



ECES Annex 12

"High Temperature Underground Thermal Energy Storage"

Fourth report to the Executive Committee

1.-3.11.1999

Annex 12, phase 1 was approved during the Executive Committee Meeting in Paris on 4.-5.12.1997. Germany was decided to take the responsibility of the Operating Agent, and the Institute of Applied Geosciences of Justus-Liebig-University, Giessen, acts as Operating Agent. Phase 1 of the annex was extended at the Executive Committee meeting in Dec. 1998 in USA until 30.6.1999, to enable completion of the report and addition of economic considerations. In June 1999, a revised workplan was presented after XM 3. The annex text should be adapted for approval during the Executive Committee meeting in November 1999.

The objectives of Annex 12, phase 1 are to demonstrate that HT-UTES can be attractive to achieve more efficient economical and environmentally benign energy systems, and to disclose requirements and find problem solutions for reliable long-term operation. The type of UTES-systems concerned shall be confined to Aquifer Storage (ATES), Duct/Borehole Storage (BTES) and Cavern Storage (CTES).

Annex 12 phase 2 will allow an extensive monitoring campaign in plants built recently or still under construction. ATES and BTES plants with storage loading temperatures above 50 °C will be monitored in probably 4-5 countries (B, CAN, D, NL, S). Equipment for site investigation for ATES and BTES, design tools and suitable components will be addressed.

Work since last ExCom Meeting (June 1999):

29.7.1999 Meeting of German National group to co-ordinate phase 2 activities in Germany

23.-24.9.1999 XM 4 in Stuttgart, preparation of workplan and subtasks for revised annex 12 text

Addition of Dutch information to phase 1 report, further completion of the report.
Preparation of draft for revised annex 12 text

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Annex 12, workplan for Phase II

Subtasks

- B Monitoring (leader B. Sanner)
 - B1 Monitoring of thermal performance ITW, D

ATES	Gouda	NL?	since 1998	
	Rostock	D	end of 1999	
	Berlin, Reichstag	D	April 2000	
	Neubrandenburg	D	delayed ??	
	Truro	CAN	??	
BTES	Neckarsulm	D	since spring 1999	
	Attenkirchen	D	fall 2000	
	Mol, TESSAS	B	summer 2001	
 - B2 Monitoring of environmental and chemical aspects ISWA, D

ATES	Berlin, Reichstag	D	
BTES	Neckarsulm	D	
others			
 - B3 Modelling and simulation LTH, S

Selection, adaption and use of models in the course of the evaluation, comparison to predicted behaviour

D, S, NL?
 - B4 Control issues, operation strategies, monitoring rules LtW, D

all
- C ATES groundwater suitability and treatment (leader F. Cruickshanks)
 - C1 ATES - METSAC (Mobile Equipment for Testing of Scaling and Corrosion), development and use in D, use in S and NL (CAN?, B?) UniL/ISWA, D
 - C2 Full scale test site CAN NSAC, CAN
- D BTES ground parameter investigation a. BHE optimization (leader P. Dirven)
 - D1 Mobile thermal response test for higher temperatures (HT-TED) D, S LuTH, S
 - D2 BHE design, simulation and test B, D, S Vito, B
- E Components, list of specifications (leader B. Sanner)

all
- F System concepts and economy ?? (leader NL ?)

all ??

Phase 2 should run until 30.06.2002

Status: 1.-3.11.1999