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Argus Consulting

Your partner in energy transition - hydrogen



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Events

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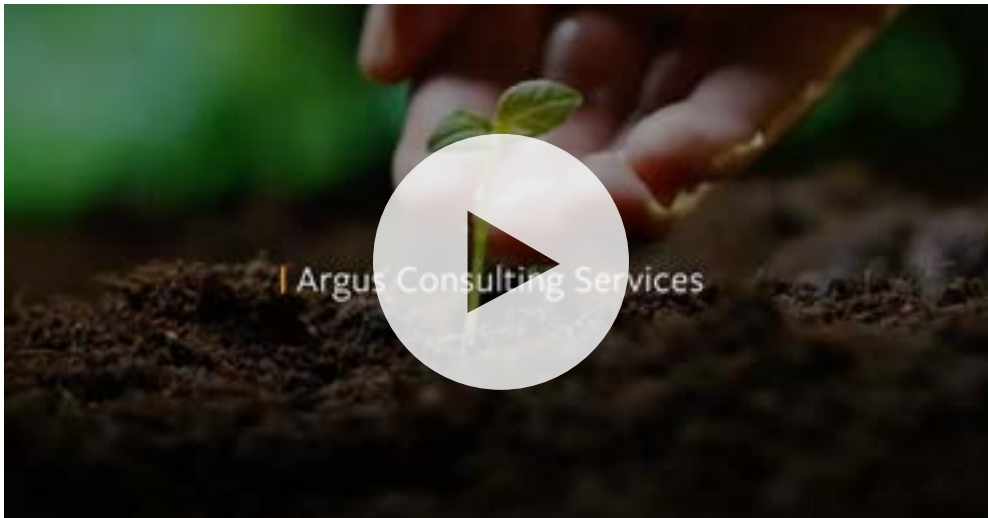
| Argus Consulting

With the global energy transition well underway, Argus will be your partner in navigating the challenges and opportunities with our bespoke consulting services and research. Our consulting division builds on Argus' key strengths – commodity markets expertise, international networks and trusted data. This spans future energy such as hydrogen, along with all its potential carriers such as ammonia, as well as biomass, biofuels, conventional energy sources such as coal, LNG, fuel oil, marine fuels, petroleum coke, plus comprehensive coverage of electricity markets.

Our global team works with corporates, lenders and investors, governments and regulatory bodies as well as professional service firms, offering tailor-made research to those seeking the highest quality market and technical insight, analysis and commentary. We are responsible for global fundamentals data and analytical tools, strategy reports and price outlooks and leverage these in bespoke projects for clients.

Services Offered

- Feasibility Studies
- Project Valuation
- Due Dilligence
- Strategic Planning
- Policies and Regular Analysis
- Market Entry Studies
- Market Supply Strategy
- Price and Fundamentals Forecast



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Here are some of Argus' consulting projects for the hydrogen markets.

► [Hydrogen and Green ammonia case studies](#)

Hydrogen imports and downstream applications: A country-level assessment

► *Client profile: Government organisation in Southeast Asia*

Client Request

A technoeconomic evaluation of the hydrogen landscape at home and abroad was conducted to better understand potential hydrogen demand in a southeast Asian country at a sub-sectoral level to 2050. Argus provided an assessment of potential supply sources of hydrogen imports into the country. Once the supply sources were mapped out, the potential to use extant infrastructure to minimise the cost of importing and transitioning to hydrogen was assessed. The study provided policy recommendations that guided the client in their national strategy formulation.

Results Delivered

Aside from a report detailing the viability of transitioning to a hydrogen economy at a sub-sectoral level, a working model that estimated the landed cost of hydrogen in the country over the next 30 years was also provided to the client. This was in addition to the development of dynamic breakeven price modelling tools, with workshops conducted with key government stakeholders to explain how to utilize these tools.

Development of a hydrogen export strategy

► *Client profile: Major steel, energy, and infrastructure company*

Client Request

A major steel, energy, and infrastructure company commissioned a study with Argus Consulting to provide their business strategy team clarity as to the business opportunity for exports of hydrogen, leveraging on its existing renewable business in South Asia and Middle East.

Results Delivered

Argus Consulting provided an overview of the global ammonia supply chain, including historical and future trends of demand and supply broken down by end use, as well as an overview of the industry's current cost structure. Argus Consulting provided an overview of the economics of the hydrogen value chain, along with technology risks along the supply chain, demand analysis, potential outlets for the client's hydrogen (including breakeven price, industry microstructure and competitor analysis). Argus Consulting also provided recommendations on the path forward for the client, which included suggested target countries, key sectors to break into first, and support from the regional government that the client is eligible to receive.

Strategic considerations: The hydrogen value chain

► *Client profile: A global integrated energy company active in oil refining, petrochemical production, and power*

Client Request

The client requested for a study and ensuing workshop to provide their business strategy team insights into the opportunities and challenges that come with participating in the hydrogen market. A key point of exploration is whether the green ammonia route is the best strategy for the client going forward.

Results Delivered

The client was provided with an overview of the pricing of green hydrogen/ammonia from a demand perspective. Argus Consulting also developed a negotiation strategy going forward, which includes identifying sectors which could potentially offtake the client's green hydrogen/ammonia. The assessment was based on the willingness-to-pay (or breakeven price) analysis for each sector (e.g. power generation vs transport etc.), competitor analysis, and comparison of hydrogen carrier choices.

