FRENCH-GERMAN

JOINT CALL FOR PROPOSALS ON

"Development of the hydrogen pathway for the future energy mix"

within the framework of the collaboration between the French Ministry of Higher Education and Research (MESR) and the German Federal Ministry of Education and Research (BMBF)

Opened jointly by the Agence Nationale de la Recherche (ANR, on behalf of MESR) and BMBF

Submission deadline:

May 6th[th], 2024, 13:00 CET

ANR website:

Open calls and preannouncements | ANR

BMBF website:

https://www.bmbf.de/bmbf/de/ueber-uns/bekanntmachungen/bekanntmachungen_node.html

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Applicants are advised to carefully read the entire document as well as the corresponding national documents (German underlying call and ANR funding allocation procedures) before submitting research project proposals.

CONTEXT AND GENERAL DISPOSITIONS

Both France and Germany have adopted their respective national strategies to accelerate the development and deployment of clean hydrogen technologies and have launched significant research programmes on hydrogen. More importantly, the French-German collaboration can make significant contributions to the research efforts aimed at establishing a hydrogen economy in Europe. Consequently, BMBF and MESR have decided to launch a joint call on key challenges toward the deployment of the hydrogen economy where the bilateral cooperation provides especial added value.

Research and Development are playing a crucial role in this process as they provide the solutions for efficient, sustainable and smart power-generation, distribution and usage. Therefore with this call for proposals, the German and French ministries of research, BMBF and MESRI, seek to strengthen the French-German cooperation in energy research and stimulate the innovation processes in both countries, as it was agreed upon at the German-French Ministerial Council on July 13th 2017 and the French-German Research Forum in December 2022. This call is based on the German Federal Government's "7th Energy Research Programme"[1] and on the French ANR's "Work Programme 2024"[2].

The projects funded under the framework of the present joint call are expected to promote high-quality research collaborations among researchers in France and Germany in order to provide highly innovative research contributions to a sustainable cross-sectoral hydrogen economy in France, Germany and Europe.

The call is seeking the participation of research institutions[3] (universities or assimilates and research organisations) and companies as well as other institutions providing research contributions. The involvement of partners covering the entire innovation chain from research to industry to end users is encouraged to support the practical relevance of the developed solutions.

The purpose of this call for proposals is to support projects demonstrating an effective collaboration between French and German partners. Partners will work together as a joint team with complementary competencies in one common project creating a joint output. Partners will ensure that each country provides balanced contributions[4] and scientific inputs.

Projects with a full budget in the range of 1.5 to 2.5 million Euros are expected, with a fair balance of research expenses between Germany and France[4]. Smaller or larger projects can be proposed if duly justified.

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1 https://www.bmwk.de/Redaktion/DE/Publikationen/Energie/7-energieforschungsprogramm-der-bundesregierung.html%20

2 https://anr.fr/en/plan-daction-2024/

3 For further definition, see section "eligibility" and the corresponding sections in the national calls.

4 in terms of full cost including in-kind contributions. As funding rules differ between Germany and France, this may result in different amounts of funding.

Each funding agency will cover expenditures for their respective country's teams according to its own rules. Details can be found in the underlying German call text[5] and ANR's funding regulations[6,7,8]. The projects will be funded for **up to three years.**

SCOPE OF THE CALL

Funding will be provided to collaborative projects between German and French partners that conduct application-oriented basic research (roughly corresponding to TRL 1-5). The projects should demonstrate highly innovative research contributions to a future cross-sectoral hydrogen economy in France, Germany and Europe. Projects have to generate added value from the French-German cooperation.

Research to be funded shall address one of the following topical priorities:

1. **Innovations for electrochemical hydrogen production,** e.g.

- new materials for electrolyser core components, such as membranes, that are sustainable and readily available[9]
- advances for AEM electrolysers
- co-electrolysis for direct production of hydrogen and energy carriers
- new approaches to understand and mitigate degradation, esp. using machine learning and artificial intelligence

2. **Research contributing to a powerful hydrogen infrastructure, especially hydrogen carriers,** e.g.

- chemical hydrogen carriers: advances in the chain, such as synthesis/ cracking processes
- new e-molecules and carbon molecules from renewable carbon sources suitable for large-volume and low-cost production including their synthesis and production processes
- liquid hydrogen: efficiency increases along the chain, sensing technologies

3. **Advances for hydrogen energy systems: systems integration and modelling**, e.g.

