

LR getting to zero approach

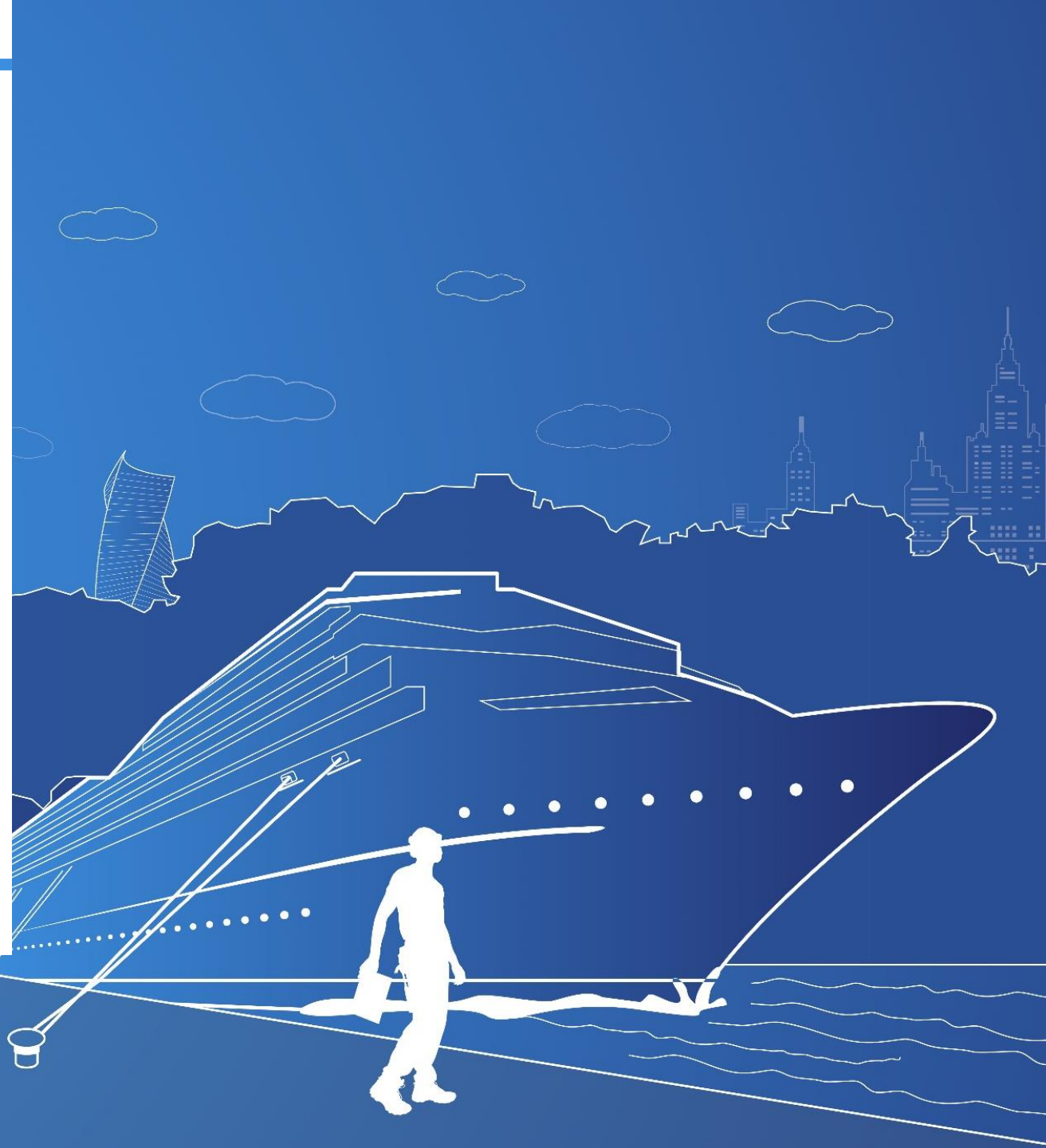
ESPO Conference Regatta 2021

Presented by

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Lloyd's Register Maritime Decarbonisation Hub

