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Hydrogen Shipping

Course Instructor



Charley Rattan

Hydrogen and offshore wind business advisor and trainer

The course is led by Charley Rattan, international hydrogen expert and respected energy insider and facilitator bringing over 25 years' real-world renewable experience and a track record of successful major project delivery. Charley is a trusted strategic advisor to global energy companies and an advocate and facilitator for the emerging innovation energy market.

LIVE ONLINE TRAINING COURSE

4 Part Series

**Aug
2022**

Part 1: 18th August | Part 2: 19th August | Part 3: 25th August | Part 4: 26th August

Course Parts will commence at **15:00** and end at **18:00 (AEST)**. There will be short breaks during each course Part.

Key Learning Objectives

- ▶ Understand the applications and commercial considerations for Hydrogen with relation to Shipping, vessels and ports combined with Carbon Capture and their integration a new generation of mega projects
- ▶ Learn about the technologies for development of Hydrogen and Green Shipping and associated value chain and the role it can plan in the net zero agenda
- ▶ Understand practical risks and opportunities associated with hydrogen and green shipping
- ▶ Appreciate the challenges around shipping hydrogen, ammonia, and methanol
- ▶ Understand Vessels, Ports, shipping and integration with hydrogen production and global distribution
- ▶ Learn about real-world projects integrating shipping and hydrogen
- ▶ Understand the differing perspectives of the investor, the operator, the customer and government
- ▶ Review wider financial transportation considerations
- ▶ Discover the characteristics that broaden yet constrain the commercial and technical links in the 'supply chain' for hydrogen shipping



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ABOUT THE COURSE

The hydrogen transportation sector is expected to grow significantly across the globe in the coming years. The EU, for example, for green hydrogen, representing a 40-fold increase within nine years for that sector. Pipelines are planned but shipping infrastructure will be vital. The UK is looking to repurpose the infrastructure, for offshore wind and use depleted gas and oil reservoirs to sequester CO₂ captured from hydrogen produced in emerging energy clusters across the UK.

The journey to a renewable, circular and low-carbon economy (facilitated with electrons, hydrogen and other technologies), will be challenging and the very top priority will be that it is implemented and delivered safely. This course details how global shipping and financial leaders can assist. Developers and stakeholders require their people and supply chain to possess the necessary awareness, know-how, skills and competencies to deliver shipping, portage, CCS and hydrogen projects safely, on time and with the highest quality standards.

The course aims to enable companies and stakeholders to be aware of the fundamentals of shipping for hydrogen. What it is and what it could mean for the future? What decisions and plans are likely to be made based on the real opportunities that are emerging? Participants will be guided as to where early opportunities are most likely to lie, who is involved and how to engage.

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Register today for our **Live Online Training** courses and find out how they can help you transform the way you work. Contact one of our training consultants on training@informa.com.au to find out more.

COURSE DIRECTOR



Charley Rattan

Hydrogen and offshore wind business advisor and trainer.

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renewable experience and a track record of successful major project delivery. Charley is a trusted strategic advisor to global energy companies and an advocate and facilitator for the emerging innovation energy market.

Charley's is respected as a leading authority in hydrogen and renewables providing consultancy and training at high level across the globe including for key stakeholders, governments, consenting authorities and world organisations such as the United Nations.

WHO WILL BENEFIT

Existing companies particularly those who are already part of the hydrogen or renewables supply chains and those looking to future-proof their capabilities. Project developers seeking to decarbonise and source.

Financiers and the construction industry, oil and gas majors, OEM's and balance of plant organisations. Particularly relevant to engineering companies, those involved in storage compression equipment and shipping as well as those seeking to enter the energy arena with its myriad shipping opportunities in a market set for exponential growth. The course will also benefit stakeholders from government, finance and consenting and those wishing to understand the realities of CCS and hydrogen production.



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Course Outline

GREEN SHIPPING – WHAT IT IS

- Green shipping, perspectives: maritime transport with low or zero carbon emissions (not to forget NOx!), transporting green (clean) energy, transporting CO₂ (as part of CCS scheme). The first one is probably what most people would think of.
- Transport (pipelines, example: US CO₂ pipeline, Acorn, infrastructure, compression, shipping)
- Carbon Sequestration and storage
 - Port and shipping operations
 - Pipelines v shipping or pipelines and shipping?

