



Research Programme on Industrial Processes

Call 2021 for Research Proposals: “Energy Efficiency in Industry”

The SFOE research programme on Industrial Processes is guided by the vision drawn in the recently released Federal Energy Research Masterplan:

“Industrial processes will become pillars of a circular economy where products and services leave only minimal energy, materials and emission footprints throughout their entire life cycle.”

Consequently, the programme promotes research and development (R&D) activities aimed at innovative process technologies and intelligent management practices which advance industrial resource efficiency to a level where material use is minimized and the provision of energy relies on renewable sources.

The SFOE provides subsidiary financial support for application-oriented and development-related R&D projects, with the expectation that the results from these projects will be publicly assessable and have the potential to generate significant positive impacts. For this call for proposals, the SFOE research programme on Industrial Processes set aside 1 Million Swiss Francs to strengthen and expand its portfolio of co-funded research projects in the area of industrial energy efficiency. Other topics in the broader context of industry decarbonisation (e.g. integration of renewable energy in industry, or carbon capture and utilization) are not in the scope of this call, but addressed via other funding mechanisms.

Researchers are invited to submit proposals for technology innovation projects within the call’s thematic scope outlined further below. Collaborations with implementation partners in the private sector are particularly welcome. As funds are limited, the call is competitive. Of the projects that meet the funding criteria only those with the highest scores will be attributed funding (see call procedures for further details). Successful applicants will receive SFOE funding in the range of 100–300 kCHF to pursue their projects over a 1 to 3 year period.

The thematic scope of this call aligns with both the broader [Federal Energy Research Masterplan](#) and the more specific [Energy Research Masterplan of the SFOE](#) for the 2021- 2024 period. The “Directive on the submission and evaluation of applications for financial support of energy research, pilot and demonstration projects” (in short: “[directive on submissions and evaluations](#)”) applies to all procedures related with this call.

Please note: The [SFOE Pilot and Demonstration programme](#) continues to welcome qualified proposals in the area of industrial energy efficiency in its regular bottom-up application process.

Scope

For this call, researchers are invited to submit research proposals in one of the two fields described below. Projects can focus on one or several aspect of these fields and do not have to treat all sub-points listed.

1) Innovative process technologies that deliver significant* energy savings in industrial value chains

Possible research areas include, but are not limited to these examples:

- Novel reaction and separation processes with high yield and selectivity at minimal energy consumption
- Advanced manufacturing techniques to boost energy and resource efficiency
- New approaches to process intensification (micro-reactors, catalysis, hybridization, etc.)
- Equipment design and operation strategies to eliminate intermediate steps and minimize losses

* It is expected that all claims on energy savings will be substantiated in the course of the project by adequate comparative assessments in a life cycle perspective.

2) Integrated approaches for enhanced** industrial energy efficiency at facility and site level

Possible research areas include, but are not limited to these examples:

- Efficient systems for the recuperation, exchange and storage of chemical, thermal and electrical energy in industrial production processes
- Digitalization concepts for the monitoring, control and optimization of the energy consumption in production facilities
- Methods and tools to design, manage and operate highly efficient and reliable integrated industrial systems, tested in realistic case studies
- Cost effective and pragmatic concepts to improve energy efficiency in retrofits of industrial facilities/sites

** It is expected that the novel approaches will be tested in realistic case studies and that their potential efficiency benefits will be assessed for different adoption scenarios.

Timeline

March 24, 2021	Call launch with publication on the SFOE website
April 24, 2021	Deadline for questions regarding this call for proposals
April 30, 2021	Publication of SFOE responses to questions of general relevance
May 30, 2021	Deadline for full proposal submission
August 2021	Notification of accepted projects
Fall 2021	Contract negotiations, launch of accepted projects

Contact Information

If you have any questions regarding the call, then please do not hesitate to reach out to:

energieforschung@bfe.admin.ch

The deadline for questions is April 24. Answers to questions of general interest and relevance will be published on the website of the [SFOE research programme on Industrial Processes](#) by April 30, 2021. After that, only administrative questions will be answered.

No extension of the deadline will be granted.

Eligibility

The call is addressed to universities, the ETH-domain, universities of applied science, other research organizations and the private sector in Switzerland. Proposals of working groups are welcome, provided that competencies, roles and responsibilities are clearly identified and that one legal entity acts as the main applicant and designates a contact person for the SFOE.

