

Financing Hydrogen Energy

Delivered in **Live Online Training** Format

Mar 2022	Part 1: 17 th March Part 2: 18 th March Part 3: 24 th March Part 4: 25 th March
	Course Parts will commence at 13:00 and end at 16:00 (AEDT) . There will be short breaks during each course Part.
Aug 2022	Part 1: 18 th August Part 2: 19 th August Part 3: 25 th August Part 4: 26 th August
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4 Part Series



KEY LEARNING OBJECTIVES

- ▶ Gain an appreciation of the key technical advances of the hydrogen market and the constraints it still faces.
- ▶ Examine applications for hydrogen technology across multiple industries and jurisdictions.
- ▶ Learn the regulatory frameworks and hydrogen market development strategies adopted by governments in Asia Pacific
- ▶ Review comparative hydrogen and other renewable and fossil fuel costs.
- ▶ Recognise the correct methodologies for forecasting the growth of the hydrogen market by sector.
- ▶ Study the hydrogen value chain.
- ▶ Research which organisations are active in lending and investing to hydrogen projects.
- ▶ Develop appropriate debt and equity corporate and project finance structures for hydrogen investments in Asia Pacific.
- ▶ Be able to construct, audit and conduct risk analysis on a hydrogen financial model.

Our Expert Course Instructor



Julian Roche

Julian Roche began his career with the UK Government as an economic analyst, specialising in foreign trade, energy and economic modelling. He subsequently joined the mainstream Civil Service fast stream, where he specialised in major privatisations and procurement at the time of the development of Public-Private Partnerships. He then returned to economic analysis in the private sector as a divisional forecasting head for what later became Global Insight.

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ABOUT THE COURSE

The emergence of hydrogen as a viable renewable fuel source has been long predicted, but the combination of technological developments, government support and market interest has now combined finally to make it a reality. This course is a comprehensive and detailed presentation of the state of technology, costs, the market, the existing project pipeline and future opportunities, financing sources for hydrogen, the structure of deals and how to model them.

The course starts from a survey of the key advantages and constraints behind hydrogen as a power source and of recent technical developments across the rainbow of hydrogen types, including the intersection of hydrogen production and other renewable energies, storage and applications for hydrogen across industry sectors, including manufacturing, transport and construction. Delegates then examine the logic behind regulatory measures and their implications, and the level of government support at all levels across multiple jurisdictions. The course then moves to forecasting techniques, in order to open up discussion of the way the market may develop in the immediate future.

Delegates will then study both relevant renewable energy fund structures and individual hydrogen investment deals involving production, storage, supply and offtake, and trading, both from an equity and debt standpoint as well as the legal aspects of deals. The principal task for delegates will be to pinpoint relevant metrics in each case, before going on to work together in groups to audit hydrogen financial models and then to go on to compare and review them from a risk perspective.

EXPERT COURSE INSTRUCTOR



Julian Roche began his career with the UK Government as an economic analyst, specialising in foreign trade, energy and economic modelling. He subsequently joined the mainstream Civil Service fast stream, where he specialised in major privatisations and procurement at the time of the development of Public-Private Partnerships.

He then returned to economic analysis in the private sector as a divisional forecasting head for what later became Global Insight. After having worked on a range of derivative contracts for in the City of London, in 1991 he set up his own consultancy, where he acted inter alia for a number of years as senior consultant to a venture capital company guiding tech investments, and subsequently advised developers and energy companies on finance and modelling, and UNCTAD, the World Bank and governments on global investments and trade.

He regularly publishes and conducts courses on a range of financial topics including renewable energy, financial modelling, project finance, venture capital, and valuation to international firms, banks, and public sector agencies including central banks and sovereign wealth funds.

Julian holds a first-class degree in Philosophy, Politics and Economics from Oxford University and amongst other higher degrees, a PhD in risk management from Deakin University

WHO WILL BENEFIT

Technology is now finally conquering the obstacles that have prevented the final emergence of hydrogen as a viable energy source. Governments, international agencies and the private sector are now all working closely together to bring numerous hydrogen projects to fruition. This course is designed for industry participants involved in delivering those projects as well as regulators and policymakers.

The course is therefore aimed at all of those who need to gain a practical appreciation of the specific financial and economic structures that are appropriate for the emerging commercial hydrogen market. There is no prior requirement for financial knowledge. Those who can benefit from attending therefore include engineers, technology specialists, developers, lawyers, accountants and bankers, as well as investors, economists, regulators, and those involved with the development of hydrogen energy policy within government.

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Course Outline

Modules 1 and 2: Hydrogen as a renewable energy source

Review of hydrogen renewable energy technology

- Hydrogen production, distribution and storage
- The hydrogen rainbow and the key technical issues
- Hydrogen developers (scaling electrolysis, and other technologies)
- Meeting the technical challenges of hydrogen storage and transmission
- Interaction with other renewable energy production on and off-Grid
- Asia-Pacific examples

Case Study: *New Fortress Energy*

- Existing and potential international codes, standards and regulations in Asia-Pacific jurisdictions

Forecasting the global hydrogen market

- Forecasting tools and techniques
- Fuel cell vehicles and hydrogen-derived e-fuels for transport applications
- Hydrogen as feedstock for manufacturing, mining, and other applications

Case Study: *Which jurisdictions lead hydrogen development in Asia-Pacific?*

- The prospect for buildings
- The Hydrogen project pipeline in Asia-Pacific

Group Exercise: *Evaluating hydrogen market forecasts Hydrogen cost structures*

- How to analyse comparable energy costs (LCOE analysis)
- Components of hydrogen manufacture cost across the rainbow
- Available hydrogen cost methodologies and reporting
- Comparison with other energy sources in Asia-Pacific

Case Study: *Comparable hydrogen and battery energy storage cost structures*

- The impact of rising carbon costs
- Approaches to scaling-up the supply chain

Modules 3 and 4: Financing hydrogen energy applications

Equity investment

- The hydrogen value chain
- Major hydrogen investors (with corporate examples)
- Public-private partnerships for hydrogen development
- Private equity hydrogen investment strategies in Asia-Pacific
- Valuing hydrogen assets
- Accounting principles and practice for hydrogen assets

Case Study: *ITM energy funding and valuation*

- Trading hydrogen

Global hydrogen energy strategies

- Tax credits for hydrogen energy
- Available subsidies by jurisdiction
- National fund structures, deployment and outcomes

Case Study: *Examining energy funding rounds by venture capital*

- Support at sub-sovereign level in Asia-Pacific

Group Exercise: *Formulating applications for support The role of international agencies*

- EU clean energy targets and subsidies as a global benchmark
- The role of the IFC and development finance institutions

Case Study: *How committed is the Asian Development Bank to hydrogen?*

Bank lending to the hydrogen industry

- Who is lending to the industry?
- Lending criteria and asset valuation for hydrogen borrowers – differences between Asia-Pacific jurisdictions

Case Study: *Hydrogen offtake contracts and bankability Modelling hydrogen development*

- Excel as a modelling tool
- What differentiates hydrogen models?

Group Exercise: *Auditing hydrogen energy models*

Course Conclusion

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Course Code	Location	Course Parts	Month	Standard Price	4+ Dels Discount
P22GR51AUU	Live Online Training	All 4 Parts	March 2022	\$2,195 + \$219.50 GST	\$2,414.50
P22GR51AU02V	Live Online Training	All 4 Parts	August 2022	\$2,195 + \$219.50 GST	\$2,414.50

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