

Press release

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Seasonal energy storage for Switzerland

ETH Zurich and EPFL launch a green energy coalition

Zurich and Lausanne, 8 June 2023

ETH Zurich and EPFL want to work with partners from politics, science and industry to push innovative storage and transport solutions for renewable energy carriers. The overall goal is to create a climate-neutral and flexible energy system for Switzerland. Around 20 partners and industrial companies have already voiced their interest in a collaboration.

Switzerland is facing a combined energy and climate crisis. To achieve the net-zero target set for 2050 while avoiding an energy shortfall, the country is dependent on renewable energy sources, seasonal storage options and an efficient link to the European electricity market. In addition to pumped-storage power plants, batteries and heat storage systems, synthetic fuels and gases such as hydrogen in particular offer attractive opportunities for storing, transporting and trading cheap electricity from photovoltaic plants in the summer for use later in the winter. Many promising technologies are currently under development but not yet fully operational. This is where the “Coalition for Green Energy and Storage” comes in, due to be unveiled on 8 June at the Swiss Economic Forum (SEF) in Interlaken.

“The purpose of the coalition is to enable existing technologies for carbon capture and the production and storage of carbon-neutral gases and fuels to be brought to market quickly and reach industrial scale,” says ETH President Joël Mesot, outlining the plan. The goal is to build a scalable, climate-neutral and flexible energy system within a reasonable time frame.

Wanted: partners from politics, industry and science

Achieving this goal will require a collective effort from the worlds of science, politics and industry. “Our two ETH universities alone have enormous combined potential: 150 research groups specialising in energy, around 460 scientists and four successful spin-offs are active in carbon capture and energy storage. Together with other research groups at the Paul Scherrer Institute PSI and the Swiss Federal Laboratories for Materials Science and Technology Empa, the ETH Domain has both the necessary

expertise and scale to work with industry partners in addressing current challenges,” says EPFL President Martin Vetterli. ETH Zurich and EPFL are now searching for technology and implementation partners, as well as financial backers and supporters from politics and society.

Around 20 companies and organisations have already voiced their interest in a collaboration: Alpiq, AMAG, BKW Energie, SBB / CFF, Carvolution AG, Cemsuisse, Emil Frey Gruppe, Edelweiss, FIR Group AG, Gaznat, Genève aéroport, GE Vernova, Gruyère Hydrogen Power SA, Implenia, MAN Energy Systems, Migros Industry, Romande Energie, Rolex, Swissmem, SWISS International Air Lines, VBSA, Viteos SA, Verband der Schweizerischen Gasindustrie / Association Suisse de l'Industrie Gazière.

Alongside the presidents of the two ETH universities, the two other SEF panel members from Swiss International Air Lines (SWISS) and energy services provider Alpiq represent two Swiss industry heavyweights that are already on board. “We are proud to be part of this energy coalition. We are working together to drive the production of synthetic fuels, which we see as being the biggest lever for increasingly sustainable air travel in future. At the same time, we are exploring new opportunities for energy storage, which will ultimately improve the security of supply in Switzerland and benefit society as a whole,” says Swiss CEO Dieter Vranckx. The airline needs to find economic solutions quickly in order to achieve its own climate targets. Synthetic fuels play an important role in this regard. Alpiq, for its part, has a broad portfolio of hydroelectric power and storage plants in Switzerland and is one of the pioneers in the production of green hydrogen at its plant in Gösgen. With numerous projects for the addition and expansion of renewable energies and various storage technologies in Switzerland and neighbouring countries, Alpiq is well positioned to make a significant contribution to the coalition: “With a broad coalition of partners from industry, science and society, we can achieve our net-zero target while ensuring a sustainable energy supply. This in turn helps reinforce Switzerland’s standing as an international business and science hub,” says Alpiq’s CEO Antje Kanngiesser, voicing her company’s explicit support for the coalition. Well-known Swiss philanthropist Hansjörg Wyss has already pledged his support for the coalition.

Planned: research platforms on a megawatt scale

The coalition plans to explore innovative technical solutions to create additional opportunities that use energy storage facilities to exploit the seasonal differences in electricity production in Switzerland and Europe. This will improve Switzerland’s security of supply and diversify energy trading with European and international partners, thereby creating new business areas and opportunities for technology start-ups and Swiss industry. The technical options will be systematically analysed in order to discover and implement the most effective solutions possible in terms of security of supply and cost.

The formal process of establishing the coalition will be completed by the end of 2023, enabling the first projects to be launched at the start of 2024. Demonstration plants, built on existing technology but on a megawatt scale, are to be productive from 2028 onwards and serve as research platforms. A budget of around 100 million Swiss francs is needed to fund the first phase of the project.

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Further information

ETH Zurich
Media Relations
Telephone: +41 44 632 41 41
mediarelations@hk.ethz.ch

EPFL
Mediacom
Telephone: +41 21 69 3 22 22
presse@epfl.ch