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Energy funding programme

Reference document

Invitation for follow-up financing of the period 2017-2020 for

Swiss Competence Centres for Energy Research SCCER

Timetable:

Start call for follow-up financing:
Deadline for submission of application:

1 February 2016
31 March 2016

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0 Scope and purpose of this document – Adapted

This is the reference document for follow-up financing of eight “Swiss Competence Centres for Energy Research (SCCER)” according to the Federal Council Dispatch on the Action Plan – Measures for 2013-2016”.¹

The call document dated 23 May 2013 is also current and valid for the second phase², with the exception of the application and evaluation process, the funding structure and available funding. For this reason, in this document, only the chapters that differ or those that are important for Phase II are presented.

In addition, the frame of reference shall be the approved applications from 2013 (for SCCER FEEB&D and EIP from 2014), which are part of the performance agreement signed with the client (i.e. the Confederation, represented by the Commission for Technology and Innovation CTI). Any divergence from this must be explained in the application form (SCCER Funding Application for Phase II).

The present reference document contains explanations and binding instructions.

This reference document includes the following:

- Call for follow-up funding for 2013, and 2014 for the SCCER for the “Efficiency” action field
- Application form for Phase II
- Financial plan 2017-2020

1 Background information – New, based on current situation

In autumn 2013, six competence centres were approved. In March 2014, a follow-up call led to approval of two additional competence centres for Action Field 1 “Efficiency”. As part of the follow-up financing for the action plan “Coordinated energy research in Switzerland”, CTI-sponsored SCCERs must once again apply for CTI funding for the next four-year period (2017-2020).

With this application, the SCCERs are asked to indicate what future research efforts and innovations – and possibly also what material and structural changes need to be carried out in Phase II.

2 Guiding principles for SCCERs

Based on call for 2013 (2014 for FEEB&D and EIP).

¹ Botschaft zum Aktionsplan «Koordinierte Energieforschung Schweiz – Massnahmen in den Jahren 2013–2016»: <http://www.admin.ch/ch/d/ff/2012/9017.pdf>

² Ausschreibungsdokument vom 23. Mai 2013: <https://www.kti.admin.ch/kti/en/home/unsere-foerderangebote/foerderprogramm-energie.html>

3 Thematic focus – New, based on SCCERs selected in 2013 and 2014

The research themes and questions are based on the thematic focus established for the eight already selected Swiss Competence Centres for Energy Research (SCCER). These are:

- Future Energy Efficient Buildings & Districts – FEEB&D
- Efficiency of Industrial Processes – EIP
- Future Swiss Electrical Infrastructure – FURIES
- Heat & Electricity Storage: Materials, Systems and Modelling – HaE
- Supply of Electricity – SoE
- Competence Centre for Energy, Society and Transition – CREST
- Efficient technologies and systems for Mobility – Mobility
- Biomass for Swiss Energy Future – BIOSWEET

The basic thematic fields shall remain unchanged from the Dispatch on the Action Plan on Coordinated Energy Research in Switzerland, unless the SCCER has a more promising research field for the «Energy strategy 2050³» to propose. However the CTI expects more specific cooperation between the “technical” SCCERs and SCCER CREST regarding social, economic, legislative or political aspects within their research activities. Depending on the specific nature and relevance of the socio-economic issues, scientific activities and financial resources should be allocated accordingly in the corresponding SCCER as well as in CREST and the respective interfaces should be clearly identified.

In addition all SCCER shall incorporate following aspects in their application for phase II (based on a portfolio analysis):

- Focus of funding on areas with highest impact on «Energy strategy 2050»; no extrapolation of current funding structure (i.e. the focus in phase II shall be on the most promising research topics and projects and reflect the Innovation Roadmap);
- Emphasis on implementation-oriented activities such as specific pilots and demonstrators and/or policy and business interaction based on robust scientific results; less emphasis on long-term basic research;
- Encourage innovative new projects/activities and collaboration between SCCERs;
- Regarding the 80% and 120% budget scenarios requested under chapter 11.2 and 11.3 in the application form, emphasize priorities you want to set (and no linear reductions and increases over all activities);
- Encourage strong industrial involvement in advanced projects (see also chapter 6.3).
- In order to benefit from synergies the CTI expects that all research involving the issue of photovoltaic energy will be coordinated with the CSEM Centre Suisse d'Electronique et de Microtechnique SA. In particular at the interface with topics such as buildings, grids or storage.

