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[Home](#)

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## H2Heat Quarterly Dispatch

Welcome to the Quarterly H2Heat Newsletter!

Greetings from the [The H2Heat](#) team! As we stride forward into the month of April, let's recap some of the key developments within our project.

### The Annual General Meeting

**Annual General Meeting (AGM) - September 11th, 2024 - Gran Canaria**

We're excited to announce our upcoming Annual General Meeting (AGM) scheduled for September 11th, 2024 located in the Gran Canaria, Las Palmas! This event

marks an important milestone in our journey as it will be one year since the start of the H2Heat Project.

### **AGM Details:**

- **Date:** September 11th, 2024
- **Location news will be available on the [h2-heat.eu](https://h2-heat.eu) website and via Social Media**

The AGM will serve as a platform to review the progress made thus far, discuss key achievements, and outline our strategic plans for the future. It will be an opportunity for stakeholders, partners, and team members to come together, exchange insights, and further shape the direction of the H2Heat project.

**Special Event for Stakeholders:** In addition to the AGM, we're pleased to announce that the H2Heat consortium will be organising a separate event for external stakeholders. This event, which will take part day after the AGM, is designed to facilitate meaningful interactions, foster collaboration, and strengthen partnerships with stakeholders from various sectors.

**Date and Location will be announced on social media so give us a follow on [LinkedIn](#).**

We extend a warm invitation to all external stakeholders to join us at this event. Your participation and contributions are invaluable as we work towards our shared goal of advancing sustainable energy solutions.

For further details and registration information, please stay tuned for updates.

## **Grid Connection and Regulatory Compliance:**

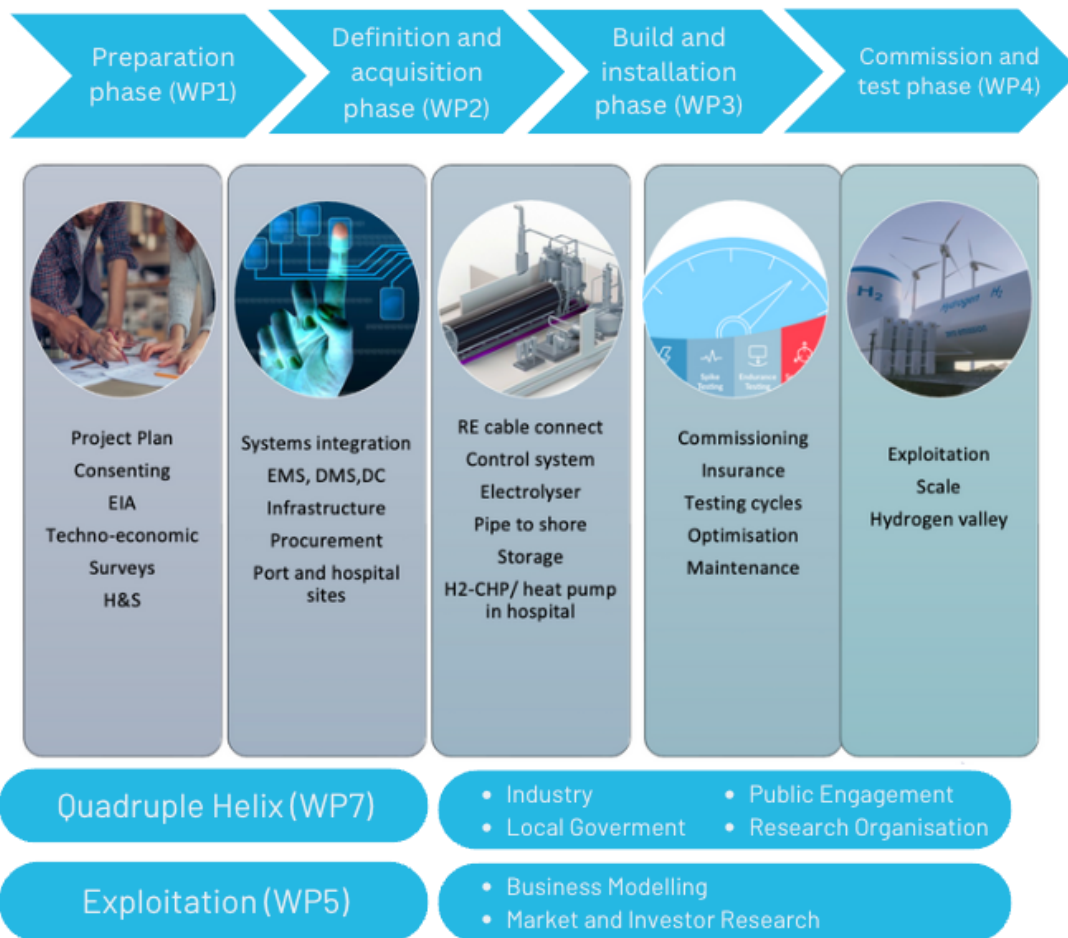
Ensuring seamless integration into existing infrastructure is paramount. We're awaiting responses regarding grid connection demands and remain committed to adhering to regulatory frameworks governing renewable hydrogen production.

