Schweizerische Eidgenossenschaft
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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 Mobility

Call 2021 for Research Proposals: "Future Transport Systems"

The Mobility Research Programme promotes application-oriented research in the transport sector. The overarching goal is the transition to fossil-free drives in a highly efficient transport system, taking into account a general reduction in energy consumption. This goal can in principle be reached by *avoiding* unnecessary traffic, *shifting* to more sustainable and efficient modes of transport, and technical *improvements*.

The Mobility Research Programme focuses on three areas: (i) new mobility concepts, (ii) fundamental system analyses and perspectives and (iii) technical improvements of vehicles and drives. 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, research priorities are defined through thematic 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

For this call, researchers are invited to submit research proposals in one of the following fields (see below). Projects can concentrate on one or several aspect of the fields proposed and do not have to treat all sub-points and research questions listed.

1) New mobility concepts

How can alternative drives, new business models and digital solutions be integrated in an efficient and sustainable transport system?

- ***Leisure traffic*** causes a major share of the traffic-related emissions in Switzerland, but is more difficult to tackle than commute. What kind of new technical solutions, transport systems and business models can accelerate the transition to more sustainable mobility in this area?
- The rapidly increasing popularity of online shopping and economic growth in general are leading to strong growth in ***freight transport***. Both electrification and hydrogen will play a major role in this sector. What are the most promising concepts for future freight transport, both long- and short-haul, and how can the transition be accelerated?
- ***Multimodal mobility*** has been praised to increase the attractiveness of public transport, yet the modal share remained almost constant over the past decades. What kind of solutions, in particular for the last mile, are required to shift the share from private motorized transport to public transport?

2) Perspectives and analyses of transport systems

A precise quantification of emissions and energy consumption in the transport sector constitutes a major challenge but is a prerequisite for good decision making to drive the transition in this sector in the right direction.

- While it is likely that major parts of the transport system will be electrified in the future, some modes of transport, in particular aviation, marine and heavy goods transport will continue to rely on ***chemical fuels*** due to the insufficient energy density of batteries. The prerequisite of CO_2-neutrality gives rise to hydrogen, biofuels, “electric” fuels etc. Compared to direct electrification, all these fuels have a considerably lower overall energy efficiency. What are the most promising fuels for these transport modes in terms of well-to-wheel primary energy demand and GHG emissions, and how can they be integrated in an overall efficient, economic and sustainable energy system?
- The electrification of the transport sector increases the demand for electricity. On the other hand, integrating electromobility into the grid may help stabilize and relieve the system. What extent of stabilization and relief can be expected and what kind of technical improvements and other incentives, which focus on the vehicle and transport system, can enhance the efficiency of ***vehicle-grid integration***?

Timeline

December 21, 2020, 12:00 CET	**Deadline for questions regarding the call**
March 1, 2021, 12:00 CET	**Deadline for submission of pre-proposals**
April 2021	Notification of accepted pre-proposals
May 2021	**Deadline for full proposal submission**
June 2021	Notification of accepted projects
July–October 2021	Launch of accepted projects

Contact Information

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

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The deadline for questions is December 21, 2020, 12:00 CET. Answers to questions of general interest and relevance will be published on the Mobility Research website on January 14, 2021. After December 21, 2020, only administrative questions will be answered.

No extension of the deadline will be granted.

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, and particularly PhD students, 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 Appendix. The Mobility Research Programme does not pay any contribution to overhead cost.

Proposals from working groups, including specialists from different fields, are welcome (main applicant and contact should be indicated). Gender-balance and diversity are encouraged. Own and third-party contributions (in-kind and/or cash) must be indicated when the pre-proposal is submitted and formally confirmed with submission of the full proposal. Collaboration with partners from industry is welcome.

Only projects with a clear focus on the transport sector and in line with the scope of this call can be considered for funding. The projects should address questions relevant for Switzerland.

Foreign research partners (universities, technical colleges, other research institutions and the private sector" are welcome to apply. However, they must do so in a consortium with at least one Swiss partner and work on research questions relevant to Switzerland. The Swiss partner has to provide a substantial contribution to the research project and must be listed as the main applicant.

Supported projects typically receive public funding in the order of 100–400 kCHF and have a duration between 24 and 36 months.

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 (max. 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 prepares a proposal (pre-proposal or full proposal) using the template available on the Mobility Research website.

The pre-proposals have to be submitted as one single PDF file by e-mail to energieforschung@bfe.admin.ch (subject: "**Mobility Call 2021**") **by March 1, 2021, 12:00 CET.**

The receipt of the pre-proposal will be confirmed in due time.

Evaluation of Proposals

The project proposals will be evaluated along the criteria listed in Appendix 2, both at the pre-proposal and at the full proposal stage.