³ For more information about «Energy strategy 2050» see: <http://www.bfe.admin.ch/themen/00526/00527/index.html?lang=en>

4 Submission and selection procedure – Adapted to Phase II

4.1 Structure and responsibilities

SCCER Steering Committee

The SCCER Steering Committee (SteCo) coordinates execution of the SCCER portion of the support programmes “Energy”. It is comprised of representatives of the SNSF and the CTI and is chaired by the CTI President.

SCCER Evaluation Panel

The SCCER Evaluation Panel (EP) examines incoming SCCER applications for follow-up financing and guides/evaluates the SCCER over the course of its operations. It submits recommendations to the SCCER Steering Committee.

CTI Secretariat

The CTI Secretariat supports the SCCER Steering Committee and the SCCER Evaluation Panel.

CTI Board

The CTI Board is legally responsible for making the decision on whether or not to grant subsidies as set forth in the CTI’s operating rules.⁴

4.2 Basic principles for submission of applications

This reference document serves to clarify formal and content criteria that must be met in the application. The deadline for submission begins with the launch of the call on 1 February 2016 and ends for all eight SCCERs at 5pm on 31 March 2016.

4.3 Submission and selection process

The process is illustrated in Figure 1 below.

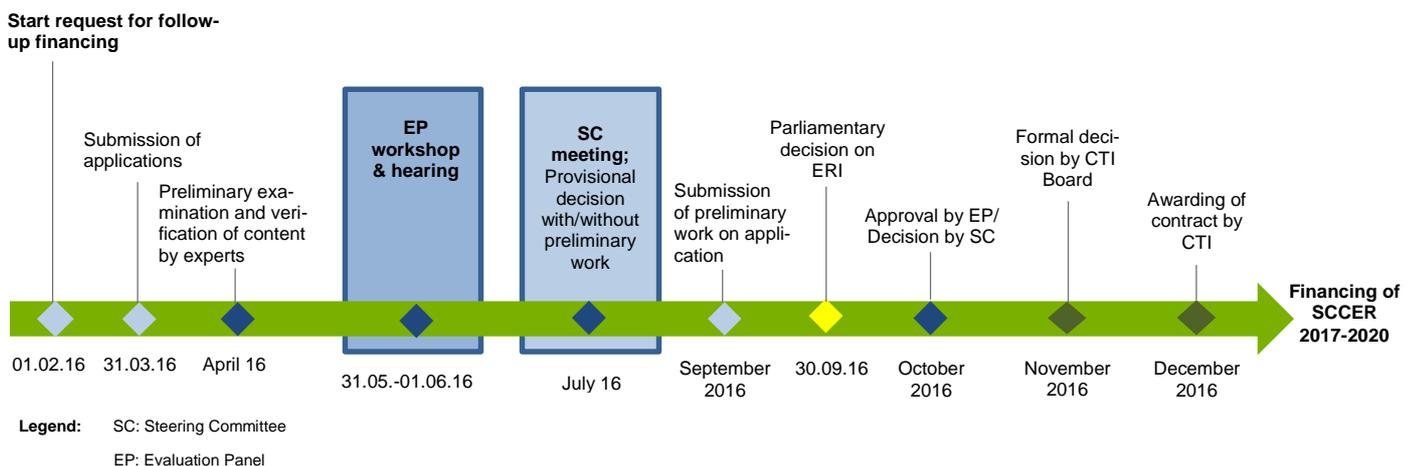


Figure 1: Submission and selection process for follow-up financing for 2017-2020

⁴ CTI Operating Rules
<http://www.admin.ch/ch/d/sr/4/420.124.1.de.pdf>

4.4 Start of SCCER financing

Before the first payment is made to the SCCERs approved for Phase II, CTI signs a contract with the Leading House⁵. This contract sets forth the rights and obligations of the contracting partners for the second phase of funding.

