



# CCNR Activities in Support of Innovation and Greening **Know-How Transfer Event** **Modernisation of Danube Vessel Fleet**

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*WE emphasise the need for up-to-date, workable and **harmonised environmental and safety regulations in Rhine and inland navigation.***

*To further improve the ecological sustainability of inland navigation, we task the CCNR to develop a roadmap in order to*

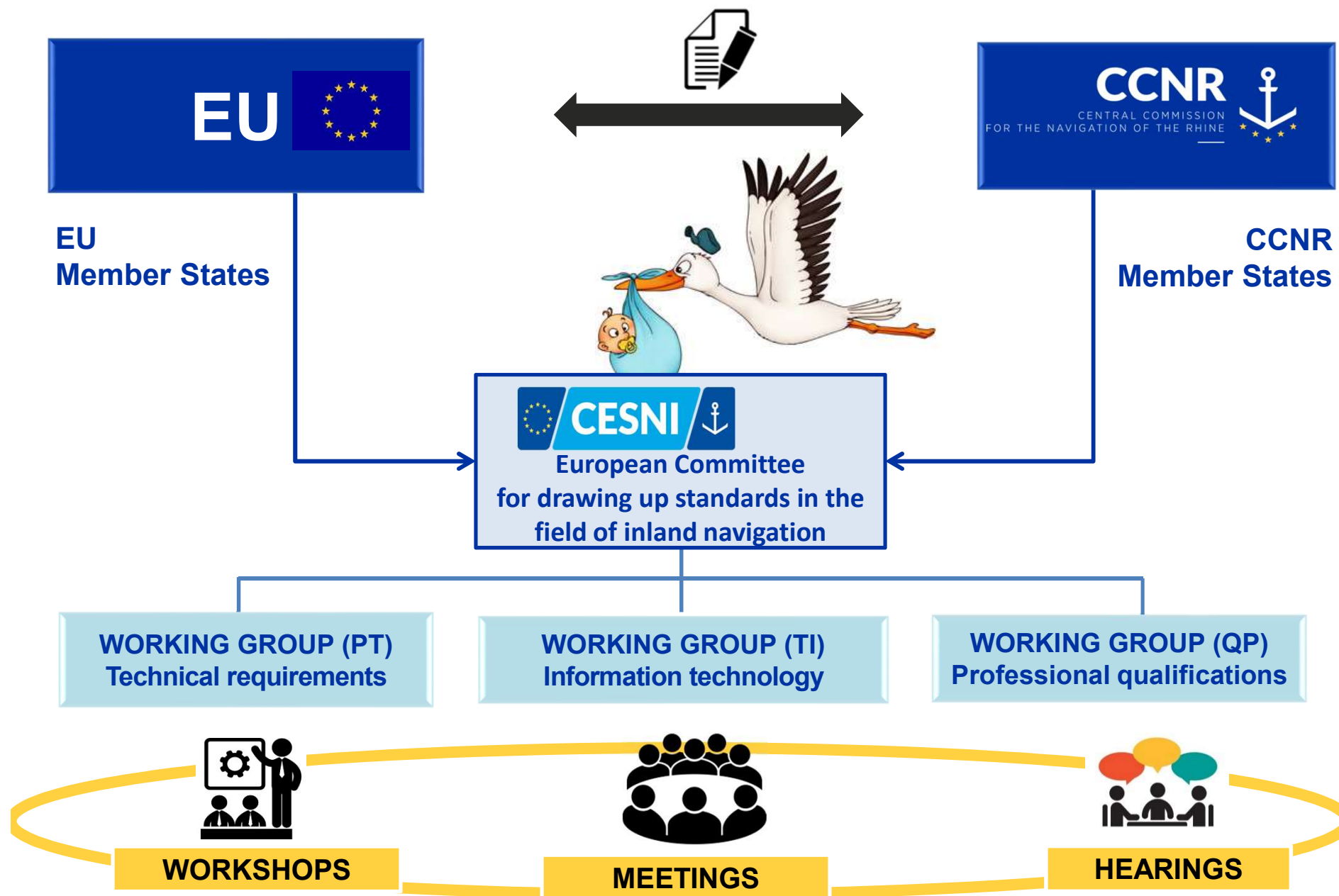
- **reduce greenhouse gas emissions by 35% compared with 2015 by 2035,**
- **reduce pollutant emissions by at least 35% compared with 2015 by 2035,**
- **largely eliminate greenhouse gases and other pollutants by 2050.**

