

Project Profile

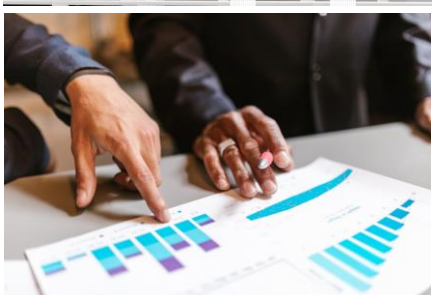
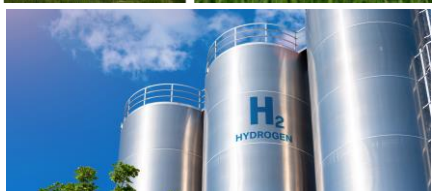
Innovative Hydrogen Production Technology



Part of the ExergInc Group of Companies



Enterprise Partners tbc



Project Location: UK, Ireland & select Global locations

Project Status: Detailed Design - Model Plant Preconstruction Phase

Project Description: Development of state-of-the-art steam technology and deployment of a full-scale working unit across multiple sites in the UK, Ireland and select global locations as part of a 'Pumped Storage' Hydrogen Power Station, generating electricity during the daytime and producing Hydrogen at night. There are two aspects to the technology:-

Firstly, there is the "Double Convective Reformer (DCR)", which is a novel, state-of-the-art steam reformer to produce syngas and/or its derivatives, such as hydrogen, methanol, ammonia and synfuels, etc. It is the most thermally efficient and cost-effective design of any known steam reformer and is particularly suited to processes employing carbon capture technology. Utilising a simple and elegant, yet robust mechanical design within a parallel tube arrangement that recovers most of the waste heat the DCR allows for extremely efficient utilisation of heat. There are many benefits to the DCR design, however, three of the most significant are:-

- High combustion & thermal efficiency - the highest amongst all known steam reformers.
- Low equipment & construction costs.
- Suitability to carbon capture processes.

The second aspect of the technology is a process flowsheet, for which patent applications are ongoing and in which the DCR is an integral part.

Project Highlights: The DCR and process flowsheet technologies can be applied as an integrated energy solution to SMR: Hydrogen production, gas plant retrofit; pure hydrogen production, Pump Hydrogen Generation (PHG) - Swing Production of Hydrogen & Electric Power and other applications.

Key Milestones: Estimated project duration upon approval of planning and consents and forecast start dates for main activities to establish a typical demonstration unit/model plant.

- Project duration: 18 months.
- Design and engineering: Q4 2024.
- Mobilisation and enabling works: Q2 2025.
- Main construction works: Q3 2025.
- Commissioning and handover: Q3 2026.

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