The first payment to the SCCER (80% of the annual total) is expected to be made in early 2017.

5 Funding framework – Adapted to Phase II

5.1 SCCER funding structure – New

SCCERs must obtain funding from various sources. The total funding of the SCCER until the end of 2020 should match the threshold values indicated below:

- Direct federal subsidies to SCCERs	max. 40%	A
- Competitive third-party funding	min. 20%	B
- Other third-party funding (private sector)	min. 20%	C
- Sponsors of higher education institutions	min. 20%	D

Position “A” shall be the reference amount for the other funding amounts (B, C and D).

5.2 General principles

Reference values for all SCCERs – New

For the period 2017 – 2020 a total of CHF 109.16 million in federal funding has been allocated to cover capacity requirements of all SCCERs, whereof CHF 9.96 million has been set aside to help cover operating expenses. These funding amounts still need to be confirmed by the parliament and are therefore to be considered as provisional. The corresponding vote is expected to take place in autumn of 2016.

Table 1 provides an overview of how CTI contributions to SCCERs will be allocated to each type of higher education institution for the four-year period. This table is based on the ERI Dispatch 2013 - 2016 and decisions made by the SCCER Steering Committee. The SCCERs may apply for the funding amount corresponding to the amount of 2016 (cost threshold).

⁵ For definitions of terms, see glossary, Annex B.

	Contribution to operating expenses		Capacity requirements			Total
	Core contribution	Reserve	ETH Domain (maximum federal contribution)	Universities of applied sciences (minimum federal contribution)	cantonal universities (minimum federal contribution)	
2017	2.10	0.39	16.00	4.80	4.00	27.29
2018	2.10	0.39	16.00	4.80	4.00	27.29
2019	2.10	0.39	16.00	4.80	4.00	27.29
2020	2.10	0.39	16.00	4.80	4.00	27.29
Total federal contribution	8.40	1.56	64.00	19.20	16.00	109.16

Table 1: Planned federal funding contributions in CHF million to the higher education institutions (academic research partners) according to the funding amount of 2016 in the ERI Dispatch 2013 – 2016 (p. 9043, 9044).

This general financial guidance may vary according to the composition of the SCCER and field of action, and the final decision on the allocation of funds to each SCCER by the SCCER Steering Committee and the CTI Board.

Operating contribution

Per area of action the core funding (contribution to operating expenses) is amounting to no more than CHF 300,000.00 per year; special consideration may apply for SCCER FEED&D and SCCER EIP. This contribution to operating expenses should be used to cover administrative costs, coordination between the SCCER and for coordination between the research groups for implementing joint R&D projects.

Own funds and other external funding

CTI contributions must be combined with other sources of funding. By federal decree, the minimum requirements are set out below:⁶

- Each cantonal higher education institution (whether it be a university or a university of applied sciences) involved in the SCCER shall provide funds that are of equal value to the CTI subsidy (own funding and/or additional third-party funding).

For SCCER operating costs, the following rule applies: the CTI contribution to operating expenses should be matched by “in-kind” contributions from the research partners (incl. personnel resources) involved in the SCCER.

For capacity requirements, the target values shall remain in place until the end of 2020⁷:

- Cantonal higher education institutions (universities or universities of applied sciences) that are involved in a given SCCER must commit a certain amount of own funding, competitive research funding and third-party funding. The amount to be contributed shall be determined by multiplying the CTI subsidy by a factor (f) indicated below.
- E.g. based on Chapter 5.1: $B + C + D = f \times A$, where f
 - for universities of applied sciences: $f = 2$
 - for cantonal universities: $f = 3$

⁶ Federal Decree on the Funding of the Activities of the Commission for Technology and Innovation (CTI) for 2013–2016, Art. 2 para. 1ter

⁷ Energy Dispatch for 2013, page 9034

Allocation of funding to SCCERs

The allocation of financial contributions to individual SCCERs is based on the assessment of incoming applications and on submitted financial plans. If the requested sums exceed the amount of available funding, then the Evaluation Panel will make a counter-proposal to reduce the requested amounts.