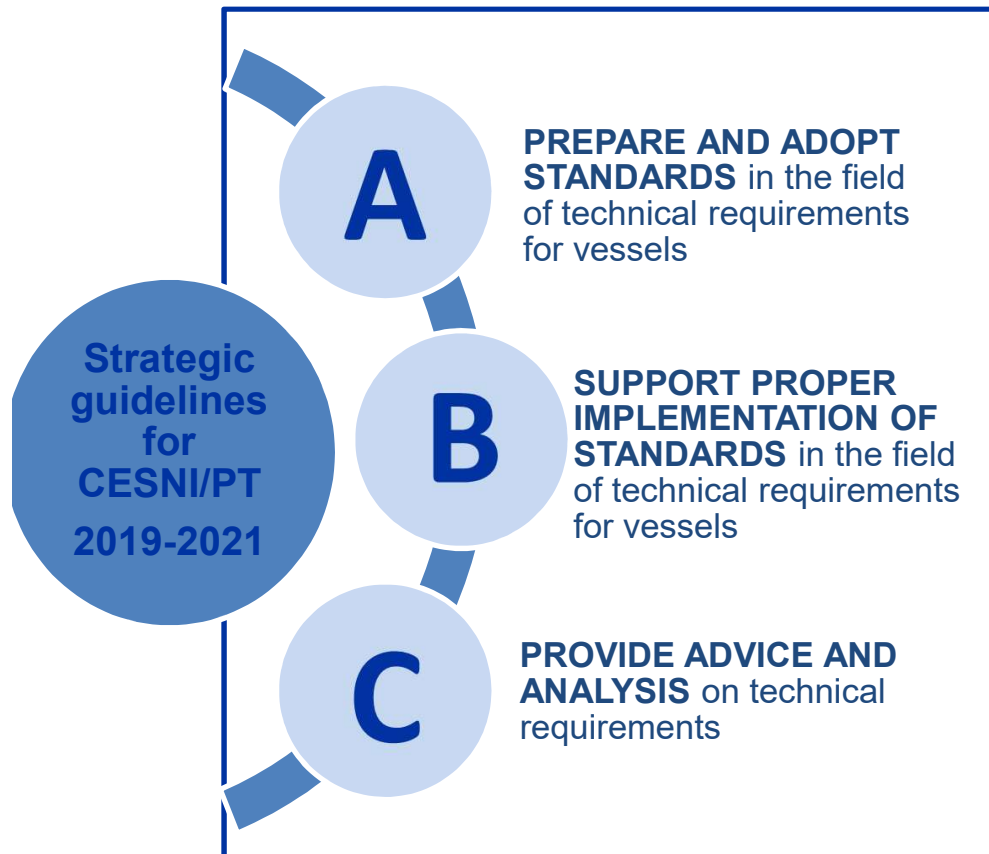


*WE point to the need for **new financial instruments** (as existing instruments have shortcomings in financing greening techniques) **to achieve these environmental objectives** and entrust the CCNR with the task of leading this development.*



*WE call on the CCNR to press ahead with development of **digitalisation, automation and other modern technologies**, thereby contributing to the competitiveness, safety and sustainability of inland navigation. [...]*





- regular revision of ES-TRIN
- **new technologies and innovation (i.e. alternative fuels)**
- digitalisation of inland navigation (i.e. automatisisation)
- maintenance of quality standards
- preparation of explanatory notices
- deliberation on the uniform interpretation and application of the standards
- preparation of audit guidelines
- **deliberation on derogations and equivalences for a specific craft**
- **deployment of new technologies and alternative fuels**
- **reduction of the environmental impact of IN**

Innovation and greening are in the genes of CESNI/PT





Uniform technical requirements for ensuring **safety** of inland navigation vessels



Includes in **standardised** way the **requirements** of EU directive 2006/87 and Rhine Vessel Inspection Regulations (RVIR=RheinSchUO)



Concrete result of successful **cooperation** in CESNI, notably between European experts and shipping industry



ES-TRIN 2017/1 now available in **additional EU languages**: BG, CZ, HR, HU, IT, LT, PL, RO and SK as well as in RU

**ES-TRIN is not binding per se → CCNR, EU, other international organisations and states can apply this standard by referring to it in their respective legal frameworks**



Directive 97/68/EC

*replaced by*

Regulation (EU) 2016/1628 on pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery (NRMM)

Rhine Vessel Inspection Regulations (RVIR)

Requirements concerning emission limits and type-approval procedures

*given up  
to allow harmonized  
regulation*

## Scope of regulation

- Emission limits, type-approval procedures
- Diesel engines, (EU) also (natural) gas engines and dual fuel engines
- Market access (EU) vs. installation onboard (CCNR)

