## **UTES Framework in Switzerland** Stephan Bolay

UTES Workshop 22 May 2025, Vienna





# **UTES Policies in Switzerland**

### R&D

#### **Federal Pilot & Demonstration**

**Program** subsidised early UTES projects (may be discontinued)

#### Call for applied research projects

(deadline 23.05.25): "Challenges in the realisation of large-scale thermal storage and large collector fields"

Other bottom-up opportunities for applied research projects (TRL > 3)

### MARKET SUPPORT

**Risk guarantee** (since 2025) for public infrastructure supporting Net Zero target (<u>climate and innovation act Art 7</u>) applicable for UTES if

- Storage efficiency < 15% of forecast</li>
- Double usage of surface falls away (for PTES)
- 50% of mitigation resp. sunk costs if no mitigation possible
- Max 5 Mio for 15 years
- Conditions: exploration risk excluded, sufficient simulation and exploration work must be presented.

→ details in <u>ordonnance (Art. 21 – 27)</u> and <u>guideline</u>

**Cantonal programs** promoting renewable energy (varies from canton to canton)







# **UTES Business Cases in Switzerland**

In Operation

- LT ATES Swatch Omega <u>BE\_Biel\_Swatch\_Group\_DE.pdf</u>
- BTES BaseLink <u>BL\_Basel\_Innovationshub\_BaseLink\_DE.pdf</u>
- BTES Business Village Root: <u>LU\_Luzern\_Business\_Village\_Root\_DE.pdf</u>
- BTES Hospital Frauenfeld: <u>TG\_Frauenfeld\_Spital\_Thurgau\_DE.pdf</u>
- BTES Familiengenossenschaft Zürich: <u>ZH\_Zuerich-Anergienetz-Friesenberg\_DE.pdf</u>
- HT-BTES Campus EMPA/Eawag (first charging planned june/july 2025)
  - 2 research projects associated (<u>ARTS</u>: bio-, hydr-, geochemical monitoring, and <u>GOES</u>: implementations of geothermal coupled energy systems)

Planned / under construction

- LT ATES TechCluster Zug: <u>ZG\_Zug-Techcluster\_DE.pdf</u>
- LT ATES Airport Zürich: ZH\_Kloten\_Airport\_Geostrukturen\_DE.pdf

#### Market readiness level MRL (qualitative):

- High MRL: BTES
- Mid MRL: LT ATES (growing)
- Low MRL: HT ATES
- No MRL: FTES (low TRL)

- $\rightarrow$  No insights into companies business plans
- → Predominantly BTES, but LT-ATES is gaining traction
- → One HT-ATES project was stopped due to geological parameters below expectations

## \*Select questions to answer\*



- What policies work in your country and why?
  - P&D worked for early movers
  - If risk guarantee works for upscaling remains to be seen
- What is the No. 1 UTES support policy in your opinion?
  - risk guarantee
- How to incorporate wider system benefits (e.g. grid savings) in the discussion and policy?
  - Quantify and substantuate the claim, then repeat, repeat, repeat
- What is the main driver for UTES business cases? Why invest in UTES?
  - High price stability (lower dependence on nat. gas and electricity price fluctuations)
  - High heat availability, flexibility and resilience of the heat provision.
  - Cost savings through direct cooling without HP
  - Future-proofing for a decarbonised world / high CO2 emission costs
  - Reduction of vulnerability to winter electricity gap
- Are there successful UTES projects in your country? Why are they successful?
  - Mostly BTES. Successful because it can be engineered, little subsurface risks
  - Only few ATES. Successful because of deep pockets of early movers which can handle high geological risk of not finding the resource.
- What is needed to establish transnational best practices?
  - Motivated regulators exchanging best regulatory practices
  - Motivate project owners to share data and experiences
  - Experienced planners/engineers working abroad

