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Opportunities for Innovation Support in the Energy Field 2019-2020

For Swiss enterprises and research institutes

Executive Summary

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Exclusively responsible for the content and the conclusions of the report are the authors of the report. The descriptions of the support programmes are mostly agreed with the responsible programme operators.

PDF download of the publication:

The comprehensive report in German as well as the executive summary in French, English and German is available to download here: www.bfe.admin.ch/innovation

Information about new support opportunities as well as proposals for corrections are welcome and should be sent to robert.luedi@bluewin.ch and be copied to cleantech@bfe.admin.ch.

Executive Summary

1.1 Content of this report

This report provides guidance about the opportunities for the support of innovation projects¹ in the energy field in Switzerland. It primarily addresses enterprises, public and private research and development institutes, associations, the administration and non-profit organisations interested in relevant support opportunities in the energy field.

The focus is on opportunities for innovation support, accessible for institutions and enterprises located in Switzerland. Described are the instruments for the support of innovation and new system solutions in all relevant energy fields.

All listed opportunities offer support in a larger or smaller part of the complete innovation chain. None of the described support programmes alone covers the complete innovation chain. Presented are innovation support opportunities along the complete development process starting with basic research, to demonstration projects up to the market.

The comprehensive report is structured as follows:

- Executive Summary: The opportunities for innovation support are summarised in Graph 1 and Graph
 3, and in a short form described in Table 3 of section 1.6.
- Section 2, Calculations and financing examples
- Section 3, National support opportunities in the field of energy: Descriptions of national public programmes, primarily supported by means of the Swiss Federation.
- Section 4, European and international support opportunities: Descriptions of public programmes, which usually provide financial support by states and promote international cooperation.
- Section 5, Foundations and funds with financial means for third parties in the field of energy.
- Section 6, Networks, export promotion and other opportunities for innovation projects in the field of energy: The listed networks, clusters, consulting and support organisations are active at a national or international level, whereby most are also financially supported by the Swiss Federation.

Not contained in the report are instruments of pure business promotion and/or location promotion as well as many cantonal or regional activities. Financial support for energy technologies already available in the market can be simply located with the help of the Swiss postal code on the website www.energie-experten.ch/de/energiefranken.html.

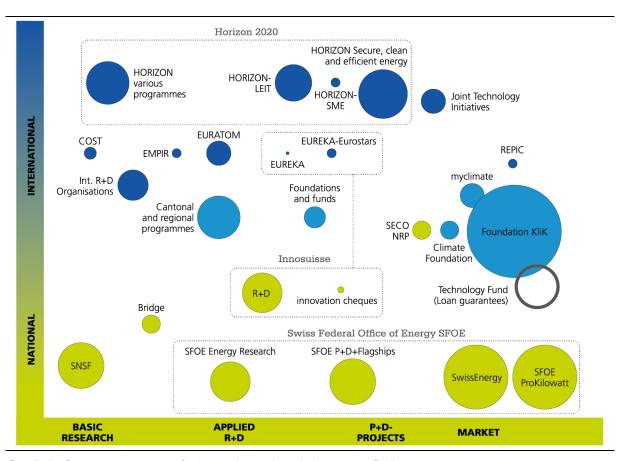
The report makes no claim to be complete. In particular, financial information is to be understood merely as guidance based on estimates, which can be subject to fast changes. For binding information it is necessary to refer to the responsible support institutions and their websites.²

Innovation in this report is understood as a process from a project idea to a product or procedure successfully placed in the market.

Information about additional programmes and corrections is welcome in view of the next update of this report and should be addressed to: robert.luedi@bluewin.ch and be copied to cleantech@bfe.admin.ch. An overview of the support opportunities beyond the energy field is available from Luedi Consulting R&D "Guide 2017 – Support Programs Research, Development, and Innovation".

1.2 Overview of the opportunities for innovation support

Graph 1 shows important support programmes, which provide financial means for innovative energy projects in Switzerland. The vertical axis distinguishes between international and national programmes. In between, the regional or not clearly assignable programmes are listed. The horizontal axis shows the development chain and the respective position of the programmes. The size of the circles in the graph is about proportional to the annual budgets for 2017 of the respective programmes in the energy field. Taken into account is just the energy share, often as a rough estimate, for the Swiss partners in energy projects.³ Not included are private R+D means provided by enterprises, which often exceed the public financial support significantly.



