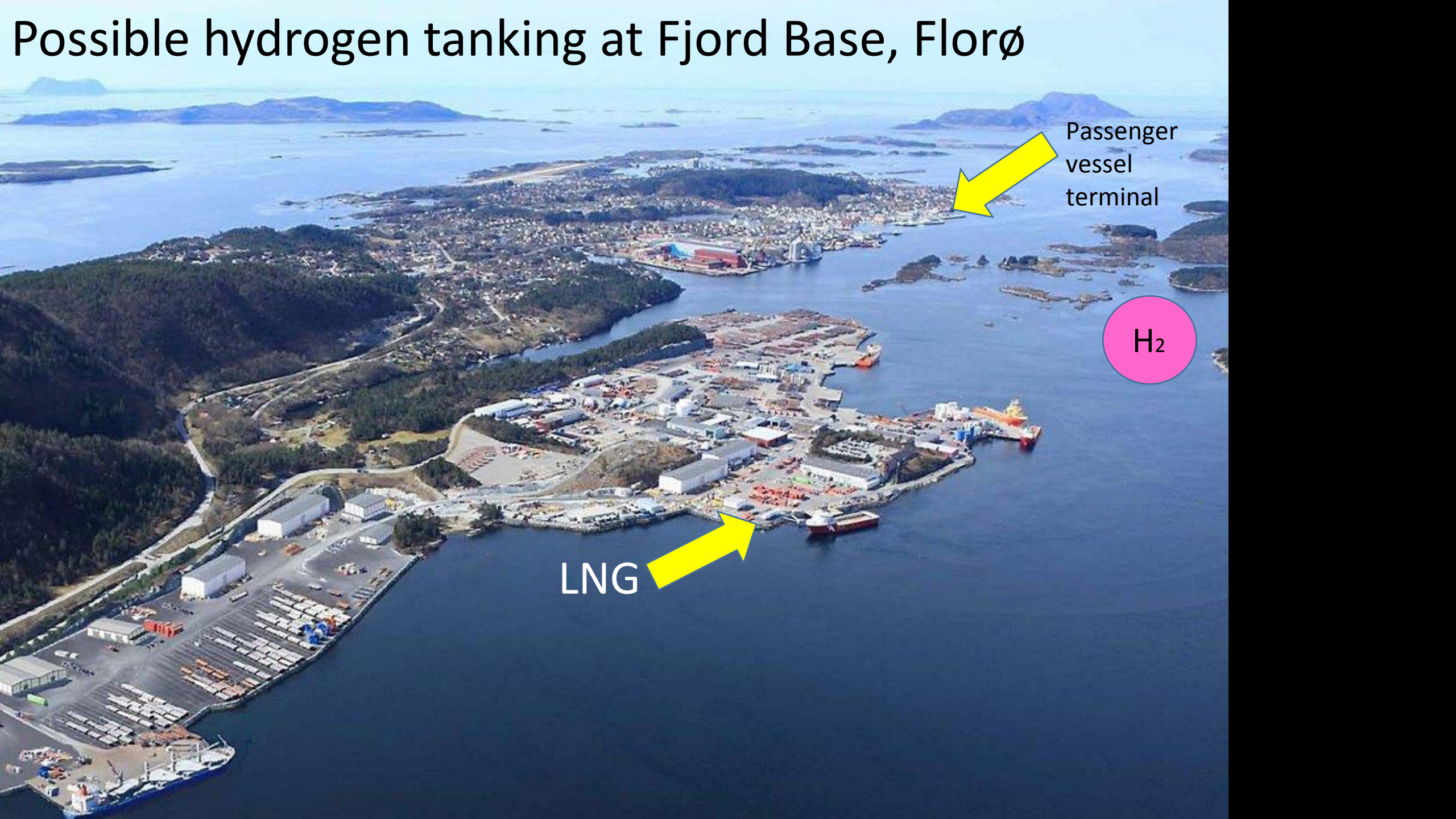
II.1) Anskaffelsens omfang

II.1.1) Tittel

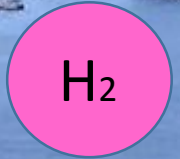
Utviklingskontrakt utslippsfri hurtigbåt

[.....] Trøndelag fylkeskommunes interesse i saken er at det blir tilgjengelige produkter og et velfungerende marked for utslippsfrie hurtigbåter i Norge. [.....]

# Possible hydrogen tanking at Fjord Base, Florø



Passenger  
vessel  
terminal



LNG



# Zero emission cruise ship

# Vil bygge verdens første utslippsfrie cruiseskip

Cruisemilliardær Torstein Hagen har planer om et skip som går på hydrogen.