There is no obligation to continue funding on the basis of 2016, or to distribute funding equally to all SCCERs.

Method of payment

The available funding will be paid to the Leading House on an annual basis, generally 80% in the first quarter and 20% in the last quarter of the year. In order for payment to be made, the objectives mentioned in the previous year's review must be met. In the first year, payment will only be made once preliminary work has been done or reservations addressed as per the contractual agreement.

5.3 Financial plan

A financial plan for the period up to 2020 should be included with the application. The information in the financial plan must adhere to the general principles set out in Chapter 5.2. In addition, when preparing the financial plan, it is important to ensure that funding of individual positions does not come from too many different funding sources, excepted for Professors. According to the thematic focussing (see chapter 3) a further reduction of FTE-splitting is expected.

The 80% and 120% scenarios do not need a separate financial plan.

The financial plan and the application form should clearly show which research institution will be involved and to what extent and how the planned activities will be funded by the various sponsors, in particular which tasks the various partners involved will carry out.

In the financial plan, a distinction should be drawn between the contribution to cover the SCCER's operating costs and the contribution to cover capacity requirements – broken down according to CTI-funding, own funding and third-party funding.

Information about company contribution

The SCCER's operating costs must be indicated separately in the financial plan and may include the following budget items (non-exclusive list):

- Salary of Head SCCER;
- Salary of KTT manager;
- Administration and assistance;
- Coordination between SCCERs;
- Joint R&D projects;
- Communication, marketing and specialised conferences.

Information about capacity requirements

Capacity requirements should be indicated in the financial plan by type of higher education institution (ETH Domain, cantonal university and UAS) as well as by type of position (professors, assistant professors, experienced researchers, research assistants, technicians) and annual salaries. The threshold values indicated in Chapter 5.2 for CTI-funded positions in higher education institutions and third-party funded positions should be taken into account.

In terms of annual salaries, PhD students will be paid according to the pay scales established by the SNSF. In addition to a fixed salary, the employer will also pay social insurance contributions under local conditions and any child benefits. For all other experienced researchers, technicians and assistants –

also in line with SNSF practices – the local pay scales will be recognised and include gross annual salary, employer’s social insurance contributions and any child benefits. For all SCCER positions financed by CTI, an overhead proportion of 15% will apply.

Additional expenditure

Higher education institutions and other cooperation partners may use this section to indicate any other materials needed for specific SCCER research activities (e.g. research infrastructures, involvement in R&D projects).

6 Guidelines for SCCER

6.1 SCCER structure – New, based on the existing structures of the SCCERs

SCCERs are national competence centres, comprised of several research partners, i.e. research institutes affiliated with higher education institutions and other cooperation partners, who adhere to the rights and obligations of an SCCER as set forth in the contract signed with the CTI and in accordance with governance rules.

SCCERs should be free to restructure themselves in an optimal fashion in response to new conditions.

Technology transfer offices

The involvement of technology transfer offices (TTOs) in support of KTT is expected.

Governance rules

In Phase II, each SCCER will draft governance rules, which must include at least an organisation chart, the main tasks, functions, decision-making processes and powers of the various bodies. The existing governance rules should be amended as needed in response to the new situation.

Obligations of participating higher education institutions

Each research institute must have a letter of commitment (LoC) from a higher education institution that qualifies for subsidies. In this LoC, participating higher education institutions undertake to provide a certain amount of human and financial resources. In particular, higher education institutions must confirm their willingness to continue to sponsor the created positions after 2020 as part of their regular funding budget.

6.2 Innovation roadmap – with additions

Every SCCER is requested to deliver a specific and detailed innovation roadmap as for phase 1. In addition a top innovation chart focusing on the key research results having a substantial impact on the implementation of the «Energy strategy 2050» has to be submitted (use A4 template). This chart shall have the time on the x-axis and the technology readiness levels A to D (see below) on the y-axis and comprise:

- the overall vision of the SCCER;
- the trajectory of each top innovation with the key research result (products or/and services) as the final target;
- the important milestones or work packages on the trajectory;
- a qualitative indication of the relevance of the key research result (expressed by the line thickness of the trajectory).