Market assessment of hydrogen and its vectors

► *Client profile: A global integrated energy company active in oil refining, petrochemical production, and power*

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Prospects of hydrogen in the road transportation sector

► *Client profile: Major green hydrogen company active in energy and renewables*

Client Request

The client, a consortium consisting of a utility and chemical industry company operating in Middle East, was entering the green hydrogen market and sought to understand how hydrogen would compare against extant road transportation fuels and decarbonisation alternatives, chief among these being battery electric vehicles (BEVs).

Results Delivered

The client was provided with an overview of the global demand for hydrogen in the road transportation sector in key target markets, the willingness to pay for hydrogen in the road transportation sector as represented by the breakeven price (BEP). Argus Consulting also provided the landed cost of hydrogen and competitor analysis, along with the cost of producing, transforming, transporting, and recovering the hydrogen molecule at the country of import. Further insights were provided to the client as to whether imported hydrogen would be below the BEP, which would allow for its uptake in the absence of support mechanisms, and provide an indication as to when this situation might change.

Electrolyzer technology evaluation advisory service

► *Client profile: Gas company active in power generation and sale of electricity*

Client Request

The client, a gas provider in East Asia, was looking into methanation as a means of lowering its carbon footprint. A key technology to enable this process is the electrolyser technology. Argus Consulting provided insights to help the client understand the merits of the different existing technologies and more importantly, the technology companies in China that will drive the development and uptake of these technologies

Results Delivered

The client was provided with insights into the merits of different electrolyser technologies, i.e., alkaline, PEM, SOFC, including the following:

- Cost of the electrolyser (USD/kW basis)
- Technology (PEM/alkaline/solid oxide)
- Maintenance costs that the producer envisages (as a percentage of capital costs)
- Efficiency (kWh/Nm³).
- Running life (i.e. number of hours to failure)
- Specification of the output hydrogen (purity level in percentage) and water feed
- Flexibility of the electrolyser with regard to the power source (i.e. ability to run on AC and/or DC)
- Flexibility to handle fluctuations in load
- Product line (i.e. electrolyser size)
- Scale of the firm's production facilities

Fertilizer Advisory Services

► *Client profile: Global financial services company*

Client Request

The client was looking into developing an integrated hydrogen and green ammonia manufacturing hub at a port in NSW, Australia. The study was to understand the potential export market size for green ammonia and the growth of bunkering operations in the port for ammonia vessels.

Results Delivered

The client was provided with an assessment of the demand and long-term price forecast (2050) of the green ammonia export market, including information on ammonia vessels and how they are forecast to change over the time horizon, as well as the cost of freight. Argus Consulting also provided a list of vessels currently in use as ammonia carriers (full dataset with vessel name, size, builder, age, charterer). This is in addition to a commentary of potential changes in the shipping industry, driven by the increased usage of ammonia as a fuel over the forecast period. This includes insights into the key requirements for an attractive bunker location, covering factors such as vessel traffic and infrastructure, along with an overview of commercial bunker operations that highlights some of the nuances of the fuel oil market and how it impacts commercial arrangements.

Blue Ammonia Pricing: An Advisory Service

► *Client profile: Major petroleum and natural gas company*

Client Request

The client, a state-owned petroleum company in Asia, was considering blue ammonia as a means of monetising its natural gas endowments. As such, the client was seeking an independent assessment as to the market potential of blue ammonia and the risk factors, such as development in green ammonia production, that would impact supply/demand.

Results Delivered

The client was provided with an assessment on the potential market pricing structure (e.g. netback analysis from target market), probable downstream consuming segments (including demand and supply analysis, regulatory and policy support of key markets) and the availability of low carbon ammonia (with a view on the capacity, technology and investment outlook). Insights into potential long-term risks to blue ammonia was provided along with risk mitigation for supplier and customer.

Ammonia market study – technology, industry trends, demand potential for green ammonia

► *Client profile: Major engineering company active in oil and gas and petrochemicals*

Client Request

A major engineering company, active in oil and gas and petrochemicals, commissioned a study with Argus Consulting to explore the possibility of becoming a technology provider in the ammonia sector, with green ammonia projects identified as the main long-term target.

Results Delivered

Argus Consulting provided an overview of the global ammonia market, including demand, supply and price forecasts, as well as an overview of the current cost structure of the industry. Argus Consulting also provided an overview of the potential for the green ammonia market, with analysis of potential uses — both traditional and new applications — industry costs, projects activity and potential incentives.

Ammonia market overview and logistics analysis

► *Client profile: Major bunker fuel trader*

Client Request

A major bunker fuel trader requested an overview of the ammonia and ammonia logistics analysis, with the aim of supporting an internal study of ammonia as a marine fuel.

Results Delivered

Argus Consulting provided an overview of the global ammonia market, including demand, supply and price forecasts, as well as an overview of the current cost structure of the industry. Argus provided a comprehensive dataset with key data on over 200 ammonia terminals globally, with information on terminal owners/operators, capacity and port data.

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Drop us an email at marketingsg@argusmedia.com if you have any queries and we will get back to you shortly

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