
Overview of IEA HPT Annex 50



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**Fraunhofer Institute for
Solar Energy Systems ISE**

Joint Workshop IEA HPT Annex 49/50
and IEA EBC Annex 67

Heat pumps for nZEB, retrofit and energy flexibility

Rotterdam, 15. May 2017

„Heat Pumps in Multi-Family Buildings for space heating and DWH”

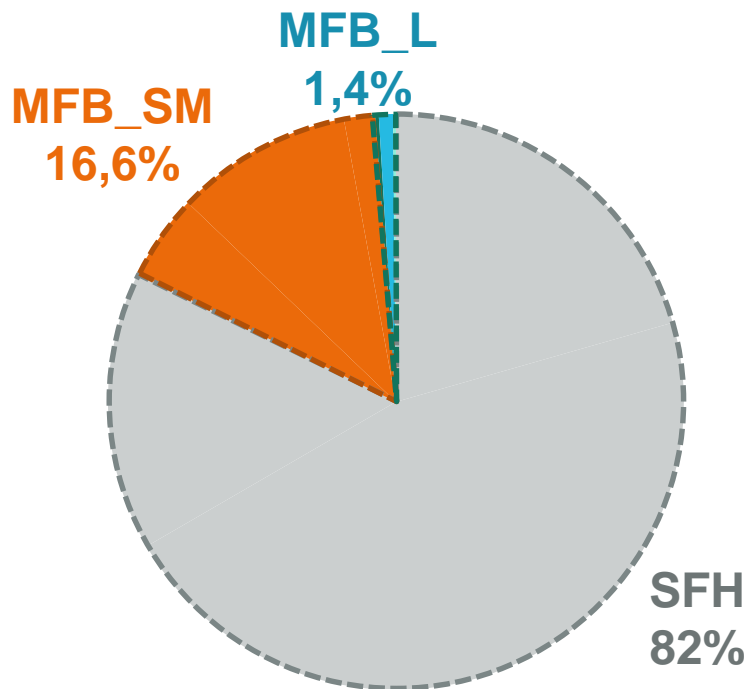


Kick-off Meeting 24.01.2017, Freiburg, Germany

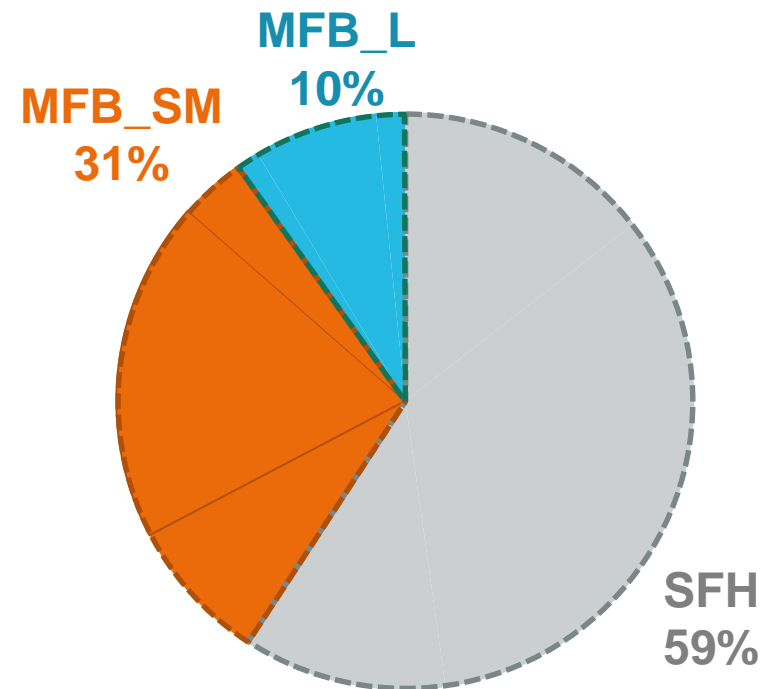
German Housing Stock Characteristics

GERMAN DWELLING STOCK IN 2009

Number of buildings



Living area



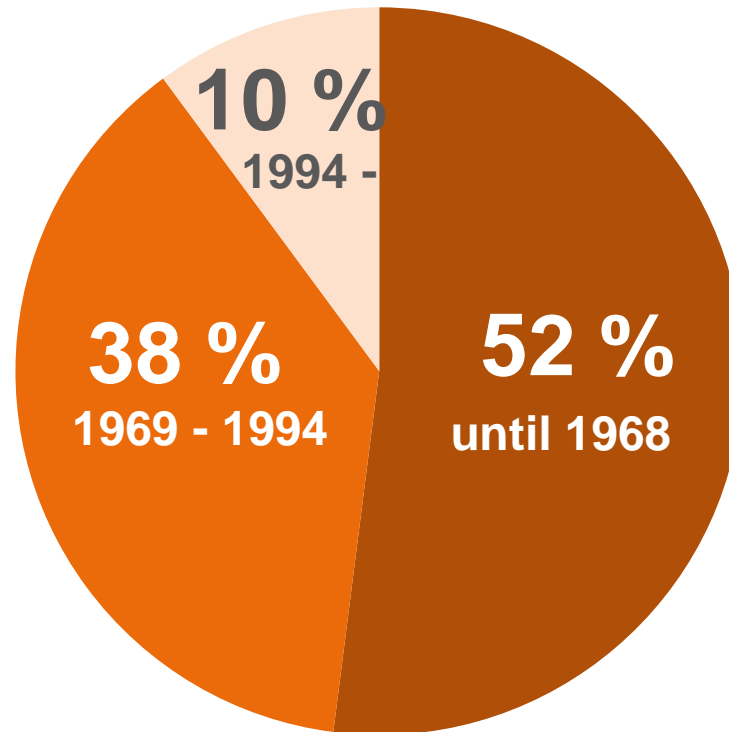
MFB_SM: 3 - 12 FLATS,

MFB_L: >12 FLATS,

SFH: 1, 2 FLATS

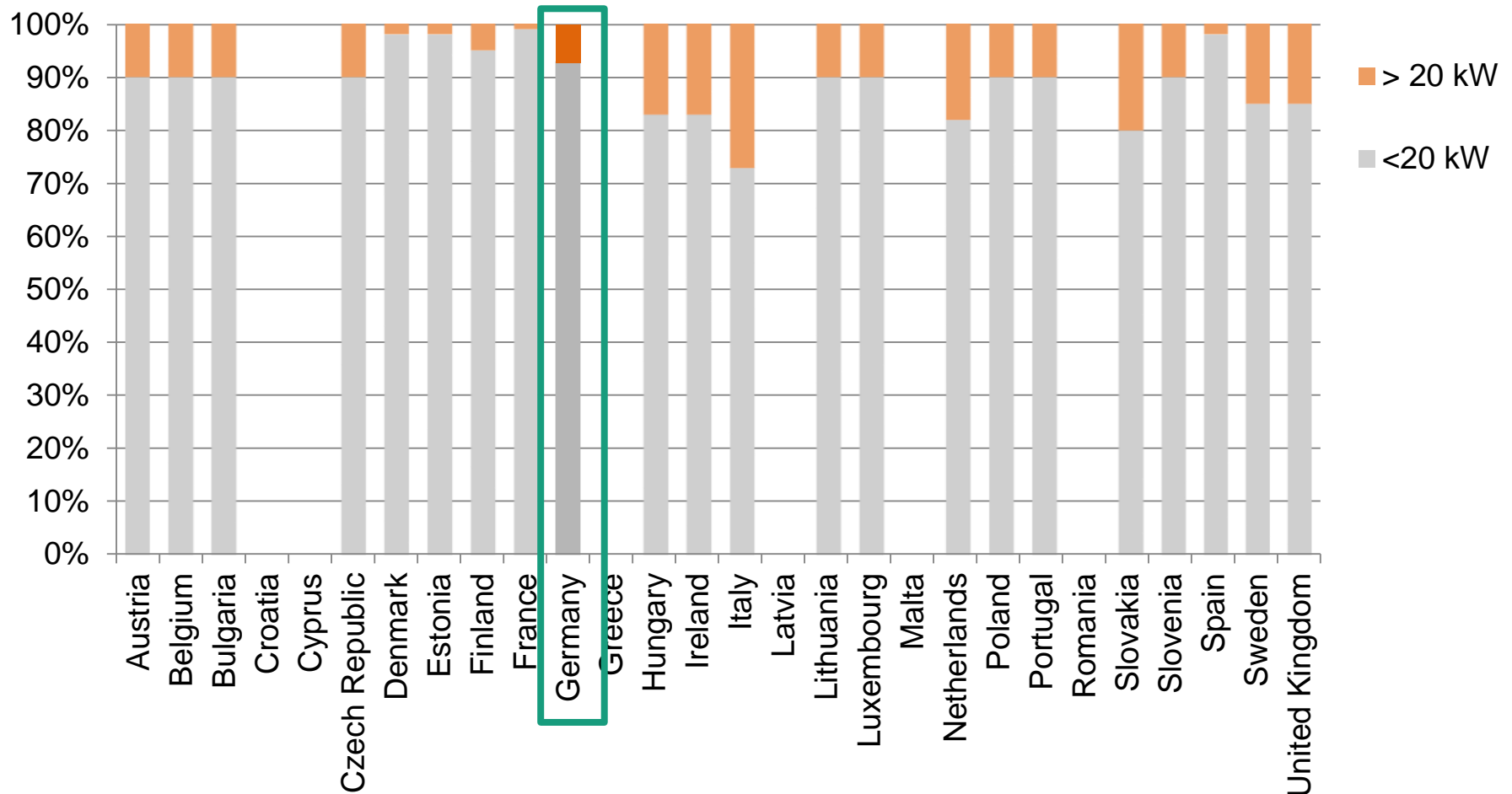
German Housing Stock Characteristics

Age of MFB, percent of buildings




Distribution of Installed Heat Pumps

Ground-Source HP (2012)



Participation in the Annex

Germany  Fraunhofer ISE, (Operating Agent)
Bosch Thermotechnik GmbH,

Austria  AIT – Austrian Institute of Technology
Graz University of Technology

France  EDF – Research & Development,

UK  Glen Dimplex

Switzerland  CSD INGENIEURE AG

Objectives and scope

How to stimulate an increased use of heat pumps in multi-family houses?

Finding the optimal bivalence temperature for bivalent or hybrid systems

