Schweizerische Eidgenossenschaft
Confédération suisse
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Swiss Confederation

Federal Department of the Environment,
Transport, Energy and Communications DETEC

Swiss Federal Office of Energy SFOE
Energy Research and Cleantech

Research Programme Grids
Call 2023 for Research Proposals

The overarching aim of the Research Programme Grids is to support projects addressing novel concepts and technologies for planning, operating and maintaining electrical grids and systems. The Research Programme Grids elaborates calls to fund innovative technical research projects. In line with the Federal Energy Research Masterplan for the period from 2021 to 2024 and with the Energy research concept of the Swiss Federal Office of Energy, the Research Programme Grids defines research priorities through its calls.

For this call, the Directive on the submission and evaluation of applications for financial support of energy research, pilot and demonstration projects applies.

Scope

A recently published study[1] commissioned by the SFOE shows that the upcoming electrification and the massive increase in renewable energies are likely to lead to a strong expansion requirement of the Swiss distribution grids. Although this can be mitigated somewhat by intelligent measures and technologies, the increase in grid costs is still likely to be significant.

Under the premise that the future power grid must be able to meet the changing electricity demand reliably and from 100% renewable energies (RES), promising concepts and options including radically new approaches are to be funded (TRL 2–5) that make a significant contribution to reducing the need for expansion and thus to limiting grid costs.

Researchers are invited to submit research proposals in one of the following topics. The focus is primarily on technical and techno-economical aspects, although any need for regulatory adjustments should be adequately addressed as well. The projects must be strongly related to Switzerland.

Topic 1: Grid planning and operation

- What is the ideal *future* **power grid architecture** for Switzerland to enable or even accelerate a sustainable and resilient supply from 100% RES? How do transition paths look like?
- How can the interplay between adding RES and consumers (e.g., charging stations) and **grid expansion** be optimised already *today* in order to minimize uncertainties and costs?
- How can existing and new **sources of flexibility** reliably support resilient grid operation and become an integral part of grid development planning?
- To what extent do current **planning principles** (e.g., N−1 criterion, DACHCZ) prevent an efficient grid development? What conceptual and operational adjustments and alternatives are possible without jeopardising the security of supply?
- How can **dynamic grid stability** be assessed and **critical conditions be** identified early on? What are promising concepts for (autonomous) **grid control**?
- How must concepts (technical, organisational) for **grid restoration** evolve with an increasing share of RES? What arrangements will need to be made, when and by whom?

Successful projects must address at least one of these questions.

[1] Consentec, EBP, Polynomics (2022): «Auswirkungen einer starken Elektrifizierung und eines massiven Ausbaus der Stromproduktion aus Erneuerbaren Energien auf die Schweizer Stromverteilnetze»

Topic 2: Plug & Play Photovoltaics

- What is the **potential** of plug & play PV in Switzerland? What contribution does it offer to a **secure energy supply**?
- How must installations be **designed** to generate technical and economic benefits?
- Is the current **power limit of 600 watts** justified and under what conditions (technical, regulatory) would it be possible to raise it?

The successful project (only 1) must address all these questions as a minimum.

Eligibility

The call is addressed to universities (including ETH-domain), universities of applied science, further research organizations and the private sector in Switzerland. The participation of young scientists in the research teams is encouraged. Researchers in the public and private sector can apply for remuneration of the personnel costs according to the maximum rates provided in the Directive on the submission and evaluation of applications for financial support of energy research, pilot and demonstration projects. The Research Programme Grids does not pay any contribution to hardware and overhead cost.

Wherever possible and reasonable, the participation of commercial and industrial partners – especially utilities (DSO, TSO) and small and medium-sized enterprises (SME) – is strongly recommended to ensure the relevance of the research to technological development and to the needs of society.

An adequate share (usually at least 20%) of own and third-party contributions (in-kind and/or cash) is expected and has to be indicated at the pre-proposal submission and formally confirmed at the full proposal submission.

Public and private research organisations outside Switzerland are also welcome to apply. They however have to do so in a consortium with at least one Swiss partner and work on research questions relevant for Switzerland. The Swiss partner has to provide a substantial contribution to the research work performed in the project and has to be listed as the main partner in the application.

