

Accelerating the UK GSHP industry...

(to meet dramatic challenges ahead ?)

Robin Curtis



Or: Are we ready to meet the wave coming wave ?



The Global Development of Geothermal Energy

GeoDrilling 2005
Castle Donnington
18 May 2005





Figure 1: Comparison of worldwide energy use in TJ/yr for 1995, 2000 and 2005.

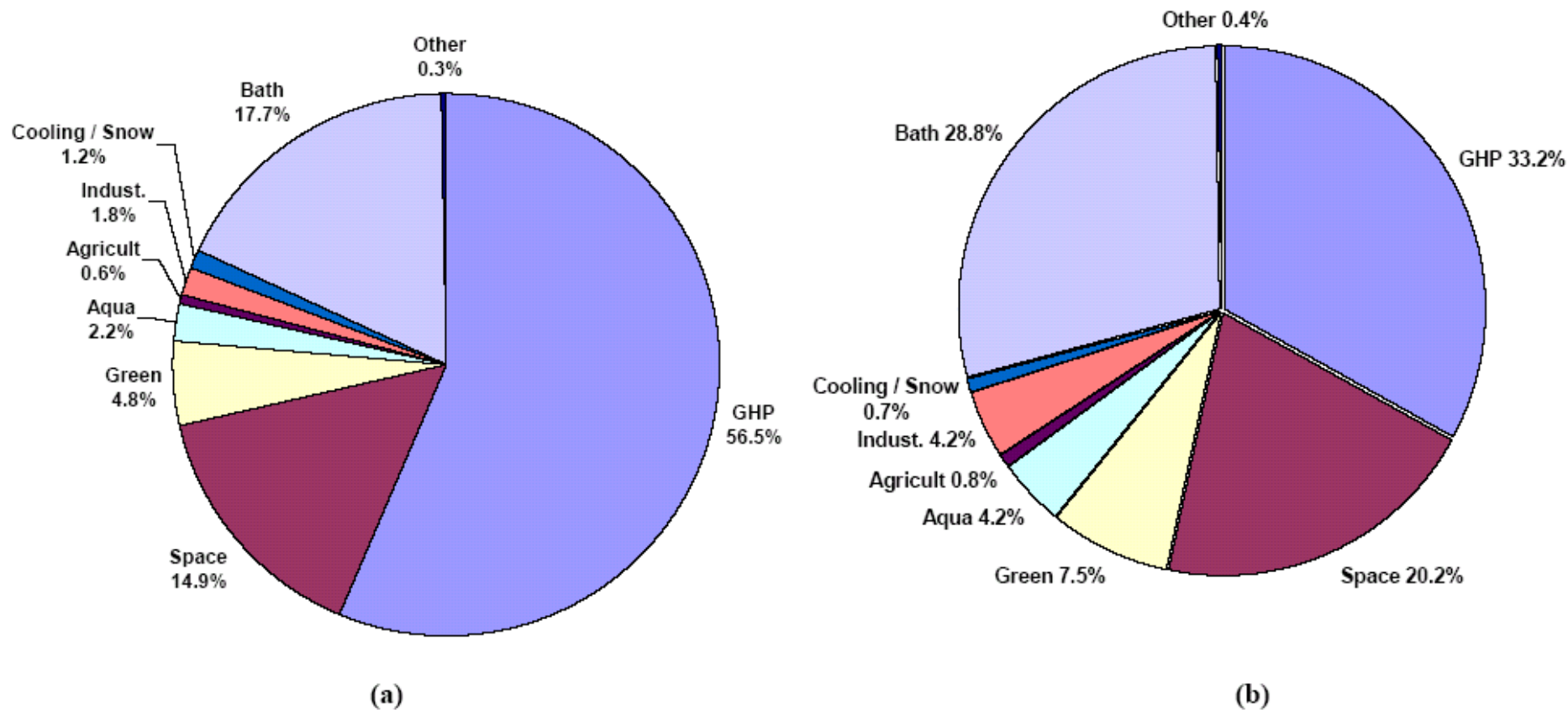
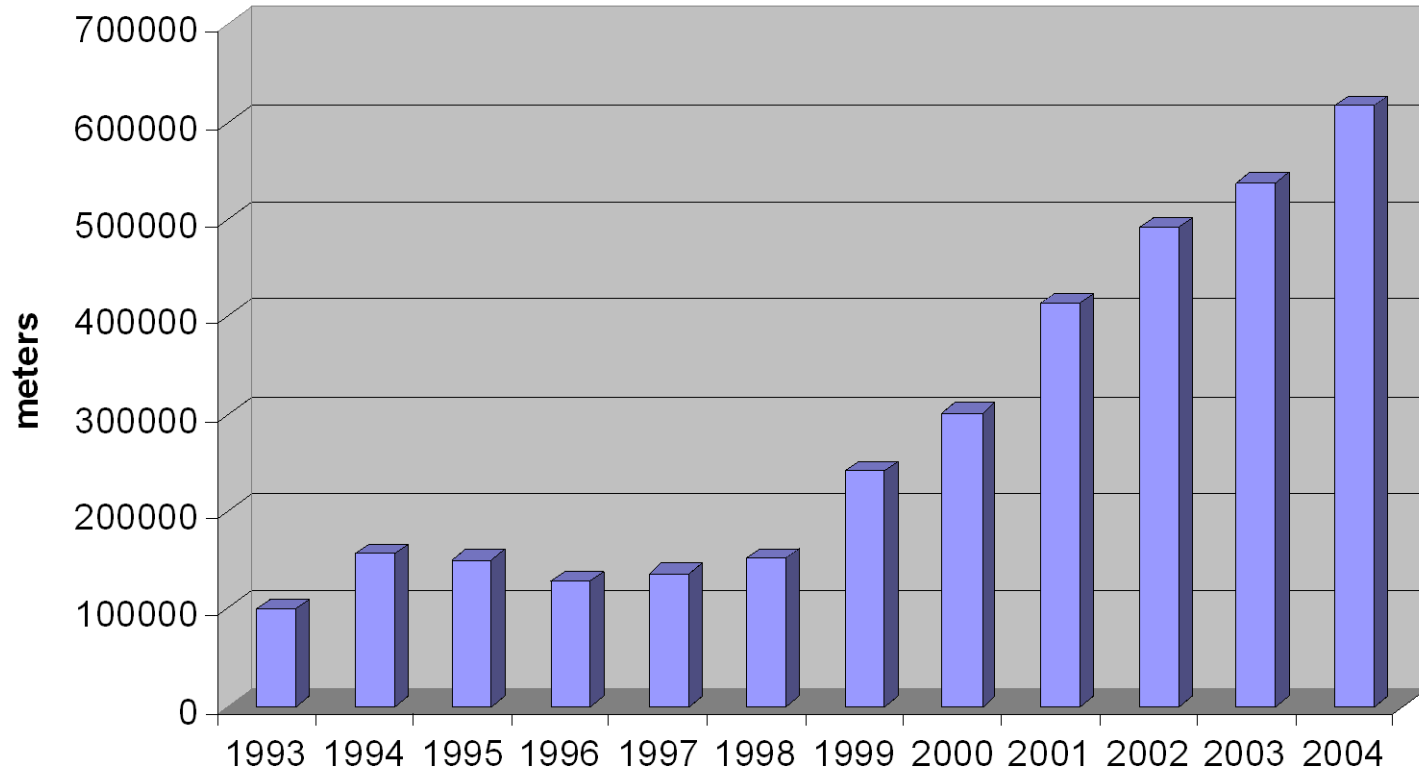