Graph 1: Support programmes for innovative projects in the energy field *Table 3* in section 1.6 contains all hyperlinks to the support programmes shown in this graph

Practically all the programmes shown in *graph 1* are open for scientific organisations. For enterprises, primarily the innovation programmes of applied research and development, pilot and demonstration projects and certainly the programmes close to the market are of interest.

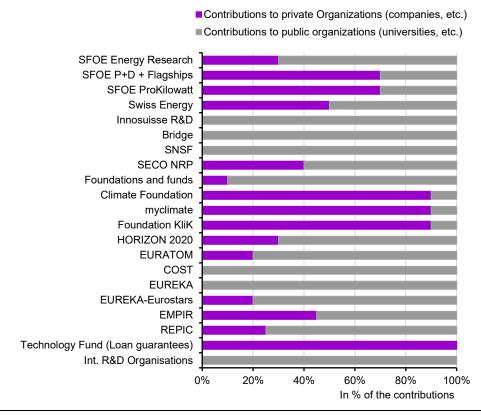
In the report, additional opportunities for innovation support are described, which not all are shown in *graph 1*, for reasons of simplicity or lack of empirical values. Among these are:

For the international programmes, an exchange rate of 1.15 CHF/Euro was used. In addition, for the International R+D Organisations pure supplier contacts for construction projects and components were excluded.

- Opportunities for innovation support by further Federal Offices not primarily addressing energy aspects.
- Support opportunities by cantons, cities and regions.
- The international ERA Nets.

1.3 Recipients of support means and support instruments

Graph 2 shows the shares of the annually available (energy) means allocated to private and public organisations. The allocation to the two user groups is partly based on rough estimates.



Graph 2: Distribution of funds of support programmes in the energy field

From a company point of view it can be distinguished between two main support instruments:

- Direct financing: Enterprises receive direct financial support; this is usually in the context of a project consortium with other industrial and scientific partners. Examples: SFOE Pilot and Demonstration Program, Horizon 2020.
- Indirect financing: Enterprises are obliged to cooperate with scientific partners, whereby only the latter are entitled to receive public financial means through the support programme. Example: Innosuisse R+D projects.

1.4 Different financing opportunities for innovative projects

Not all support programmes are relevant for companies. So for example, pure basic research programmes are seldom relevant. Before searching for external project support, companies are advised to check the different alternatives. Some of these are summarised in the following table:

| | | Forms of cooperation | Suitable for following situation | Most important advantages and disadvantages | | |
|------------------------|---|---|--|---|--|--|
| oort | 1 | In-house development (entirely in-house) | Fast solutionAll know-how availableSecured own financingLow R+D risks | No co-operation problems Fast start/abandonment possible Rather conventional solutions | | |
| w/o financial support | 2 | Cooperation with specialised company | Fast solutionExternal know-how necessarySecure down financing | Specialists bring in know-how against payment of costs Amicable co-operation necessary | | |
| w/o fina | 3 | Cooperation with scientific partner (purely bilateral) | New approaches with scientific know-how Confidentiality secured Financing of scientific partner(s) by the company | Choice of partner is crucial, but often a matter of luck Different time management Rather suitable for smaller and not time- critical projects | | |
| ort | 4 | Cooperation with scientific partner, which as a minimum is partly publically financed, e.g. by Innosuisse | New approaches with scientific know-how and for high R&D risks Medium-term solutions Reduced in-house contribution | Choice of partner is crucial Public co-financing Different time management Consent for project objectives between partners – contracts Some publication obligations | | |
| With financial support | 5 | National cooperation with several partners and public fi- nancial support also for com- panies | New approaches with scientific know-how and for high R&D risks Medium- to long-term solutions Results for several users Reduced in-house contribution | Choice of partners is crucial Public co-financing Consent for project objectives between partners – contracts Some publication obligations | | |
| M | 6 | International cooperation with several partners and public fi- nancial support | Medium- to long-term solutions with high R&D risks High sharing of costs and risks Results for several users Internationally active companies | Choice of partners is crucial Public co-financing, different support instruments Consent for project objectives between partners – contracts Some publication obligations | | |

Table 1: Suitability as well as advantages and disadvantages of different cooperation forms

80–95 % of all development projects, resp. R+D expenditures of companies are run under cooperation forms 1 or 2 as shown in the table above. Cooperation with scientific partners on a pure bilateral level according to form 3 usually requires project assistance from qualified company staff. For the simplest forms, such as a semester, Bachelor-, Master- or a doctoral thesis limited financial means are necessary.