Recommendations for the optimal (multi) heat source and operating mode (fuel driven, electric driven, hybrid) solutions depending on building type and ecologic-economic situation and climatic zone

Enhancement of heat pump systems and/or heat pump components for their adaptation in multi-family buildings

Demonstration and monitoring of technical solutions

Development and demonstration of concepts for application of HP in energetically renovated buildings and in buildings without improved building envelope

Close cooperation with companies in all relevant technology areas, as well as with the housing societies

Work program

Task 1

market overview,
barriers for
application, systems
classification

Task 2

modeling and
simulation of
systems,
economic models

Task 5

dissemination and
communication

Annex **50** IEA
MFB HPT

Task 3

technology
development,
evaluation and
systems assessment

Task 4

demonstration and
monitoring

The Annex will pay particular attention to the following technology topics:

Distribution and heat transfer system

using existing systems (often requiring high temperature) vs. installation of a new system (taking into account costs and inconveniences of the installation process for the residents)

Thermal driven heat pumps

smaller heat source (notably geothermal) could be beneficial in cases of restricted space in multi-family buildings

Connection of a heat pump to an existing heating system

both to the existing heat generation and the distribution system

Central vs. decentral domestic hot water production

(connection to the Annex 46)

Example of existing products

Product
Management

Heat pump solutions for multifamily houses

a) Central heating, hot water and heat recovery

- F1345 with capacity range 24 - 540kW (heating) or ASHP with capacity range 30 – 800kW (heating) per master controller for heating
- AS Greenmaster for exhaust ventilation heat recovery



b) Central heating, individual hot water and heat recovery

- Central F1345 with capacity range 24 - 540kW (heating) or ASHP with capacity range 30 – 800kW (heating) per master controller for heating
- Individual Aquabooster for hot water
- Individual ECO 190 for balanced ventilation heat recovery



b) Individual heating, hot water and heat recovery

- Individual F750/F730 for heating, hot water and ventilation heat recovery
- Individual Combi 185 for hot water, limited heating and balanced ventilation heat recovery



 **NIBE**

German project about retrofit of Multi family houses with heat pumps

„LowEx Bestand“ – Housing companies team up with HP manufacturers



Demonstration of new heat pumps

Development of HP for Multi family retrofit

Bosch
Gas heat
pump



Stiebel Eltron
Focus hot
water



Vaillant
Hybrid



Viessmann
Central HP



FIHLS
Ventilation



Thank you!

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