- modelling of multi-energy systems
- regional-scale, cross-border models for hydrogen and/or multi-energy systems; analysis of short-term vs. long-term storage options, infrastructure development over time
- tools and methods, e.g. for complexity reduction, for multi-scale models, for monitoring and decision-making in large-scale energy systems, data bases

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5 https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2023/12/2023-12-08-%C3%84nderungs-bekanntmachung-Energiewende.html

6 http://www.agence-nationale-recherche.fr/RF

7 French requirements on scientific publications and research data, ethics and scientific Integrity, gender equality, and promoting scientific, technical and industrial knowledge are supplied as an annex to this call text. German partners have to be aware of these as well.

8 In case of discrepancies between this document and national documents, the latter are legally binding

9 i.e. avoiding components that have harmful effects on the environment and health and limiting the need for rare raw materials (such as precious metals)

Highly innovative ideas in the three above areas that are not mentioned in the subtopic catalogue, but provide significant impact towards a hydrogen economy are also welcome. All proposals shall aim at solutions geared to real-world needs for improving progress towards a European Hydrogen economy as stated above and shall feature a high degree of innovation. Scientific excellence shall be clearly evident, the exploitation plan be realistic and comprehensive.

Even if at early stages of research, all projects must take into account issues of safety, deployment conditions and life cycle (impact on the environment, use of resources available in limited quantities, etc.). In addition to the technological developments, applicants are also invited to consider socio-economic issues if relevant to their topic of research

If possible, proposals should describe how solutions can contribute to new norms and standards at the European level.

As both countries intend to encourage researchers' mobility and knowledge exchange between France and Germany, consortia are asked to include concepts for integrated collaboration between partners from both countries and cross-border networking (e.g. regular meetings of participating work groups, common workshops, exchange of personnel between research organizations, joint publications etc.).

SUBMISSION

The French and German partners will prepare a single joint scientific project proposal[10].

Writing in English using the provided template is highly recommended, as evaluation will be carried out, within a bilateral cooperation with the foreign agency, by an international Peer Review Panel. If the common proposal is drafted in French or German, a **translation** will be requested and will serve as a basis for evaluation.

Each country's teams must designate a **national scientific coordinator**.

The joint proposal must be submitted by the **German coordinator to Projektträger Jülich (PtJ)** and by the **French coordinator to ANR** via their respective submission websites.[11]

A project proposal consists of:

1. an **administrative document to be completed online on each national submission website**,
2. a **scientific document (project description,** 15 pages maximum), complemented by an annex to be uploaded to the submission site.

[10] The German underlying call text refers to Projektskizzen

[11] PtJ: https://foerderportal.bund.de/easyonline/reflink.jsf?m=GLF_ENERGIE&b=DE-FR-H2
ANR: https://aap.agencerecherche.fr/_layouts/15/SIM/Pages/SIMNouveauProjet.aspx?idAAP=2114

The **project proposal scientific document** should provide the elements necessary for its assessment according to the pre-defined evaluation criteria.

The document must be structured in the following order:

1 Executive summary of the proposal

2 Context and objectives of the proposal

- 2.1 Objectives
- 2.2 Context and relevance of the proposal to the call; scientifically as well as in terms of relevance for industry and society
- 2.3 Description of possible socio-economic and safety issues in the context of the targeted research area and how these questions are addressed within the project
- 2.4 State of the art and patents filed (by applicants, third parties)

3 Project consortium

- 3.1 Qualification and contribution of each partner
- 3.2 Consortium as a whole, including assignment of roles and complementarity
- 3.3 Added value of the French-German cooperation for the project, including how the competence, technology and other resources in each group complement each other and on how the project is expected to help strengthen research cooperation between France and Germany over the longer term;

4 Scientific and technical programme, work plan

- 4.1 Scientific programme and overall project structure
- 4.2 Description of work packages
- 4.3 Milestones and task schedule (and Gantt chart)

5 Dissemination and exploitation

- 5.1 Scientific, technical and economic utilisation of the results
- 5.2 Statement that the partners have reached an understanding of how the intellectual property and know-how arising from the accomplishment of the joint research projects will be handled and exploited by each partner and will enter into a cooperation agreement if selected, conforming to both national regulations.
- 5.3 Added value for the Franco-German research cooperation

6 Budget and explanation of estimated costs and funding requests for each partner

7 Necessity for funding

8 References

The **annex** to the proposal description should provide[12]:

1. A table detailing the contribution of each French partner
2. Short CVs of the national project leaders and of the key researchers involved

[12] French partners are asked to give more detailed information in the annex as they submit a full proposal in the first step. German partners submit proposal outlines (Projektskizzen) and will have to submit more detailed information in a second step along with a formal grant application (see section « Selection and funding »)

3. A detailed work breakdown and milestone chart for the French partners
4. The justification of costs and funding requests for the French partners

Templates for the scientific document and the annex are available to applicants on the ANR and PtJ websites[13] (and). **Usage of the templates is strongly recommended.**

The project proposal shall be considered complete if the online forms are filled in and the scientific document and the annex are prepared and uploaded to both submission websites by the deadline mentioned above.