Just the grey highlighted areas and with regards to the intellectual property rights more risky cooperation forms (4, 5, 6) offer the opportunity for public co-financing of R+D projects. It needs to be mentioned that co-financing does not imply that a company receives direct financial support for an R+D project. For example, Innosuisse in Switzerland uses an indirect financing model, i.e. just the scientific partners are financed by public means. Private partners need to finance their project share themselves, usually inkind, but are beneficiaries of the jointly achieved research project results. Direct financing for companies

in the energy field is available from the SFOE, from various international programmes and to a lesser extent from other Federal Offices, which is also called resort research.

Financial contributions

Public R+D programmes support selected R+D projects with maximum shares of 40–100 % of the total project costs, depending on political priorities and market proximity. The remaining means need to be contributed in-kind by the project partners, usually from industry or other application partners. Public support for basic studies as well as external studies is up to 100 % of the total project costs.

Table 2 shows the current maximum public support levels in percent of the total project costs:

| Project type | Maximum public support as share of total project costs | | | | | |
|---|--|---------------|--|--|--|--|
| | National – Switzerland | International | | | | |
| Pilot and demonstration projects | 40 % (60 %¹) | 50–70 %² | | | | |
| Research and development projects | 50 % (100 %¹) | 50–100 %² | | | | |
| Basic research | 100 % | 100 % | | | | |
| Political fundamentals for decision-making / external studies | 100 % | 100 % | | | | |

In exceptional cases.

Table 2: Public support levels for different project types

In Switzerland, the largest funding bodies for research, Innosuisse and SNF, in principle are oriented towards the support of public research organisations, i.e. only public research organisations are supported with public means and consequently these therefore are usually in charge of the project leadership.

However, due to an increased level of public interest and due to market failures⁴, e.g. in the fields of energy, environment, health, and agriculture, there is also direct financing for companies by some Federal Offices, resp. their resort research. For some international programmes with national financing through the Swiss Federation (EUREKA-EUROSTARS, EMPIR, partly ERA Nets) Switzerland also switched to a direct financing model for companies.

At the EU level the project financing was harmonised in Horizon 2020 from 2014 onwards, i.e. all organisations, enterprises, universities, NPOs, etc. are now supported and financed based on the same rules.

Public contributions are usually paid as non-reimbursable subsidies. Only in single cases of abuse or project abandonment public contributions need to be refunded. In very few programmes close to the market public contributions are provided as loans, which in case of a successful project need to be paid back. The most important examples are the Technology Fund and the loans in the frame of the New Regional Policy NRP by the Swiss State Secretariat for Economic Affairs SECO.

The maximum support levels of 70 % and 100 % have been used by the EU since 2014 for Horizon 2020 and related programmes.

An example of market failure is the lack of internalisation of the external costs, which for example is caused by the combustion of fossil fuels and the related emissions. A significant share of the costs caused by such emissions in the areas of health and climate change are not covered by the actual emitters but by the public sector.

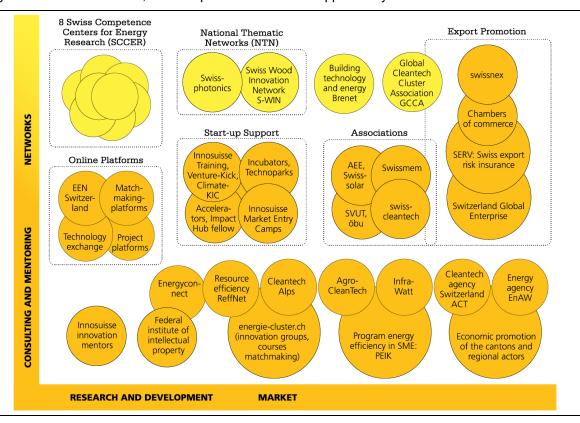
1.5 Consulting and networks for innovation in the energy field

Besides financial support for innovation projects, several networks offer consulting services. Depending on the network, the services offered and the target groups are different. Some networks primarily address their own members, while others are also open for third parties or are exclusively for third parties. The services in the innovation field vary and essentially cover:

- Networking inside and outside their own sector at a national as well as international level
- Export promotion through joint exhibitor booths, consulting, and contact mediation
- Organisation of information events, seminars, brokerage events, workshops
- Moderation in the preparation of innovation projects
- Promoting young entrepreneurs
- Preparation of project applications for several members
- Technology transfer and contact mediation as well as joint calls for proposals via digital platforms
- Individual mentoring and consulting services related to administrative, technical, economic, legal and political aspects

Many industrial associations also offer some of the above listed services for their members. Besides, there are dozens of regional cluster organisations and various consultants, which offer services in the innovation field.

