Business Finland 06.03.2023

Hydrogen & Batteries call for ideas

1. The background of the call for ideas

In accordance with its strategy, Business Finland has launched mission-oriented activities with two missions: "Digital Native Finland" and "Zero Carbon Future ". The missions are intended to strengthen the possibilities of Finnish companies to take advantage of significant future market opportunities better than before. Missions also want to speed up societal, systemic changes and respond to global challenges. In the future, Business Finland's program activities will be strongly focused on missions.

Business Finland plans to launch a new "Zero Carbon "Future" mission-related program, with the working name **"Hydrogen and Batteries – Dual Helix of decarbonization"**. The goal of the program is to grow, strengthen and promote the Finnish cross-industry offering to speed up the hydrogen economy and the battery industry. The goal of the program is also to link research to companies' strategic priority areas, which will allow them to scale to the rapidly growing global market. Finnish companies can act as pioneers by developing, demonstrating and piloting globally competitive and exportable solutions.

In order to map out ideas and Finnish know-how, Business Finland is launching a call for ideas. Exceptionally, funding is also granted for research projects. The amount of funding awarded based on the application depends on the quality and competitiveness of the proposals in relation to other funding applications. Business Finland has not made any decisions on whether to continue organizing applications after this application and whether the research funding instrument will continue to be available.

2. The starting point and theme of the hydrogen topic search

Hydrogen will play a central role in future clean energy systems, industrial processes and transport. Hydrogen can be used versatilely as a fuel, energy carrier, raw material and medium for energy storage. With hydrogen can be replaced the use of fossil raw materials and energy sources in several applications, if hydrogen is produced in an emission-free manner. A prerequisite for emission-free hydrogen is hydrogen extraction by electrolysis with the help of non-emitted electricity or others processes from bio-based raw materials. Carbon capture and storage is also an option during the transition period when natural gas is still being used.

Europe has the political will to invest tens of billions of euros of common national and EU public funds in the development of a continent-wide hydrogen economy. The hydrogen economy creates enormous infrastructure needs for electricity grids, gas pipelines and transport refueling systems. All these investments create a huge and rapidly growing demand for technology products and services.

Finland has excellent conditions for the development of the hydrogen economy, and the key assets are a clean, smart and robust electricity system, cost-effective renewable electricity resources, a

comprehensive and robust energy infrastructure, the world's leading technology companies and world-class research.

The goal is to make use of the strengths to make Finland the world's leading hydrogen economy country, which attracts as many investments as possible to Finland and enables a significant increase in Finland's global export of hydrogen technology.

Funded themes:

All ideas are valid, which are related to the significant and ambitious promotion of the hydrogen economy and power-to-x solutions. Broader cross-industry solutions that utilize e.g. digital and circular economy, are particularly interesting. In particular, we are looking for subject applications from the following subject areas:

- Hydrogen solutions for industrial needs and innovative end use; for example, replacing fossil raw materials in the chemical, pharmaceutical, food industry, etc.
- Hydrogen valleys and related system-level solutions
- Hydrogen and power -to-x solutions in marine and heavy traffic
- Power-to-x innovations
- Digital solutions in the hydrogen context
- New business models such as service business
- Material innovations related to hydrogen

3. The starting point and theme of the battery search

The electrification of society and battery industry solutions have a significant impact on how the climate goals can be achieved. Industry operating in Finland can play a significant role in the electrification of European transport and society as a whole. Companies operating in Finland offer raw materials, materials, technology, processes, know-how and circular economy solutions for the production of batteries and the electrification of society. Investments in the battery value chain support the EU-level transition to low-emission transport.

Funded themes:

- New, sustainability-enhancing production technologies that, for example, reduce emissions from production, the use of chemicals and waste material.
- Material technical solutions, e.g. replacement of critical materials
- Battery applications as part of the energy system and new business models.
- Improving the safety and occupational safety of production and products at different stages of the battery value chain.

4. The schedule, process and selection criteria for the call for proposals

Application form:

- Applicants must use the application form in Appendix 1. The scope of applications for proposals is a maximum of 3 pages.

Timetable and Selection Process:

- The application process opens on March 6, 2023. Applications of intent, i.e. short descriptions of the project idea, are requested to be submitted to Business Finland's registry office by April 19, 2023.
- Business Finland evaluates applications of intent, gives applicants feedback on the application and tells whether it is recommended to send the actual funding application or not
- The actual funding applications are requested to be sent by August 30, 2023 via Business Finland's electronic transaction service.

