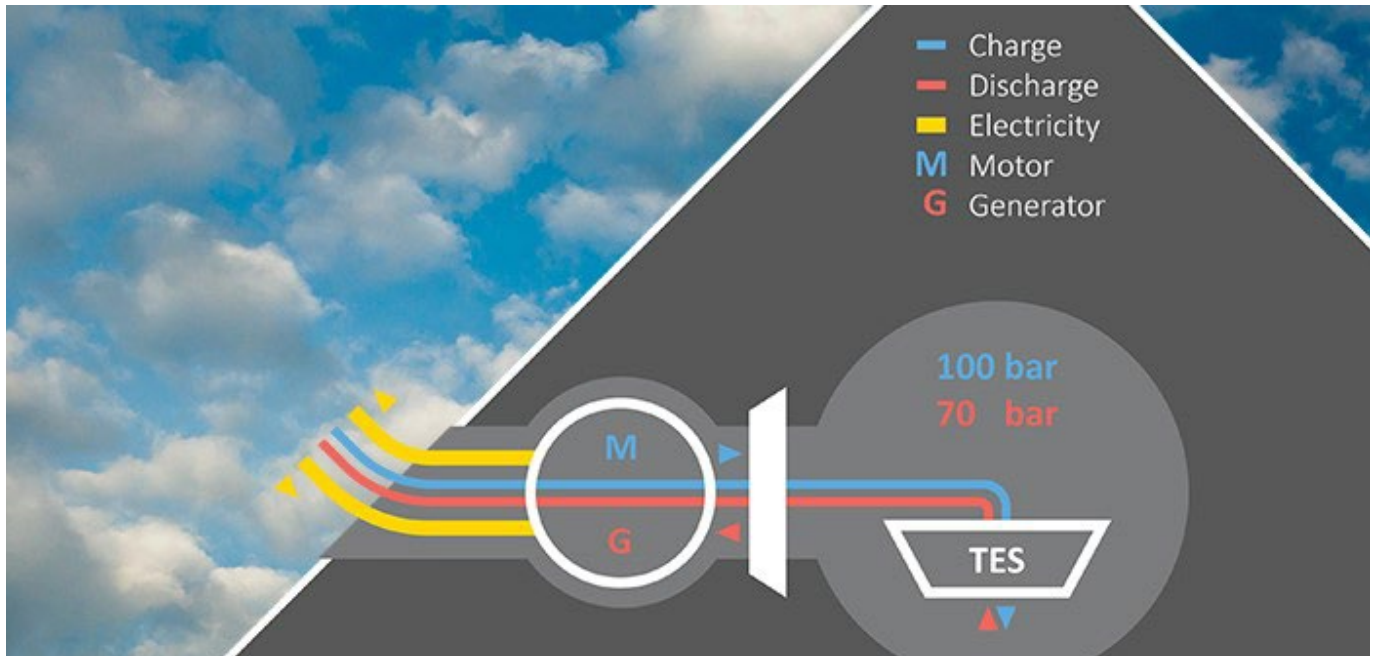


## ALA-CAES Pressure plug instrumentation Geotechnical monitoring for a research project



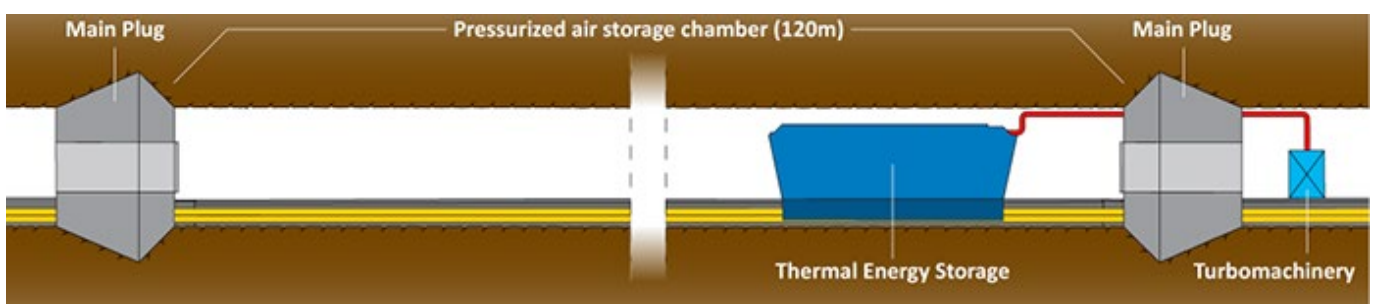
ALACAES, an Airlight Energy company, is developing an Advanced Adiabatic Compressed Air Energy Storage (AA-CAES) solution that enables cheap, sustainable and large-scale electricity storage on the grid level. Due to the increasing importance and need for large scale, fast responding energy storage solutions in the electricity grid, ALACAES' storage solution is a promising candidate for grid stabilization and energy balance of the electricity network.