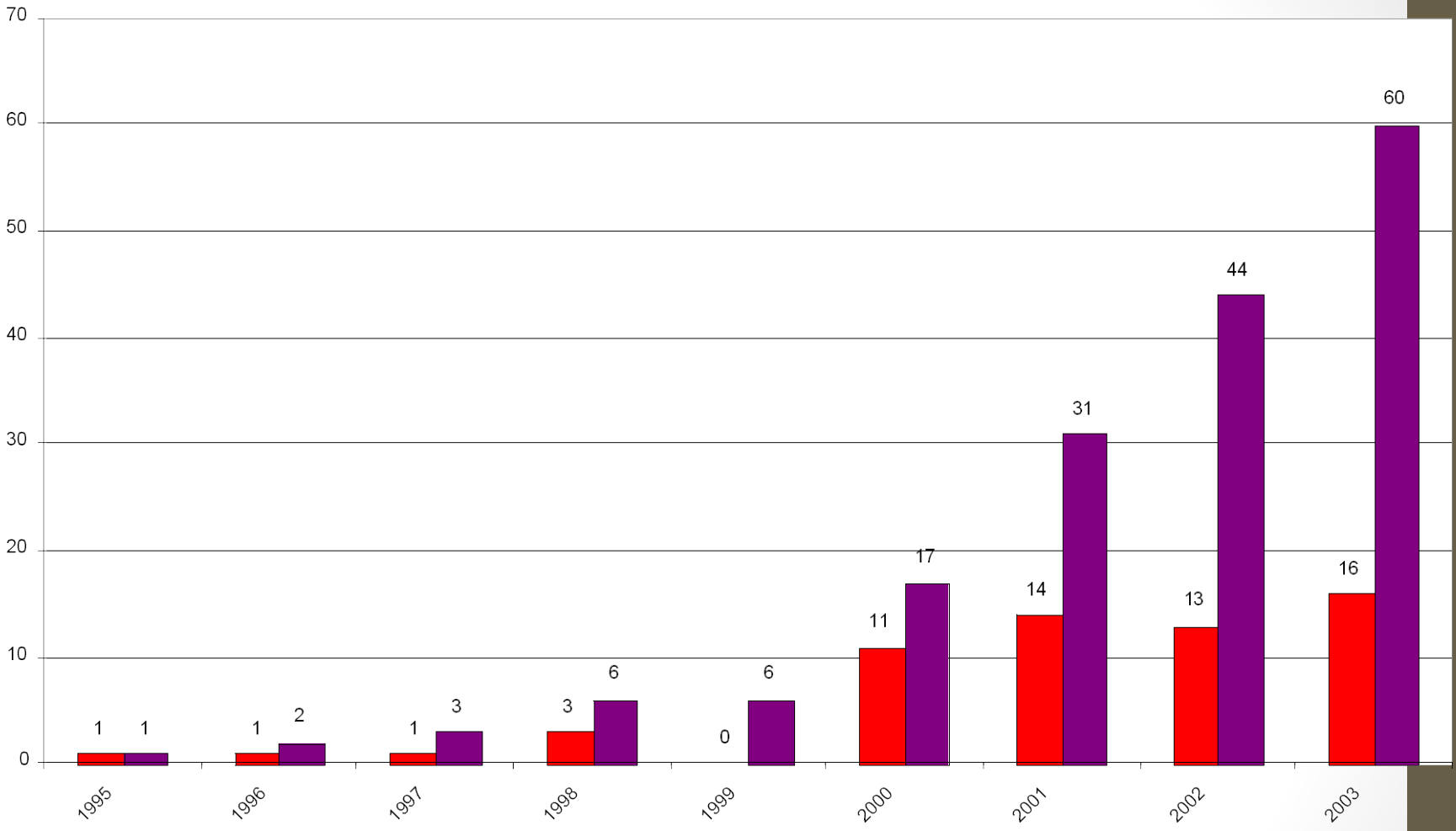
Figure 2. Categories of capacity in % for 2005 (a); and energy use in % (b), 2005.

Drilling meters for BHE in Switzerland



Development of BHE drilling 1993 - 2004

■ new installations ■ cumulative









CONCLUSIONS

- Established, robust, technology
- Offers high energy efficiency
- Can offer low CO₂ emissions
- Available today (technically)
- Now on a roll in the UK . . .

Moving on....

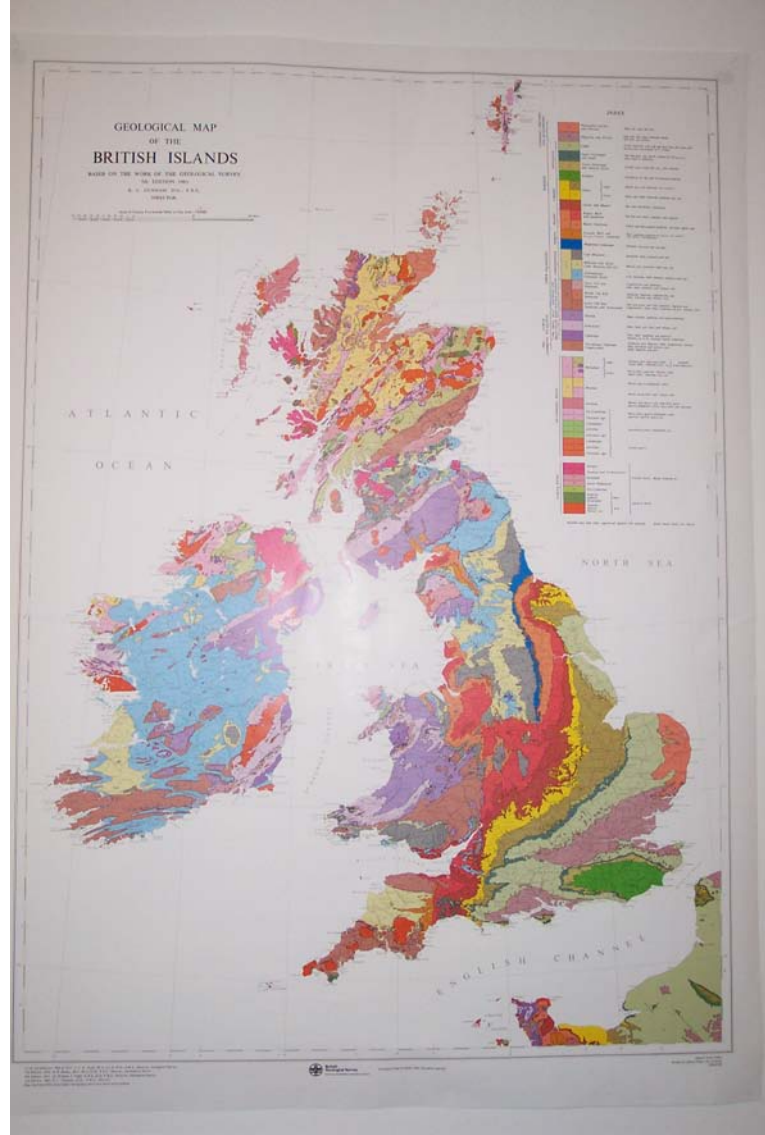
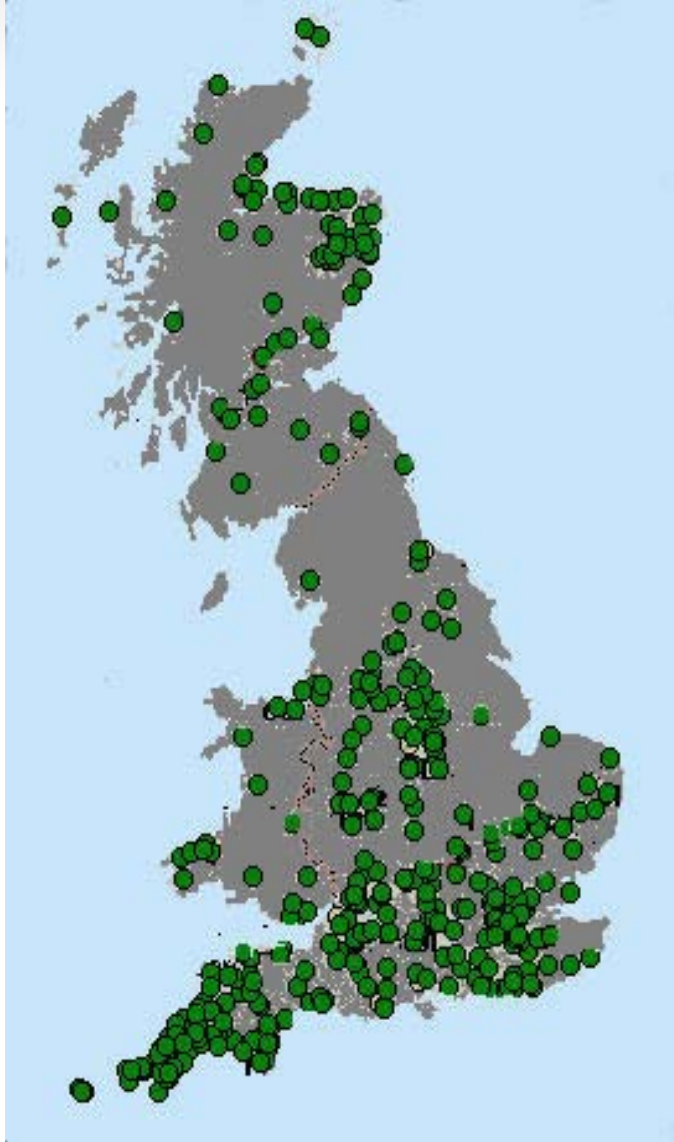
Clear Skies

