



ECES Annex 12

"High Temperature Underground Thermal Energy Storage"

Second report to the Executive Committee 7.-9.12.1998

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, will act as Operating Agent.

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) and Duct/Borehole Storage (BTES).

(The experts decided during the 1st Expert's meeting to include the experience from 3 Swedish cavern stores, because water quality problems and water-rock-interaction are similar to ATES, and a lot of information is available)

Still the number of countries participating officially is rather small. Beside Germany and Canada, which are officially in, only the Netherlands and Sweden are likely to join soon. Both countries provided information, and in particular the Swedish national group supported the OA very actively. Other countries have a general interest, but do not yet participate: Belgium, France, Turkey. Japan, yet not participating, also provided information in the field of water treatment.

The data collection by the national teams did proceed slower than expected, mainly because of funding problems in the two important countries Netherlands and Sweden. In the Netherlands, concrete activities could not start before August 1998, and in Sweden the status and funding is still uncertain, even if a lot of work for Annex 12 was done. Nevertheless, the main findings for IEA ECES Annex 12 Phase I could be concluded in two expert's meetings and finished through intensive review in the Annex 12 group and by other experts. Three main areas are covered:

1. What can we learn from the past experiences, be it experimental or demonstration? What were the main problems encountered?
2. What are the key areas, where further R&D is required to solve remaining problems, and what are the concrete topics? (only topics should be addressed, which have a realistic chance to be successfully solved)
3. What are promising system concepts, in what circumstances can HT-UTES best show its potential, i.e., why is it worthwhile to continue with R&D in this field?

The results can be seen in the draft of chapter IX of the final report, which is distributed at the ExCom Meeting # 45.

The final, printed version of the report is scheduled to be distributed before the end of March 1999. An according revision of the work plan is necessary (s. below), and the ExCom is asked to approve this revision.

The next Phase of Annex 12 should contain concrete R&D-work in combination with demonstration plants. The original proposal for Phase II thus has to be revised, and the experts will have to investigate the opportunities and possible support for such work in the national framework. Considering the outcome of revision and investigation, a new proposal for carrying out the recommended R&D (s. chapter IX.2 of the report) has to be presented to the ExCom. The ExCom is asked to extend the duration of Phase I, or insert a kind of interim Phase, until this process is finished.

Revised Workplan IEA ECES Annex 12

January 1998 Meeting of National Workgroups
 Start of National Work
 - Operation Experiences (Energy/Economy)
 - Water Treatment, Environmental Aspects

Collection of information and documents
 Work on draft report

June 1998 1st Expert´s Meeting, discussion of first results and
 adjustments in further work
 17.6.98, Giessen, Germany

Report to ECES ExCom at Meeting # 44 in Chester, UK, 23./24.6.1998

Finalization of state-of-the-art-report
 Work on report: - Advantages, System Opportunities
 - R&D-needs, Recommendations for Phase II

October 1998 2nd Expert's Meeting to draw conclusions on lessons learned and on R&D-work to be done in the next phase, and to discuss the final reports of Phase I
14.-16.10.98, Malmö, Sweden

Incorporating results from 2nd Expert's Meeting into the reports,

Report to ECES ExCom Meeting # 45 in Albuquerque, USA, 7.-9.12.1998

Finalizing and printing of reports

Distribution before end of March 1999

End of Phase I

For preparation of Phase II:

Revision of proposal presented in Paris Dec. 1997, discussion in experts group, presentation at the next ExCom-Meeting # 46.

2nd Expert's Meeting

The second Expert's Meeting was held in Malmö, Sweden, 14.-16.10.1998, hosted by SWECO VBB VIAK. A total of 16 experts attended this meeting. It was decided, not to distinct between a more general workshop and a more closed expert's meeting, but to proceed in one group with an agenda covering the 3 days.

The proceedings of the meeting may be seen from the minutes enclosed with this report. Beside information on new projects, most of the time was used for presentation on operational experiences and for discussion on the main findings. All the conclusions were prepared by meetings in smaller working groups, and then discussed and approved in plenum. They are printed in the draft of chapter IX of the report.

No further Expert's Meeting was scheduled for the moment, to allow decision on the future of Annex 12 first.

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