Ground-Reach: Project website & Best Practice Database

Heating and Cooling with Geothermal Heat Pumps
Athens, 24 January 2008

FIZ Karlsruhe

Agenda

A few words …

- About FIZ Karlsruhe
- Role of FIZ in Ground-Reach

Project website

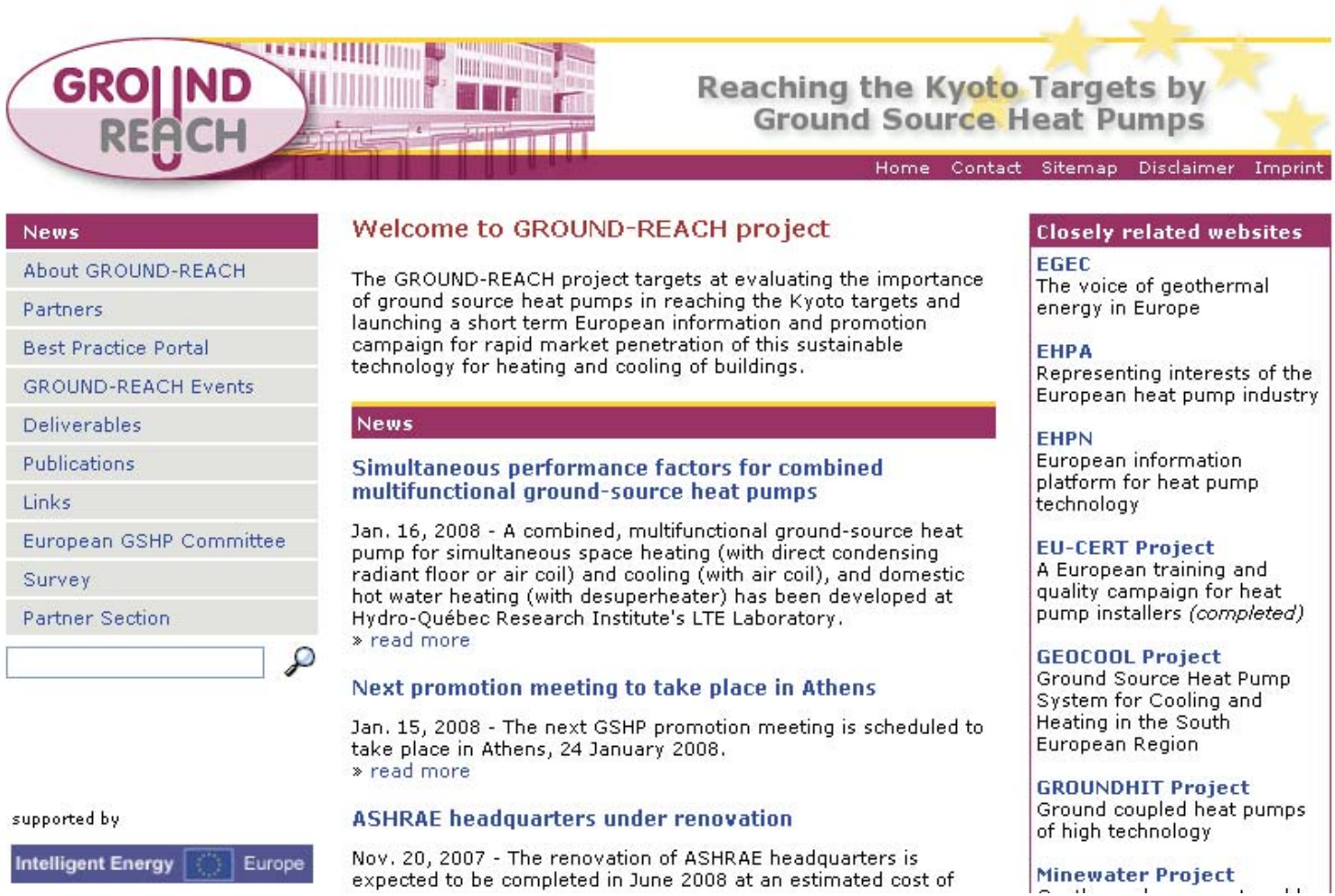
GSHP Best Practice Database

GSHP Benchmarking

Role of FIZ in Ground-Reach

- Development and maintenance of project website
- Development and maintenance of Best Practice Database
- Collecting and analyzing information on GSHP benchmarks
- Dissemination of information on project progress and results