LCBP.....











IKEA

Location	Peterborough
Installed	2003
Peak Capacity	250kW
MWh / per annum	400 heating
Ground loop type	Boreholes
Ground loop details	45nr @ 70m
Heat Pump	EET
Estimated cost today	£160k
Main Contractor	Shepherd Construction



Costco

Location	Croydon
Installed	2008
Peak Capacity	272 kW heating 280 kW cooling
MWh / per annum	883
Ground loop type	Boreholes
Ground loop details	80nr @ 90m
Heat Pump	Ciat LG1000Z
Estimated cost today	£536k
Client	Costco UK





Growth ?

1995 – 2008 > 3 orders of magnitude

1, 10, 100, 1000

On the way to 10,000 per annum.....

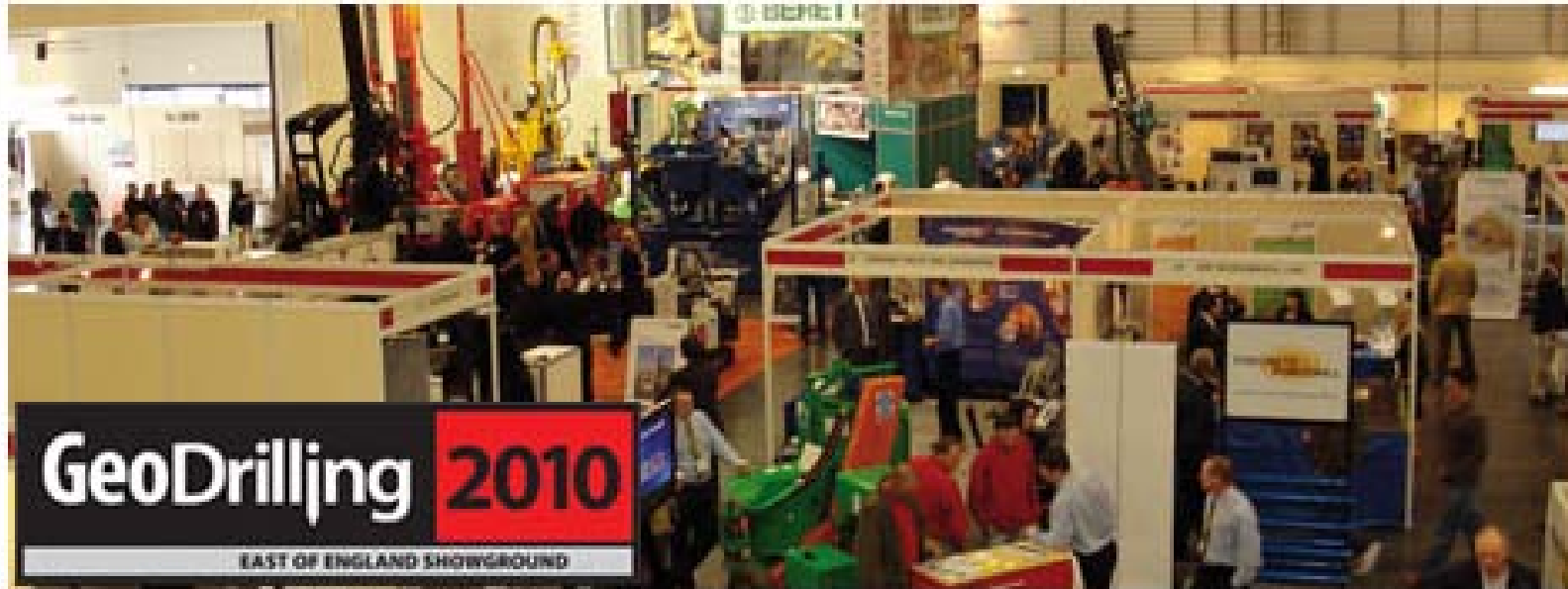




GeoDrilling International > Drill Pads > Wraps come off GeoDrilling 2010

Wraps come off GeoDrilling 2010

Drill Pads



Publishing Date 17 Jun 2009 4:29pm GMT

Issue/Supplement GDI June 2009

Author GeoDrilling International

What happened ?

Recession >>>>

Construction

Public sector

End of LCBP

FIT arrived

RHI delayed.....

expanding GSHP industry contracts.....



Where are we now ?

Reality vs Perception



Drivers ?



Atmospheric CO₂

See CO₂. Know CO₂. Show CO₂

May 2011 ↑ 394.35

May 2010 ↑ 393.22

May 2009 ↑ 390.18



Mauna Loa Observatory: Scripps
Data posted June 1, 2011

▶ CO2Now.org

IEA last week

(350 ppm ?)

The Oil Crunch

A wake-up call for the UK economy

Second report of the UK Industry Taskforce on Peak Oil & Energy Security (ITPOES)

February 2010



Security of supply ?

Price ?

