

Economical heating and cooling systems for low energy houses



United States of America

The US national team is represented by the **Department of Energy (DOE)** and DOE's **Oak Ridge National Laboratory (ORNL)**.

National team leader



Van Baxter

Building Technologies Research and Integration Center
Energy and Transportation Science Division
Oak Ridge National Laboratory
P.O. Box 2008, Building 3147
Oak Ridge, TN 37831-6070
Phone: 865-574-2104
Fax: 865-574-9338
baxtervd@ornl.gov
<http://www.ornl.gov>

National team



Melissa Voss Lapsa

Whole-Building and Community Integration
Energy and Transportation Science Division
Oak Ridge National Laboratory
P.O. Box 2008, Building 3156
Oak Ridge, TN 37831-6067
Phone: +1-865-576-8620
Fax: +1-865-574-9331
lapsamv@ornl.gov
<http://www.ornl.gov>



Dr. C. Keith Rice

Building Technologies Research and Integration Center
Energy and Transportation Science Division
Oak Ridge National Laboratory
P.O. Box 2008, Building 3147
Oak Ridge, TN 37831-6070
Phone: +1-865-574-2016
Fax: 865-574-9338
riceck@ornl.gov
<http://www.ornl.gov>



Dr. Richard W. Murphy

Building Technologies Research and Integration Center
Energy and Transportation Science Division
Oak Ridge National Laboratory
P.O. Box 2008, Building 3147
Oak Ridge, TN 37831-6070
Phone: +1-865-576-7772
Fax: 865-574-9338
murphyrw@ornl.gov
<http://www.ornl.gov>



Antonio M. Bouza
 Building Technologies Program
 U.S. Department of Energy
 1000 Independence Avenue, SW
 Washington, DC 20585-0121
 Phone: +1-202-586-4563
antonio.bouza@ee.doe.gov
<http://www.doe.gov>

US national project

The long term target of the US government is a broad introduction of so-called Net Zero Energy Houses (NZEH), i.e. houses which produce as much energy as they consume on an annual basis. Thus, the DOE is interested in an optimised building technology for NZEH (Fig. 1).

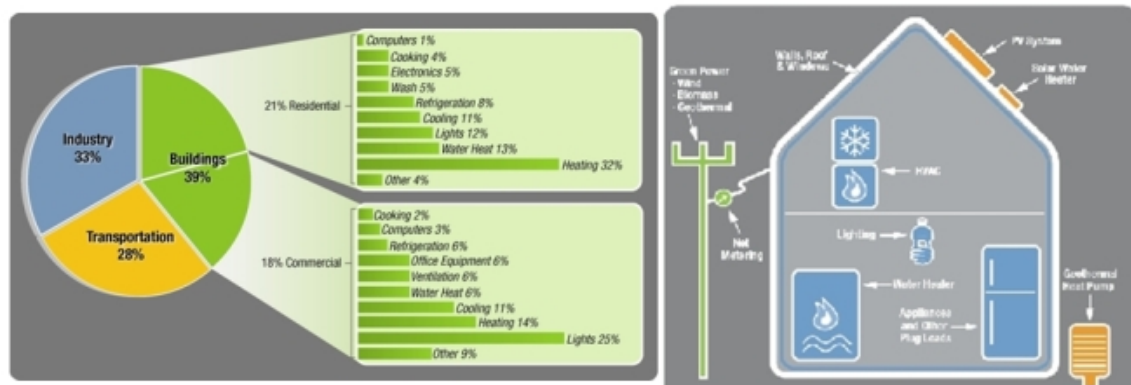


Fig. 1 Breakdown of building energy consumption and concepts for Net Zero Energy Houses (NZEH)

An accomplished feasibility study delivered the result that a highly integrated heat pump incorporating the functions space heating, space cooling, DHW, ventilation incl. humidification and dehumidification of the ventilation air is the best option for NZEH. Therefore, the national project USA deals with the development of a highly integrated heat pump configuration. The work includes prototyping of a unit, lab testing of the different functions and performance simulation studies with TRNSYS as well as field testing of the unit.

US links



US national IEA HPP website

Website of the national team of the USA in the IEA Heat Pump Program containing information on the US activities within the program. Website in English.

http://www.ornl.gov/sci/engineering_science_technology/usiea



DOE Energy Efficiency and Renewable Energy Building Technologies Program


Website of the DOE Program including publications, tools and information at

<http://www.eere.energy.gov/buildings>



Building America

Building America is a private/public partnership that develops energy solutions for new and existing homes. The Building America project combines the knowledge and resources of industry leaders with the U.S. Department of Energy's technical capabilities. Together, they act as a catalyst for change in the home-building industry. Information in English and a project list at

 http://www.eere.energy.gov/buildings/building_america/



Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

AHRI is a voluntary, non-profit trade association for manufacturers of air conditioning, refrigeration, and heating products.

 <http://www.ahrinet.org>



ASHRAE

ASHRAE is a voluntary, non-profit engineering society for HVAC&R engineers. It publishes HVAC&R standards, guidelines, handbooks and other educational material, sponsors HVAC&R research, and conducts professional development training seminars.

 <http://www.ashrae.org/>



Energy Star

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy to promote use of energy efficient products and practices.

 <http://www.energystar.gov>

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>