## EU Regulation

- Same emission limits for all types of engines for inland navigation vessels
- ! **Very ambitious emission limits**, engines equipped with complex **exhaust after treatment systems** (catalytic converters, filters)
- Possibly **double investment cost**, change in operational cost unclear, **limited choice**
- Allowable methane slip for gas / dual engines overcompensates possible CO<sub>2</sub> reductions



Regulation (EU) 2016/1628

⇒ Approach is driven by “placing on the market” of engines

⇒ Engine type-approval certificate (Stage V)



ES-TRIN (Chapter 9)

⇒ Safety requirements for installation of engines on board.  
Approach is driven by “periodic inspection of the vessel”

⇒ Vessel certificate



Existing engine + after treatment system

⇒ can achieve similar performance as Stage V  
(but legal recognition is pending)



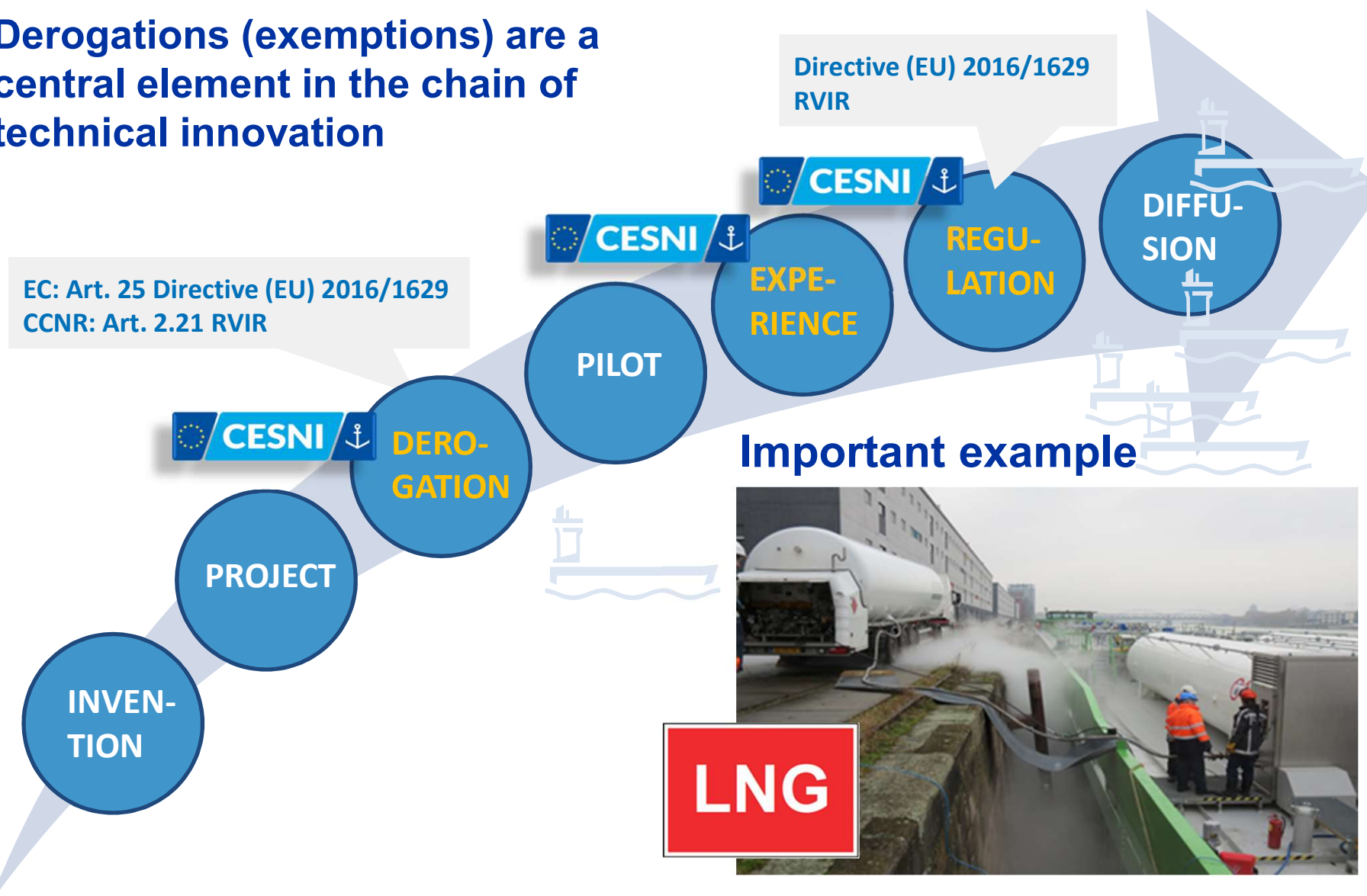
### Catalogue of FAQ

- ⇒ To help understand and interpret the applicable requirements to engines
- ⇒ New version to be published by end of March 2019
- ⇒ Available in EN, FR, DE, NL
  - ⇒ CESNI website : [www.cesni.eu](http://www.cesni.eu)  
(under activities / technical requirements)
  - ⇒ EUROMOT website : [www.euromot.eu](http://www.euromot.eu)  
(under publications and events)

