



Submerged BILS

SOUR project call 1-2021

BILS – Bubble in the lake storage

One of the main challenges for the energy transition is the heat demand in winter. Large sensible storages can help solving the problem – if a suitable location is found. In this project we investigate the option to locate such storages as flexible bubbles in lakes (BILS).



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For sure such BILS will be very large storages of several Mio litres volume. Whether Surface BILS or Submerged BILS, there are some common challenges such as thermal insulation, mooring, bio impact, modes of operation or the selection of materials. But there are also specific pros and cons for both approaches:

Surface BILS

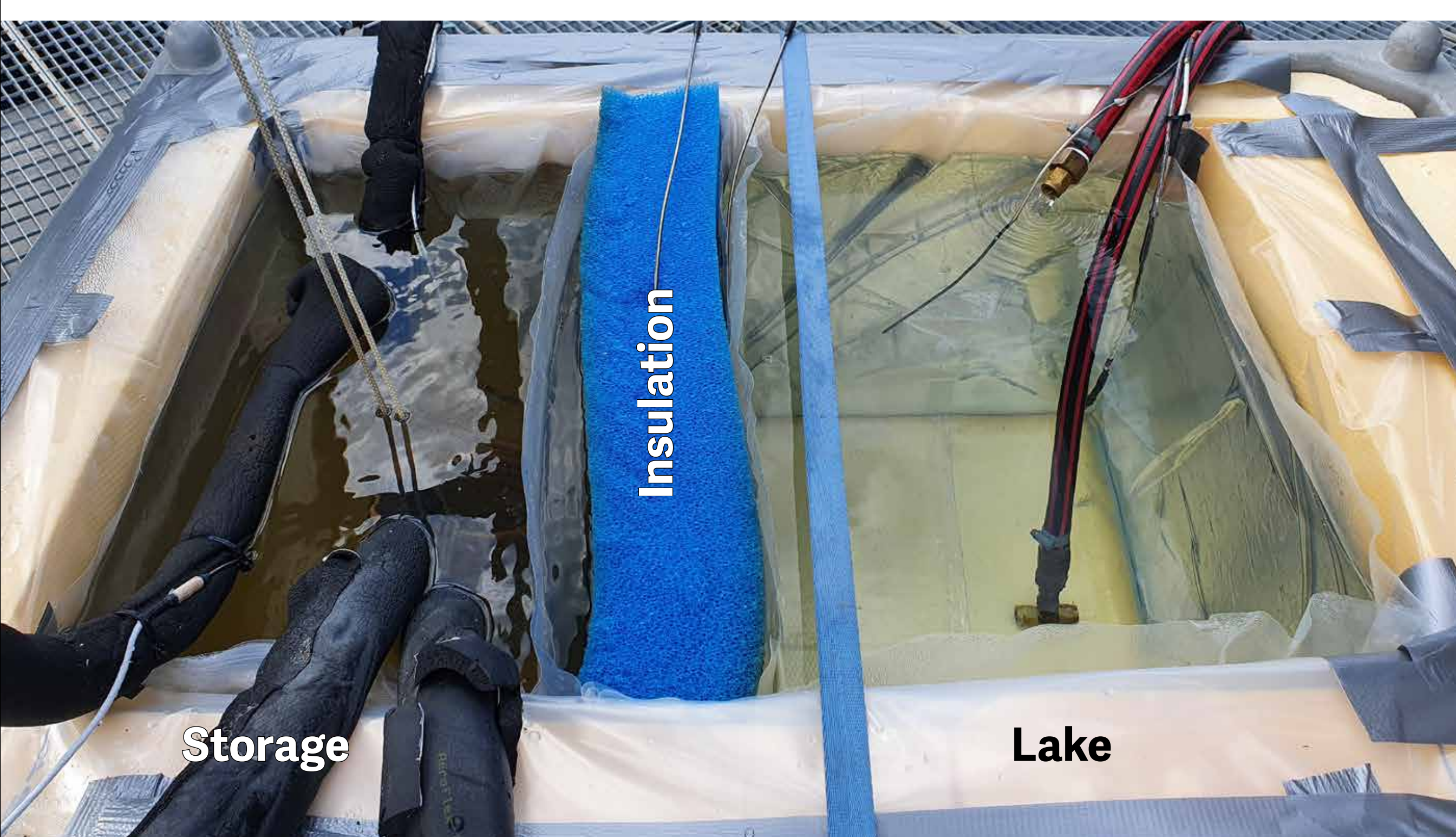
- + Lake water is the medium
- + Good accessibility
- + Maybe simpler setup
- Visibility, UV radiation
- Obstruction of traffic
- Exposed to weather

Submerged BILS

- + No use of lake surface
- + Invisibility
- + Stable surrounding (weather)
- Lake water is not the medium
- Difficult accessibility
- Buoyancy must be managed.

Experiments and next steps

A series of experiments with a flexible storage of about 2'000 litres was conducted in a public swimming area. This provided a much better understanding of the mechanical and thermal behaviour of such a bubble in water: The main challenges for the technology seem to be buoyancy and thermal insulation. Currently we investigate different insulation approaches and have setup a BILS simulator.

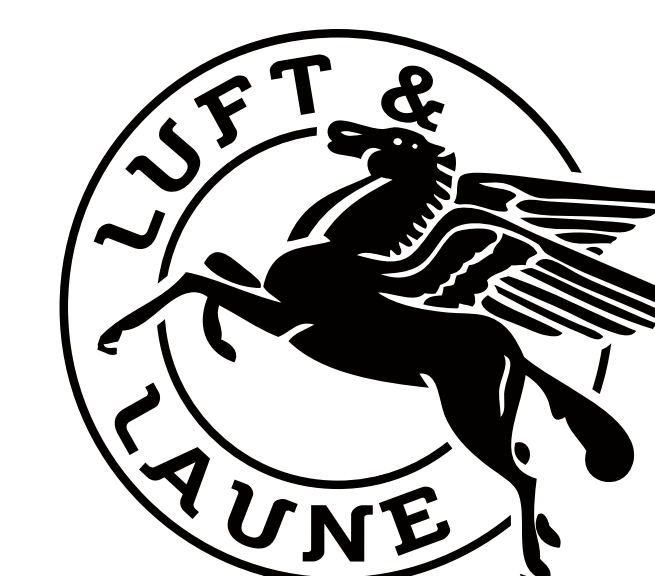


First attempt insulation based on conventional materials.

Once the insulation material is defined, it is planned to build a bigger storage of 10 m³ and to bring it to the lake. Partners for much bigger P&D projects are welcome.

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Project partner



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We follow an open research approach: All we know is published on our webpage. Your valuable input is welcome.



www.bils.tech

Test device for BILS
insulation materials