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The Lloyd's Register Maritime Decarbonisation Hub

Mission

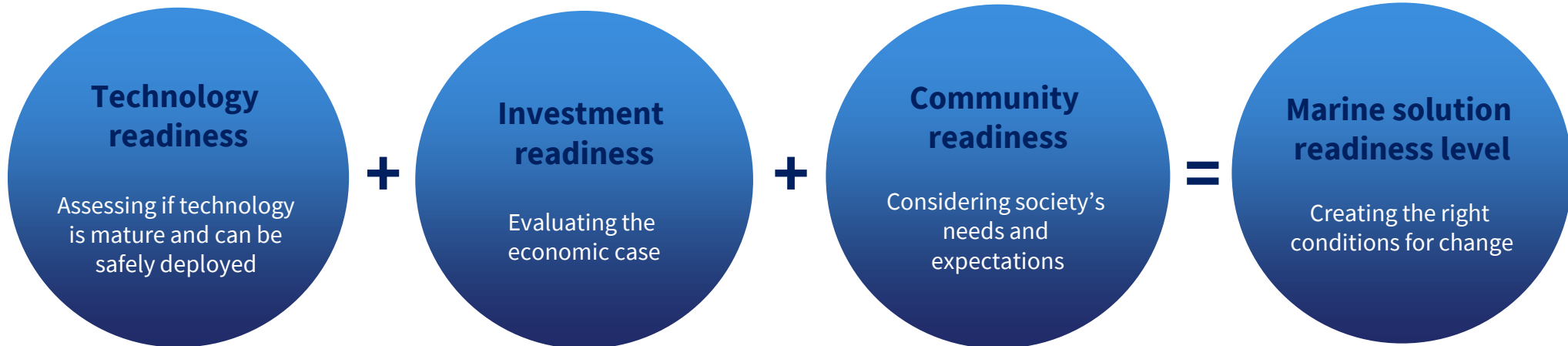
To accelerate the sustainable decarbonisation of the maritime sector to deliver safe, technically feasible and commercially viable zero-emission shipping by 2030.



Outcomes

- Increased uptake and deployment
 - Zero-carbon energy sources and supporting supply infrastructure
- Safe adoption of solutions
 - New technologies and alternative fuels
- New skills
 - To safely design, build and operate infrastructures
- Appropriate policy and regulation
 - Effective and practicable
 - Enabling production and uptake of zero-carbon energy sources