Graph 3 shows a few selected consulting and network organisations in the energy field. Most of the selected networks have mandates by the Swiss Federation (SFOE, FOEN, and SECO) or closely related organization as Innosuisse, the European Union or are supported by the cantons.



Graph 3: Selected organisations with innovation services in the energy field

1.6 Tabular overview of the opportunities for innovation support in the energy field

Table 3 shows the different programmes for innovation support in the energy field. Distinguished are national and international support programmes. In this executive summary the hyperlinks lead to the relevant websites, in the comprehensive report (in German) to the detailed description of the relevant programme. The support range is an indication only and is often roughly estimated. The number of new projects per year is also an estimate and not an upper or lower limit of projects to be supported. For comparative purpose, the values for the European and international programmes in *table 3* are converted into Swiss Francs (Rate 1.15 CHF per Euro).

Table 3: Tabular overview of the opportunities for innovation support in the energy field

The herein listed links lead to the programme websites, in the comprehensive report to the detailed (German) description of the relevant programme.

| Programme | Financial means, | Support segment | | | | Support range | Maximum | Number of new | Form of support | Requirements | Recipient | | |
|---|--|-------------------|----------------|-----|--------|--|---------------------------------|--|--|--|---|--|---------|
| | thereof energy [million CHF / year] | Basic Research | Applied R+D | D+D | Market | [empirical values per project in CHF] | contribution rates [%] | projects per year [empirical values] | [Definition of direct project costs: Wages etc., w/o overhead and labor- atory infrastructure] | | ö: public organi- sation p: private organi- sation (Company, NPO, etc.) | | |
| National support programmes | | | | | | | | | | | | | |
| SFOE – Energy Research | 17.5, thereof 17.5 | | | | | 0-several mio | up to 100 % | 100 | - All direct pro- ject costs | Topics need to be within the focus of the SFOE en- ergy research concept | ö and p | | |
| SFOE – Pilot-, Demonstration and Flagship Projects (P+D+L) | 26, thereof 26 | | | | | 50'000-several mio | 40 % (exceptionally 60 %) | 40 | All eligible project costs | Innovative projects in the areas of energy efficiency and renewable energies acc. Art. 49 and 53 <u>EnG</u> | ö and p | | |
| SFOE – ProKilowatt- Projects | Up to 50, thereof | | eof | | | | | 20'000–2 mio | 30 % | 41–75 | All direct project costs | 1–2 calls/year Just for electricity efficiency measures Just projects with payback of 4 years and more | ö and p |
| SFOE – ProKilowatt- Programmes | 50 | | | | | 150'000–3 mio | 30 % | 17-30 | All direct project costs | ö and p | | | |
| SFOE – SwissEnergy | 45, thereof 45 (48 in 2018) | | | | | 5'000-400'000 | 40 % (exceptionally up to 60 %) | 770–990 | - Only 'soft' measures are supported | No standardised requirements | ö and p | | |
| Regular Innosuisse Projects and specific Projects | 152, thereof ca. 18 | | | | | 50'000-990'000 | 50 % | 315–400 (thereof ca. 40– 60 projects in the support seg- ment "Energy" | All direct project costs | Min. 1 public research partner and 1 application partner Private companies contribute 50 % in-kind and pay a cash contribution of 0–10 % in favour of the public research partner | R+D institutes, which cooper- ate with compa- nies / applica- tion partners (fi- nancial support exclusively for public research partner) | | |
| Innosuisse – Innova- tion Cheque | 1.5, thereof ~0.23 | | | | | Fixed: 15'000 | 100 % | 175–190 (thereof 10– 15 % in energy) | Small pre-studiesCost of wages | Payment exclusively to public partner Just 1 innovation check per company at the same time | R+D institutes, which cooper- ate with compa- nies | | |

