

## SWITZERLAND

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### UPDATE ON MEMBER'S ENERGY FRAMEWORK

The Swiss energy system will require successive restructuring in the period up to 2050. In its energy strategy, the Federal Council and Parliament decided on a gradual fade out from nuclear power production based on a reduction in end-use energy consumption of 33% by 2050 and on an increased share of renewable power production. In 2013, the Federal Council submitted an initial package of measures to parliament aimed at securing the country's energy supply sustainably over the long term. These measures will have impacts ranging from research to implementation with legislative and normative issues (for further information visit [www.energystrategy2050.ch](http://www.energystrategy2050.ch)).

The program "Swiss Energy" ([www.swissenergy.ch](http://www.swissenergy.ch)) aims to promote energy efficiency and the use of renewable energy. Its main strength lies in close co-operation between the federal government, the cantons and municipalities, and numerous partners from trade and industry, environmental and consumer organizations, and public and private agencies.

The energy research carried out in the public sector is based on the energy research concept of the federal government, which is updated every four years by the Swiss Federal Energy Research Commission (CORE). The Swiss Federal Office of Energy (SFOE) coordinates various national research and demonstration activities in collaboration with other public and private funding institutions. Detailed information about funding levels in energy research can be found in the national energy research statistics ([www.bfe.admin.ch/php/includes/container/enet/flex\\_enet\\_anzeige.php?lang=en&publication=11274](http://www.bfe.admin.ch/php/includes/container/enet/flex_enet_anzeige.php?lang=en&publication=11274)).

Regarding energy research, a new plan for coordinated research was launched which includes eight new competence centers on energy research (SCCER) operating from 2013 to 2017. Hydrogen and Fuel Cell topics are of major importance in two of the competence centers dealing with electricity and heat storage ([www.sccer-hae.ch](http://www.sccer-hae.ch)) and mobility ([www.sccer-mobility.ch](http://www.sccer-mobility.ch)). Increased funding for pilot and demonstration projects has also been made available.

### HYDROGEN R,D&D SPECIFICS

Hydrogen continues to own major potential in the Swiss long-term energy perspective. It is an energy carrier that will absolutely be needed when encountering storage problems for a future energy supply based on renewable energy sources. The funds available in the Swiss Hydrogen Program ([www.bfe.admin.ch/research/hydrogen](http://www.bfe.admin.ch/research/hydrogen)), led by the SFOE, are used as seed money to coordinate and initiate various activities including national research and demonstration projects. The long term strategy of the SFOE hydrogen research program consists of fostering projects in the field of hydrogen production by renewable energies and hydrogen storage in solid state systems.

The main research institutions in the hydrogen research program are the Swiss Federal Institutes of Technology in Lausanne ([www.epfl.ch](http://www.epfl.ch)), the Paul Scherrer Institut ([www.psi.ch/](http://www.psi.ch/)), the Swiss Materials Science & Technology Center ([www.empa.ch](http://www.empa.ch)), as well as Cantonal Universities (Geneva, Basel) and Universities of Applied Sciences (Fribourg, Winterthur).

### VITAL STATISTICS

#### Population

8,200,000

#### Territory

41,285 km<sup>2</sup>

#### Capital

Bern

#### GDP/capita

CHF 69,887 (2010) (\$74,395)

#### Average Annual GDP Growth

1.9 % (1997–2007)

#### Primary Energy Structure

(see [www.bfe.admin.ch/statistics](http://www.bfe.admin.ch/statistics))

#### Production

235,040 Terajoule (2008)

Wood: 15%

Waste: 22%

Hydro: 58%

Others: 5%

#### Imports

1,138,110 Terajoule (2008)

Coal: 1%

Oil: 19%

Petrol: 29%

Gaz: 10%

Nuclear fuel: 25%

Electricity: 16%

#### Exports

212,610 Terajoule (2008)

Electricity: 87%

Petrol: 13%

**Electricity****Production**

66,967 GWh (brutto 2008)

Hydro: 56%

Nuclear: 39%

Fossil: 5%

Biomass: 119 GWh (0.17%)

PV: 34 GWh (0.05%)

Wind: 19 GWh  
(0.02%)

The establishment of a national center of competence in photo-electrochemistry (PEC) at the EPFL with additional activities at EMPA and the ZHAW allowed for a concentration of research activities in this subfield to take place within the past years (<http://pechouse.epfl.ch>). At the University of Zurich a special University Research Priority Program (<http://www.lightchec.uzh.ch>) is devoted to photo-electrochemistry. Industrial players are companies in the field of electrolyser-technology (Schmidlin AG, Industrie Haute Technologie IHT) and hydrogen-logistics (PanGas, Linde-Switzerland, WEKA).

**REFERENCES**

- 1] [www.energy-research.ch](http://www.energy-research.ch)
- 2] [www.bfe.admin.ch/research/hydrogen](http://www.bfe.admin.ch/research/hydrogen)
- 3] [www.bfe.admin.ch/research/fuelcell](http://www.bfe.admin.ch/research/fuelcell)
- 4] <http://hydropole.ch/>

**Imports**

50,300 GWh (2008)

**Exports**

51,400 GWh (2008)

**Total Demand/  
Consumption**

58,729 GWh (2008)

(31% households, 2% agriculture,  
32% industry, 27% services,  
8% transport)

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