Project website - Screenshot



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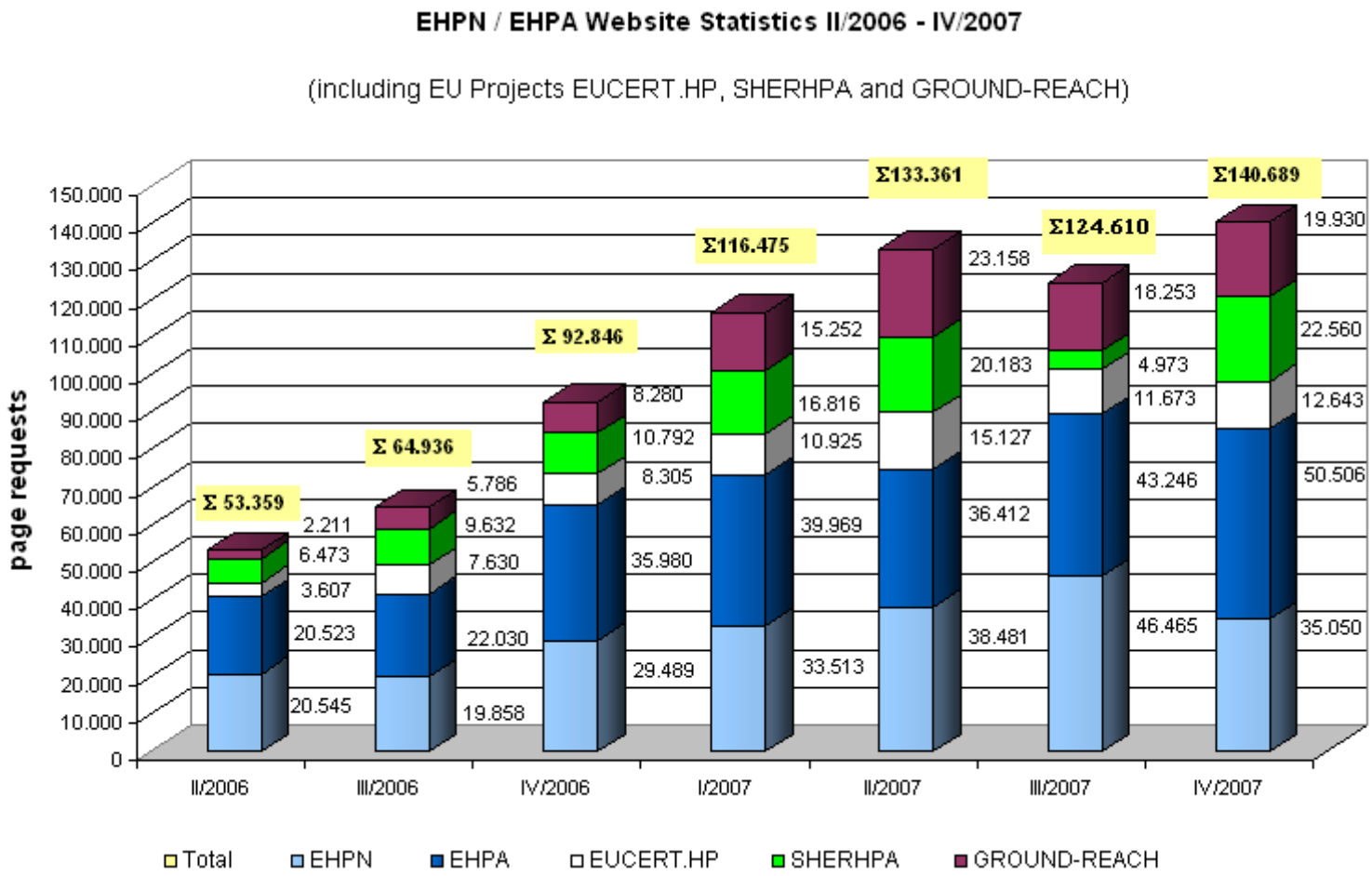
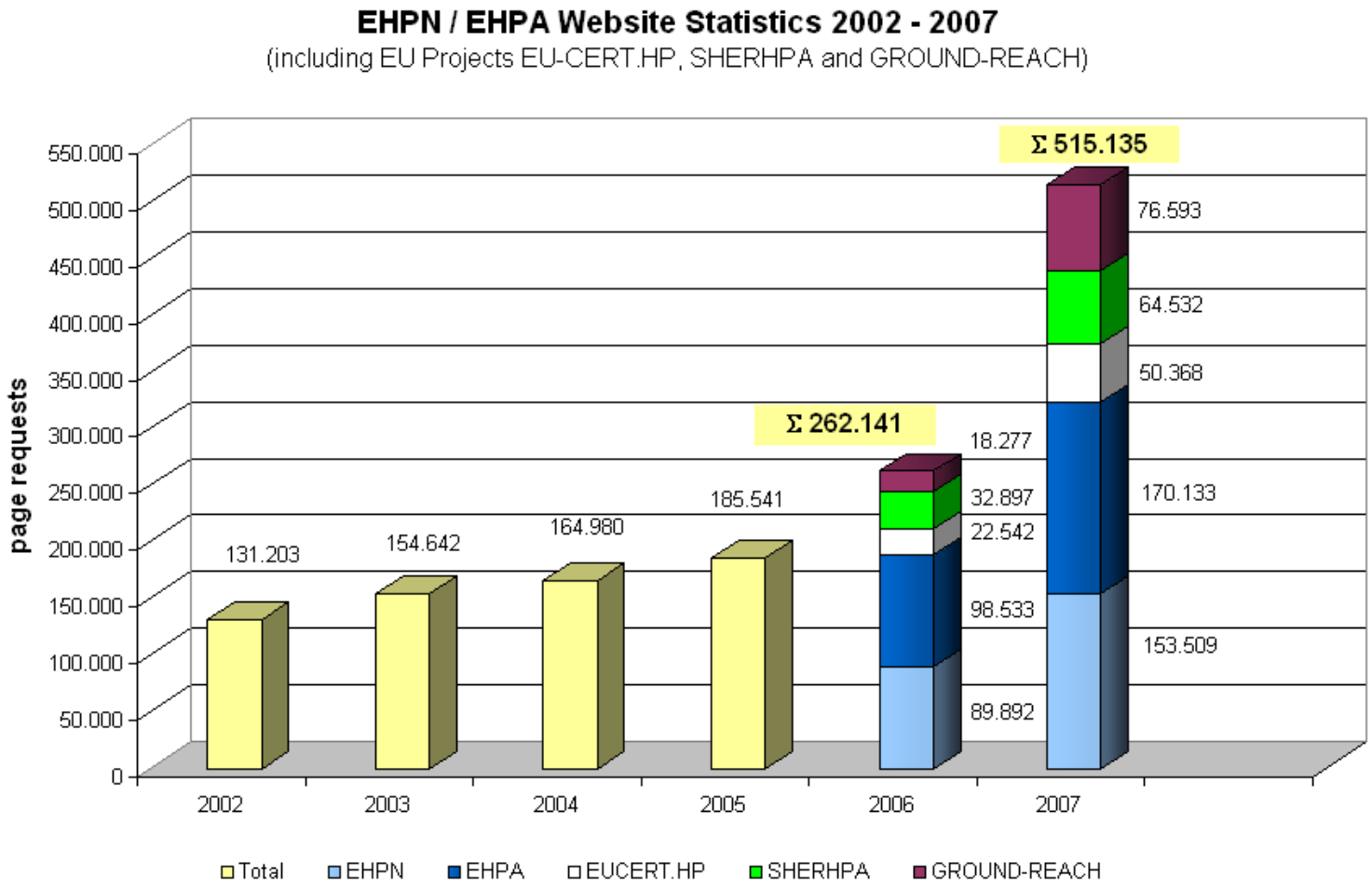
Project website - Webstatistics