Selection criteria for intention applications:

- Innovativeness and novelty value
- What kind of export potential does the solution have?
- Cross-functionality, especially the utilization of digitalization and the circular economy
- Wide applicability of the results in the business of companies in the short or long term
- Credibility and feasibility of the applicant(s) and the preliminary plan
- Only those who sent an application of intent can be invited to send the actual application in the fall

1. Funding instruments of the actual funding application phase:

Business Finland's normal Co-Research and Co-Innovation funding instruments are used to fund the actual applications. From the beginning of 2023, Business Finland has reformed the funding aimed at research organizations and for joint projects between them and companies. Applicants who have made it through the proposal round are advised by Business Finland's contact persons, with whom the idea can be further refined together before the final funding application is submitted.

- **Research projects (Co-Research)**
  Exceptionally, this call also funds joint research projects of individual research organizations or a few research organizations.
    - The project requires international networking and a vision of how the concept can be continued and expanded with EU funding.
    - The commitment of companies to fund the research project and work in the steering group is a necessary condition and an indication of the industrial interest and significance of the researched topic. Representatives of several companies are required to participate in project steering groups and project financing (min 3). In the actual

application phase, the amount and quality of the commitment of companies and other users are key issues to consider.
    - https://www.businessfinland.fi/en/for-finnish-customers/services/funding/cooperation-between-companies-and-research-organizations/co-research

- **Co-Innovation joint project of research organizations and companies**[1]:
    - The project involves one or more research organizations and at least three companies, of which at least two are applying for funding from Business Finland. Companies can also form a Co-Innovation project together without a research organization.
    - https://www.businessfinland.fi/en/for-finnish-customers/services/funding/cooperation-between-companies-and-research-organizations/co-innovation

2. How to apply for funding

Idea/intention applications prepared according to the format and headings of Appendix 1, with a maximum length of 3 pages, must be sent by April 19, 2023 by e-mail to kirjaamo@businessfinland.fi or using a secure connection https://asiointi.businessfinland.fi/suojaposti.

By sending an idea to Business Finland, the applicant gives Business Finland permission to link together idea senders whose ideas are close to each other or could benefit from further development of the idea together. If the sender of the idea does not want such a link to take place for his own idea, the sender is asked to mention this clearly in his message to Business Finland.

Please take the following into account:

- In the subject field of the e-mail, the applicant and the case ID must be clearly indicate:

  ”APPLICANT’S ORGANIZATION: Hydrogen and batteries call for ideas **BF/3/35/2023**”
- The **maximum size of an e-mail including attachments is 9 MB**.
- Files can be compressed (Winzip). The files should primarily be delivered as .pdf and .tif documents. It is also possible to deliver the files as .rtf files and Word .doc and .docx files, Excel .xls and .xlsx files and Powerpoint .ppt and .pptx files. When sending by e-mail, the proposal is considered to have been received by Business Finland when the message/messages and their attachments are available and readable in the e-mail of Business Finland's registry office.

In exceptional cases, applications can also be submitted by post or by bringing them to Business Finland's reception desk in a sealed envelope to the address:

[1] Co-Innovation applications can also be sent outside the application period. You can only apply for research projects within this call for ideas.

Business Finland 06.03.2023

Business Finland/Registry office
PO Box 69 (Porkkalankatu 1)
00101 Helsinki

The selected projects will continue to submit the actual funding applications through Business Finland's electronic transaction service. More detailed instructions will be sent to these applicants later.

More information:

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Business Finland 06.03.2023

APPENDIX 1: Mandatory structure of the application for intent

COVER PAGE

Project name:	
Name of main applicant organization:	
Other participants (if it is a joint project):	
Contact details of the contact person (name, phone, email):	
Project budget (preliminary estimate of the combined costs of all project parties):	
Funding applied for from Business Finland (preliminary assessment of the BF funding share, whether a loan or a grant is applied for):	

SUBJECT APPLICATION TITLE, max 3 pages

1. What need does the idea fulfill/problem solve?
2. What is the estimated export potential and market for the solution? For the research project: which are the companies that will potentially use the results?
   - In what time frame would the results be commercially usable?
   - Where internationally is the best expertise to solve the problem and how do we cooperate with them?
3. How will the matter be resolved, what issues will be researched/developed, by what means and on what schedule?
4. What competing solutions are there? What are the options today?
   - How does your research idea/innovation compare in terms of its novelty to international research and solutions on the market? What kind of research has already been carried out in the matter before and by whom?