**Next step: Possibly inclusion of administrative process for verification of NRE & Euro VI solutions for inland navigation propulsion**



**Derogations (exemptions) are a central element in the chain of technical innovation**



**Next step: CESNI will publish a guide on derogations**



## Sound experience with LNG propulsions (fully covered by the legal framework)

- Reduction of air pollutants, but further work to reduce GHG (methane slip)
- Additional ecological benefits possible with bio-gas

## On-going pilot projects with methanol, hydrogen or full electric (Derogation procedure for vessel certificate)

### Modular and progressive approach: “electrical power source + electric engines”

- Power source can evolve upon technical progress
- Great variety of possible combinations/solutions
- Only certain combinations technically and economically sensible

**Next step: Stimulate pilot projects to demonstrate operational solutions and better understand possible problems in preparation of regular deployment**

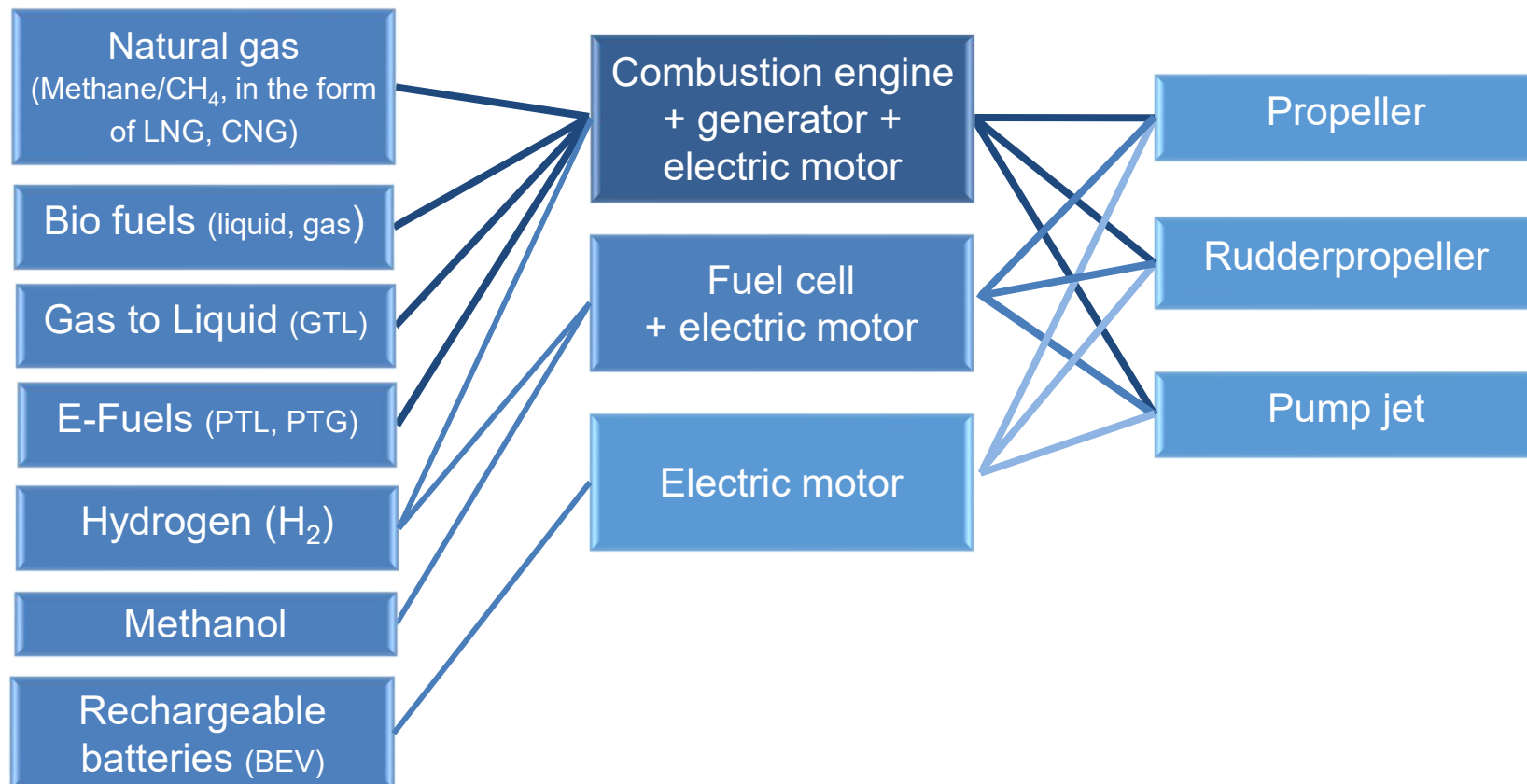


## Elements for *alternative* electrical propulsion system in inland navigation

### Energy carrier (fuels)

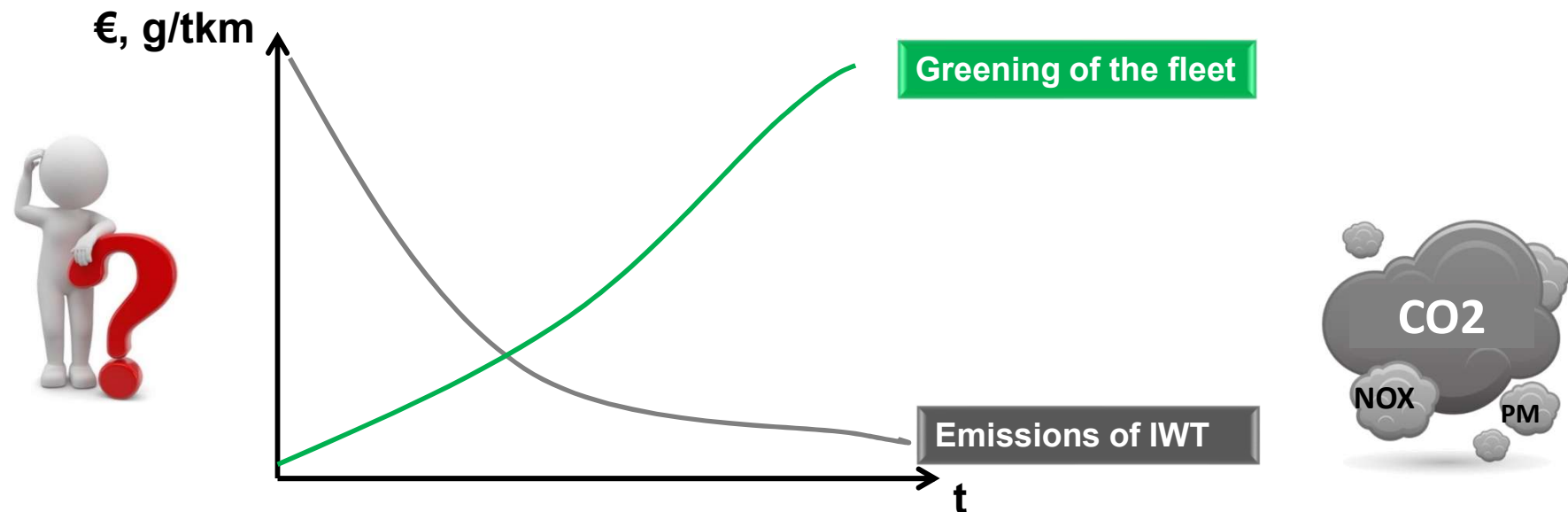
### Energy converter

### Propulsion type





- Not yet satisfactory tools for funding (grants) and financing (loans/own capital) for large scale **greening of the fleet**



- CCNR *forum for discussion* between EU and CCNR Member States, sector and industry representatives, EU Institutions and other stakeholders
  - CCNR supports developing of financing solutions
- ✓ **Pre-study to identify technical content of the comprehensive study**
  - ✓ **Comprehensive study will analyse & advise on financial approach & instruments to enable IWT industry to make the transition towards zero-emission inland navigation**



- CCNR strongly supports **zero emission vision** of inland navigation
- CCNR has developed important tools together with partners for innovation and greening
- CCNR ready to support modernisation of Danube vessels fleet
- CCNR eager to learn from Danube fleet developments

An aerial photograph of a wide river bend, likely the Moselle in Europe. The river is a greyish-blue color. On the left bank, there is a town with several buildings and a parking lot. On the right bank, there is a larger town with more buildings and a road. In the center of the river bend, a large white ferry with a green roof is moving towards the viewer. Several smaller boats are also visible in the river. The background shows rolling green hills under a clear sky.

# Thank you for your attention!

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