Project website - Webstatistics



Project website – Page ranking

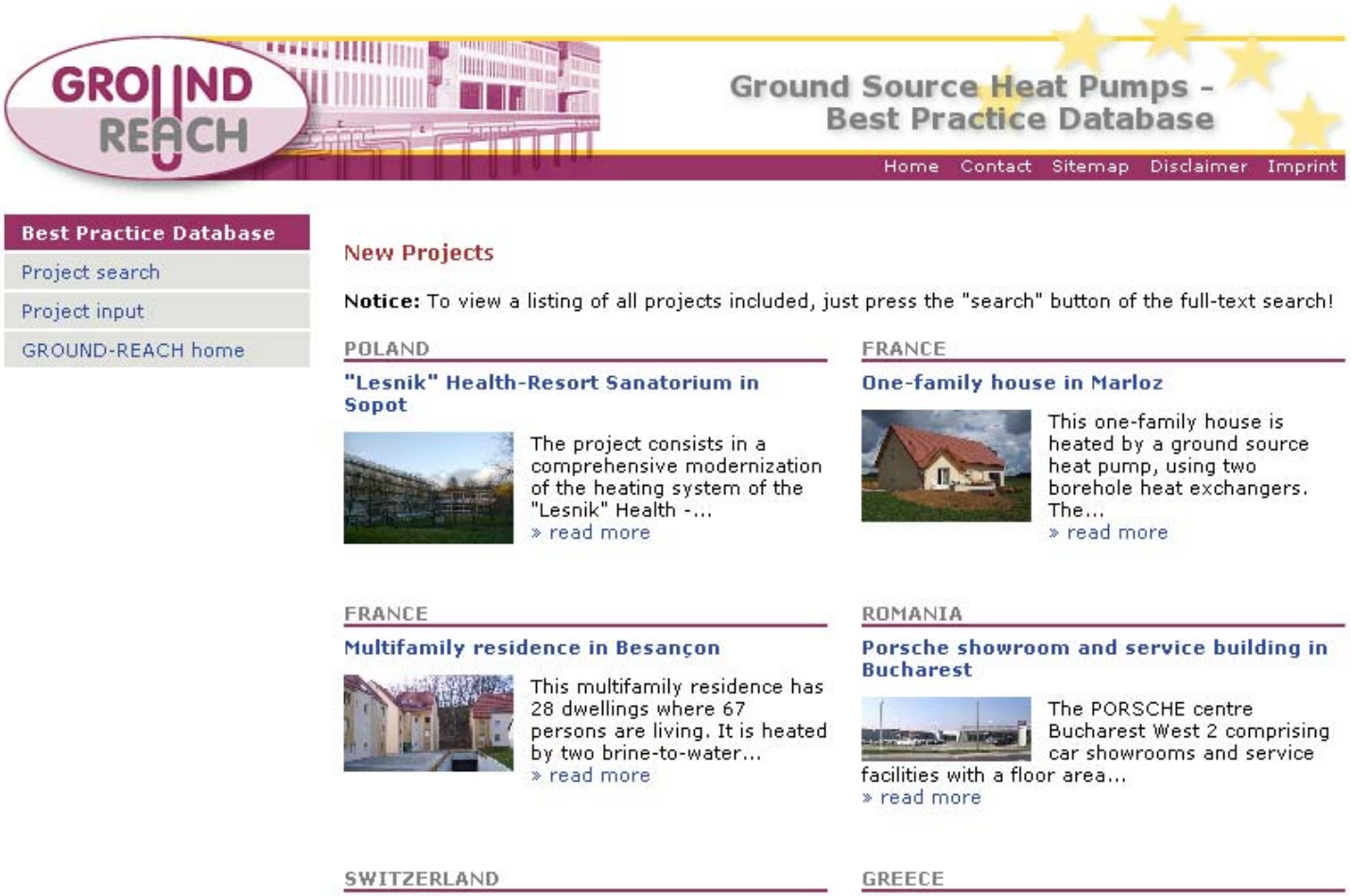
Project website: Page requests (1 April 06 – 16 Jan 08)

