

# Hydrogen safety



## **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.

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.

## **Course overview**

The emerging Hydrogen economy is a key vector to enable society to be fossil-free within one generation, and as such developers require their people and supply chain to possess the necessary skills and competencies to deliver hydrogen projects safely, on time and with the highest quality standards.

## **Who should attend?**

Existing energy companies particularly those who are already part of the oil and gas supply chain and those looking to future proof their capabilities

Particularly relevant to engineering companies, those involved in storage compression equipment and shipping

Those companies seeking to enter the energy arena with its myriad opportunities in a market valued by the Bank of America at 11 trillion dollars.

## **About the course**

The hydrogen economy is expected to grow exponentially across the globe in the coming years. For example, the UK recently set a target to produce five gigawatts of hydrogen by 2030, representing a 40-fold increase from the current situation. This ambition is replicated across the globe where hydrogen strategies are appearing on a weekly basis. The journey to a hydrogen economy will be challenging and the very top priority will be that it is implemented and delivered safely. This course details how the UK and global leaders can do just that.

The course aims to enable companies to make informed health and safety related decisions and plans based on the real opportunities that are emerging as the global hydrogen economy develops. Delegates will be guided as to where early opportunities are most likely to lie, who is involved and how to engage on their top priority with them.

## **Course outline:**

Hydrogen Production/Uses/Storage/Projects

Hydrogen Gas - Properties and Characteristics

Legislation Hierarchy

HASAWA/Regulations/ ACOP's/ Role of HSE

COMAH Overview/COMAH Upper and Lower Tier

COMAH Competent Authority/Major Accident Classification

COMAH Appendix 3

Emergency Response Considerations and MAPP

Case studies – Fukushima/Maskingum River

Case Study - Uno X Hydrogen Refuelling Station

Basic Principles of Gas Explosion

CDM Regulations/Roles/Responsibilities (UK)

Documentation to Support Projects/OEM

Hierarchy of control/Risk Assessment/DSEAR Overview

DSEAR Risk Controls/DSEAR Risk Mitigation

Swiss Cheese Model

HSE Publications

## **Key learning outcomes**

- To understand policy context and global business opportunities offered by hydrogen
- Implications for projects and supply chain of hydrogen
- To understand practical risks associated with the use of hydrogen
- To understand the scale of risk depending on the application and quantity of hydrogen
- To understand the previous major accidents involving hydrogen
- To understand the risk control, mitigation & elimination strategies, techniques for the production & use of hydrogen
- Understand the practical approaches to risk management