IEA HPP Annex 32 Participants

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Economical heating and cooling systems for low energy houses

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10 countries are participating in IEA Annex 32 Annex 32. In the following, the contact information is listed:

Austria

is represented by the **Institute of Thermal Engineering** of the **Graz University of Technology**

contact: Ao. Univ.- Prof. Dr. René Rieberer (**rene.rieberer@tugraz.at**)

Canada

is represented by the **Laboratoire des Technologies de l'Energie - LTE** (Energy Technologies Laboratory), a division of the **Hydro-Québec** Research Institute.

contact: Vasile Minea, Ph.D. (**minea.vasile@lte.ireq.ca**)

France

is represented by the French Utility **Electricite de France (EdF)**

contact:Catherine Martinlagardette (**catherine.martinlagardett@edf.fr**)

Germany

is represented by the **Fraunhofer Institute of Solar Energy systems (ISE)** of the **Fraunhofer Gesellschaft** and the German manufacturer of building technology **Viessmann Werke GmbH & Co. KG**

contact: Marek Miara (**marek.miara@ise.fraunhofer.de**)

Japan

is represented by a large national team where 4 Universities, 3 utilities and 16 companies are taking part in the Japanese national activities in the frame of IEA HPP Annex 32. The national team leaders of the **University of Hokkaido** is given as contact person.

contact: Prof. Dr. Eng. Katsunori Nagano (**nagano@eng.hokudai.ac.jp**)

The Netherlands

is represented by **SenterNovem**.

contact: Onno Kleefkens (**o.kleefkens@senternovem.nl**)

Norway

is represented by **SINTEF Energy Research**

contact: Jørn Stene, Ph. D, associate professor II (**Jorn.Stene@sintef.no**)

Sweden

is represented by **SP**, the Technical Research Institute of Sweden

contact: Svein Ruud (**svein.ruud@sp.se**)

Switzerland

is represented by the of **Institute of Energy in Building** of the **University of Applied Sciences Northwestern Switzerland.**

contact: Carsten Wemhöner (**carsten.wemhoener@fhnw.ch**)

United States of America

is represented by the space conditioning program of the **Department of Energy (DOE)** and DOE's **Oak Ridge National Laboratory (ORNL)**.

contact: Van Baxter (**baxtervd@ornl.gov**)

National contributions

The table gives an overview of the national contribution of the participating countries in IEA HPP Annex 32

	Project	Task 1	Task 2	Task 3	Task 4
AT	**Development A/A-W CO2 heat pump**	System survey	System analysis, Definition of prototype system, EES and TRNSYS simulations	Lab - testing of prototype	Results of Lab - testing of prototype
CA	**Low energy house in cold climate - Optimum design and field testing**	• System survey in the design process of HVAC system for NOVO-CLIMAT low energy house	• Simulations of HVAC System for NOVO-CLIMAT house for cold climate • Design/Layout of HVAC	Summer 2007 (two summer and winter periods) Interim report Dec. 2007	Design guidelines based on field test Sept. 2008
CH	**Standard systems for heating and cooling with heat pumps**	• System survey	Summer 2007 System assessment simulation	2007/2008 Field test of 1 pilot plant	Mid 2008 Design guidelines
DE	**Field testing "Heat pump efficiency"**	Market overview of compact units/ passive houses	To be decided	• Sept. 2006 Beginning of field testing 100 units • 2008 Other 35 units	Sept. 2007 Evaluation of the results of the field testing Product/system optimisation

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FR	**Economical air-to-air heat pump solutions for low energy houses**	Low energy houses: market, building technologies and regulations in France	Comparison of system solutions for typical French low energy houses according to the BBC label	Prototyping and field test of air-to-air heat pump solutions	Documentation of results, best practice systems
JP	**Future heat pump for Japan**	System and demand survey	Jan. 2007: Evaluation of systems for moderate climate zone (cold climate	• Start Winter 2006 Best practice system, • Another field test may start Jan. 2008	To be specified
NL	**Market development for low energy system layouts incl. heat pumps**	• State of the art review of passive houses in the Netherlands • Systems/functions • Stakeholder involvement	• Evaluation existing systems • Investigation of systems with ECN • Evaluation of EPC calculation model • Simulation models of TNO	• Monitoring System • Structure of the building process (Incl. Interviews)	• Design handbook in form of a Matrix • Tools for Architects
NO	**Heat pump systems for Norwegian low energy houses**	• System survey	Evaluation of application of compact units in Norway (cold climate)	Field test of novel layout of water-to-water heat pump with propane refrigerant installed in passive house	Best practice
SE	**Develop heat pump systems for low energy houses**	• System survey • Market of heat pumps in Sweden • Evalution of existing field testing on existing systems	• Product development • Theoretical concepts • Lab.-Testing/ prototyping of unit/system concepts	• Lab.-Testing/ prototyping of unit/system concepts • Field testing of 1-2 systems	Result of developed low energy systems
US	**Development of highly integrated multifunctional heat pump for Net Zero Energy houses (NZEH)**	• Survey of NZEH building market/systems Dec 2006 • Data on ground coupling with selective water sorbent (SWS)	• Simulation of NZEH house • HVAC load • CIHP optimised design • Market survey	• Late 2007/ early2008 Initiate field testing in NZEH • End 2009 Result of field testing	to be decided