Approach



Coalition is a key to achieve the decarbonisation

Building coalition is essential to achieve the overall decarbonisation goal

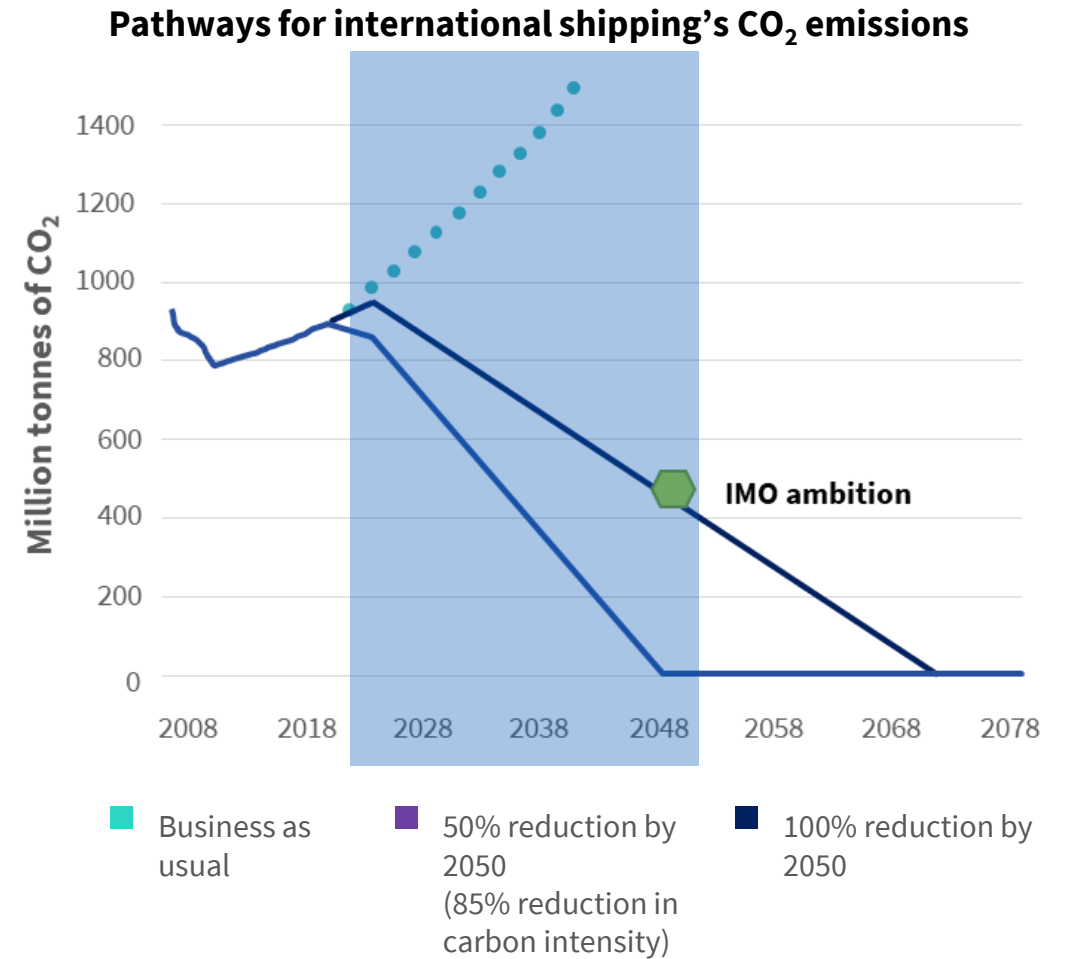
- Access to clean alternative energy sources
- The need for a shift in various parts of the supply chain
- It is not only technical challenge
- Building coalition to minimize the risks and accelerate the adoption



A sustainable transition within a specific timeline

Building coalition that maximizes the value and the impact for a sustainable transition

- Time is precious if we want to achieve the goal
- Accelerate the safe and sustainable transition
- Supported by the necessary infrastructure for scalable and sustainable zero-carbon energy sources including production, distribution, storage, and bunkering



Our 'getting to zero model'

MSRL framework provides decision makers with a structured approach to making informed evidence-based decisions on different pathways

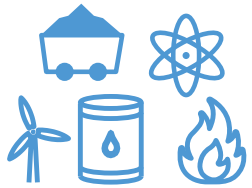
- TRL: How well developed is a technology?
- IRL: How ready is the solution for investment?
- CRL: How prepared are people and organisation to adopt the new solution?



The MSRL is looking at a variety of zero carbon fuels such as ammonia, hydrogen, methanol, methane, biofuels

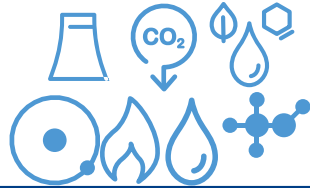
A transition involving a wider system

Putting shipping into the wider energy context as we transition to alternative energy sources and technologies



Resources

- Biomass
- Electricity from non-biogenic renewable energy (e.g. solar, wind)
- Fossil fuels (e.g. natural gas)



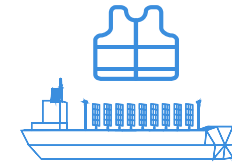
Production, conversion and system integration

- Energy conversion systems (e.g., gasification, SMR, electrolysis)
- Transportation of both intermediate products or end-product
- Fuel storage
- Competing markets



Bunkering and Ports integration

- Refuelling (e.g. barge, berth)
- Shore side storage
- Safety zone



Fuel storage and handling onboard

- Fuel supply system (piping)
- Fuel tanks (materials, capacity, location)
- Safety (venting and detection)
- Competence of crew