Collaborations with partners from industry are especially encouraged. Though working groups may include research partners from abroad, in this call SFOE funding can only be used to support the contributions of Swiss partners.

Only projects with a clear focus on the industry sector and in line with the scope of this call can be considered for funding. The projects should address questions relevant in the Swiss context and trigger innovations that generate value in Switzerland.

In general, the SFOE aims towards a portfolio of research projects that reflects Switzerland's diversity in terms of language and regions while providing gender-balanced development opportunities in particular for young scientists.

In accordance with the principles of subsidiarity, it is expected that the research partners contribute financially according to their abilities, with the SFOE and other funding supplementing the financial resources required for the proposed project. As a project's ability to raise funding from different sources is usually an early indicator of implementation potential, a higher share of own and third party funding is expected at higher technology readiness levels.

SFOE funding will be provided to support the specific tasks described in the project proposal, but cannot be used to pay any contribution to overhead cost. Personnel costs have to be determined in accordance with the maximum rates listed in [Appendix VI](#) of the directive on submissions and evaluations. Fully funded professors from universities or the ETH domain may not request SFOE funding for themselves, but are free to include their own work as an in-kind contribution to the project. The anticipated amounts of own and third-party contributions (in-kind and/or cash) must be indicated in the proposal and then formally confirmed (e.g. with commitment letters) during the contract negotiation phase.

All applicants must comply with the conditions set out in the [directive on submissions and evaluations](#).

Call Procedures

Application

The main applicant is responsible to submit the complete and signed call-specific proposal form (see links further below) as a PDF file in German, French, Italian or English together with the annexes specified in the proposal form.

The complete proposal package has to be submitted by e-mail to energieforschung@bfe.admin.ch, by May 30, 2021, 12:00 midnight CEST.

No proposal will be accepted if it is submitted in another format, if it is incomplete or submitted past the call deadline. The SFOE will confirm receipt and process all consortium proposals under appropriate conditions of confidentiality.

Evaluation of Proposals

All proposals will be evaluated against the same set of criteria as defined in the appendix of this document. Only proposals that meet all eligibility criteria will be advanced to the qualitative evaluation.

Eligible proposals will be evaluated and scored by a panel of SFOE appointed experts. Applicants will have no possibility for rebuttal to the panel's evaluation. Projects that do not meet the minimum scores will be dismissed. The remaining proposals will be ranked according to their scores. SFOE will award funding to the top ranked proposals within the budget set aside for this call, pending the availability of annual federal budgets.

Any positive funding decision may be subject to conditions (e.g. modifications in the scope of work, adjustments of the budget). In the event that there is substantial overlap in the scope of eligible proposals, then only the best ranked proposal in this subgroup can be approved for funding.

ARAMIS Publication

By signing the proposal form the applicants declare that they agree to the publication and distribution of the project's results. Specifically, project abstracts and final reports will be published on the Federal ARAMIS information platform (www.aramis.admin.ch). Abstracts have to be submitted in English and at least one of Switzerland's official languages. Final reports have to be written in English and an official language, with summaries in English and at least two official languages.

Links to Key Documents

Call-specific templates to be completed:

- [Application Form for the 2021 "Industrial Energy Efficiency" Call for Proposals](#)
- [Finance Sheet detailing project costs and funding sources](#)

Note: All personnel cost have to be calculated in accordance with Appendix VI: "Maximum remuneration for activities carried out within the framework of SFOE energy research" of the directive on submissions and evaluations (see below).

Supporting Information:

- [Directive on the submission and evaluation of applications for financial support of energy research, pilot and demonstration projects \(admin.ch\)](#)
- [Federal Energy Research Masterplan for the period from 2021 to 2024 \(admin.ch\)](#)
- [Energy research concept of the Swiss Federal Office of Energy \(admin.ch\)](#)

Appendix: Evaluation criteria

The project has to fulfil **all** eligibility criteria to be evaluated.