| Programme | Financial means, | Supp | oort s | egme | nt | Support range | Maximum | Number of new | Form of support | Requirements | Recipient |
|---|---|-------------------|----------------|------|--------|---|------------------------------|--|---|---|---|
| | thereof energy [million CHF / year] | Basic Research | Applied R+D | P+D | Market | [empirical values per project in CHF] | contribution rates [%] | projects per year [empirical values] | [Definition of direct project costs: Wages etc., w/o overhead and labor- atory infrastructure] | | ö: public organi- sation p: private organi- sation (Company, NPO, etc.) |
| Swiss National Science Foundation SNSF | 2019: 1'096, thereof ~41 2020: 1'021, thereof ~41 | | | | | Project support: 100'000–600'000 Careers support: 50'000–300'000 Others: not speci- fied | 100 % | 900 projects 1'000 careers 1'000 others (thereof ca. 2 % in energy each) | WagesCosts of infra- structuresPublications, seminars, and events | Participation restricted to scientific staffCalls for proposals with strict specifications | Ö |
| Bridge (Innosuisse and SNSF) | 2019: 20.6, thereof ca. 2.0 2020: 25.8, thereof ca. 2.0) | | | | | Area Discovery: 130'000 Area Proof of Concept: 450'000 – max. 2.55 mio | 50–100 % | NA | - Wages 50- 100 % | Participation restricted to scientific staff of entitled re- search organisations as defined by Innosuisse and SNSF | Ö |
| SECO – New Regional Policy NRP | 90, thereof 2.7 | | | | | Project support Federation: 10'000 – 1 mio Loans: 300'000- 2 mio | <50 % SECO >50 % cantons | ca. 300, thereof ~10 in energy | - All relevant project costs | Co-financing by cantons and SECO is requestedNo individual company support but for groups of companies | ö and p |
| Federal Offices with Energy Topics | 200, thereof 4 (external studies 37, thereof 0.74) | | | | | NA | Variable | NA | NA | NA | NA |
| Cantonal and regional programmes | NA, thereof min. 20 mio | | | | | NA | Variable | NA | NA | - Variable | Variable |
| Foundations & Funds (w/o Climate Founda- tion, myclimate and KliK) | 70, thereof 5 | | | | | Variable | Variable | NA | NA | - Variable | ö (mainly for charitable or- ganisations) |
| Climate Foundation | 3-5, thereof 3-5 | | | | | 10'000–200'000 | 50% | Ca. 350, thereof ca. 30 in innovation | Reduction of CO ₂ with energy–effi- cient technolo- gies and measures | Individual grants Project realisation and seat of applicant in CH or LI | ö and p |
| myclimate | 6-9, thereof 6-9 | | | | | NA | NA | ca. 5 | - Compensation CO ₂ | Individual grants | ö and p |

| Programme | Financial means, thereof energy [million CHF / year] | Basic Research | Applied R+D | egme | Market | Support range [empirical values per project in CHF] | Maximum contribution rates | Number of new projects per year [empirical values] | Form of support [Definition of direct project costs: Wages etc., w/o overhead and laboratory infrastructure] | Requirements | Recipient ö: public organisation p: private organisation (Company, NPO, etc.) |
|--|--|-------------------|-------------|------|--------|---|--|--|--|---|---|
| KliK | 120, thereof 102 | | | | | NA | NA | ca. 20 | Compensation CO₂ | - Individual support | ö and p |
| Technology Fund (Federal) | 25, thereof ~16 (loan guarantees) | | | | | 50'000–3 mio (mean value 1.6 mio) | 60 % | 20, thereof ca. 16 in energy | OpEx and CapEx for the commercialisa- tion of innova- tion | Applicant and lender with seat in Switzerland | p (often start- ups) |
| Start-up oriented possibilities | Innosuisse Startup / Entrepreneurship: 9, thereof 0.4 | | | | | NA | 100 % | Innosuisse Startup / Entre- preneurship: 160-190 new in core and initial coaching | Prizes, evaluation of business ideas, Innosuisse labels, coaching, financial intermediation, internationalisation | Innosuisse Startup / Entre- preneurship: Financing of coaches and accompany- ing measures, no direct fi- nancial support for start- ups | Start-ups and young entrepre- neurs |
| European and inter | European and international programmes ⁵ | | | | | | | | | | |
| Horizon 2020 ⁶ (w/o separately shown EU programmes and related initiatives) | 7'000, thereof ~700 in energy (10 %) / Swiss share: 200, thereof ~20 in energy | | | | | 600'000–100 mio | 100 % R+D 100 % Accom- panying measures 70 % P+D | ~2'300, thereof 10 % in energy) | - All direct pro- ject costs + overhead of 25 % | Min. 3 partners from 3 EU or associated countries Applications just on the basis of calls for proposals | ö and p |

