

Background — FEnEx CRC and OIIE alignment

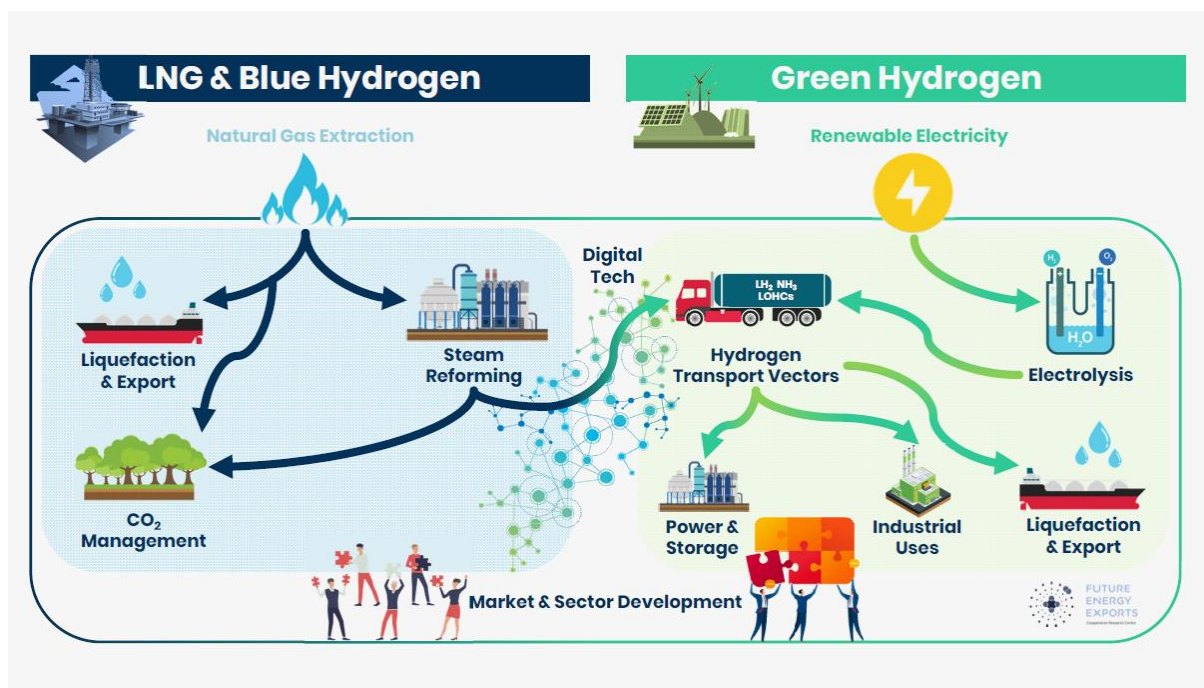
The Future Energy Export CRC (FEnEx CRC) is a Cooperative Research Centre for the energy industries sector, aiming to provide industrial-scale innovation both to ensure Australia's vital LNG exports remain competitive and to grow Australia's emerging hydrogen export industry. The work will be based on globally unique facilities for industrial-scale demonstration, deployment of multiple high-value technologies and processes, and concurrent education and training programs for workforce and leadership.

The Open Industrial Interoperability Ecosystem (OIIE) is a specification developed in a global program led by MIMOSA in collaboration with several other industry Standards Developing Organizations – particularly including those in the OpenO&M Initiative. Industry participants provide functional requirements framed as OIIE Use Cases, Scenarios, and Events, which are then validated in the MIMOSA-managed OIIE OGI Pilot. Collectively, this provides a framework for multiple stakeholders to collaborate more efficiently and effectively via digital formats. Stakeholders can then focus on developing value-added applications and systems leveraging their own core competencies and areas of interest, while collaborating with each other to provide comprehensive solutions composed of their interoperating applications and systems.

FEnEx CRC has four program themes:

- Efficient LNG Value Chains (core)
- Hydrogen Export and Value Chains (core)
- Digital Technologies and Interoperability (cross-cutting)
- Market and Sector Development (cross-cutting)

OIIE fits within program 3 (Digital Technology and Interoperability). A diagram from FEnEx shows how the programs interact.



The FEnEx CRC challenge is to reduce the cost of production to a level that will make Australian LNG and hydrogen internationally competitive. To do this, the industry must push the innovation envelope and remove all sources of waste. Interoperability at a digital level through OIIE provides a robust starting point for collaborative research in the digital technology theme. It also has projects pencilled in to improve the competitiveness of the Australian energy sector by speeding up innovation while reducing cost and risk.

The stakeholders involved with the FEnEx CRC are:

- Industry players (large energy companies and support infrastructure providers)
- Research groups (suppliers of research and innovation to industry)
- Small- to medium-sized enterprises (suppliers of products and services to the industry and providers of commercial research and innovation)

MIMOSA will participate in the CRC by managing the OIIE OGI Pilot, helping to lead one or more of the projects to further develop the OIIE, and supporting the overall interoperability framework for functional oriented projects to enable cooperation.

Some of the projects contemplated within the digital technology theme include:

- A project led by The Asset Institute/Synengco to provide an interoperable environment for asset-based analytics. The benefits of this project to the stakeholders are:
 - Industry: a future-proof, interoperable analytics framework to allow analytics providers (including internal providers) to work synergistically with each other. This will reduce risk and implementation costs, allow for switching of analytics, and give the ability to try new innovations and algorithms.
 - Research groups: an environment to get sample data and try new innovations to fill in gaps or improve existing analytics.
 - Small- to medium-sized enterprises: an environment for both cooperation and competition which will provide new opportunities, more comprehensive offering, and ability to scale to global markets.
- A project led by Mimosa to further the development of the OIIE relevant standards and tools to better support interoperability requirements identified by the other projects. This may include the formalization of an OIIE Conformance Testbed as an outgrowth of the OIIE OGI Pilot program.
- A project led by ETP on Operations Management Interoperability featuring OPAF that links into and helps further the collaborative development of the overall OIIE framework.

The FEnEx CRC is aligned to the “Sector Competitive Plan” developed by NERA. This report provides an insight into where opportunities to improve exist in the energy industry.

Within the sector competitive plan, NERA has identified eight knowledge priorities:

- Develop new markets and business models
- Enhance skills and business capability to support automation and digitisation
- Build talent and enable effective collaboration and innovation
- Pursue a sustainable and low carbon energy future
- Understand and unlock Australia's resource base
- Commercialise technology and research
- Enhance efficiency in operations and maintenance
- Optimise the regulatory framework and reputation

FEnEx CRC has application in six of the eight knowledge priorities set out by NERA.

Develop new markets and business models

FEnEx CRC is providing research into new markets and business models for LNG, Hydrogen, and Green Hydrogen, through its two core themes — efficient LNG value chains, and hydrogen export and value chains — as well as the cross-cutting theme of market and sector development.

Enhance skills and business capability to support automation and digitisation

Cross-cutting theme three — Digital Technologies and Interoperability — covers this knowledge priority.

Build talent and enable effective collaboration and innovation

The projects within theme three identified above are particularly targeted at effective collaboration and innovation.

Pursue a sustainable and low carbon energy future

A future energy mix is particularly targeted around a low-carbon energy future, and the FEnEx CRC is about gaining commercial gain from Australia's strength in energy supply and a low-carbon energy future.

Commercialise technology and research

A fundamental part of a CRC.

Enhance efficiency in operations and maintenance

Operations and maintenance of energy systems are complex. FEnEx CRC theme three means that many solutions can collaborate to provide for optimised operation and maintenance with minimal costs.