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IN FUTURE Final Conference

Enabling the Green transition - CCNR activities regarding the energy transition and its financing

Benjamin Boyer, Administrator ship technique
Laure Roux, Administrator economic affairs

CCNR
CENTRAL COMMISSION
FOR THE NAVIGATION OF THE RHINE

CCNR

- Governs navigation on the Rhine
- Oldest international organisation in activity (200 years) which is based on Mannheim Convention (150 years)
- 5 Member States, 11 observer states and various observing international organisations
- Intensive participation of industry via numerous recognized international associations
- Guaranteeing freedom of navigation and promoting navigation on the Rhine
- Binding regulations from Basel to the Sea (police/operational rules, vessel technical requirements, crew qualification and manning)
- Political, organisational, technical and social innovator
- Strategy (sustainable inland navigation, vision of zero emissions, cooperation with EU …)

CCNR Strategic objectives

In the Mannheim declaration (2018) Ministers in charge of transport of the CCNR Member States:

- tasked CCNR to develop a **roadmap** in order to
  - reduce greenhouse gas / air pollutant emissions by 35% compared with 2015 by 2035
  - largely eliminate greenhouse gases and other pollutants by 2050 (R and EU share the **same long-term vision**

→ After intensive discussion between Member States and industry consultation, **CCNR intends to adopt this roadmap in December 2021**

- underlined the **need for new financial instruments** to achieve these environmental objectives and entrusted CCNR to lead this development

→ **CCNR** carried out a study on **financing the energy transition towards a zero-emission IWT (financial + technological aspects) on a European scale.** Several research questions have been addressed. Final results published! https://www.ccr-zkr.org/12080000-en.html.

Draft CCNR roadmap - objectives

- Main CCNR **public policy instrument** to:
  - deliver on the mandate conferred by the Mannheim Declaration
  - help to address the “existential” challenge of the energy transition for Rhine and European inland navigation.

- Develop a **shared vision of the energy transition and associated challenges within the inland navigation sector**, while also generating support and acceptance for related policy measures.

- Could serve to **coordinate / stimulate decisions at the political level** by the different competent authorities, namely decisions of the EU, River Commissions, Member States, local governments,

Draft CCNR roadmap - content

MAIN CHAPTERS OF DRAFT ROADMAP

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Initial situation: climate change and IWT energy transition context;
Identifying key players in the transition

Initial situation

Clarify definitions required for a good understanding of the roadmap

Definitions

Transition pathway scenarios for the fleet (applicable for existing and new vessels) by 2035 and 2050

Transition pathways

Implementation plan with 3 types of measures:

- regulatory,
- voluntary,
- Financial,

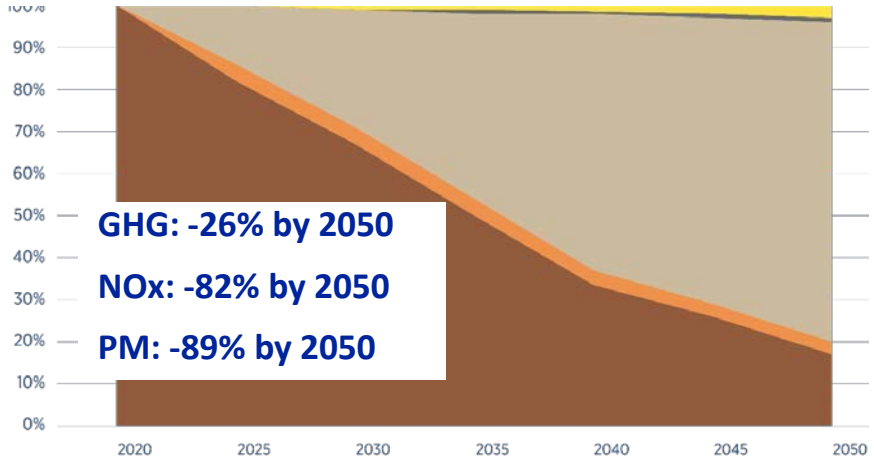
Implementation plan

Draft CCNR roadmap – technologies and emission reduction potential

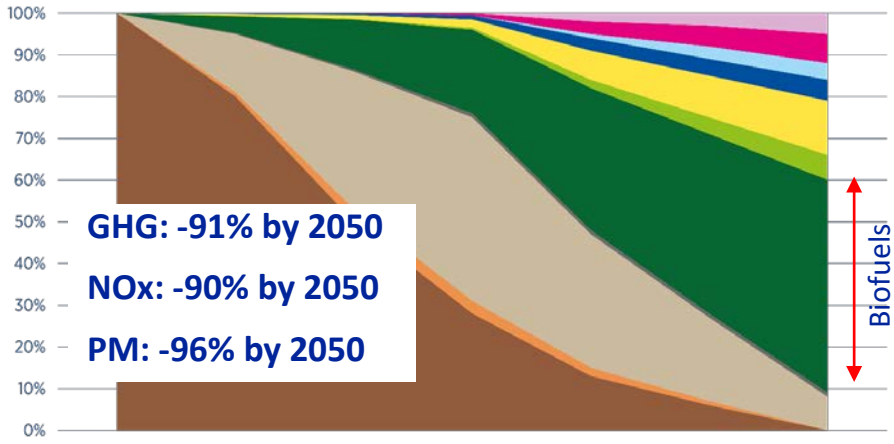
Technologies considered in the pathways	Description	TRL (1-9) vessel application	TRL (1-9) fuel / energy production and supply
Stage V, Diesel	Fossil diesel in an internal combustion engine which complies with the emission limits EU Stage V.	9	9
LNG	Liquefied Natural Gas in an internal combustion engine which complies with the emission limits EU Stage V.	9	9
Stage V, HVO	HVO in an internal combustion engine which complies with the emission limits EU Stage V. HVO stands for hydrotreated vegetable oil itself (without blending with fossil fuels) and all comparable drop-in biofuels (including e-fuels) as well as synthetic diesel made with captured CO_2 and sustainable electric power.	9	9
LBM	Liquefied Bio Methane (or bio-LNG) in an internal combustion engine which complies with the emission limits EU Stage V.	9	8
Battery	Battery electric propulsion systems, with fixed or exchangeable battery systems.	8	7
H_2, FC	Hydrogen stored in liquid or gaseous form and used in fuel cells.	7	7
H_2, ICE	Hydrogen stored in liquid or gaseous form and used in internal combustion engines.	5	7
MeOH, FC	Methanol used in fuel cells.	7	6
MeOH, ICE	Methanol used in internal combustion engines.	5	6

Draft CCNR roadmap - possible pathways and BAU scenario as starting point

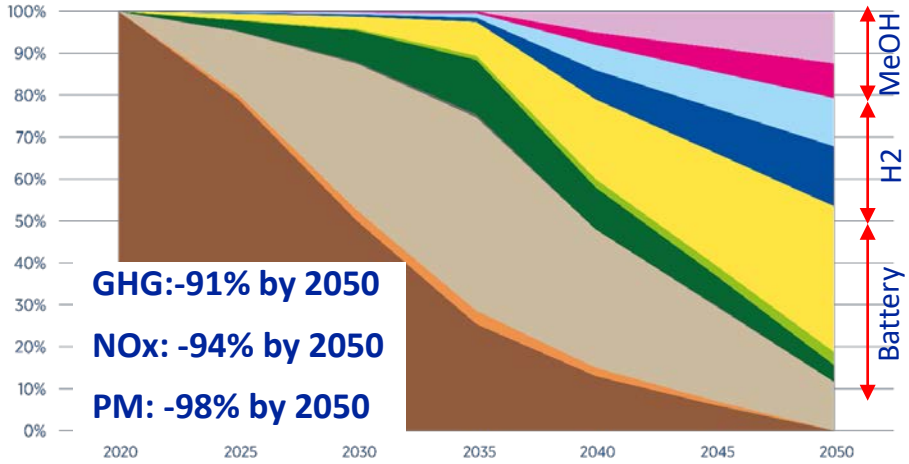
Development of fuel share towards 2050 in the "Business-as-usual" scenario



Development of fuel share towards 2050 in the "conservative" pathway



Development of fuel share towards 2050 in the "innovative" pathway



→ **"Business-as-usual scenario":** evolution of technologies without any intervention & current legislative framework,

→ **"conservative" pathway:** fuels & techniques easy to implement, cost efficient in short-term, quite mature & already available on the market.