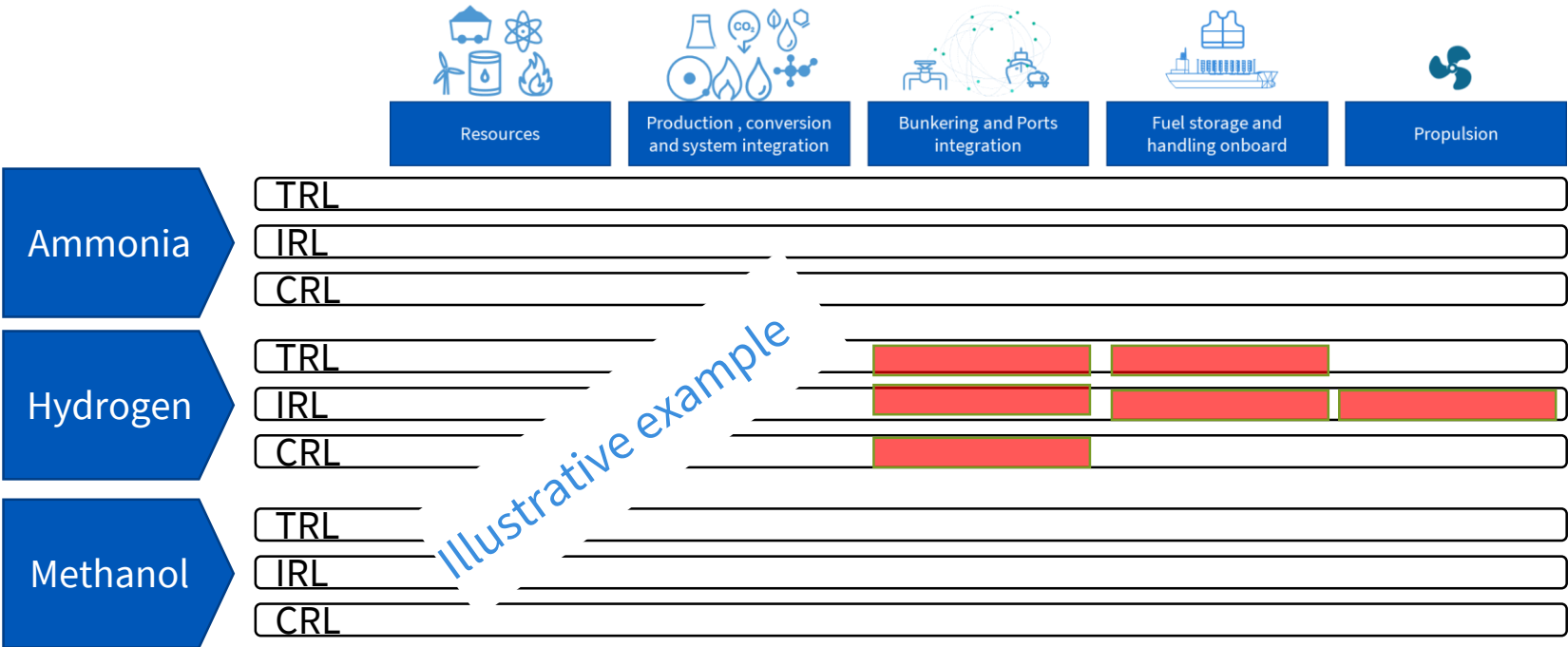


Propulsion

- Main propulsion machinery
- Auxiliary engines
- (e.g. internal combustion engines, fuel cells system, reformers, electric motor, batteries)
- Energy efficiency technologies

A framework working across three different dimensions

MDH maintains the MSRL to accelerate the safe and sustainable transition to zero



- What works today, might not work tomorrow and what is alternative today will become the future normal.
- With new information, experience and learning we will continually grow and update this framework by developing our own new research, and working with partners in order to guarantee the best available evidence

Contacts

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Thank you

Lloyd's Register Maritime Decarbonisation Hub (MDH)