See Ofgem's recent report as well

UK trade balance in energy products

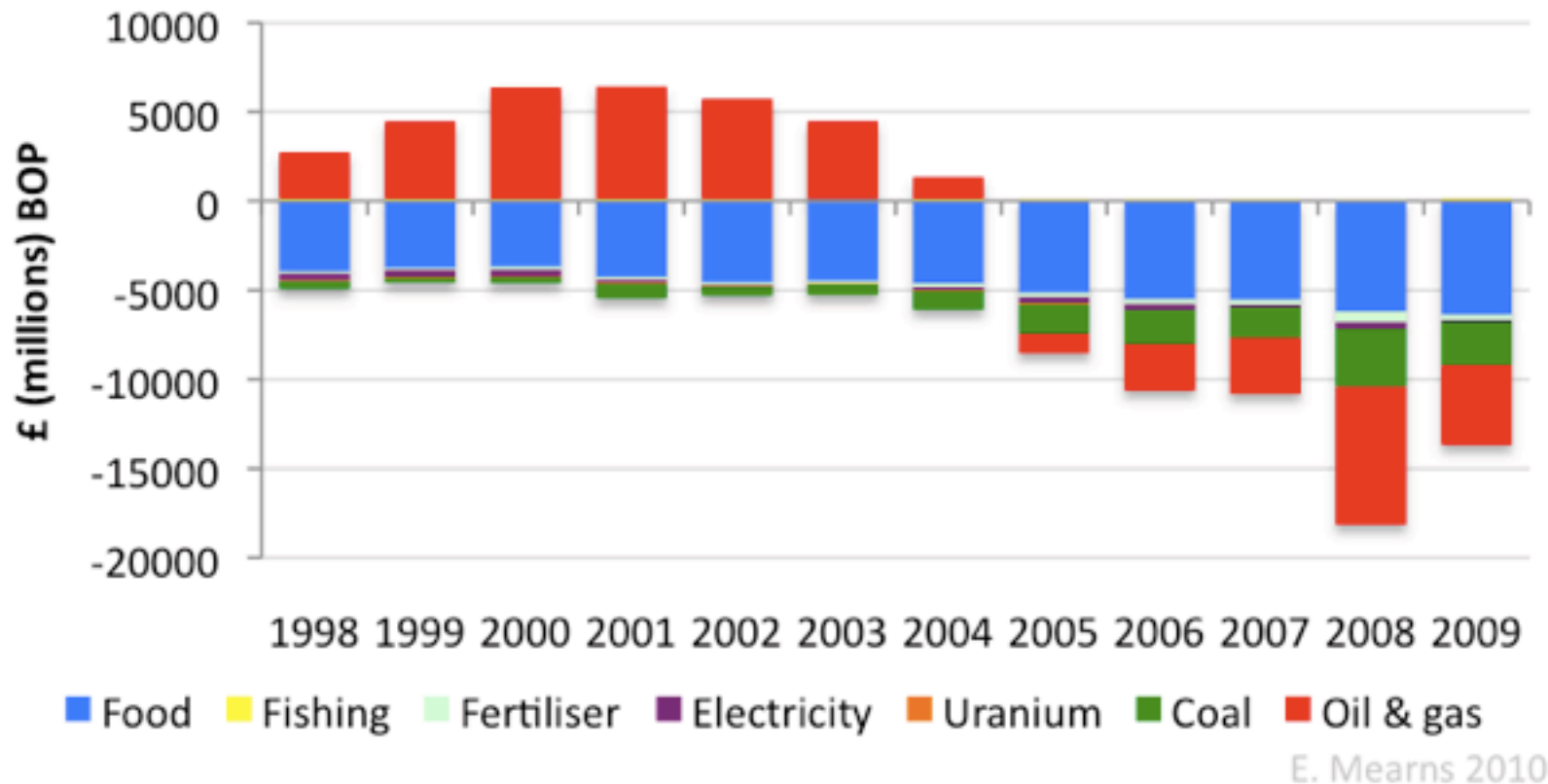


Figure 1 Data compiled from tables published by the UK **Office for National Statistics**.

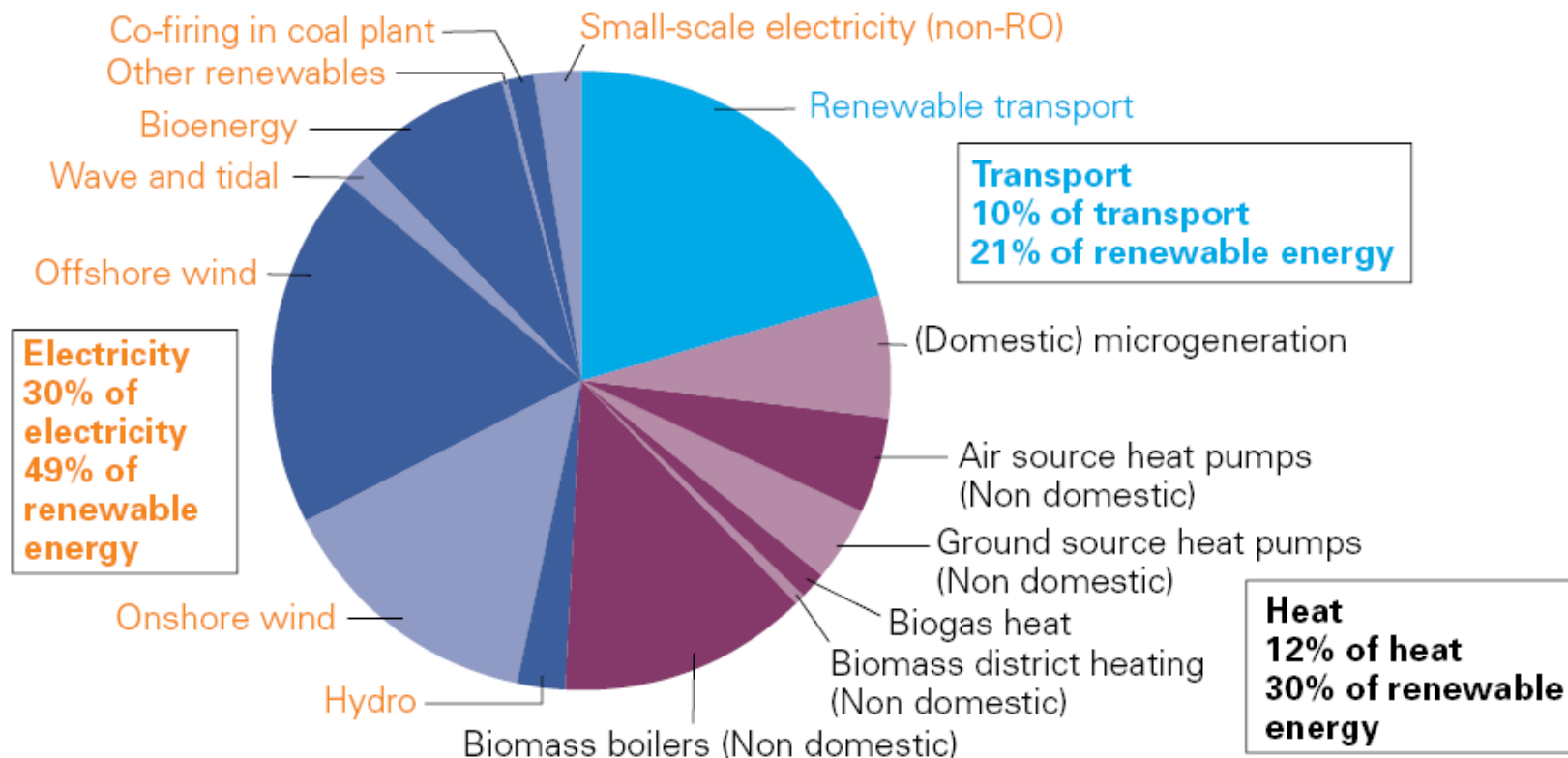
UK Drivers ?

