

PROJECT PARTNER SEARCH FORM

- I offer my expertise to participate as a Partner in a Horizon Europe Project
 I am planning to coordinate a project and I am looking for Project Partners

TOPICS OF INTEREST

HORIZON-JTI-CLEANH2-2022-03-07: [Development of specific aviation cryogenic storage system with a gauging, fuel metering, heat management and monitoring system](#)

HORIZON-JTI-CLEANH2-2022-02-05: [Efficient system for dehydrogenation of liquid organic hydrogen carriers for application to long distance transportations](#)

HORIZON-JTI-CLEANH2-2022-03-04: [LH2 tanks for heavy-duty vehicles](#)

HORIZON-JTI-CLEANH2-2022-01-04: [Design for advanced and scalable manufacturing of electrolyzers](#)

HORIZON-JTI-CLEANH2-2022-01-05: [Scaling up of cells and stacks for large electrolyzers](#)

HORIZON-JTI-CLEANH2-2022-04-02: [Ammonia powered fuel cell system focusing on superior efficiency, durable operation and design optimisation](#)

We are technology company with own technologies for ammonia manufacturing from green hydrogen, low potential heat utilization to electric energy and special hard-faced welding for nuclear power plant valves.

In addition to the technologies themselves we are ready to offer our expertise and experience in area of analyses and testing (computational fluid dynamics and strength analyses via finite element method in combination with experimental results). We are indirect partner for hydrogen storage for aerospace and IPCEI project. Besides we are designers and manufacturers of pressure equipment (reactors) for nuclear, oil and gas industry. High demands on expertise and quality of work in nuclear fields (we are certified in this area) simplifies transfer to other industrial fields, for example for automotive.

HORIZON-JTI-CLEANH2-2022-06-01: [Hydrogen Valleys \(large-scale\)](#)

HORIZON-JTI-CLEANH2-2022-06-02: [Hydrogen Valleys \(small-scale\)](#)

HORIZON-JTI-CLEANH2-2022-02-04: [Ammonia to Green Hydrogen: efficient system for ammonia cracking for application to long distance transportations](#)

Our solution is suitable for the import of hydrogen from renewable energy sources, whether from abroad or its distribution within the country.

PARTNER INFORMATION

We are interested in consortiums for two different technologies.

1) With companies, which believes **“ammonia will be winning technology for green hydrogen transport for longer distance”**.

We have our **own pilot plant for ammonia reactor** - basic design is finished (green hydrogen is input for our plant), compact in ISO containers with reactor 50t/day of ammonia. We could offer syngas/ammonia specialist for complete ammonia manufacturing and it following decay to hydrogen - designers, process

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(chemical) engineers, CFD specialist, FEM specialist, manufacturing specialist, manufacturing itself, procurements, managers, material specialists, whole staff ready to work with high pressure hydrogen.

2) With companies working with **“low potential thermal utilization - electric energy manufacturing with ORC cycle”**

We are working on our **prototype 50kW(e) pilot plant** (complete prototype will be ready at the 2023 start), with our own turbine. We could offer to consortium whole plant, or our own “organic fluid steam” turbine. We have specialists for complete process: designers, CFD and FEM analysts, process engineers and manufacturing specialists including our own manufacture.

In additional to the technologies themselves we are ready to offer our expertise and experience in area of analyses and testing (computational fluid dynamics and strength analyses via finite element method in combination with experimental results). We are indirect partner for hydrogen storage for aerospace and IPCEI project. Besides we are designers and manufacturers of pressure equipment (reactors) for nuclear, oil and gas industry. High demands on expertise and quality of work in nuclear fields (we are certified in this area) simplifies transfer to other industrial fields, for example for automotive.

The company ROEZ R&D is technology company, which was established alongside ROEZ, s.r.o. for the tasks of industrial development.

The ROEZ R&D company participates in tasks and projects increasing energy efficiency, saving resources and finances, as well as in industrial development with the ambition of regional leadership with the possibility of added value and competition with its own technologies in the world.

The focus of the company's research and development activities is primarily oriented on the area of energy, petrochemical, and mechanical industries, with each project being based on three main pillars:

- 1) Environmental balance
- 2) Industry for the 21st century
- 3) Minimization

All three pillars have the same weight in our values and are our main benchmark in the development of new products. In our opinion, the combination of these three pillars is key to the correct direction of development in industrial production. Minimization of products thanks to modern technologies, simulations and analyzes brings a lower price, faster production, but also savings of the necessary material and thus a reduction of the environmental burden.

Our company is experienced in international EPC projects on various levels. We are used to cooperate on the project with different subjects and we know well what project management is. All of our colleagues have experience with international research projects during or after university study.

We were successful with our **“low potential thermal utilization”** project at Norwegian funds, and project in small scale will be in operation next year.

Our biggest advantage are analytical activities - calculations with experimental verifications, analysis, flow modeling, strength calculation, optimizations, strong physical / numerical / mathematical background.

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|---|---|---|
| <input type="checkbox"/> Higher Education | <input type="checkbox"/> Research Institution | <input type="checkbox"/> Public Administration |
| <input checked="" type="checkbox"/> Industry /SME | <input type="checkbox"/> NGO | <input type="checkbox"/> Other: Please specify |

Description of the (Research) Team

The competence of individual researchers to solve the project is given primarily by their experience with several jointly solved projects in the field of design, assessment, and construction of technological equipment, as well as technological processes. From many successfully implemented large-scale development projects, it is possible to mention, for example, the design and implementation of a mobile diesel generator (MDG) for the Mochovce NPP. MDG is a unique device implemented on a turnkey basis, where the research team of the project participated in the development phase. Reconstruction of main steam isolation valves (MSIV) for Dukovany NPP was carried out by members of the research team. The successful implementation had significant financial and safety benefits for the customer. Finally, the development of our own ammonia reactor technology implemented for Unipetrol should be mentioned. The technical solution won the international competition. The uniqueness of the developed technology is underlined by the fact, that the technical solution has been of protected as a utility model.

Expertise of the Team Leader

Principal investigator after master study spent 1 and half year at Marie Currie fellowship project SIMVIA at Prague CVUT and Ljubljana Mechanical University. He has not finished his PhD. study due to interesting work in commercial sphere. He has become in relatively young age head of R&D division medium size company ROEZ since 2017.

From 2017 he is head of R&D of international level project - development of own ammonia reactor (circa 300t equipment, mix of chemistry, process, fluid flow CFD, finite element method research and development).

He also participated on some few million € projects for oil & gas, nuclear and hydro industry for biggest central European companies.

Potential role in the project

- Research Training
 Dissemination Other: *Please specify*

e.g. project leader, scientific coordinator, workpackage leader, product development expertise.

Already experience as a	Coordinator	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
	Partner	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
	Expert Evaluator	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CONTACT DETAILS			

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