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Waste incineration plants as a stabilizer for the Swiss energy system

Waste incineration plants (WIP) are already multi-talented today. Heat and metals are recovered from the incinerated waste and electricity is produced. 17 Swiss research partners now want to go three steps further. They want to convert the waste products from the waste into synthetic fuels such as hydrogen and thus store surplus energy from renewable energy in summer for use in winter. The hydrogen can also be converted into raw materials for the chemical and plastics industries together with the waste gases from the waste incineration plant. In addition, the climate-damaging CO_2 produced during the incineration of the waste can be reused directly on site as a raw material.

In the future, waste incineration plants could become even more important hubs in the Swiss energy and raw materials supply as well as in climate protection. "Following the principle of the circular economy, we want to get as much use as possible out of the versatile infrastructure and the waste and energy streams in the MSWI plants," explains project manager Dariusz Nowak, energy researcher at the Institute of Energy Technology at OST.

The "GreenHub" project is one of a total of eight large-scale flagship projects of the Swiss Innovation Agency (Innosuisse). Together with 16 research partners, the consortium led by OST is pursuing a clear goal: the development of systemic and innovative approaches for the production, conversion and storage of renewable energy into environmentally friendly liquid fuels using raw materials supplied by waste recycling plants, for example. If the project is a success, other large industrial plants with high CO_2 emissions, such as cement factories, can also be used to increase the resilience of the energy system at peak times.

The WIP Horgen, which is involved in the project as an implementation partner, serves as a real-world laboratory. A large part of the research results in the four-year project will be tested in Horgen with prototypes in real operation and examined for their scalability for other waste incineration plants and industrial facilities. In the course of the project, guided tours will also be offered on site to give interested members of the public an insight into the research results and the potential of WIP for a sustainable supply of energy and raw materials.

Further information and an overview of all research partners can be found at flagship-greenhub.ch. The project results are updated on an ongoing basis.

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