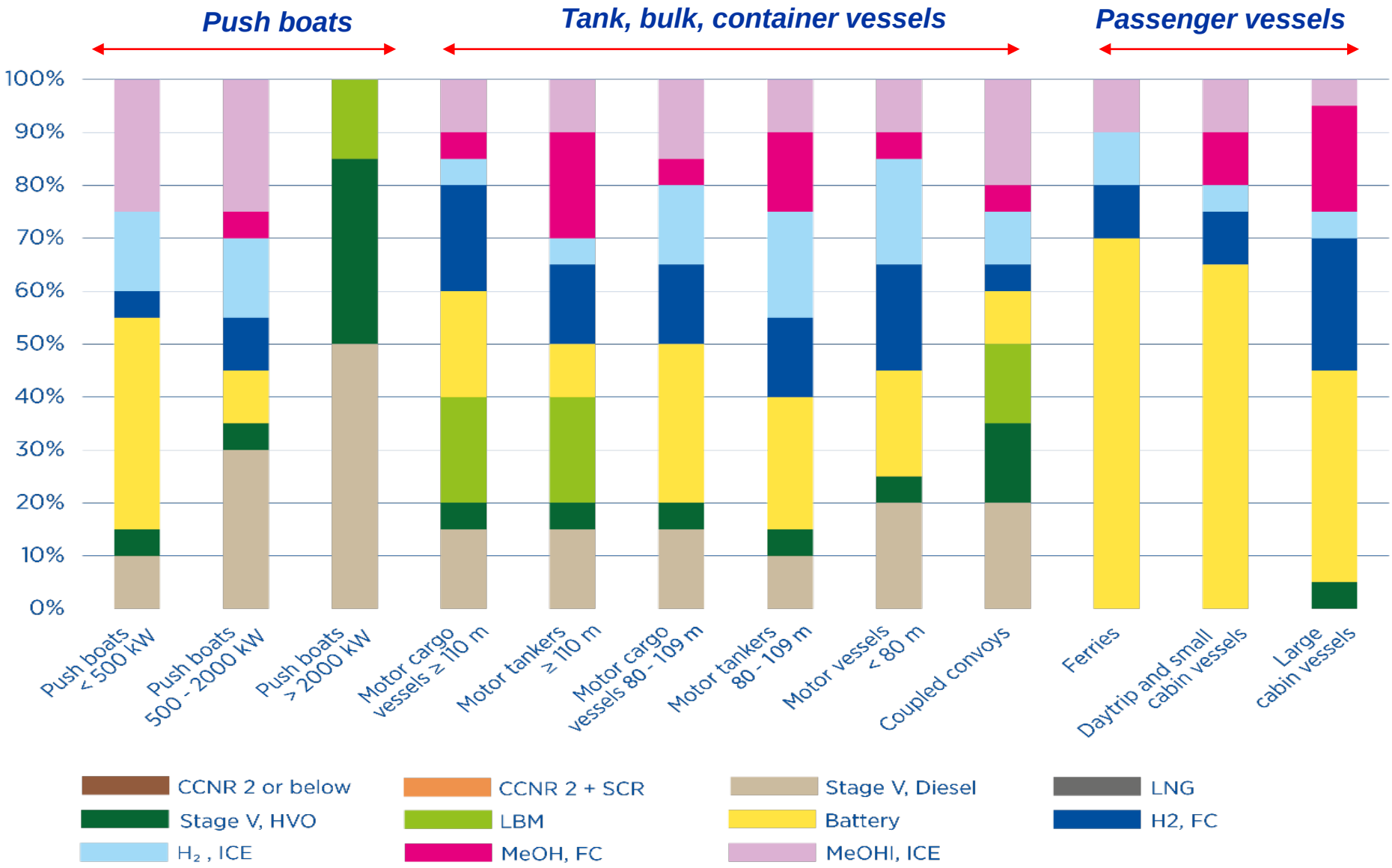
→ **"innovative" pathway:** fuels & techniques still in their infancy stage, more expensive, more promising in terms of emission reduction potential, business case may become more attractive on the long run.

→ **In practice:** reality in the middle

Draft CCNR roadmap – transition pathways per fleet family

EXAMPLE: Innovative pathway - technology share for each fleet family in 2050

(newbuilt and existing vessels)



CCNR study – Key considerations on most promising technological solutions

- **Many technological solutions available but** with different levels of maturity
- No **“one-size-fits-all”** solution : suitability of technologies depends on vessel sailing profile
- Many **uncertainties** as to technology development: regular monitoring to update investment priorities
- Technology **neutral and open approach**
- **Pilot projects needed** to address such uncertainties.

First push boat with Hydrogen Fuel Cell (D)

Passenger ferry CNG-electric (CH)

Ducasse sur Seine 100% electric (F)

Port of Antwerp - European Fastwater (tugboat conversion to diesel-methanol propulsion) – (B)

First vessel with exchangeable ZES battery containers for propulsion (NL)

CCNR Study – conclusions regarding the financial challenge

The financial challenge: a considerable financial gap to realise the energy transition (several billions) !

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- **Sector cannot finance the energy transition by own means** (high costs and lack of investment capacity)
- **Current framework conditions = no incentive for vessel owners to invest in "greening", no return on investment** (no business case)
- **Significant grants needed** to create a business case
- **No business case = no financing/access to loans** (even if low interest rates, guarantees...)

A possible solution address such challenges?

⇒ **A European instrument dedicated to IWT, based on mixed sources (public and private), including a sector contribution**, could play an important role!

- **economic, technical, legal and practical feasibility questions** remain to be addressed by competent organisations
- such an instrument should be **accessible to all vessel owners** from **Member States of the CCNR, the EU as well as of Danube riparian States connected to the European waterway network (level playing field).**

THANK YOU VERY MUCH FOR YOUR ATTENTION

Benjamin Boyer, Administrator ship technique:
b.boyer@ccr-zkr.org

Laure Roux, Administrator economic affairs:
l.roux@ccr-zkr.org

More information on
www.ccr-zkr.org