

Eureka Globalstars
 Project partners Search Form

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| Contact Person Details | |
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| Organization Details: | | | |
| Name: hubz | | | |
| Country: Brazil | | Website: www.hubz.com.br | |
| Type of Organization: | <input checked="" type="checkbox"/> SME | <input type="checkbox"/> Large Company | <input type="checkbox"/> University |
| | <input type="checkbox"/> Research Inst. | <input type="checkbox"/> Administration | <input checked="" type="checkbox"/> Other (specify): |
| Number of Employees: | <input checked="" type="checkbox"/> < 10 | <input type="checkbox"/> 11-50 | <input type="checkbox"/> 51-100 |
| | <input type="checkbox"/> 101-250 | <input type="checkbox"/> > 250 | |
| Describe the activities, products, services, and expertise of your organization: | | | |
| <ul style="list-style-type: none"> • hubz is a venture building company that has played a significant role in developing new applications of emerging technologies. It also offers expert advice on on managing research, development, and innovation programs for large companies. • By acting as a venture builder, hubz seeks to create new applications and innovative solutions that boost efficiency and sustainability, mainly as a link between large companies, funding sources, investors and research centers, facilitating the complex connection between these parties to develop innovative projects and generate business opportunities with high growth potential. • hubz's main strategic focus is a go-to-market approach to accelerate post-laboratory/pre-industry technologies to support the transition to a low-carbon economy. Hubz seeks to offer integrated and innovative solutions for companies and cities, driving the energy transition in Brazil. • Hubz’s track record for clean electricity generation, transmission and distribution, includes solutions in solar, biomass, wind, hydrokinetic and hydrogen, equipment efficiency and safety, energy efficiency, biotechnology and artificial intelligence. | | | |

The information provided here will be used to look for potential partners. All the information provided is public and will be displayed in the matchmaking platform or send to potential partners.

Complete this template and send it back to your national contact point:

- Lieve Apers – VLAIO (Belgium, Flanders) lieve.apers@vlaio.be
- Rodrigo Moraes – FINEP (Brasil) internacional@finep.gov.br
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- Arnold Meijer – RVO (The Netherlands) Arnold.meijer@rvo.nl
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| Project Details | |
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| Project Title | Renewable, low-cost hydrogen from organic waste and plasmolysis |
| Acronym | BioH2 |
| Tech area | Renewable hydrogen |
| Keywords | Energy, Hydrogen, Methane, Organic waste, Anaerobic codigestion, Plasma |
| Describe your Project: | |
| <ul style="list-style-type: none"> • In collaboration with partners, hubz has developed, validated, and patented an innovative technology for producing renewable hydrogen at a very low cost, with a negative carbon balance, suitable for various residue biomass sources, versatile volumes and applicable in various geographies in Brazil and around the world. • The technology produces hydrogen in two stages. In the first, COBIODIGESTION, a ternary biodigestion of organic waste produces hydrogen (H₂) and biomethane (CH₄), and in the second, PLASMOLYSIS, a plasma reactor transforms the biomethane in hydrogen and carbon black. • The patented process allows for a 775% bonus in the production of CH₄ and H₂, 800% higher conversion efficiency than water electrolysis, negative carbon balance and biofertilizer. • With very low CAPEX and worldwide application, the technique transforms the cost of disposing of waste into revenue from energy use and enables the efficient and versatile biohydrogen production. With a negative carbon balance, hydrogen is environmentally much better than gray and green hydrogen and, with very high energy conversion efficiency, it is much cheaper than green hydrogen. Moreover, the process can also be used to enhance the cash flow of biogas producers from sewage treatment plants. • The integration of the COBIODIGESTION and PLASMOLYSIS stages into a single process allows the transformation of organic waste into hydrogen, with subsequent conversion. • The development, implementation, operation, and monitoring of this innovative system meets the strategic needs of the energy sector to increase the production of renewable H₂. | |
| Describe the innovative part of your project: | |
| <ul style="list-style-type: none"> • The innovative model consists of a pilot-scale biological system for H₂ production, CH₄ thermochemical processing for additional H₂ generation and the electrical energy generation through a thermodynamic process, representing a significant | |

change in relation to conventional systems, which evaluate the H2 production by these methods alone.

- The project aims to develop and implement, on a demonstration scale, a two-phase anaerobic digestion system that will process urban organic waste, sewage sludge, glycerol and carbon black, to produce biohydrogen and biomethane. Microwave plasma pyrolysis technology will also be incorporated for efficient conversion of biomethane into H2.
- All of this results in a technology with greater energy efficiency that uses biogas as an input, resulting in a positive energy balance and GHG emissions negative, allowing the reduction of production costs for H2 renewable to compete with fossil sources.
- In terms of improvement, it will seek to optimize the efficiency of H2 production, which can make the process of obtaining low-carbon H2 more viable and economical, allowing the technology to be implemented in places where the treatment and disposal of waste from the sector sanitation facilities are outside the standards established by legislation.

Describe the market expectations of your project:

- The H2 potential market is broad and covers several sectors, such as refining and fertilizers, which can immediately adopt renewable H2 for decarbonization, and in the next 3 to 5 years, sectors such as steel, metallurgy, ceramics, glass and cements too can become potential consumers.
- By combining anaerobic co-digestion of organic waste in two phases with microwave plasma pyrolysis, the system produces 100 kg H2/t of input, with an electricity consumption equivalent to 42 kW of installed power. The H2 supply corresponds to 166 kW of installed power and the process also mitigates the natural CH4 emission from waste digestion.
- Our technology can be applied practically throughout the world, mainly in countries where organic waste and electricity can be used as inputs and where H2 can be used as an energy source. In addition to proposing an innovative H2 production system arrangement in a pilot plant that will offer the opportunity to generate clean and renewable electricity at hypercompetitive prices, representing a significant savings opportunity for companies and organizations seeking more accessible and sustainable sources of H2.

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| Possible Partner Profile: | | |
| Type of Partner Needed (multiple choices are allowed) | <input type="checkbox"/> SME <input checked="" type="checkbox"/> University <input type="checkbox"/> Administration | <input checked="" type="checkbox"/> Larger Company <input checked="" type="checkbox"/> Research Institution <input type="checkbox"/> Other (specify): |
| Describe the expertise of possible partner(s) required for your project: | | |
| <ul style="list-style-type: none"> • We are seeking partners with expertise either in technical aspects or market knowledge. • we seek the support of companies and government agencies involved in the treatment of organic waste and sewage (sanitation sector), companies in the electrical energy (generators and distributors) and industrial companies that are interested in using the gases generated in the described process. • Partners with experience in biogas technology and innovation to validate, on a small scale - demonstration unit, the industrial process of an innovative technology for producing renewable H2 with low cost, negative carbon balance, suitable for different biomasses, versatility of volumes and applicable in different geographies in Brazil and around the world. | | |
| Describe the role of possible partner(s) in your project: | | |
| <ul style="list-style-type: none"> • Collaboration with research institutions, companies and governments from other countries can facilitate the internationalization of the proposed system and assist in the introduction and adaptation of the technology in different contexts; • The potential partner will be able to help us scale our system and progress from TRL 4 to TRL 7, facilitating the process with financial support and technical and marketing knowledge; • Assessing the product comprehensively, evaluating its features, functionalities, and performance to ensure alignment with market demands and quality standards. • It is expected to consolidate the partners as a technical-scientific reference in the topics covered, aiming to encourage continuous research in the development of biogas and hydrogen production chains from organic waste and identify the opportunities and economic attractiveness of existing technological routes for exploitation of biodigestion products. | | |

Deadline for Partner Search:

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