News	13.212
Best Practice Portal	3.494
Partners	*2.868*
Publications	2.865
About Ground-Reach	*2.538*
Links	1.679
Ground-Reach events	1.447

Best Practice Portal – Why, Aims

- to demonstrate the essential benefits of GSHP compared to competing conventional systems and thereby encouraging the market penetration in Europe
- to provide reliable information on the high energy efficiency and low CO_2 emissions achived with GSHP in practice
- to show the broad range of possible application areas for this sustainable heating/cooling technology all over Europe
- to form the basis for setting up recommendations for a successful design, installation and operation of GSHP systems

Best Practice Database – Screenshot



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Best Practice Database – Facts & Figures

Status: End of 2007

- 32 case studies from 12 countries
  - Central and Eastern Europe: 22
  - Southern Europe: 10 Scandinavia: 0
- Building type: 10 one-family houses, 7 office buildings, 15 others
- Heat source system: 17 vertical borehole hx, 13 ground water/aquifer
  2 heat pipe, 2 horizontal heat collector
- Measurements:
  - SPF: 21 (2,62 … 5,5)
  - PER: 5 (1,18 … 2,31)
- Expected number of case studies at the end of project: 50

Benchmarking – Why Benchmarks

Benchmarks are needed

- as determining factors for
  - Rules and regulations (measure of quality)
  - Incentive programmes (criterion for granting subsidies)
  - Labelling schemes (rating scale)
  - Standards and technical guidelines (measure of quality)
- for comparing competing heating and cooling systems in terms of
  - Energy efficiency
  - Economic efficiency
  - Environmental impact

Benchmarking – What Benchmarks

- Energy efficiency
  - COP / EER (heat pump device)
  - SPF / SEER (heat pump system)
  - PER (different heating and cooling systems)
- Economic efficiency
  - Payback period
  - CO_2 emission avoiding cost
- Environmental impact
  - TEWI (Total Equivalent Warming Impact)
  - CO_2 emissions per year

Benchmarking – Examples Europe

Examples for heat pump benchmarks on European level:

- EN 15450 (Directive on the energy performance of buildings)

  SPF: Minimum and target values for new and existing buildings

- EHPA Guidelines

  SPF: Default values for new and existing buildings

- EU Eco Label

  COP + PER: Minimum values for new and existing buildings

- DACH Quality Label

  COP: Minimum values for the heat pump device

- EU Energy Label

  Under preparation

Benchmarking – First results

Preliminary results from the Best Practice database:

- Only 21 of 32 case studies provide measured SPF values
- Range of SPF values: 2,62 … 5,5
- Clear information on system boundaries are mostly not provided
- Solid basis for a detailed analysis and elaborated recommendations not yet available
- **Strong need for more case studies of good quality !!!**

Intelligent Energy Europe

GROUND REACH

Thank you for your attention !

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