20/20/20

(well 15/20/20)



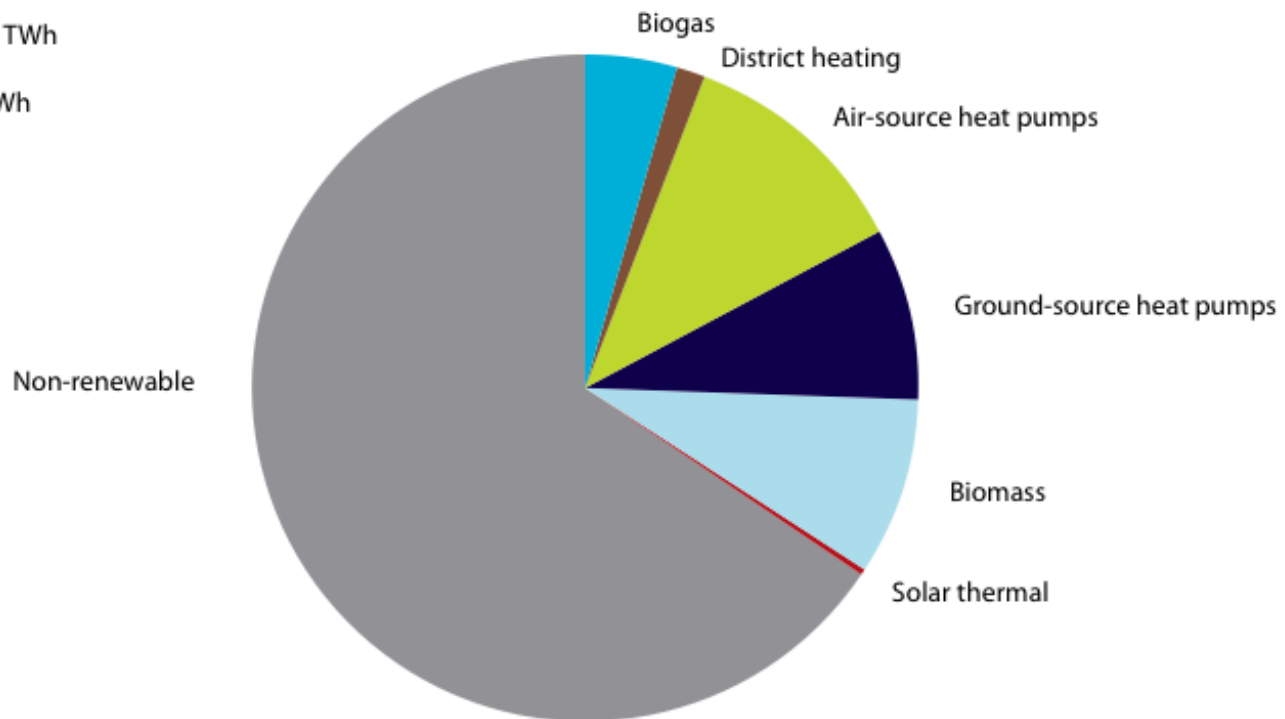
Illustrative mix of technologies in lead scenario, 2020 (TWh)



Source: DECC analysis based on Redpoint/Trilemma (2009), Element/Pöyry (2009) and Nera (2009) and DfT internal analysis

Figure B4: Fourth budget Medium abatement scenario: heat technologies (2030)

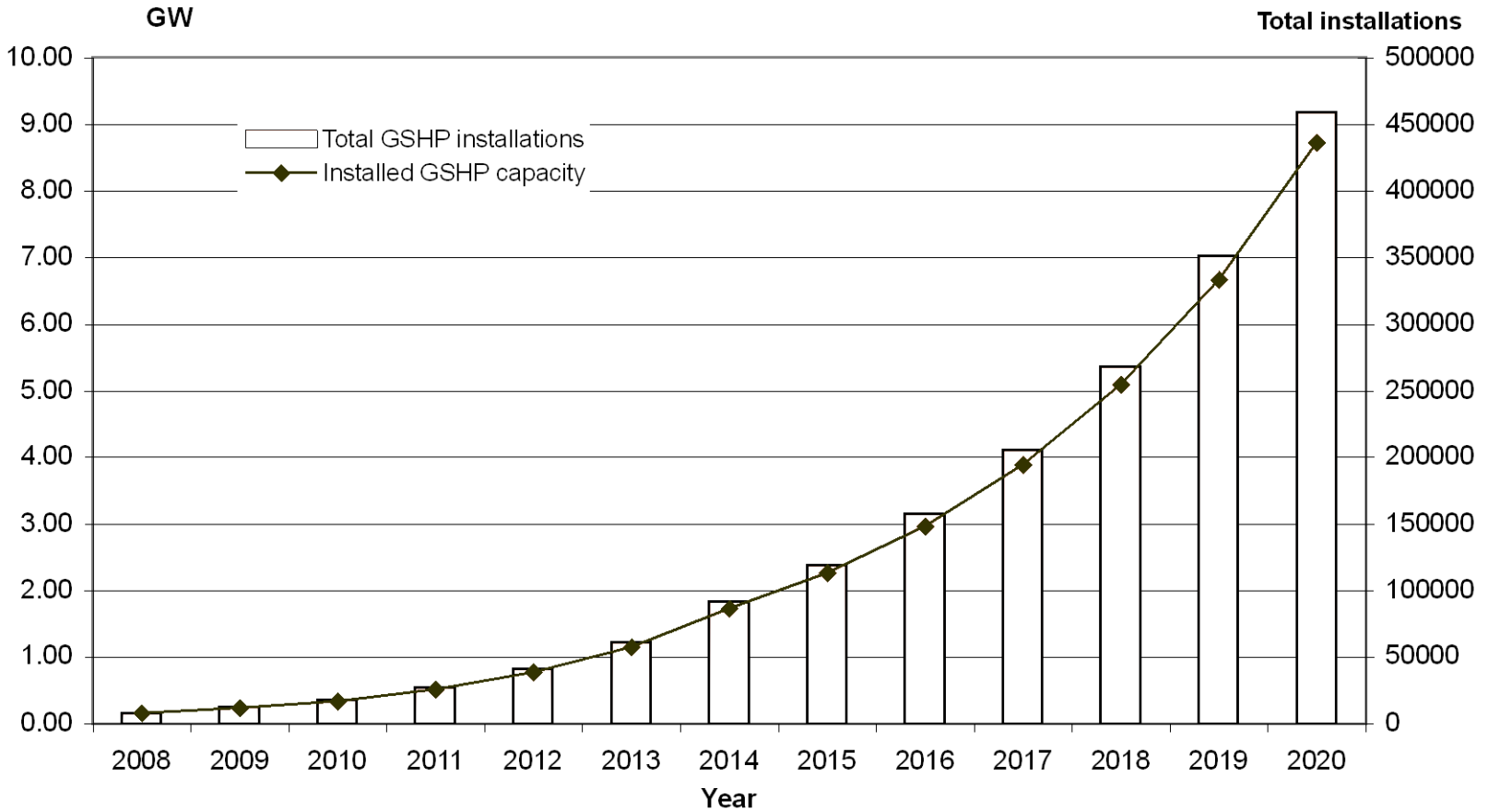
Total heat demand = 605 TWh
Renewables = 210 TWh
Non-renewables = 395 TWh



Source: CCC modelling.