## **Site Agreements and Timelines**

Negotiations regarding site agreements are progressing steadily, with a promising outlook for meeting our project timelines.

## Feasibility Studies and Deliverables

Our teams are diligently working on feasibility studies and critical deliverables across various work packages. With Técnicas Reunidas poised to deliver their final draft report soon, we're well on track for project success.



The H2HEAT project will take five years to complete. The [project workflow](#) in the figure above has four execution phases. **Phase 1** is the full project preparation including project plan, consenting, environmental impact assessment, techno-economics, surveys and H&S. **Phase 2** covers detailed design, systems integration, control system architecture, infrastructure procurement and contracting, and

onshore site preparation. **Phase 3** is the build and install covering cable connection, control system, electrolyser, storage and installation of the hospital innovative H2-CHP. **Phase 4** covers the commission, demonstration, test and evaluation, including optimisation and maintenance. Running in parallel to all phases are the establishment and operation of the QH, and the Exploitation Strategy development and planning.

## Ambition and progress beyond state of the art.

**H2HEAT will contribute substantially to advancing the concept of green H2 for heating (and O2) both in terms of “idea to application” and “lab to market“.**

### Electrolyser Advances

Alkaline based electrolysers are more mature when compared with proton (PEM) or anion (AEM) exchange membrane electrolysers. However, they typically employ expensive electrode precious metal materials resulting in cost inefficiencies and likely increasing future costs.

Stargate Hydrogen is developing advanced alkaline electrolysers based on nanoceramic active materials. The use of novel materials allows Stargate to achieve performance that is on par with widely used precious metal-based electrolysers (both PEM and precious metal-based alkaline), yet without the use of precious metals. It will be demonstrated that the materials that Stargate utilizes in its novel cells and stacks can achieve electric power consumption of 45 kWh/kg H2 at the high-efficiency operating point. Quantitatively, Stargate electrodes will demonstrate electrolysis current  $\geq 50x$  higher than for IrO2 electrodes per EUR invested.

### H2-CHP ADVANCES

Progress is being made on blend-certified condensing boilers (typically 20% H2 with natural gas) which will eventually be replaced by pure hydrogen. Another route being pursued is the hydrogen hybrid heating system that combines a H2 boiler and heat pump e.g. trials at Port of Milford Haven.

- It is essential to be able to control the production of electricity, and enable it quickly adapt to the consumer requirements. The 2G H2-CHP will be able to start, stop and work at part load. It will to be able to work in island mode and achieve the maximum load possible in the minimum time.
- The CHP from [2G Solutions](#) can operate with varying levels of gas purity compared to fuel cells which require pure H2.

## SOPHISTICATED CONTROL SYSTEM

Hybrid combinations of RE for H2 production are relatively nascent and certainly have not been trialled extensively in a real environment. Therefore the EMS and DSM required to cater electrically for such a complex mix is still relatively new. BIG HIT used a combination of wind and tidal RE. However, at peak it only produced 50t p.a H2. Likewise, digital simulation systems for planning and testing multiple RE combinations for H2 production are at development stage.

H2HEAT partner [Neodyne](#) will develop a highly innovative smart digital system that will be capable of managing combined non-correlated multiple RE types and integrate with the H2 production via a sophisticated control system incorporating smart EMS, DSM and SCADA.

***Thank you for your unwavering support and dedication to our shared vision. Together, we're shaping a brighter, more sustainable future for the Gran Canaria, and beyond.***

***For more information, visit our website [h2-heat.eu](http://h2-heat.eu)***



**H2Heat**

Las Palmas, Gran Canaria, Spain

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