

# H2Go

Invest Net Zero Cheshire

IKIGAI



CATAPULT  
Energy Systems



**Project reference number:** 003

**Project name:** H2Go

**Project type:** This blue-chip chemical company (“the Company”) are considering onsite production of green hydrogen using ground mounted solar proposed on their available land and additional capacity from other local developers.

**Project maturity:**

- **Hydrogen:** The Company have a long history of development and supply of electrolysis chlor-alkali technology and are now looking to further develop that technology into a process to produce hydrogen from the alkaline electrolysis of water. Work is already underway on the feasibility study for this project and the development of a pilot cell room.
- **Solar:** Early-stage development (pre-planning but with strong local authority support)

**Key strategic drivers:** Production of hydrogen for use in fuel cell powered buses and for distribution and supply to industry in partnership. As one of the largest electrolysis operators in Europe, the Company are looking to expand this into the green production of hydrogen across Europe at multiple sites.

**Locations:** The proposed hydrogen electrolyser is to be located at their site near Ellesmere Port and the proposed solar projects on 2 separate sites, owned by the Company, nearby.

**Proposed phases:**

1. Green hydrogen production: a 0.5MW pilot plant by end 2023 (phase 1) after which, a 20 to 50MW demonstration plant will be built around 2024 (phase 2), subject to the success of that project further electrolysers could be constructed increasing capacity to, say 250MW by 2026 (phase 3)
2. Ground Mounted Solar PV:
  - a. c.25MW to be developed near the hydrogen production site to support the hydrogen production business, target commissioning in 2024
  - b. c.18MW to be developed South East of Ellesmere Port with the surplus to be exported under a corporate PPA or to be spilled to grid, target commissioning in 2024

**Total est. carbon savings p.a.**

- Fuel displacement: c.46,141 tonnes CO2 per year by phase 3
- Impact of 72MW solar generation: c.5,500 tonnes CO2 / year

**Total est. hydrogen production p.a.:**

- Phase 1: 8 tonnes; Phase 2: 822 tonnes; Phase 3: 4,100 tonnes

**Total est. solar production p.a.:** 13,165 MWh

**Est. project costs:**

- Hydrogen electrolyser: Phase 1: c.£4m; Phase 2: c.£50-75m; Phase 3: c.£200-300m

- Solar PV: CAPEX: c.£6.6m
- Grid connection: c.£16m to support a 50MW electrolyser. More detailed study required for 250MW.

### **Technology, construction and operation:**

- Hydrogen: Chlor-alkali technology into Alkaline Water Electrolysis, leveraging their existing supply chains for large-scale production
- Solar Panels: Multiple-options available for ground mounted solar PV. Focus on proven technologies, warranted capacity, creditworthiness of the supplier and futureproofing
- Construction: EPCM/EPC, to be considered further with prospective investors
- O&M: Only highly experienced operators with strong sustainability credentials will be considered, with preference for local contractors.

### **Revenue streams:**

- Hydrogen sales to proposed local fuel hub or into HyNet network for distribution and supply to industry. Opportunities exist for the use of salt caverns for hydrogen storage allowing for the balancing of supply and demand.
- Electricity from the solar PV would be consumed onsite and could be purchased under a long-term power purchase arrangement via private wire.

**Initial stakeholders:** The Company (Landowner, Electricity Offtaker), Cadent/Progressive Energy/HyNet (Hydrogen Offtaker), 3<sup>rd</sup> Party local solar PV developer 1 or 2 and/or wind developer 1 (private wire / sleeved electricity supply)

**Professional advisors to date:** Ikigai (bankability); EA Technology (electrical technical); Energy Systems Catapult (Whole systems modelling); Atkins (Heat).

**Opportunity:** Seeking private investors and development, technology, construction, and operation partners.

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