

RESEARCHING FOR THE ENERGY TURNAROUND AND THE BUILDING AS A SYSTEM

The Lucerne School of Engineering and Architecture carries out applied research in 12 competence centers together with business partners from the local region and across Switzerland. The findings from the research projects are put into practice directly and included in the education and continuing education of the engineers and architects. The some 400 researchers carry out interdisciplinary research on two focal points: Firstly, we carry out research for the energy turnaround, and are heavily involved in the Swiss Competence Centers for Energy Research (SCCER). Secondly, we also explore the building as a system and within the system, with our Meet2Create unit giving important impetus to the NEST project at Empa. Research and services are both our passion and our main goal – we help partners in business and practice to exploit their innovative capabilities to the full. Foundations and cantonal and national development institutions provide funding opportunities for innovative joint projects. Bachelor's and master's theses can provide an ideal introduction to working together with the lecturers and researchers.

We are linked nationally and internationally with universities and universities of applied sciences, plus companies, professional associations and institutions, and are always at the cutting edge of technology and science. We are involved in national innovation programs such as the Swiss Innovation Parks and are always open to your ideas and requests.

A. Weber Marin

Prof Dr Andrea Weber Marin
Vice Dean and Head of Research

OPTIONS FOR COLLABORATION – INDIVIDUAL AND TAILORED

Projects involving the competence centers – three funding options Projects are carried out by lecturers, research associates and assistants. Their start, end and scope are set out in an agreement. Projects are subject to a full costing exercise. There are three possible funding options.

Federal funds, e.g. the Swiss Commission for Technology and Innovation (CTI) or the Swiss Federal Office of Energy (SFOE) The Confederation supports promising and innovative research projects involving a degree of risk. Projects of this nature must include a minimum of one business partner and one university partner. The rights and obligations are contained in the rules established for these programs by the Swiss Commission for Technology and Innovation (CTI) and the Swiss Federal Office of Energy (SFOE). Around 55 percent of the funding is borne by the business partner, with the balance provided by the Confederation.

CONTACT

Prof Dr Andrea Weber Marin
Vice Dean and Head of Research
Technikumstrasse 21, CH-6048 Horw, Schweiz

Switchboard +41 41 349 33 11
Direct +41 41 349 33 47
E-mail andrea.webermarin@hslu.ch
www.hslu.ch/t-forschung

The federal funds and a cash contribution from the business partner go to the university.

EU projects

The EU supports promising and innovative research projects. The research topics are put out to tender. Projects of this nature must include several business and university partners. The rights and obligations are contained in the rules established for these programs. The EU research funds go to the universities and business partners. EU projects require the involvement of university and business partners from other European countries.

Commissioned consultancy, services and research

This form of collaboration is funded entirely by the commissioning partner. It allows the latter ultimate flexibility and all rights of use.

Lucerne University of
Applied Sciences and Arts

**HOCHSCHULE
LUZERN**

Engineering and Architecture
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ENERGY FOR THE FUTURE

**Swiss Competence Centers
for Energy Research
(SCCER)**

ENERGY FOR THE FUTURE

The Federal Council and Parliament are planning on making far reaching changes to the energy supply in Switzerland. In accordance with the Swiss Coordinated Energy Research action plan, the CTI has the mandate to finance and manage the creation of research networks between higher education institutions, the Swiss Competence Centres for Energy Research (SCCERs).

The SCCERs are looking for solutions to the technical, social and political challenges arising as a result of the energy revolution. Eight SCCERs were created in seven action areas. The Lucerne School of Engineering and Architecture has 35 researchers and develops new solutions for the Energy Turnaround in six of the eight SCCERs.

ACTION AREAS

Efficiency

This action area deals both with efficiency in energy supply and with rational use of energy. It includes the whole of the buildings sector and industrial processes. Two SCCERs operate in this field.

Grids and their components, energy systems

This area of action focuses on power grids. Central issues include the stability of the electricity grid, security of supply in Switzerland and the integration of intermittent renewable power and smart grids, also with regard to storage technologies.

Storage

Important questions facing future energy supply are: how to store heat at different

temperatures, how best to store electrical, chemical and mechanical energy and how to convert it into a useable form.

Power supply

With its current hydropower infrastructure, Switzerland can produce about 55% of the electric power it requires and also store energy. Large differences in altitude and plenty of rainfall are natural advantages enjoyed by Switzerland.

Biomass

If biomass is to become an efficient and widespread source of renewable energy, more efficient end-use technologies need to become established on the market.