Eligibility criteria

Formal criteria:

Criteria		
F1	Is the application complete, i.e. does the proposal include all information requested in the call?	<input type="checkbox"/> yes <input type="checkbox"/> no
F2	Are the objectives of the research project clear and is the research proposal well structured?	<input type="checkbox"/> yes <input type="checkbox"/> no
F3	Was the application submitted in time?	<input type="checkbox"/> yes <input type="checkbox"/> no

Content related criteria:

Criteria		
I1	Do the research questions to be addressed fit the call, and do they fall into the competence of the SFOE?	<input type="checkbox"/> yes <input type="checkbox"/> no

Qualitative Criteria

Each of the main criteria will be scored on a scale from 1 to 5 and weighted as indicated below. The 1–5 scoring system for each criterion indicates the following assessment:

- 1 – Poor: The criterion is inadequately addressed or there are serious inherent weaknesses.
- 2 – Unsatisfactory: The criterion is broadly addressed but there are significant weaknesses.
- 3 – Satisfactory: The criterion is addressed but with a number of shortcomings.
- 4 – Good: The criterion is well addressed but with a number of shortcomings.
- 5 – Very Good: All relevant aspects of the criterion are addressed; any shortcomings are minor.

Only those projects may be considered for funding that obtain in each qualitative criterion (Q1 to Q5) the respective minimum score listed in the table below:

Criteria	Minimum score
Q1 Organisation (weight: 1.0)	ø 3
Competencies, organisation, responsibility - Are all the competencies crucial to the project covered? - Has a clear project organisation been established? - Are the responsibilities laid down clearly?	At least 3
Schedule and milestones - Is the proposed schedule realistic and efficiently drawn up? - Have clearly measurable milestones been stipulated (stage-gate targets)?	
Cost-benefit ratio, subsidiarity - Does a project hold out the prospect of significant benefits vs. the costs involved? - Have sufficient in-kind contributions and third-party funds been promised?	At least 3

Criteria	Minimum score
Q2 Excellence (weight: 1.0)	ø 3
Previous work, suitability, expertise	
<ul style="list-style-type: none"> - Can the project team build on previous work? - Does the project team have the expertise required (suitability)? 	
Academic record, recognition	
<ul style="list-style-type: none"> - Does the project team have broad and demonstrated experience (academic record) or are they recognised specialists in their field? 	
Teams' potential for success	
<ul style="list-style-type: none"> - Is clear potential for success discernible in this project team? 	
Q3 Content of project (weight: 2.0)	ø 3
Relevance	
<ul style="list-style-type: none"> - Is the project scientifically, politically and strategically relevant and does the content contribute to a research priority set out in the call? 	At least 3
Value creation, innovative content	
<ul style="list-style-type: none"> - Do the findings lead us to expect high value creation for Switzerland - in an economic or scientific respect? - Does the project build up a large body of knowledge or know-how and/or does it pursue an innovative or novel approach? 	
Approach, methodology, targets and data	
<ul style="list-style-type: none"> - Is the proposed approach suitable to deal with the issue? - Is the methodology adequate to solve the issue? - Are the project targets specific, measurable, realistic and achievable? - Is the data collection strategy clearly defined and access to required data secured? 	At least 3
National and international cooperation	
<ul style="list-style-type: none"> - Is the project part of an international cooperation within IEA or EU research programmes, or is it part of other national or international collaboration schemes? 	
Q4 Opportunities, risks (weight: 1.0)	ø 3
Energy potential	
<ul style="list-style-type: none"> - Does the project make significant contributions to energy efficiency in industry? 	At least 4
Discussion in public or among professional audiences	
<ul style="list-style-type: none"> - Are the research findings of interest to the general public? - Do the findings constitute a useful foundation for the opinion building and decision-making processes among informed stakeholders? 	
Sustainability	
<ul style="list-style-type: none"> - Will the project's findings contribute to sustainable development in all three dimensions (ecological, economic and social) at national and/or global level? 	
Q5 Monitoring, dissemination, and development opportunities (weight: 1.0)	None
Monitoring	
<ul style="list-style-type: none"> - Is a plan for monitoring or other accompanying activities presented? 	
Knowledge transfer	
<ul style="list-style-type: none"> - Are knowledge transfer and publications planned? 	
Development opportunities, gender balance	
<ul style="list-style-type: none"> - Are young scientists/doctoral candidates working on the project? - Is gender balance achieved in the working group, in particular in leadership roles? 	