The SCCER CREST shall use instead of the TRL A to D a more appropriate progress scale on the y-axis.

The top innovation chart shall primarily address non energy experts, such as policymakers, laymen etc. and it shall strengthen the “unité de doctrine” of all researchers within the SCCER.

Use the template for the top innovation chart (see attached).

Technology readiness levels:

- Level A: Concept (TRL 1 - 3)
 - Level B: Validation (TRL 4 - 5)
 - Level C: Prototyping (TRL 6 - 7)
 - Level D: Rollout (TRL 8 - 9)
- (TRL 1 to 9 according to SOFE)

6.3 Knowledge and technology transfer to external parties – with additions

Knowledge and technology transfer (KTT) between participating research institutes and cooperation partners must be lasting, intensive and integrated. Particularly where projects have reached a high TRL (> 5; see above) the technology should be transferred to the industry. Such TT activities can be part of the proposal, as long there is a strong contribution of the economic partner. The CTI expects a consolidation and professionalization of these KTT measures among other things by appointing a specific person as “KTT-officer”.

In addition, each SCCER must proactively share their new knowledge with external parties. It is expected that the SCCER, where meaningful, will work with the Swiss Federal Office of Energy⁸ to develop and run a suitable continuing training programme. This training programme at SCCER-affiliated institutions should cover topics handled by the SCCER. Initial and continuing training should reflect the overall systemic view of energy research.

At the very least, each year, the SCCER should organise a specialised conference to serve as a platform for all participating researchers and institutes. These conferences should be open to all interested parties. They should report on the latest findings, results and provide specific examples of implementation.

It is important to ensure that all research institutes involved in the SCCER agree to KTT and that they undertake to provide complete information.

6.4 Joint activities – Special collaboration projects among several SCCERs (Optional) – New

Within this reapplication the SCCERs have the opportunity to apply for additional funding for research capacities which does consist in a cooperation of suggested three or more SCCERs with the aim of a collaboration of high additional value. Only joint activities with a significant contribution to the goals of the Federal «Energy strategy 2050» may be considered for this additional fund.

In the application form the overall target of the joint activity and the impact for the «Energy strategy 2050» and/or the community has to be described, and the tasks to be performed within the SCCER has to be presented. The additional capacity funding has to be shown separately in the financial plan (please use the dedicated tables in the template of the financial plan e.g. “2017 JA”; “2018 JA” etc.).

⁸ SFOE programme: www.energieschweiz.ch

6.5 Phase-out strategy – New

The sustainability of the federally funded positions created within the SCCER is anchored in the Federal Council Dispatch. With the Letters of Commitment (LoC), participating higher education institutions are required to indicate how they intend to maintain funding of the newly created positions from 2020 onwards after CTI-funding has ended.

7 Assessment criteria – Adapted to SCCER monitoring and Phase II

In general, applications for follow-up funding are evaluated on the basis of the competence centre's expected importance and contribution to the Energy strategy 2050». Other evaluation criteria include the following:⁹

- *Progress towards established objectives*: the assessment considers the planned research findings, the described industry projects, partnerships and political instruments, the expected results, solutions, products, services or new data, methods and analysis as well as, if applicable, any planned spin-off companies and new company formation to be achieved by the end of the funding period in 2020. Here, the aim is to show what objectives from the Phase I have not been reached and the measures to be taken in Phase II.
- *Quality of the SCCER*: assessed according to the structure, organisation and available competences (staff and infrastructure), and successful operations. In addition, the assessment considers activities carried out or planned by the research partner. Sustainable operation of created positions resulting from “Letters of Commitment (LoC)” from higher education institutions and “Letters of Intent (LoI)” from cooperation partner in relation to the SCCER will also be assessed.
- Generally speaking, the assessors will seek to determine the added value that the SCCER will be able to generate using the additional funding and how well cooperation with other SCCERs has been and will be. International cooperation will be assessed on the basis of SCCER activities relating to international programmes of the IEA, the EU and other, international cooperation initiatives. Added value includes the following non-exclusive list:
 - New research projects resulting from the SCCER;
 - New inter- and transdisciplinary research activities;
 - Cooperation between the ETH Domain, cantonal universities, universities of applied sciences and the private sector;
 - Activities relating to systemic aspects within the energy sector;
 - Linkages between research, technology and society;
 - Joint projects pursued within the SCCER;
 - Future contributions to the energy transition.
- *Work plan and management* are assessed on the basis of the submitted innovation roadmap and the extent to which the secondary objectives and planned activities contained therein have been reached and what new targets have been set for 2020 and planned for after that date. The existence of clearly defined milestones with quantifiable deliverables, specific allocation of responsibilities and risk management are all taken into account in the assessment. In addition, the coordination of activities of energy-relevant national research programmes (NRPs) of the SNSF¹⁰ is also considered.