Note(s): Figure includes all heat demand from buildings and industry.

Electric GSHPs from 2008 to 2020



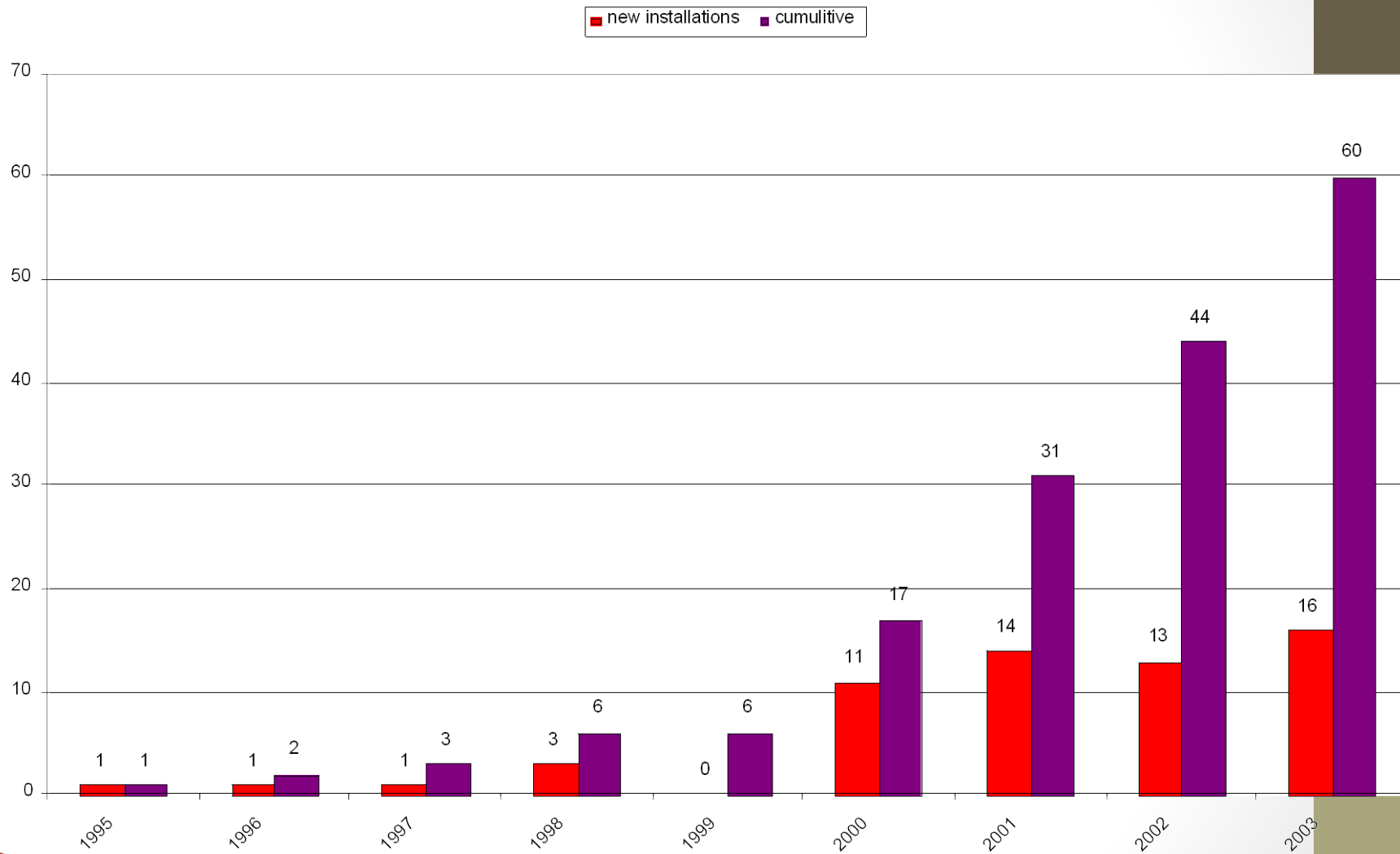
> RHI

>>> RES required SPF's

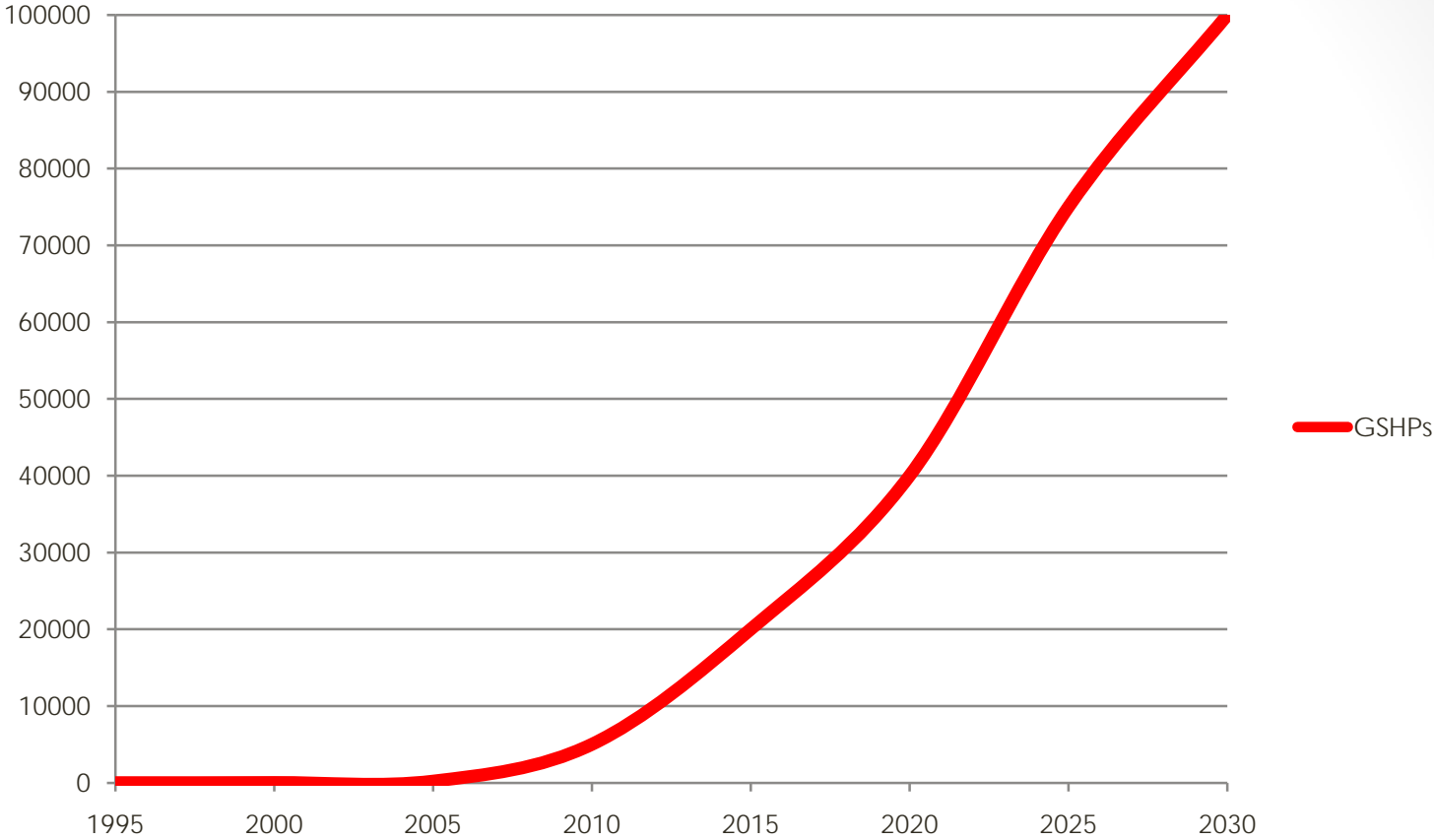


Potential

- Currently
 - 1,564,000 gas boilers
 - 780,000 oil boilers
 - 4,000 GSHP
- 200,000 GSHP per annum by 2020?
 - 1,000 drill rigs
 - 5,000 jobs
- First 4 years,
 - 160,000 GSHP
 - £350million RHI



GSHPs/yr



Preparations.....



