

Partnering Opportunity

Profile status : Published

Research Development Request

HORIZON-CL4-2022-TWIN-TRANSITION-01-17: Two Slovenian research organizations and a company are looking for partners with hydrogen expertise

Summary

Two research organizations and hydrogen peroxide producer from Slovenia are looking for partners with hydrogen expertise (electrolysis, burners, engineering and demo sites) to jointly apply to HORIZON-CL4-2022-TWIN-TRANSITION-01-17 in order to establish hydrogen peroxide production pilot/demo industrial site.

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|-----------------|---|
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Details

Description

- Call HORIZON-CL4-2022-TWIN-TRANSITION-01-17 requires to address the following aspects:
- Redesign of the heating process for the use of hydrogen as the sole heating fuel, including redimensioning and adjustments of the combustion system, conductive zone of the furnace or the (off-)gas system, plus possible measures to minimise nitrogen oxide emissions;
 - Modification of the heating equipment and infrastructure required for the use of hydrogen, e.g., new burners and hydrogen compatible equipment materials;

- Development of an oxygen or oxygen-enriched air combustion process that replaces an air combustion process, considering the energy and cost efficiency of the process;
- Integration of measurement and control instrumentation for detection and regulation of fuel gas characteristics and flows;
- Proven economic viability, which will be impacted by several parameters, in comparison with other heating alternatives.

The subject of collaboration is the scalable sustainable process for hydrogen peroxide production, a goal is to develop a Technology Readiness Level (TRL) 7 sub-sized prototype process, while the integration of hydrogen could be to combustion, as well as directly to production, so as to benchmark operation.

Hydrogen peroxide production can be considered as one of 2–3 demos, which are to be expected to be covered within the framework of proposal, whereas comparative technological advantage to be assessed is the use of (a part of) hydrogen directly as a reactant, adding up to the potential of mere fuel replacement, which will be demonstrated.

The present team consists of:

1. A Slovenian public research organization with the expertise in materials, characterisation and engineering, whereas its contributing role is flexible considering the rest of consortium, as well as roles missing.
2. A Slovenian research organization with expertise in control systems, modelling of production processes, process automation and electrical engineering.
3. A large Slovenian producer of hydrogen peroxide

The coordination by one of the current team member is possible, but it will be priority to partner up with entities, already having leadership established.

The team is in contact with other relevant stakeholders of whole downstream/upstream value chain. Industrial company partner (an export-oriented renowned producer of hydrogen peroxide products) is strongly motivated for this emerging kind of technology to be able to provide a future carbon dioxide neutral production on site or at customers, providing engineering or services.

The team is looking for following partners:

- The partners with (high TRL) hydrogen expertise: electrolysis, burners, engineering...
- Other demo sites, interested to partner up, setting up a consortium
- Potential hydrogen community stakeholders, interested to take on coordination

The team is looking forward to cooperate with the partners or a consortium on this specific topic, whereas the options of collaboration are flexible – ideally, Slovenian prototype process would be one of many, coordinated in orchestra, while the lead is not yet irrevocably selected.

Advantages and innovations

Hydrogen peroxide production relies exclusively on hydrogen/oxygen as feedstock, whereas presently, hydrogen is provided from natural gas reforming, consuming 30–40% methane for combustion alone. Electrolysis can thus be interfaced with reforming itself or even, a step further, be plugged to peroxide producing reactor, which is proposed to be assessed.

Stage of development

Proposal under development

IPR Status

Secret Know-how

Keywords

Technology

| | |
|----------|---|
| 02004 | Plant Design and Maintenance |
| 02007009 | Materials Handling Technology (solids, fluids, gases) |
| 03004002 | Inorganic Substances |
| 03004004 | Electrical Engineering/ Electrical Equipment |
| 04008002 | Fuels and engine technologies |

Market

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|----------|----------------------------|
| 06007001 | Other energy production |
| 08001015 | Other speciality materials |
| 08001017 | Industrial chemicals |
| 08001021 | Other speciality chemicals |

NACE

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|----------|---|
| M.72.1.9 | Other research and experimental development on natural sciences and engin |
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Network Contact

Issuing Partner

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

Contact Person

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Open for EOI: **Yes**

Dissemination

Relevant sector groups

Materials

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

1949

Turnover

20 - 50M

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Slovenian

Client Country

Slovenia

Partner Sought

Type and Role of Partner Sought

The Slovenian research organizations and company are looking for following partners:

- The partners with (high TRL) hydrogen expertise: electrolysis, burners, engineering...
- Other demo sites, interested to partner up, setting up a consortium
- Potential hydrogen community stakeholders, interested to take on coordination

Role of partners are to jointly apply to HORIZON-CL4-2022-TWIN-TRANSITION-01-17.

Type and Size of Partner Sought

SME 11-50, University, R&D Institution, SME <10, >500 MNE, 251-500, SME 51-250, >500

Type of Partnership Considered

Research cooperation agreement

Program - Call

Framework Program

Climate action, environment, resource efficiency and raw materials

Call title and identifier

Integration of hydrogen for replacing fossil fuels in industrial applications (Processes4Planet Partnership) (IA) HORIZON-CL4-2022-TWIN-TRANSITION-01-17

Anticipated Project Budget

EUR 12.00 and 18.00 million

Coordinator required

Yes

Duration

208 days

Deadline for EOI

31 Dec 2021

Deadline of the Call

30 Mar 2022

Weblink to the call

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-twin-transition-01-17>

Attachments