A BRIEF HISTORY OF GREEN SHIPPING

- The emergence of green shipping
- Pilot projects
- Ramp up
- Impact of fluctuating pricing
- Successful trials and projects

GREEN SHIPPING TECHNOLOGIES

- Overview of current technologies (including potential roles for hydrogen and its derivatives ammonia and methanol)
- Evaluation of technologies: techno-commercial (including licensors) Liquid, (LOHC) Gas, Solid, Compression, Sequestration
- HSE imperatives, Ammonia, Methanol?
- Vessel Design Compression technology, Ammonia, Methanol, Liquid Hydrogen
- Logistics and infrastructure requirements
- Cost structure, learning curves: challenges and opportunities
- Operations and maintenance. Port requirements HSE, Land, lay down areas
- Future technology outlook: opportunities and challenges

POLICY AND REGULATORY PERSPECTIVES – GLOBAL INITIATIVES AND NATIONAL NUANCES

- Introduction
 - GHG emissions
 - CO₂ classification (scope 1, 2 and 3)
 - CO₂ emissions by sector
 - Embedded versus fuel related emissions
 - Significance of Shipping
 - Non-GHG emissions (SO_x, NO_x)
- IMO (United Nations)
- European Commission
- Transport and Environment
- Norway & IMO
- UK maritime emissions strategy
- Lloyds IMAREST

SHIPPING VALUE CHAIN, GREEN SHIPPING BUSINESS MODELS, COST CHALLENGES

- Shipping value chain, and Porter's five forces (new entrants, suppliers, customers, substitutes, internal rivalry - top 10 shipping companies)
- Fundamental options for low or zero carbon emission shipping fuels, cost challenges to overcome
- Differences for in-land, near sea and deep-sea.
- Other supply chain requirements to make green shipping happen including bunkering, steel
- The cost of green shipping and how to still make money? Carbon pricing, technology applied pricing
- Strategic partnerships focusing on green shipping: overview, vision/objectives of each
- Shipping implications for decarbonising industrial clusters

GREEN SHIPPING PROJECTS – OVERVIEW AND DISCUSSION, DEEP DIVES INTO CASE STUDIES

- Description/discussion of plans currently in development Maersk, Thyssen Krupp
- Operations and maintenance, employment opportunities
- Plans and schemes under development / type testing process (consenting, implementation, construction)
- Lessons learnt from LNG
- Project pipeline/future outlook
- GEV and compression

KEY STAKEHOLDER PERSPECTIVES

- Oil and gas companies. Discuss Shell, Stasco, BP, Total, Equinor, ENI, Aramco, Gazprom, Petronas.
- Shippers, logistics services providers
- Port operators (bunkering operations)
- Customers (sellers / buyers of cargo)
- NGO's and local community engagement
- Investors
- National hydrogen strategies

SHIPPING, H₂CCS AND SISTER PATHS IN THE ENERGY TRANSITION (WIND, SOLAR, HYDROGEN ETC.)

- Hydrogen Green and Blue Synergies
- Clashes
- Dilemma's
- The route forwards

10 POINTS TO CONSIDER WHEN INVESTIGATING GREEN SHIPPING PROJECTS

Issues to address (e.g., HSE, Port development, operational requirements)

SUMMARY, WRAP UP, FINAL QUESTIONS

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Easy Ways to Register

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2 Telephone
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Hydrogen Shipping

Course Code	Location	Course Parts	Month	Standard Price		4+ Dels Discount
P22GR43V	Live Online Training	All 2 Parts	August 21	\$2,195 + \$219.50 GST	\$2,414.50	Great Savings: When you book 4 or more participants! Call us today on +61 (0) 2 9080 4032 or email training@informa.com.au to take advantage of the discount offer.

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Speak with **Anton Long** on +61 481 995 653 to discuss your customised learning solution, or email training@informa.com.au

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