UK Standards ?



BRITISH STANDARD

BS EN
15450:2007

Heating systems in buildings — Design of heat pump heating systems



HVCA

*Guide to
Good Practice*

**Heating and
Ventilating
Contractors'
Association**

Heat Pumps



TR/30



ons
Publicat
©HVCA
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19/05/2008,
PLYMOUTH CITY COUNCIL,
Plymouthcc,
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Ground source heating and cooling pumps –
state of play and future trends

Appendix Q for Heat Pumps

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Getting warmer: a field trial of heat pumps

The Energy Saving Trust

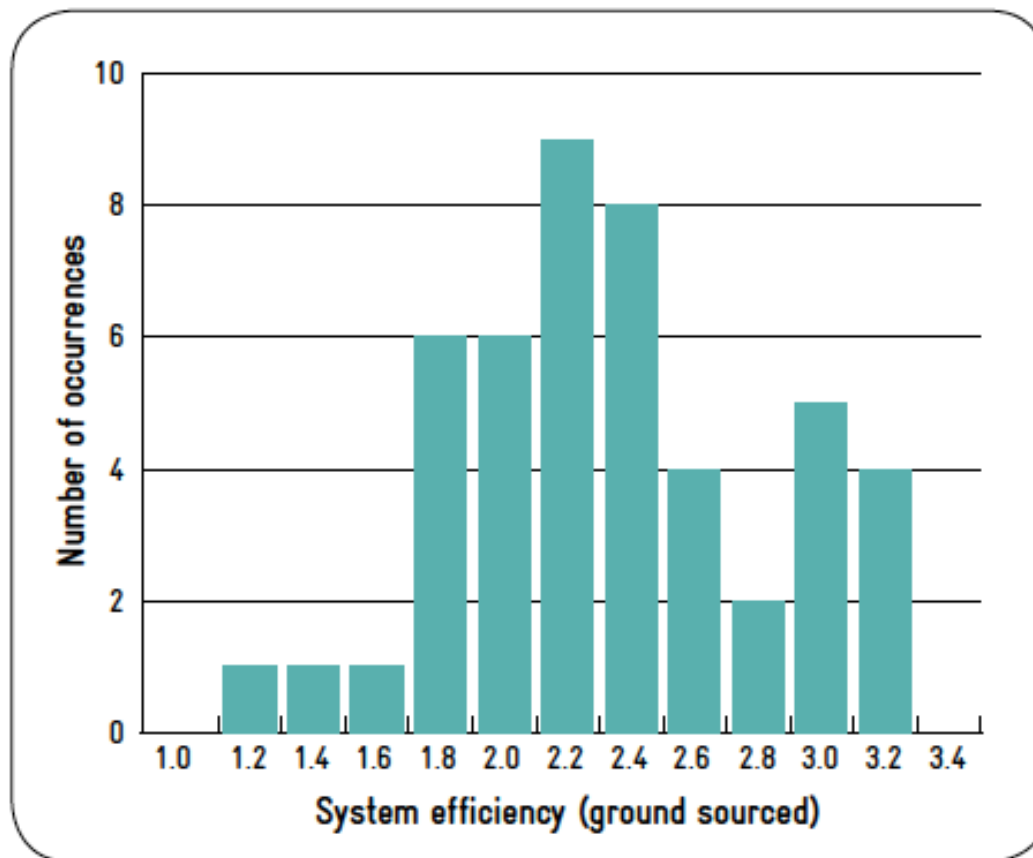


energy saving trust®

Pause ...for thought...

(...is it a retrofit ?)

The key findings from the field trial



Distribution of measured system efficiencies (GSHP)

>>>

DECC Working party to
revise MCS requirements



Microgeneration Installation Standard



MIS 3005: ISSUE 1.2, 25/02/08

REQUIREMENTS FOR CONTRACTORS UNDERTAKING THE SUPPLY, DESIGN, INSTALLATION, SET TO WORK COMMISSIONING AND HANDOVER OF MICROGENERATION HEAT PUMP SYSTEMS

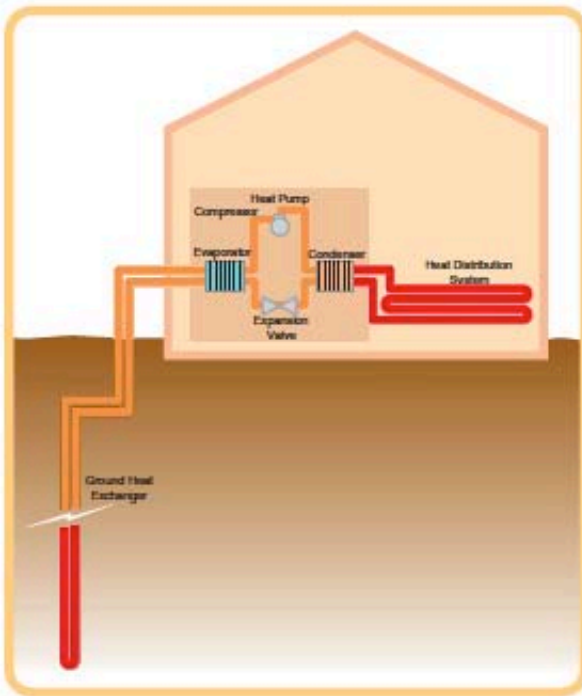
This standard specifies the requirements of the Department for Business Enterprise and Regulatory Reform (BERR) Microgeneration Certification Scheme for Contractors undertaking the supply, design, installation, set to work, commissioning and handover of microgeneration heat pump systems.





Energy Efficiency Best Practice in Housing

Domestic Ground Source Heat Pumps: Design and installation of closed-loop systems



CE82

(was GPG 339)

A Guide, for specifiers and their advisors as well as potential users, on:

- Types of systems
- How to achieve an integrated system design
- How to maximise efficiency
- Capital and running costs
- Do's and Don'ts



Outcome of 2nd year of EST
monitoring.....

+ some better understanding ?



Sector Skills Project for "Geothermal Drilling"

CIBSE guide to GSHP
design



Geothermal

“Supplies/Suppliers”

All the bits n pieces



Whadda we want

??



