

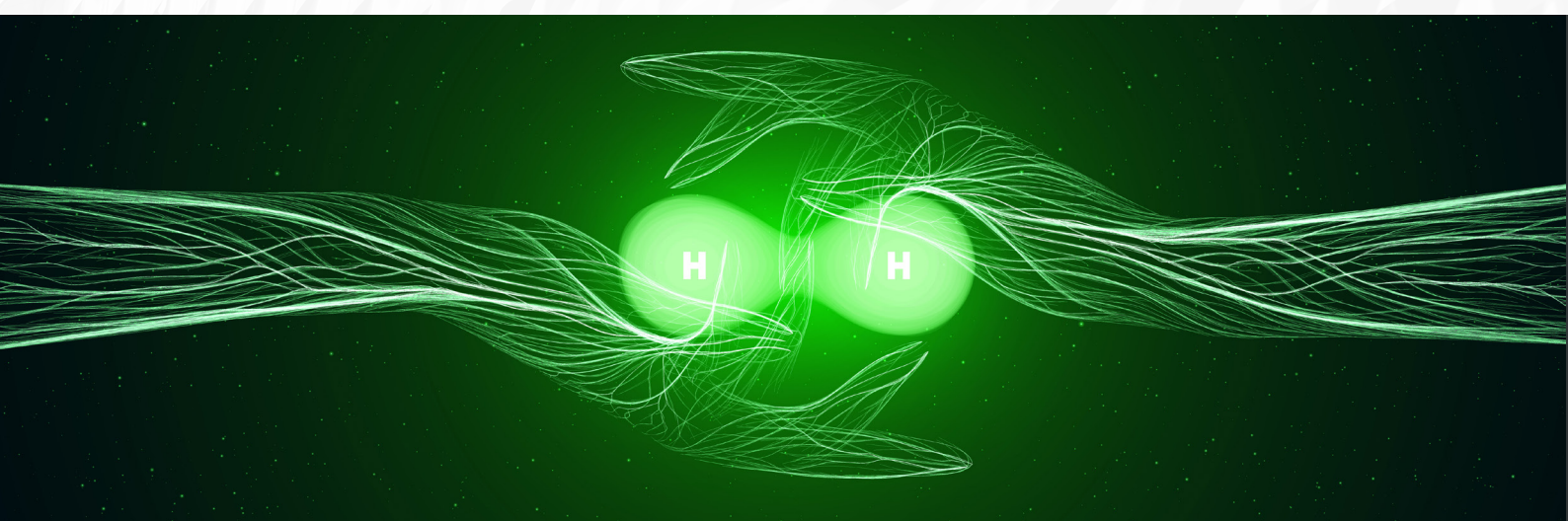
Gemserv helped us to fully model the Levelised Cost of Ammonia enabling us to speak confidently about the costs for Nium's novel Ammonia process. Being able to outsource to a knowledgeable team who had expertise outside our inhouse capabilities was invaluable. The Gemserv team were able to think outside of the normal constraints and also ask hard questions to ensure the output was to a quality standard.

**Phil Hunter, COO, We Are Nium**

## THE CHALLENGE

We Are Nium Ltd are a start-up technology developer in the ammonia synthesis space. They are currently developing a process, featuring a novel nanotechnology and catalyst system to facilitate the reaction of ammonia production at significantly lower temperature and pressure than currently available. In turn, this will offer large energy and cost savings. The units can also be made at a smaller scale offering flexibility to produce small volumes cost effectively with easy future expansion, making onsite small scale ammonia production possible.

The client received funding for their pilot plant development but were already looking ahead to further investing rounds for scaling up, as well as acquiring customers. One problem they faced was that they lacked a strong understanding of their levelised cost and project financials and those of traditional systems. This left them unable to give a concrete answer on how they fared in different price environments. We Are Nium would need to answer questions about the benefits of their system and its competitiveness to investors and clients as the company progressed.



## THE SOLUTION

Gemserv were approached by We Are Nium to develop an Excel-based levelised cost of hydrogen & ammonia model from scratch for the novel system. This involved finding and testing assumptions for a novel system based on literature, analysis and inhouse understanding. These assumptions were translated in a levelised cost and financial model according to established methodology, ensuring the processes could be easily understood and followed by the client.

## THE IMPACT

The model and report developed by Gemserv helped shape We Are Nium's understanding of the financial performance of their system, as well as its competitiveness in different price environments.

We displayed the expected costs, benefits and competitiveness in a simple and meaningful way, with robust and defensible assumptions.

The model presented the LCOA in several different price environments. The outputs included a range of sensitivities on factors such as power source and price, capacity, and storage volumes as well as modelling the carbon savings and cost impact. Recommendations were made on levelised cost of hydrogen (LCOH) & LCOA reduction. Gemserv also provided a summary report outlining the system, the model, the sensitivities and the recommendations.

This work supported the development of the value proposition and messaging to be used when approaching potential clients and investors, and assisted the We Are Nium management team in planning future strategy and investments. As a result of the study and based on our recommendations, the client is considering additional upstream integration pending further investigation.