

SCCER BIOSWEET – The Swiss Competence Center for Energy Research on Bioenergy



Oliver Kröcher

The accident at the nuclear power plant in Fukushima has had a significant impact on global policies, particularly in the German-speaking countries, which are traditionally more critical of nuclear energy than other countries. In Switzerland, the Energy Strategy 2050 of the federal government stipulates the phasing out of nuclear energy accompanied by a corresponding increase of the share of renewables in our energy supply. To this end, the Swiss parliament has decided to strengthen energy research in Switzerland and to provide 72 million CHF to create seven Competence Centers for Energy Research (SCCER). The allocation of funds is managed by the Commission for Technology and Innovation (CTI), supported by the Swiss National Science Foundation (SNSF). In the SCCERs, researchers from the ETH domain, cantonal universities and universities of applied sciences work together on seven action fields that are decisive for the energy transition (efficiency, grids, storage, power supply, economy/environment/law/behavior, mobility, biomass). One of the action fields is biomass and research groups from nine different institutions (PSI, EPFL, FHNW, WSL, ZHAW, BFH, HES-SO, SUPSI, ETH Zurich) have successfully applied for an SCCER in this area.

The name SCCER BIOSWEET is the abbreviation for “BIOmass for SWiss EnERgy fuTure”. It expresses the ambitious goal of the competence center: In the long term, we hope to provide an additional 100 petajoules per year from biomass for the Swiss energy supply. To reach this goal, as many biomass sources as possible have to be considered. In addition to dry woody biomass, this likely involves the use of particularly wet biomass, which comes in the form of manure, sludge, waste or harvesting residues. A small but visionary part of the competence center is to investigate the possible role of algae as an energy source. Algae grow faster than lignocellulosic biomass, do not compete with the food crops and do not require agricultural land.

Our center features diversity not only in its sources of biomass but also amongst the many different conversion routes that are being studied. Thermochemical processes, which are employed, amongst other applications, for the production of methane from wood are as important in the SCCER BIOSWEET as biotechnological processes, on which most biogas plants are based today. Through collaboration between research groups from both disciplines within the SCCER BIOSWEET, the center fosters better mutual understanding and helps initiate joint developments.

As the Paul Scherrer Institute’s own ETH domain contribution to the SCCER BIOSWEET, a pilot plant platform is currently being installed on its grounds to test the different energy technologies at a 50–100 kW scale and, by exploring their dynamic interplay, to promote knowledge and technology transfer. These efforts are supplemented by complementary pilot activities at our partner institutions.

In this special issue on SCCER BIOSWEET, you will find a collection of contributions from researchers of this competence center, which includes both short reviews of the state of knowledge relevant to the sustainable production of bioenergy, and original reports of research results, which have been made possible, at least in part, by the funding provided from CTI to the SCCER BIOSWEET.

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In cooperation with the CTI



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It is with great pleasure that the Editorial Board of CHIMIA thanks the guest editor Prof. Dr. Oliver Kröcher for the successful realization of this special issue on SCCER BIOSWEET – The Swiss Competence Center for Energy Research on Bioenergy; an interdisciplinary project with great potential and significance for the future