Gas an compressed air storage

Florian Samweber
Cavern Storage

- Suitable soil structure
- Storages have to be leached
- Depth of 600 to 1800 m
- Cavern:
  - Maximum height of 500 m
  - Diameter ~100 m
- Distance between two caverns at least 300 m

[http://www.kge-gasspeichergesellschaft.de/kaernenspeicher.html]
Functioning of an adiabatic compressed-air energy storage (CAES)

Advanced Adiabatic CAES (EU-funded R&D project)

Source: Zunft, DLR
Energy Storage

• Stored Energy Density
  – Hydroelectric pumped-storage:
    • 0.7 kWh/m$^3$ (300 m height, electrification efficiency 0.8)
  – Compressed air storage:
    • 2.7 kWh/m$^3$ (20 bar, goal of electrification efficiency 0.7)
  – Hydrogen Storage:
    • 400 kWh/m$^3$ (140 bar, electrification efficiency 0.3)

• Project ADELE-Staßfurt (RWE, GE, DLR,...)
  – Energy: 360 MWh
  – Power: 90 MW
  – Efficiency 0.7
  – Building starts 2015
Have a good day!