Supported projects typically receive public funding between 100–300 kCHF and have a duration between 24 and 36 months. However, there are no formal limits. The indicative call budget is in the range of 1.5–2 MCHF and finally depends on the requested distribution of the payments over the fiscal years.

Applicants must comply with the conditions set out in the Directive on the submission and evaluation of applications for financial support of energy research, pilot and demonstration projects.

Application procedure

The call follows a two-stage submission and evaluation procedure. First, a pre-proposal (maximum 6 pages, see pre-proposal template) is submitted. If the pre-proposal is selected after evaluation, the applicant is invited to submit a full proposal (approximately 10 pages). Invitation to submit a full proposal does not guarantee funding.

The projects presented in the pre-proposal and in the full proposal must be consistent. Any change to the plans described in the pre-proposal should be explained and justified.

At both stages of the application, the main project partner (= coordinator) prepares a proposal (pre-proposal or full proposal) using the template available on the Research Programme Grids' website in English.

The pre-proposals have to be submitted as one single PDF file by e-mail (subject: "Grids Call 2023") to energieforschung@bfe.admin.ch by 13 March 2023.

The receipt of the pre-proposal will be confirmed in due time. If you do not receive confirmation of your pre-proposal submission by 17 March 2023, please contact Dr Michael Moser (see below).

Evaluation and approval of proposals

Pre-proposals and full proposals

1. **Excellence** (threshold: 3/5, weight: 1): Scientific and/or technological excellence:
   - Clarity and pertinence of the objectives;
   - Relevance of the addressed research questions;
   - Soundness of the concept, and credibility of the proposed methodology;
   - Quality and expertise of individual project partners and as a whole;
   - Ambition and innovation content;
   - Progress beyond the state-of-the-art.
2. **Impact** (threshold: 3/5, weight: 2): Impact through development, dissemination and use of project results:
   - Sustainable contribution to the Swiss energy policy goals (e.g., Federal Energy Research Masterplan, Energy Strategy 2050, Net-Zero by 2050);
   - Contribution to enhancing research and innovation capacity;
   - Multiplication potential through major technical and economic advantages;
   - Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property.
3. **Implementation** (threshold: 3/5, weight: 1): Quality and efficiency of implementation and management:
   - Quality concerning coherence and effectiveness of the work plan;
   - Appropriateness of the management structure and procedures;
   - Appropriateness of allocation and justification of requested resources;
   - Appropriateness of share of own and third-party funding;
   - Identification of risks.

The overall threshold mark applying to the sum of the weighted individual scores will be 14 out of 20.

Evaluation scores

Evaluation scores will be awarded for each of the main criteria. Each criterion will be scored out of 5 (half scores are allowed).

The 0–5 scoring system for each criterion indicates the following assessment:

0 – Fail: The criterion is not addressed at all or cannot be assessed due to incomplete information.
1 – Poor: The criterion is inadequately addressed or there are serious inherent weaknesses.
2 – Fair: The criterion is broadly addressed but there are significant weaknesses.
3 – Good: The criterion is well addressed but with a number of shortcomings.
4 – Very Good: The criterion is very well addressed but with a small number of shortcomings.
5 – Excellent: All relevant aspects of the criterion are addressed; any shortcomings are minor.

Invitation to submit a full proposal

Based on the ranking, the top ranked pre-proposals, representing a cumulated requested funding of maximum 125% of the call budget are selected to be invited to submit a full proposal.

Approval

The SFOE strictly approves the full proposals according to the ranking and the available budget. Per main project partner (responsible person) a maximum of two full proposals are approved.

Tentative timeline

The timeline after the submission of the pre-proposals depends on their number and is indicative only:

4 January 2023	Launch of the call
1 February 2023	**Deadline for questions regarding the call**
13 March 2023	**Deadline for submission of pre-proposals**
End of April 2023	Notification of pre-proposals invited to submit a full proposal
June 2023	**Deadline for full proposal submission**
July/August 2023	Notification of approved proposals
September–November 2023	Launch of approved projects

Contact information

If you have any question regarding the call, please do not hesitate to contact:

Dr Michael Moser
michael.moser@bfe.admin.ch
Phone +41 58 465 36 23

The deadline for questions is 1 February 2023. Answers to questions of general interest and relevance will be published on the Research Programme Grids' website.

After 1 February 2023, only administrative questions will be answered.

No extension of the deadline will be granted.