⁵ For Horizon 2020 (2014-2020) the Swiss parliament approved means in 2013 of 3.71 billion CHF, i.e. about 530 million CHF per year. A part of these means is also used for the co-financing of EUREKA-EUROSTARS, EMPIR, ERA Nets and Joint Technology Initiatives. The allocation of the means is not explicitly specified.

⁶ Horizon 2020 consists of various areas, among them the following separately shown themes: Horizon – Secure, clean and efficient energy, LEIT (incl. the embedded Public Private Partnerships Energy-Efficient Buildings (EeB), Sustainable Process Industries (SPIRE)), and Innovation in SMEs. Other themes with limited energy relevance are just shown in a summarised form and cover: Strategic Energy Technology Plan, Smart, green and integrated transport, Science with and for society, Joint Research Centre of the EU, EIT European Institute of Innovation and Technology (incl. Climate-KIC) and others.

| Programme | Financial means, thereof energy | Supp | ort s | egme | nt | Support range | Maximum contribution | Number of new projects per | Form of support | Requirements | Recipient |
|--|---|-------------------|----------------|------|--------|--|--|---|--|---|--|
| | [million CHF / year] | Basic Research | Applied R+D | P+D | Market | [empirical values per project in CHF] | rates | year [empirical values] | [Definition of direct project costs: Wages etc., w/o overhead and labor- atory infrastructure] | | ö: public organi- sation p: private organi- sation (Company, NPO, etc.) |
| Horizon – Secure, clean and efficient en- ergy | 950, thereof 950 in energy / Swiss share: ca. 30, thereof 30 in en- ergy | | | | | 3–10 mio | 100 % R+D 100 % Accom- panying measures 70 % P+D | 230-300 (incl. SME projects), thereof 11-14% with CH part- ners | - All direct pro- ject costs + overhead of 25 % | Min. 3 partners from 3 EU or associated countries Applications just on the basis of calls for proposals | ö and p |
| Horizon – Leadership in enabling and indus- trial technologies (LEIT) | 1'830 (2019) und 1'965 (2020), thereof ca. 530 (2019) and 570 (2020) in energy / Swiss share: ca. 55, thereof 18 in energy | | | | | 3–10 mio | 100 % R+D 100 % Accom- panying measures 70 % P+D | 815-924 (incl. SME projects), thereof 10-12% with CH part- ners | - All direct pro- ject costs + overhead of 25 % | Min. 3 partners from 3 EU or associated countries Applications just on the basis of calls for proposals | ö and p |
| Innovation in SME | 635 (2019) and 690 (2020), thereof 63- 69 in energy / Esti- mated Swiss share: 3 % | | | | | Phase 1: 57'000 Phase 2: 0.65–2.88 mio | 70 % | Phase 1: 640- 800 Phase 2: 200- 240 | Phase 1: Lump sumPhase 2: All di- rect project costs + over- head of 25 % | Individual grant for SME in Phases 1 and 2 possible Participation just for EU or associated countries Applications just on the basis of calls | p (primarily SME) / limited for other organi- sations p and ö |
| <u>EURATOM</u> | 288, thereof 288 / Swiss share: 5–6 | | | | | 1.25– 470 mio | 100 % R+D 70 % P+D 50 % Cofund | 10–15, thereof 5-6 with CH partners | All direct project costs + overhead of 25 % | Min. 3 partners from 3 EU or associated countries Applications just on the basis of calls for proposals | ö and p |
| EUREKA – Network Projects | Support by the member states / CH: ~1 mio CHF/year 10 % in energy | | | | | 0–1.5 mio | 0–50 % | 70-100, thereof 3–6 with CH partners (10 % in energy) | All direct project costsIndustrial projects | Min. 2 partners from 2 countries / usually 3–5 partners | ö and (p – usu- ally according to Innosuisse model w/o di- rect financing) |
| EUREKA – Clusters | Support by the member states – Network Projects | | | | | 500'000–50 mio | 0-50 % | 20–50, thereof 0–1 with CH partners (10 % in energy) | All direct project costs Industrial projects | - Min. 2 partners from 2 countries / but usually 10–30 partners | ö and (p – usu- ally according to Inno- suissemodel w/o direct fi- nancing) |

