



## IEA HPP Annex 32 Participants

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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.riieberer@tugraz.at](mailto:rene.riieberer@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](mailto:minea.vasile@lte.ireq.ca))

### France

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

contact: Catherine Martinlagardette ([catherine.martinlagardett@edf.fr](mailto: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](mailto: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](mailto:nagano@eng.hokudai.ac.jp))

### The Netherlands

is represented by **SenterNovem**.

contact: Onno Kleefkens ([o.kleefkens@senternovem.nl](mailto:o.kleefkens@senternovem.nl))

 **Norway**

is represented by **SINTEF Energy Research**

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

 **Sweden**

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

contact: Svein Ruud ([svein.ruud@sp.se](mailto: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](mailto: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](mailto: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
<b>AT</b>	<b>Development A/A-W CO2 heat pump</b>	System survey	System analysis, Definition of prototype system, EES and TRNSYS simulations	Lab - testing of prototype	Results of Lab - testing of prototype
<b>CA</b>	<b>Low energy house in cold climate - Optimum design and field testing</b>	<ul style="list-style-type: none"> <li>System survey in the design process of HVAC system for NOVO-CLIMAT low energy house</li> </ul>	<ul style="list-style-type: none"> <li>Simulations of HVAC System for NOVO-CLIMAT house for cold climate</li> <li>Design/Layout of HVAC</li> </ul>	Summer 2007 (two summer and winter periods) Interim report Dec. 2007	Design guidelines based on field test Sept. 2008
<b>CH</b>	<b>Standard systems for heating and cooling with heat pumps</b>	<ul style="list-style-type: none"> <li>System survey</li> </ul>	Summer 2007 System assessment simulation	2007/2008 Field test of 1 pilot plant	Mid 2008 Design guidelines
<b>DE</b>	<b>Field testing "Heat pump efficiency"</b>	Market overview of compact units/passive houses	To be decided	<ul style="list-style-type: none"> <li>Sept. 2006 Beginning of field testing 100 units</li> <li>2008 Other 35 units</li> </ul>	Sept. 2007 Evaluation of the results of the field testing Product/system optimisation

	Project	Task 1	Task 2	Task 3	Task 4
FR	<b>Economical air-to-air heat pump solutions for low energy houses</b>	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	<b>Future heat pump for Japan</b>	System and demand survey	Jan. 2007: Evaluation of systems for moderate climate zone (cold climate)	<ul style="list-style-type: none"> <li>Start Winter 2006 Best practice system,</li> <li>Another field test may start Jan. 2008</li> </ul>	To be specified
NL	<b>Market development for low energy system layouts incl. heat pumps</b>	<ul style="list-style-type: none"> <li>State of the art review of passive houses in the Netherlands</li> <li>Systems/functions</li> <li>Stakeholder involvement</li> </ul>	<ul style="list-style-type: none"> <li>Evaluation existing systems</li> <li>Investigation of systems with ECN</li> <li>Evaluation of EPC calculation model</li> <li>Simulation models of TNO</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring System</li> <li>Structure of the building process (Incl. Interviews)</li> </ul>	<ul style="list-style-type: none"> <li>Design handbook in form of a Matrix</li> <li>Tools for Architects</li> </ul>
NO	<b>Heat pump systems for Norwegian low energy houses</b>	<ul style="list-style-type: none"> <li>System survey</li> </ul>	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	<b>Develop heat pump systems for low energy houses</b>	<ul style="list-style-type: none"> <li>System survey</li> <li>Market of heat pumps in Sweden</li> <li>Evaluation of existing field testing on existing systems</li> </ul>	<ul style="list-style-type: none"> <li>Product development</li> <li>Theoretical concepts</li> <li>Lab.-Testing/prototyping of unit/system concepts</li> </ul>	<ul style="list-style-type: none"> <li>Lab.-Testing/prototyping of unit/system concepts</li> <li>Field testing of 1-2 systems</li> </ul>	Result of developed low energy systems
US	<b>Development of highly integrated multifunctional heat pump for Net Zero Energy houses (NZEH)</b>	<ul style="list-style-type: none"> <li>Survey of NZEH building market/systems Dec 2006</li> <li>Data on ground coupling with selective water sorbent (SWS)</li> </ul>	<ul style="list-style-type: none"> <li>Simulation of NZEH house</li> <li>HVAC load</li> <li>CHP optimised design</li> <li>Market survey</li> </ul>	<ul style="list-style-type: none"> <li>Late 2007/early2008 Initiate field testing in NZEH</li> <li>End 2009 Result of field testing</li> </ul>	to be decided

## IEA HPP Annex 32

IEA HPP Annex 32 is a corporate research project on technical building systems with heat pumps for the application in low energy houses. The project is accomplished in the Heat Pump Program (HPP) of the International Energy Agency (IEA).

Internet: <http://www.annex32.net>