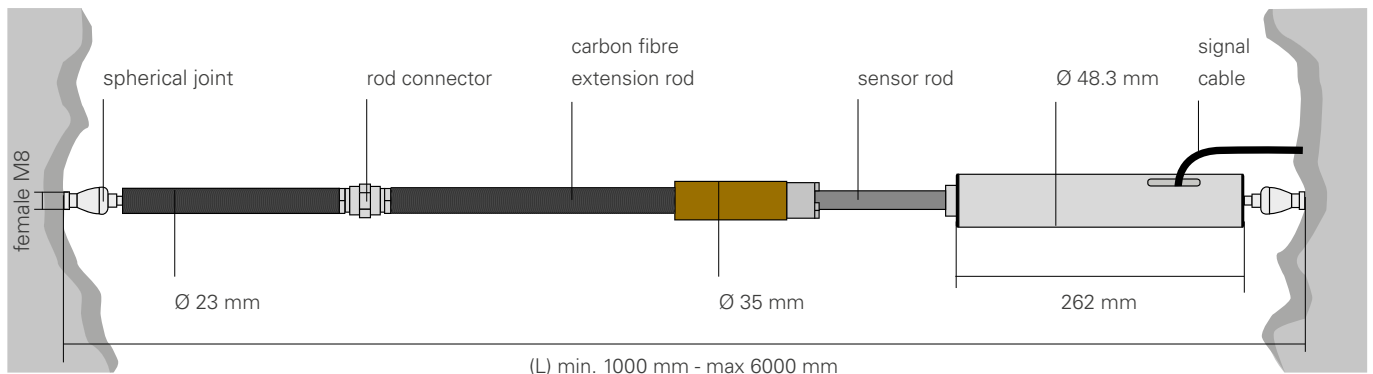
Due to the strategic importance of large scale electricity storage, the pilot plant has received a funding of CHF1.5M (€1.25M) from the Swiss Ministry of Energy. ALACAES is currently constructing the world-wide first AA-CAES pilot plant in Pollegio, Switzerland, to test the feasibility of its electricity storage solution. The pre-commercial demonstration plant will exploit an abandoned tunnel in the Swiss alps as the air reservoir.

The large-scale test contains a pressure chamber, isolated by means of two concrete plugs equipped with heavy doors for controlled access. By the construction of the two plugs in early 2015, Amberg Technologies (Switzerland) was contracted to furnish and install geotechnical and ambient instrumentation. Amberg has chosen Sisgeo International as a supplier of geotechnical systems.

The monitoring plan contains these geotechnical instruments:

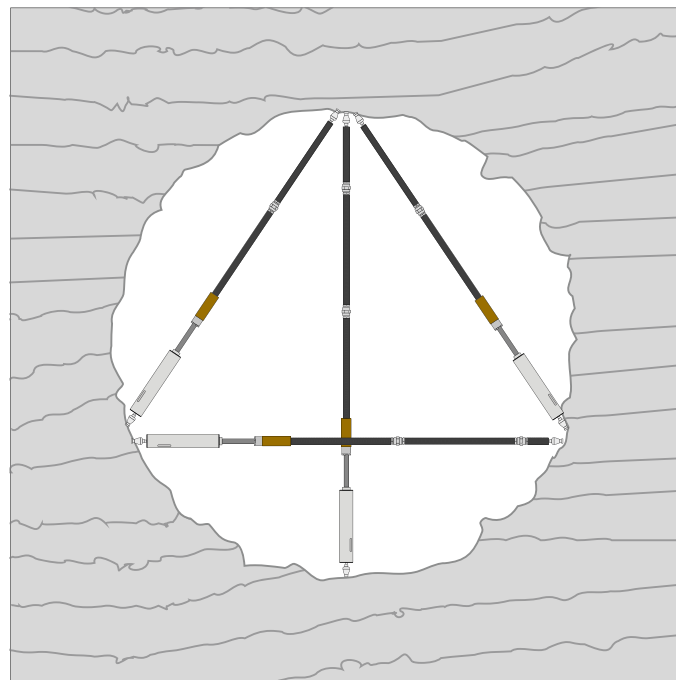
- NATM pressure cells
- Embedded Strain gauges fixed on reinforcement rebars
- MPBX with 4 anchors
- Convergence extensometers





*Convergence extensometer*

Sisgeo developed for this project a special convergence-meter, based on the displacement sensor technology. The system consists of a telescopic very rigid tube made of carbon-fibre reinforced plastic and thus is very strong and light weighted. The thermal expansion of the system is practically neglectible. The system can be easily extended and adapted to the requested distance of measurement. Fixation points, normally groutable bolts include spherical joints to enable a simple installation.



*Example of installation in a tunnel*

**LINKS:**

AMBERGTECHNOLOGIES  
ALACAES  
SISGEO