ELIGIBILITY

The project proposal must fulfil the eligibility criteria common to both funding agencies, as well as the criteria specific to each agency. **Project proposals that do not meet the eligibility criteria, whether common to both agencies or unique to each, cannot be funded.**

1. Common eligibility criteria

1. The project proposal must be in conformity with the designated research areas

2. The project proposal must be submitted by at least one French partner[14] and one German partner.

3. Both agencies must receive a complete application: the common scientific document, the annex, and a specific national form submitted respectively on the online platforms of ANR and PtJ (see the section “Submission”)

4. The project proposal must have a time range of up to three years

5. Composition of the consortium

~~a.~~ The French part of the consortium shall consist of at least one French public research institute (or assimilate)

b. The German part of the consortium shall consist of at least one research institute (non-university or university)

c. The participation of companies is strongly encouraged. Companies can participate either as active or as associated partners. Associated partners are asked to contribute to the project e.g. by financial, infrastructural or personal means without additional funding. A letter of intent describing this contribution to the

[13] ANR: https://anr.fr/DVH2-2024
PtJ: https://www.ptj.de/projektfoerderung/anwendungsorientierte-grundlagenforschung-energie/dt_frz_h2forschung

[14] A French partner is an entity (research organization or company) having an establishment or branch in France. For the definition of partners at ANR, see: *http://www.agence-nationale-recherche.fr/fileadmin/documents/2017/ANR-RF-Fiche-PART.pdf*

project is required. End user or other civil society organisations can participate as additional active or associated partners or as members of an advisory board.

d. Members of the Peer Review Panel cannot be involved in the submitted project proposals to the call in any manner

2. Specific national eligibility criteria

For specific national eligibility criteria, please see the national call texts published by ANR and BMBF respectively.[15] These national criteria concern for example the kind of project partners or regulations concerning similar projects or the number of projects a researcher can be involved in.

EVALUATION

A Peer Review Panel (PRP) will evaluate each eligible proposal[16].

The evaluation criteria are:

1. Scientific excellence
   a. Conformity with the call for proposals aims and degree of conformity with designated research areas
   b. Scientific and technical quality, innovativeness and knowledge gain of the joint research project
   c. Methodology and quality of project construction, feasibility and appropriateness of the joint research project
2. Consortium, Collaboration and Implementation
   a. Quality, competence and complementarity of the consortia to address the objectives of the project including the active involvement and commitment of companies and organisations; possible contribution to the overall Franco-German cooperation in hydrogen energy research
   b. Added value of the bilateral cooperation and expected benefit for both the French and the German side and the balance of the cooperation.
   c. Appropriateness of resources and funding requested
3. Impact
   a. Overall impact of the project, including scientific, technological, economic and social aspects
   b. Appropriateness of description of how socio-economic questions are incorporated and end users involved, where feasible. Consideration of safety aspects.

SELECTION AND FUNDING

[15] ANR: https://anr.fr/DVH2-2024
BMBF: https://www.bmbf.de/bmbf/de/ueber-uns/bekanntmachungen/bekanntmachungen_node.html

[16] The PRP will be composed of internationally recognized, independent, responsible scientific experts

Relying on the evaluation and ranking of the proposals made by the Peer Review Panel (PRP), a Joint Call Steering Committee composed of MESR, ANR and BMBF representatives will select the projects proposed for funding.

Each agency will fund grant for their respective country's partners according to its own rules and national regulations:

- **ANR's funding regulations** are available at: http://www.agence-nationale-recherche.fr/RF
- The **German partners** will have to submit a **formal grant application** if their proposal has been selected. BMBF guidelines for grant applications on expenditure basis, for grant applications on cost basis and the administrative provisions concerning sections 23 and 44 of the Federal Budget Code (Bundeshaushaltsordnung) apply (see underlying national call text[5]).
- The French-German consortium will be required to conclude a **cooperation agreement including all partners**. Usage of the DESCA model agreement is suggested. It is available at www.desca-agreement.eu