



Bioeconomy Factsheet Switzerland

November 2018

This factsheet gives an overview of the Swiss bioeconomy innovation technology system. It includes the key government interventions, research institutes, networks and finance instruments in Switzerland.



BIOECONOMY GOVERNANCE

Switzerland's key governance bodies are the:

- Federal Office for the Environment (**FOEN**)
- State Secretariat for Economic Affairs (**SECO**)
- State Secretariat for Education, Research and Innovation (**SERI**)

UNIVERSITY CENTRES AND RESEARCH

Universities, such as:

- **ETH Zürich**, Department of Chemistry and Applied Biosciences
- **Ecole polytechnique federale de Lausanne**, Institute of Chemical Sciences and Engineering ISIC
- **Zurich University of Applied Sciences (ZHAW)**, School of Life Sciences and Facility Management

Research organisations, such as:

- **Paul Scherrer Institut**, Energy and Environment Research Division (ENE)

State-owned research organisations, such as:

- **Agroscope** centre of excellence for agriculture, nutrition and the environment

SNSF National Research Programs (NRP):

- Sustainable Economy (NRP 73)
- Healthy Nutrition and Sustainable Food Production (NRP 69)
- Resource Wood (NRP 66)

SNSF National Centres of Competence in Research (NCCR):

- Chemical Biology, Visualisation and Control of Biological Process using Chemistry
- Bio-Inspired Materials



LEGISLATION

The **CO₂ Act** (revised in 2013) is the heart of Switzerland's climate policy. It has set the 2020 target for Switzerland to reduce GHG emissions by 20% (relative to 1990 levels) and concerns various instruments for buildings, transport, and industry.

Part of this act is the **CO₂ levy**, which is an incentive tax on combustible fossil fuels since 2008, therefore creating an incentive to use fossil fuels more economically and choose more C-neutral or low-C energy. Levy revenue payments are redistributed annually to the public and economy independently of consumption (2/3) and invested in to buildings programmes to promote CO₂ reduction measures (1/3).

Switzerland also operates an **Emissions Trading Scheme (ETS)** in which emission allowances, emission reduction certificates and attestations are mainly traded by companies and specialised dealers. An agreement to link the **Swiss ETS** with the **EU ETS** was signed in 2017.

NETWORKS AND CLUSTERS INDUSTRY ASSOCIATIONS

The **National Thematic Network Swiss Biotech** brings together companies and research. Implemented by **biotechnet** and the **Swiss Biotech Association**. Research platforms include:

- Bioresource Technologies
- Biocatalysis and Biosynthesis

Swiss Industrial Biocatalysis Consortium (SIBC)

Swiss Technology Transfer Association (swiTT)

SME Forum

Swiss Cleantech

Biomasse Suisse

Energie Zukunft Schweiz

Several science parks, networks and clusters are dedicated to biotechnology (primarily pharma) including **BioValley Basel** (cross-border BioValley), **Bio-Technopark**, **Campus Biotech**, **Life Science Zurich**, **Life Science Network Basel**, **Swiss Parks**, **BioAlps** and **The Ark (BioArk, PhytoArk)**.

Switzerland Innovation Park Network West

EPFL creates a platform that allows universities and innovative companies to collaborate, one single access point to all parks and academic institutions:

- **Energypolis** (energy, green chemistry & clean tech)
- **blueFactory** (blue economy, low carbon & sustainability)
- **Campus Biotech** (Life Science)
- **EPFL Innovation Park**
- **Biopole** (Life Science)

FINANCIERS

The Technology Fund (outsourced from FOEN to Emerald Technology Venture) promotes innovative technologies that reduce greenhouse gas emissions and the consumption of resources through loan guarantees.

The **Swiss National Science Foundation (SNSF)** is Switzerland's foremost research funding organisation.

Innosuisse (formerly **CTI**) supports companies, researchers and start-ups via a number of courses including the **BRIDGE programme**, which promotes the transfer of scientific knowledge to innovation through two funding schemes: Proof of Concept (12-18 months) and Discovery (up to 4 years).

SME capital market working group (within SECO) which

- Keeps track of developments in lending to SMEs
- Assists SMEs in obtaining bank loans by **funding loan guarantee cooperatives**.
- Provides **tax relief** to companies within the scope of regional policies

The Swiss Private Equity & Corporate Finance Association (SECA) is the representative body for Switzerland's private equity, venture capital, and corporate finance industries.

AGIRE, the Innovation Agency of Southern Switzerland and Investment companies such as **BB Biotech** and **New Venturetec** also provide opportunities for SMEs



INDUSTRY STAKEHOLDERS

Switzerland is home to several companies very active in the bioeconomy.

Basel-based **Clariant** is a speciality chemicals company (originally spun out from what is now the pharmaceutical company Sandoz) that is very active in the bioeconomy.

Syngenta is a global agribusiness based in Basel and is a feedstock provider in the bioeconomy (e.g. GM maize for use in first-generation biofuels).

Smaller companies include **AVA Biochem** (formerly Avalon Industries), a leader in the production of biobased 5-Hydroxymethylfurfural (5-HMF) using hydrothermal processing (HTP). **Swissaustral** develops novel technologies from extremophilic microorganisms.

Switzerland is home to many industries associated with the bioeconomy, including food companies like Nestle and pharmaceutical companies like Novartis and Hoffman-La Roche, as well as a large chemicals sector. Although these companies are not particularly active in the sustainable bioeconomy sector, they have a potential to become key players.

Switzerland is also home to the world's largest cement supplier, **LafargeHolcim**, which collaborates with researchers on green cement and packaging.

In the bioenergy sector, biogas and biomass combustion are popular. Key players in the biogas scene include gas companies like **GVM**.

OPEN ACCESS PILOT PLANTS

Switzerland currently has no open access pilot plants.

BIOECONOMY STRATEGIES AND ROADMAPS

Switzerland does not have a specific bioeconomy strategy. It does have a **Green Economy Action Plan**, published in 2013, for the period 2016-2019, which provides targeted measures for supporting the voluntary commitment of business, science and society to conserving natural resources.

The Green party put forward an initiative for a 'Green Economy' change to the constitution, which was brought to a referendum in 2016. The change would have committed Switzerland to use natural resources sustainably by 2050 (enabled by a circular economy). The change was rejected by the Swiss population, mainly out of fears it was too ambitious.

BIOBASE4SME

BioBase4SME is a strong network of leading bio-economy experts. The project offers innovation support services to North-West European SMEs and start-ups active in the bio-economy.

The project supports SMEs on their way to getting industrial proof of concept and a realistic business plan. Both are essential to convince any type of investor or client.

This factsheet was produced by the BioBase4SME partners, more factsheets and information on the project can be found here: <http://www.nweurope.eu/BioBase4SME>

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BioBase4SME partners are:



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