Press release

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Balancing act

Innovative solution unveiled to recover and use surplus energy

New renewable energies are increasingly becoming part of our energy mix. At the same time, managing the intermittency from these sources is proving ever more complex. In response, Romande Energie has successfully trialled an innovative solution, Overflow, which recovers and uses surplus energy to ensure a balanced grid.

Having a properly functioning power grid requires striking an extremely fine balance. At all times, the amount of power produced must match that used in order to keep the grid frequency at 50 Hz. The transmission grid operator, Swissgrid, is responsible at a national level for maintaining this balance, ensuring that the supply of electricity remains constant and reliable.

Today, renewable energy accounts for an increasing share of power generation but output depends largely on weather conditions. As a result, integrating these generation sources into the grid can be complex. For example, overcast weather may have been forecast, but if the sun suddenly comes out, the grid must be able to absorb this unplanned energy in real time. In these scenarios, Romande Energie can pull on the generation lever to adjust the volume of power delivered to the grid by its dams and photovoltaic (PV) installations. But a more innovative approach is to manage the demand side of the equation.

A ground-breaking solution

Romande Energie is offering a solution that is simple, scalable and robust. OverFlow keeps the system in balance by increasing demand in real time, using a process called Power-to-Heat. In practical terms, OverFlow is connected to the low-voltage network to provide flexibility at a local level.

OverFlow can be installed anywhere in Switzerland as it is directly connected to Swissgrid, which monitors grid balance nationally. When needed, surplus energy can be routed to OverFlow to be converted into heat.

This heat is produced cost-effectively and can then be used in a range of applications including swimming pools, spas, market gardening, manufacturing and district heating networks. It replaces the use of fossil fuels such as gas or heating oil, leading to lower operating costs for users. Most importantly, OverFlow provides a tangible answer to the surplus energy generated by renewable installations.

Case study

An OverFlow unit with a capacity of 375 kilowatts (kW) has been installed and connected to the Avenches district heating network in the canton of Vaud. It captures surplus electrical load to help balance the grid and converts it into heat, which is then fed into the district heating network for the benefit of Romande Energie customers. OverFlow is monitored round the clock by Swissgrid, which can bring it on line 24/7 in response to system balancing needs. Once activated, OverFlow preheats return water from the district heating network to approximately 105°C, after which it is stored in an accumulator. The stored heat is subsequently reintroduced into the district heating network in stages, in line with customer demand.

"We jumped at the chance of being among the first clients, because finding solutions for incorporating more renewable energy is today crucial," says Camille Marion, Avenches councillor in charge of sustainable development. "We're past asking whether it is necessary to take action. We now need to meet the transition head on and swiftly increase the proportion of renewables in our generation mix. Avenches actively supports sustainable development schemes such as this one, and we're proud of our reputation as a town that innovates."

"Even in this first phase, our order book is well lined," says Luca Juillerat, inventor and project leader for OverFlow. "Our aim is not to take on more projects for their own sake, but to work with the right clients."

Romande Energie is financing the installation of OverFlow for these initial clients, using their infrastructure to reduce grid load.

Romande Energie aims to make Western Switzerland the country's first net-zero region. It is pursuing this goal by rolling out renewable energy assets, with a focus on solar, and by accelerating grid integration through immediate action to address surplus power.

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Romande Energie at a glance

The Romande Energie Group, the leading supplier of electricity in Western Switzerland, provides its customers with a wide range of sustainable solutions that help to lower energy consumption and carbon emissions. These solutions include tailor-made support for the independent production of clean energy as well as products and services that save energy and encourage smarter use.

Romande Energie aims to make Western Switzerland the country's first net-zero region. It is continually investing substantial resources to expand its local renewable energy generation capacity. The Group's hydro, wind and biomass power plants and projects, together with its extensive district heating installations and emerging geothermal and hydrogen interests, support this commitment by enabling it to deliver an ever-increasing share of renewable energy to its customers

Romande Energie has established itself as a trusted partner for a society that genuinely values the environment, people and a resource-efficient economy. **Keeping Western Switzerland on track for a sustainable future** lies at the heart of its core purpose.

For more information on Romande Energie Group, visit www.romande-energie.ch