**HYDROGEN:** Viking Cruises planlegger verdens første nullutslippsskip. Det nye hydrogenskipet vil bli bygget på design fra eksisterende skip i rederiets flåte som Viking Sky avbildet over.

FOTO: VIKING CRUISES



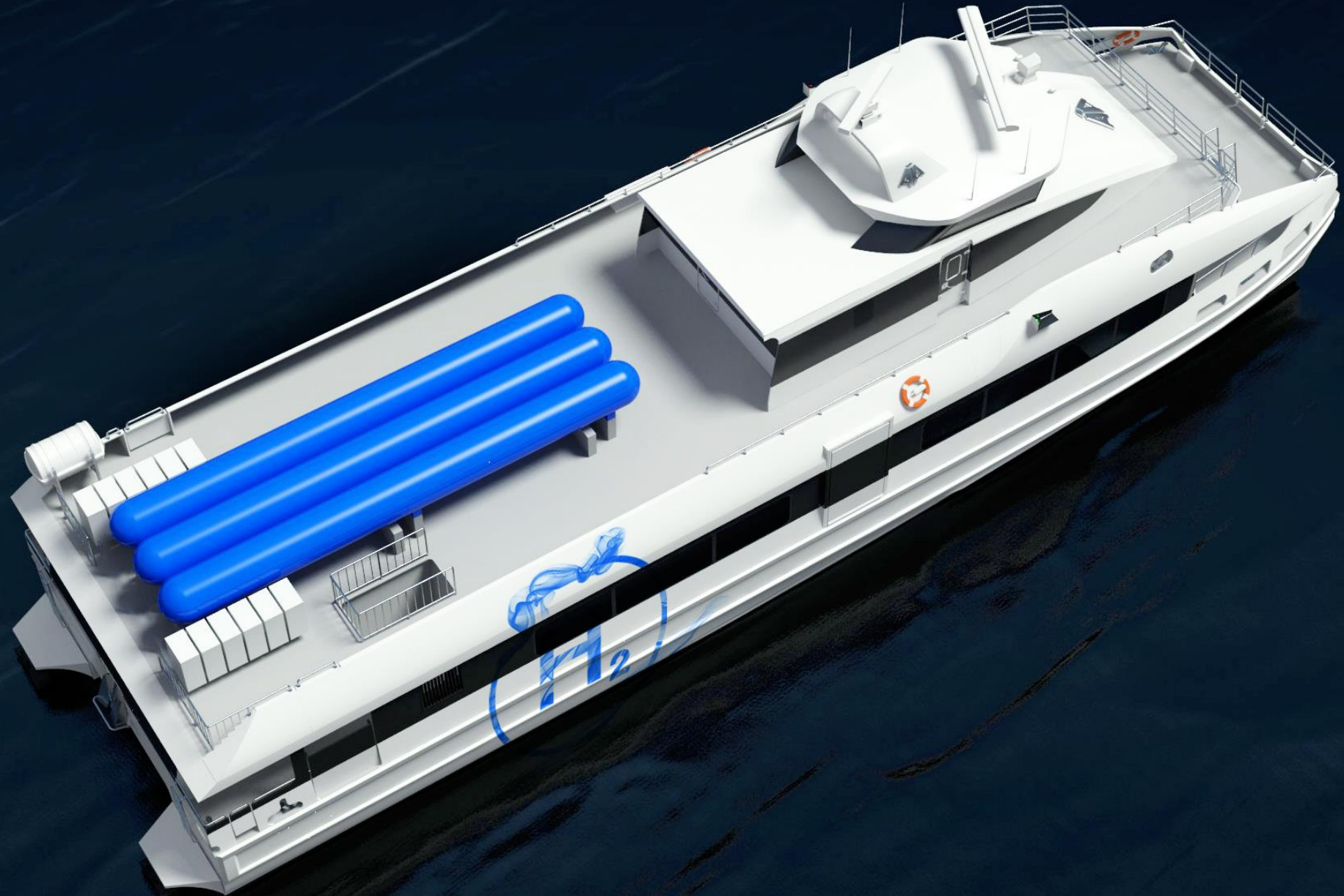
# «Ampere» – 100 % battery



# «Vision of the Fjords» hybrid diesel/battery



# Tryggleik og design



# Kva med brann?

Hydrogenbil til venstre, bensinbil til høgre



3 sekund



1 minutt



1,5 minutt

Tid etter antenning



Working together  
for a safer world



## Memo

**Pre-HAZID October 31, 2017 - Maritime case study GKP7H2 MoZEES**

To: MoZEES RA3

Cc:

From: Lloyd's Register

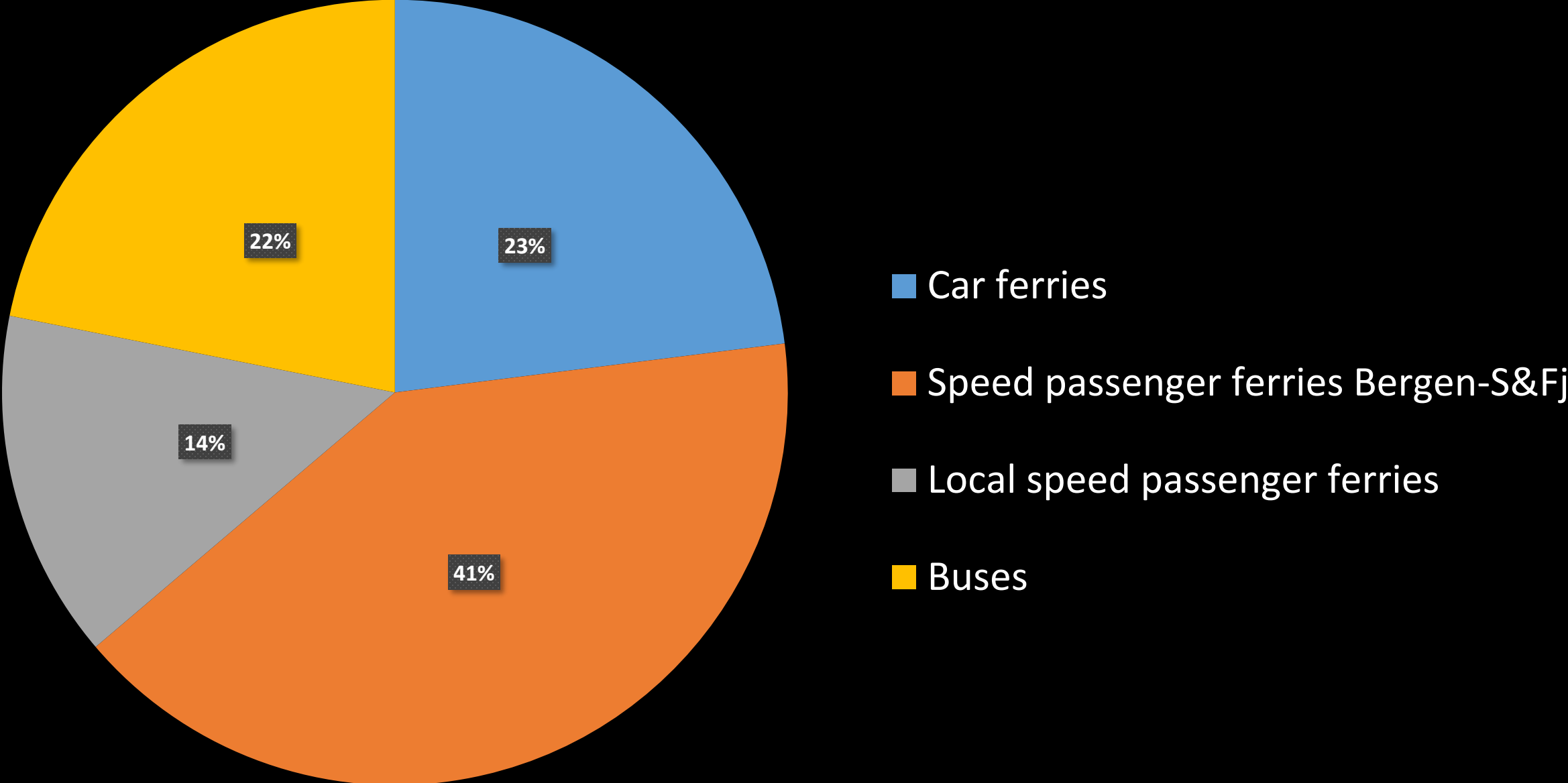
Date: 2 November 2017 CONFIDENTIAL

Project no: 106575

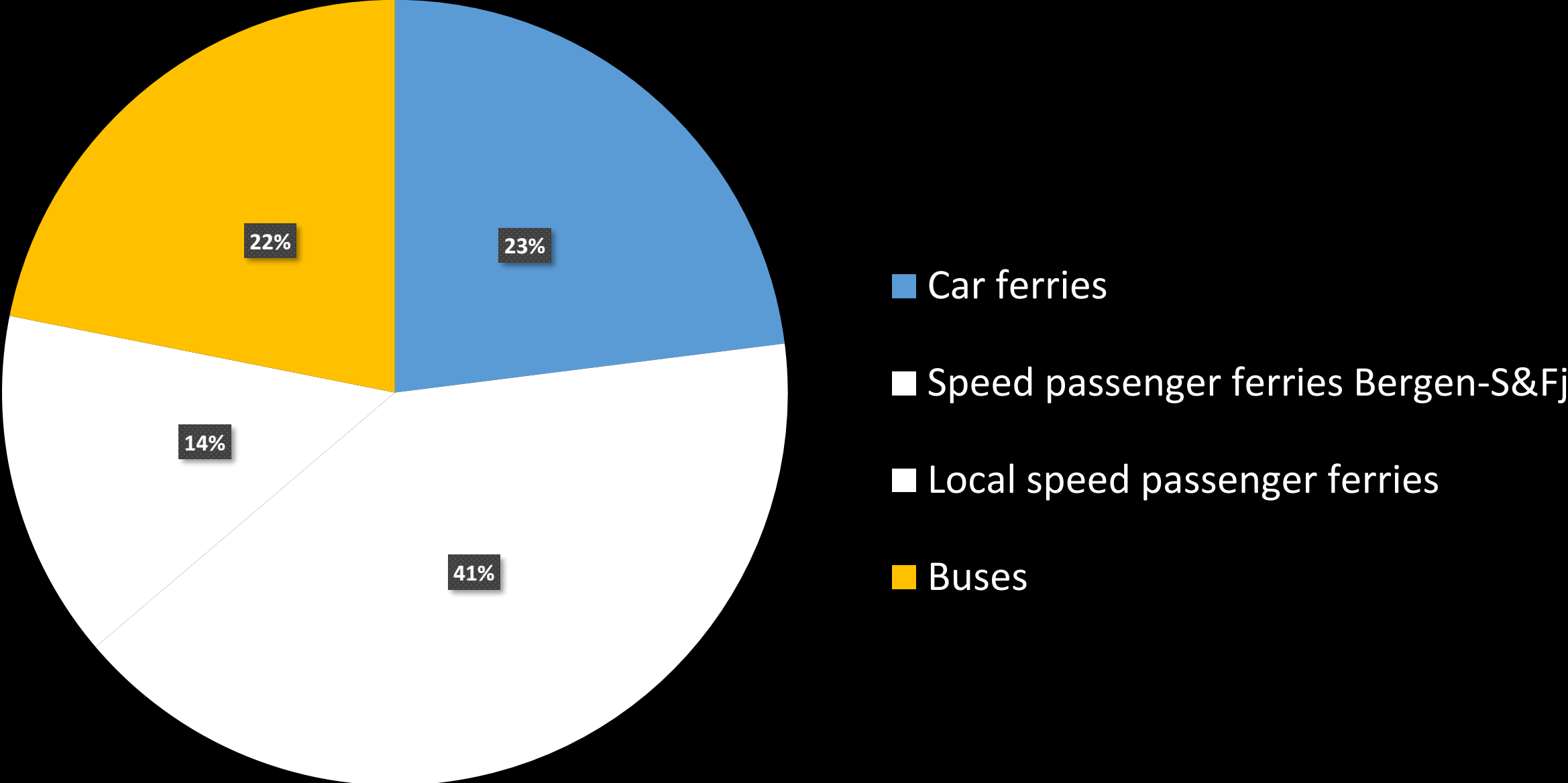
### 1 Introduction

A pre-HAZID for the hydrogen systems of the GKP7H2 passenger fast boat was held at Sintef Oslo on October 31. The purpose of the event was to identify any potential major hazards related to the hydrogen systems on-board that could represent a risk to life of people on the vessel or in the surroundings.