Appendix 1
Maximum remuneration for activities carried out within the framework of SFOE energy research

(Valid as of 1 January 2018)

Hourly rates for research projects

Category	**Universities and Universities of applied sciences**	CHF/h	**Private organisations**	CHF/h
A	Project managers Deputies	115 95	Subject matter experts in management positions	160
B	Experienced scientists with at least 5 years' experience after gaining a degree	80	Subject matter experts with at least 5 years' experience	120
C	Scientific assistants	65	Subject matter experts	100
D	Technical staff, programmers	60	Technical staff, programmers	90
E	Secretarial services	50	Secretarial services	75

A maximum of 20 % of the project time can be used for **project management** (category A). A maximum of 1,400 hours per person per year may be used for **scientific assistants** (category C). The maximum that may be paid for **doctoral students at universities** is the effective cost of the salary (gross salary plus the employer's share of social costs). If no proof of such payments is provided, rates for doctoral students will be paid in accordance with the guidelines of the Swiss National Science Foundation (SNSF)[1].

No further payments for overheads will be made in accordance with Art. 16, para. 6 RIPA.

Expenses

Travel: Half price in 1st class or a vehicle allowance of CHF 0.70/km from the place of work.
Accommodation: The actual cost incurred for overnight accommodation away from home in a mid-range hotel (reference price CHF 180).
based on middle-class accommodation (rate approx. CHF 180 per night).
Meals: Main meal CHF 27.50; breakfast CHF 14.

Fees for attending meetings (e.g. monitoring groups, hearings)

Meetings up to 5 hours: maximum CHF 800 plus travel expenses.
Meetings lasting more than 5 hours: maximum CHF 1,400 plus travel expenses.

These rates include expenses incurred for preparation and follow-up work in connection with meetings and for travel and meals.

No attendance fees will be paid to administrative staff from the State, municipalities and cantons (including professors) nor to representatives of associations and organisations.

Compensation for members of the Federal Energy Research Commission CORE is regulated by the Ordinance on the organisation of the government and the administration (RVOV).

[1] http://www.snf.ch/en/Pages/default.aspx → Funding → Documents & downloads → Regulations → Annex 12: Salary scales for doctoral students, salary ranges and guidelines for postdocs and other staff members, blanket amounts for social security contributions"

Appendix 2
Evaluation criteria

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

Eligibility criteria

Formal criteria:

Criteria		
F1	Is the application complete (does the proposal include all information requested in the call)?	☐ yes ☐ no
F2	Are the objectives of the research project clear and is the research proposal well structured?	☐ yes ☐ no
F3	Was the application submitted in time?	☐ yes ☐ 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?	☐ yes ☐ no

Qualitative Criteria

Each of the main criteria will be scored on a scale from 1 to 5 and are 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.

For a project to qualify for an invitation to submit a full proposal to the second round of the call, each qualitative criterion (Q1 to Q5) has to obtain a minimum score listed in the table.

Criteria		Minimum evaluation
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 in relationship to the costs involved? Have sufficient in-kind contributions and third-party funds been promised?	

Criteria		Minimum evaluation
Q2	**Excellence (weight: 1.0)**	**ø 3**
	Preliminary work, suitability, expertise Can the project team build on previous work? Does the project team have the expertise required (suitability)?	
	Academic record, recognition Does the project team have broad experience (academic record) or are they recognised specialists in their field?	
	Teams' potential for success Is clear potential for success discernible in this project team?	
Q3	**Content of project (weight: 2.0)**	**ø 3**
	Relevance, national and international cooperation ** Is the project scientifically, politically and strategically relevant and does the content contribute to a research priority set out in the call? Is it part of an international cooperation within the IEA or the EU research programme, or is it part of other national or international collaboration schemes (e.g., SCCER, DACH)?	At least 3
	Value creation, innovative content 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 and data Is the proposed approach suitable to deal with the issue? Is the methodology adequate to solve the issue? Is access to the data required guaranteed/has the strategy to compile data been clearly defined?	At least 3
Q4	**Opportunities, risks (weight: 1.0)**	**ø 3**
	Energy potential Does the project contribute to a safe, sustainable and economical energy provision or to a lower and rational energy consumption?	
	Discussion in public or before a professional audience 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 people?	
	Sustainability Will the findings contribute to sustainable development in all three dimensions (ecological, economic and social) at national or global level?	
Q5	**Monitoring, dissemination, and educational effects (weight: 1.0)**	**None**
	Monitoring Is a monitoring or other accompanying activity such as workshops or a monitoring group planned?	
	Knowledge transfer Are knowledge transfer and publications planned?	
	Promotion of doctoral candidates Are doctoral candidates working on the project?	