| Programme | Financial means, | Supp | port s | egmei | nt | Support range | Maximum | Number of new | Form of support | Requirements | Recipient |
|---|--|-------------------|----------------|----------------------|----|---|---|--|--|--|---|
| | thereof energy [million CHF / year] | Basic Research | Applied R+D | R+D P+D Market | | [empirical values per project in CHF] | contribution rates | projects per year [empirical values] | [Definition of direct project costs: Wages etc., w/o overhead and labor- atory infrastructure] | | ö: public organi- sation p: private organi- sation (Company, NPO, etc.) |
| EUREKA – EUROSTARS | Support by the member states and the EU / CH: ~11.35 mio, thereof <5 % in energy | | | | | 500'000–1.65 mio CH support: Max. 575'000 per project | 50 % (SMEs and science) 25 % Others | 350, thereof ~40–50 with CH partners (<5 % in energy) | - All direct pro- ject costs | Min. 2 partner from 2 countries SME with high R+D share > 10-20 % of turnover / open for other partners Innosuisse rates to be used | ö and p (SME, limited for other companies) |
| EMPIR – European Metrology Programme for Innovation and Re- search | 104 (2020)-106 (2019) or 90-95 mio € (50% from the EU), thereof ca. 20 % in energy Swiss share in pro- gramme: 3.3 % | | | | | 600'000–2 mio | 50 % | ~30, thereof ~8 with CH part- ners (20 % in energy) | All direct pro- ject costs + fixed share for overhead | Usually min. 3 partners from 3 countries | ö and p |
| COST European Co- operation in Science and Technology | Support through the COST coun- tries and the EU / CH: 6 mio CHF/year / EU: ~2 mio €/year 15 % in energy | | | | | Just coordination EU: ca. 137'000 €/year (for 20 project partners) CH credit: up to 320'000 CHF | Just for coordi- nation 100 % | 35-53 with CH participation, thereof ~15 % in energy | Coordination costs (no support for R+D tasks) | Partners from min. 7 COST member states | Ö |
| ERA Nets (Energy) | NA, primarily means from exist- ing national support programmes | | | | | 6–16 mio | Depends on national pro- gramme Max. 33 % fi- nanced by the EU | ca. 20, thereof 2-4 in energy | Depends on national programme | Min. 3 partners from 3 EU or associated countries Applications just on the basis of calls for proposals | ö and p |
| Joint Technology Initiatives (4 different JTIs) | ~475, thereof ~148 in energy Swiss share: <4 | | | | | 3–55 mio | 30–100 % depending on project type | 80–85 for all 4 JTls) | - All direct pro- ject costs | Min. 3 partners from 3 EU or associated countries Applications just on the basis of JTI calls for proposals | ö and p |

| Programme | Financial means, thereof energy [million CHF / year] | Supp | ort se | egmei | nt | Support range [empirical values per project in CHF] | Maximum contribution rates [%] | Number of new projects per year [empirical values] | Form of support | · | Recipient ö: public organisation p: private organisation (Company, NPO, etc.) |
|--|---|-------------------|----------------|-------|--------|---|---|---|--|--|---|
| | | Basic Research | Applied R+D | D+D | Market | | | | [Definition of direct project costs: Wages etc., w/o overhead and labor- atory infrastructure] | | |
| REPIC – Renewable Energy, Energy- and Resource Efficiency Promotion in Intern. Cooperation | 1.5, thereof 1.0 | | | | | 80'000-150'000 | 50 % | 10–15 | - All direct pro- ject costs | Min. 1 Swiss partner and 1 partner from a developing or transition country | ö and p |
| Other International (research) Organisations | Total ca. 80 ⁷ 10 mio as a return for R+D projects in the energy field | | | | | NA | Variable | NA | NA | NA | Ö |

Taken into account are the annual investments of Switzerland. A return takes place through supplier contracts of the Swiss industry for construction and components and, to a smaller extent, through the use of the facilities by Swiss researchers in R+D projects. Only the latter is roughly estimated and taken into account in graphs 1 and 2 as R+D return.