⁹ The sequence is not an indication of the priority given to criteria.

¹⁰ This also includes NRP 66 “Resource Wood” as well as NRP 70 “Energy Turnaround” and NRP 71 “Managing Energy Consumption”.

- *Scientific quality*: adherence to the formulated scientific, technical and topic-specific aims is assessed. In addition, consideration is given to the innovative potential, full coverage of the entire value chain from fundamental research to industrial production (implementation competence), taking into account international state-of-the art within the Swiss context.
- Consideration is also given to how the SCCER encourages young talent and advances women, whether it plans to introduce new master's degree programmes as well as basic and continuing training courses and whether these are aligned with the continuing training programmes of the Swiss Federal Office of Energy (SFOE).
- The financial plan is an important consideration in the overall assessment of the funding application. Here, special attention is paid to compliance with established funding criteria. With regards to *securing third-party funding* examiners will seek to ascertain to what extent third-party funding can reasonably be expected and what other third-party funding is being considered in the second funding phase. This includes financial contributions from the cooperation partners who are directly involved in the SCCER. At the same time, consideration is given to the funding commitments secured from CTI and SFOE's support programme as well as grants from the SNSF or EU framework programmes.
- *Knowledge transfer* involves assessment of innovative projects that the SCCER will pursue with industry or the measures that the SCCER will take with government. Consideration is also given to what publications, patents or other applications are planned, and communication and public relations methods have been adopted (success stories, which substantially contribute to the energy transition).
- The SCCER will also give greater importance to how recipients of federal funding will be able to continue operations once federal funding has been discontinued and whether there are plans to continue strategic research and implementation projects after 2020.

8 Support and monitoring – Adapted to current situation

As previously with the following changes:

8.1 Support, reporting and evaluation schedule

The previous monitoring concept [*“Monitoring Report” with questionnaire and list*] is also used for the second phase of funding. Greater weight is given to how effectively research findings give rise to marketable products.

8.2 Withdrawal criteria

At the request of the Evaluation Panel, the Steering Committee can withdraw funding for all or part of the entire SCCER for the period 2017-2020.

Below is a non-exhaustive list of possible reasons for withdrawing funding from an SCCER:

- the service level agreement is clearly not fulfilled (the SCCER falls far short of providing the planned services and results);
- other external funds cannot be acquired, for example because there is little interest in business circles
- there is no clear focus on application (the SCCER does not engage sufficiently in KTT);
- Insufficient management (lack of identification and cooperation, poor governance).



A. List of abbreviations

FIT	Federal institutes of technology
UAS	Universities of applied sciences
CTI	Commission for Technology and Innovation
LoI	Letter(s) of Intent
LoC	Letter(s) of Commitment
NRP	National research programme
SCCER	Swiss Competence Centre(s) for Energy Research
SNSF	Swiss National Science Foundation
TTO	Technology transfer office
KTT	Knowledge and technology transfer

B. Glossary

Research partner	Overarching term for a research institute affiliated with a higher education institution (also referred to as an academic research partner) and any other cooperation partners involved in an SCCER
Higher education institutions	ETH Domain, cantonal universities, universities of applied sciences
Cooperation partner	Any organisation within the private sector or cantonal body that is directly involved in an SCCER but does not qualify for subsidies
Leading House	Institute within a higher education institution that acts as the main negotiation partner for an SCCER
Implementation partner	Any organisation within the private sector or cantonal body that is involved in a CTI-sponsored project