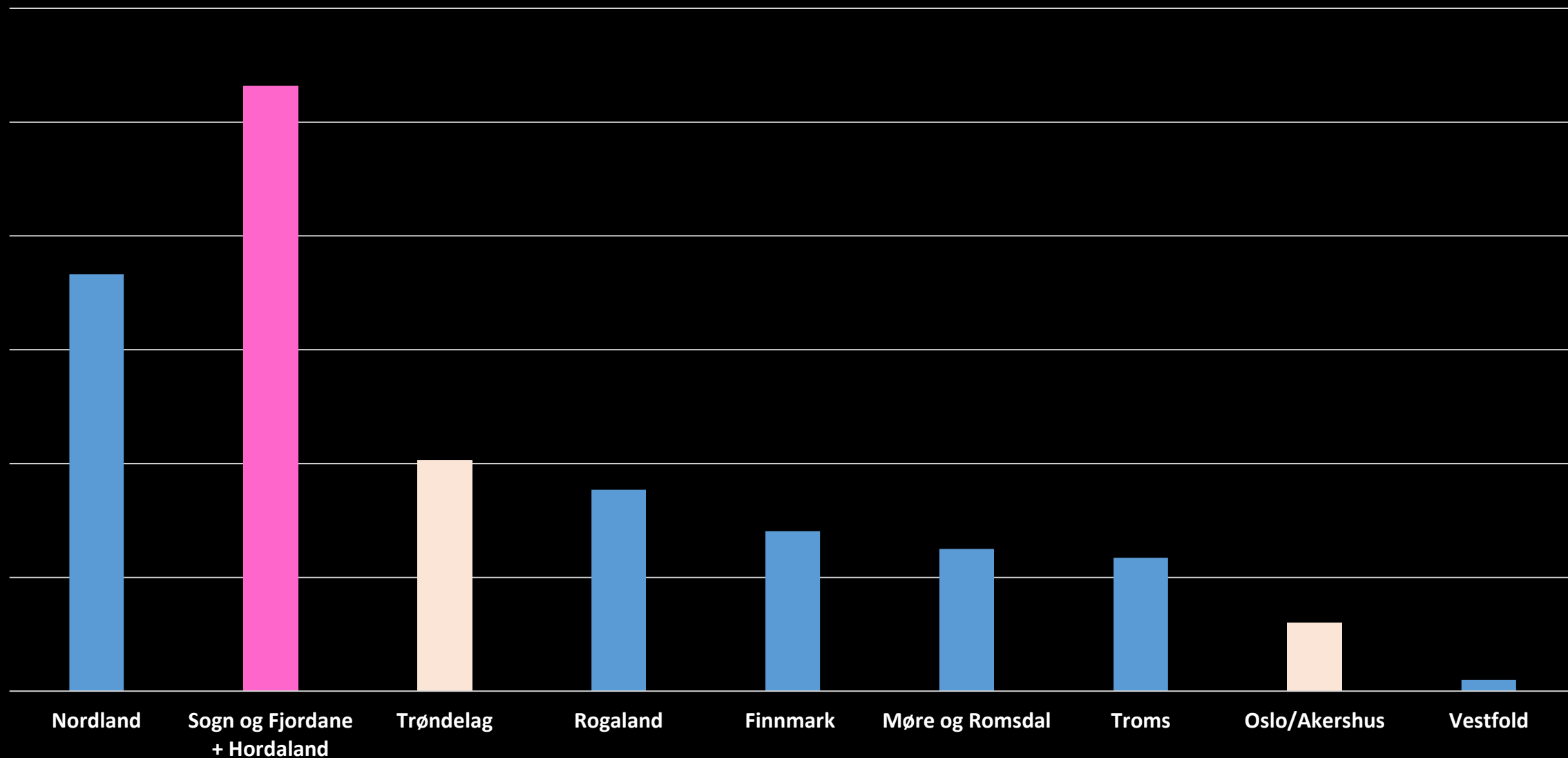
# Emission from public transportation Sogn og Fjordane



# Reduced emission by use of hydrogen



# Relative diesel consumption high speed passenger vessels





*International workshop  
13th-14th September 2017  
Florø, Norway:*

# *From renewable energy to clean technology*



*Wave and tidal energy (Orkney, UK)  
H2 High Speed Passenger vessel (N)  
MARANDA Test Vessel (Int.)  
SF Breeze H2 Passenger Vessel (US)  
One World H2 Consortium (NZ)  
BIG HIT Hydrogen project (Int.)*

*Renewable energy and H2 in fish farms (N)  
Hydrogen storage in micro grids (N)  
Community acceptance of H2 (Orkney, UK)  
Renewable energy and labor (US, UK)  
Tools for H2 municipality planning (N)  
Barriers for implementation of renewables (Orkney, UK)*

*Full program and registration at [GCE Subsea](#)*

# Mogelegheter

- Driftsfase – pris hydrogen vs diesel
  - prissetting nullutslepp
  - prissetting helse- og miljøprofil
  - oppstartskompensasjon dei første driftsåra
- Insentiv – fremje maritim hydrogenbruk
  - fritak el-avgift maritim hydrogenproduksjon
  - fritak hamneavgifter, kontrollavgifter etc
  - sukseshonorar pr båt/driftsår
  - sukseshonorar ruteproduksjon
- Statsbudsjettet 2019

Innspel

Kva meiner du?

Kva er det vi ikkje har tenkt på?

Kva er viktig framover?

# Takk



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