For accelerated growth:

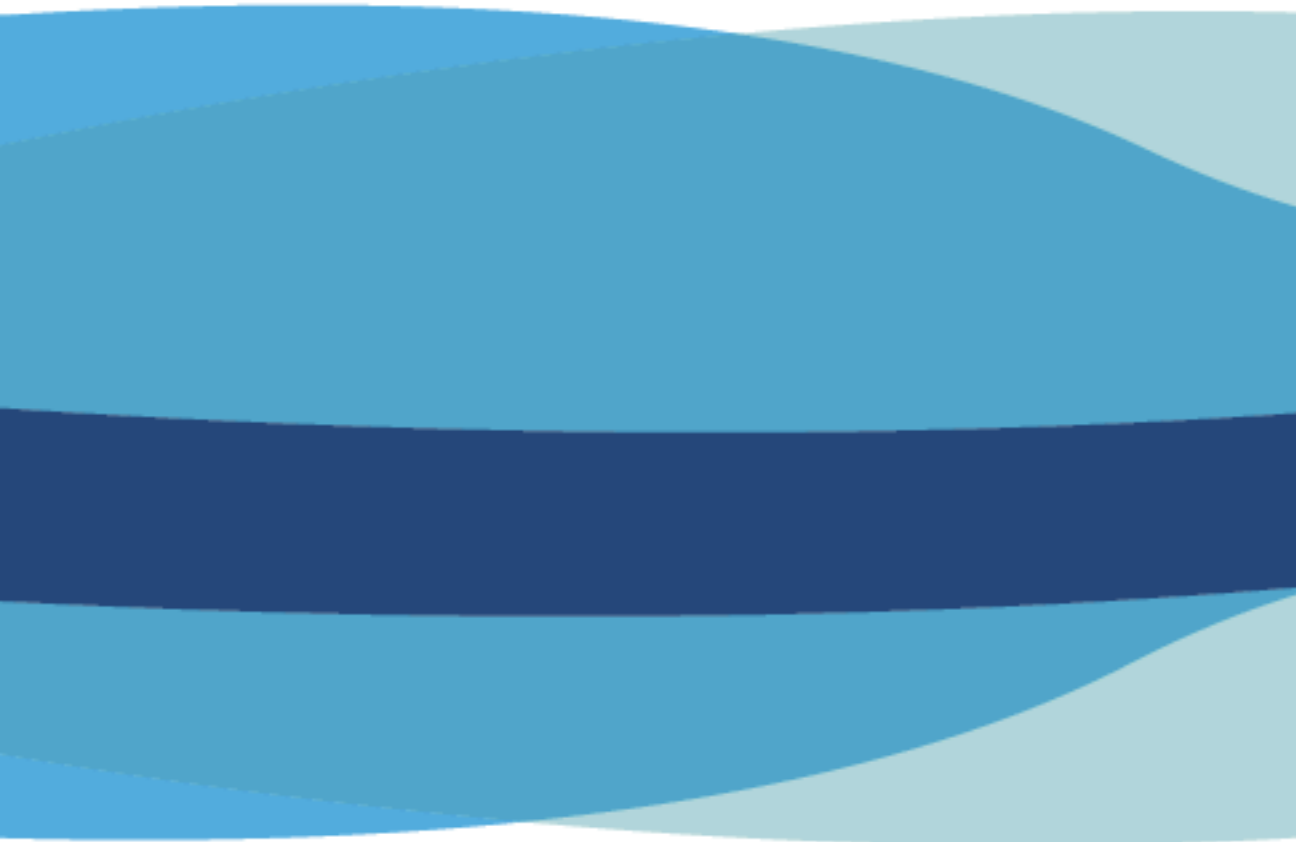
Fiscal engineering –

Natural or induced.....



Renewable Heat Incentive

Consultation on the proposed RHI financial support scheme



February 2010

Building 
Britain's Future

ACT ON
C**2**

Anyone seen the RHI ?



+Green Deal.....

and the Golden Rule



Newbuild.....

ALL suitable new build ?





Newbuild.....

Non-domestic

Part L – will bite + post completion monitoring

Local planning – uniformity

Unintended consequences of Merton rule

CRC ?

RHI - metering



Retrofits ?



Evolution of HeatPlant -.....to retrofit ?





DON'T MISS YOUR CHANCE TO BOOK AT THE EARLY BIRD DISCOUNT RATE - ONLY A FEW DAYS LEFT

One building a minute -

The great refurbishment challenge

CIBSE National Conference - 7th April 2011

Grand Connaught Rooms, Covent Garden, London

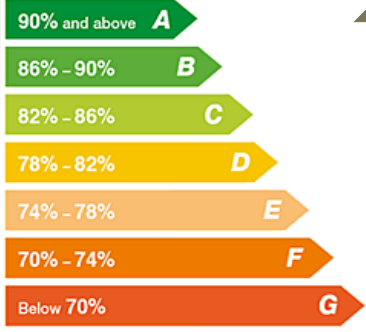
The opportunities for 2011 look set to be in refurbishment rather than new build. Building services companies must make sure their current offering optimises their chances of winning profitable work in this highly competitive area.

This conference is designed to help you win work, can you afford to miss it?

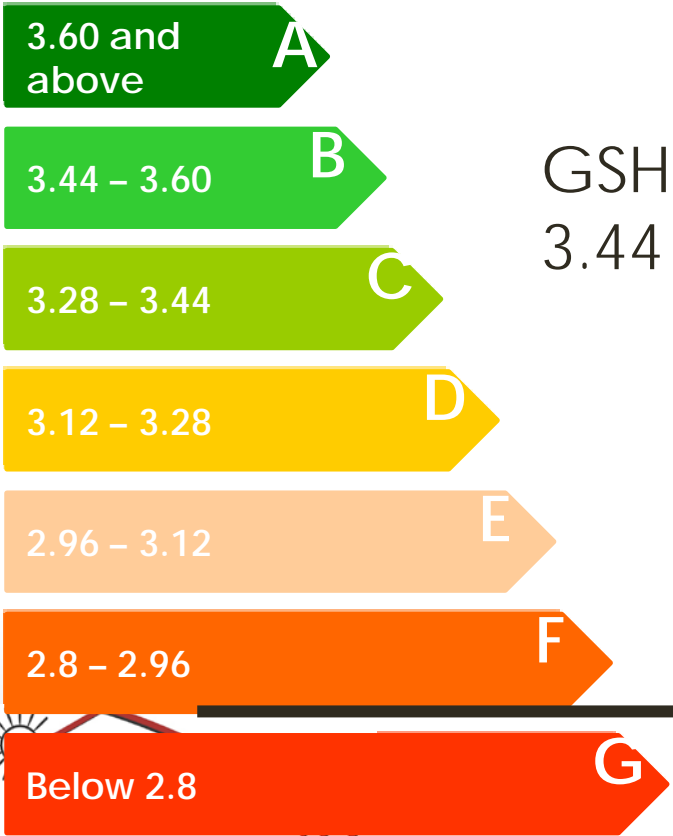
Topics include:



SEDBUK

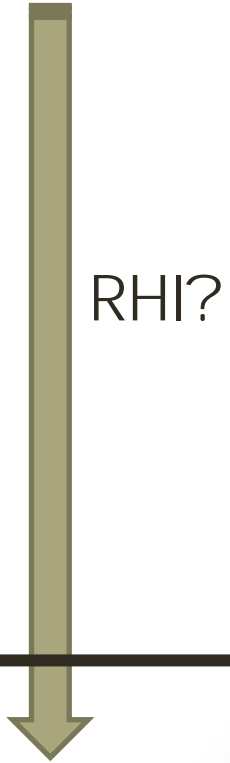


Boiler
Scrappage
Scheme



GSHP mean =
3.44

ASHP mean =
2.7



RES Directive
Threshold

Criticality....

“street-by-street”

(domestic)



Big House Project ?

....still hasn't
happened.....

(even the pilot.....)



Utilities ?

- Eon
- BG
- Npower
- S&S

Electricity supply

Peaking capacity > sizing requirement

Thermal storage

Remote control > DSM

Consistency of requirements:

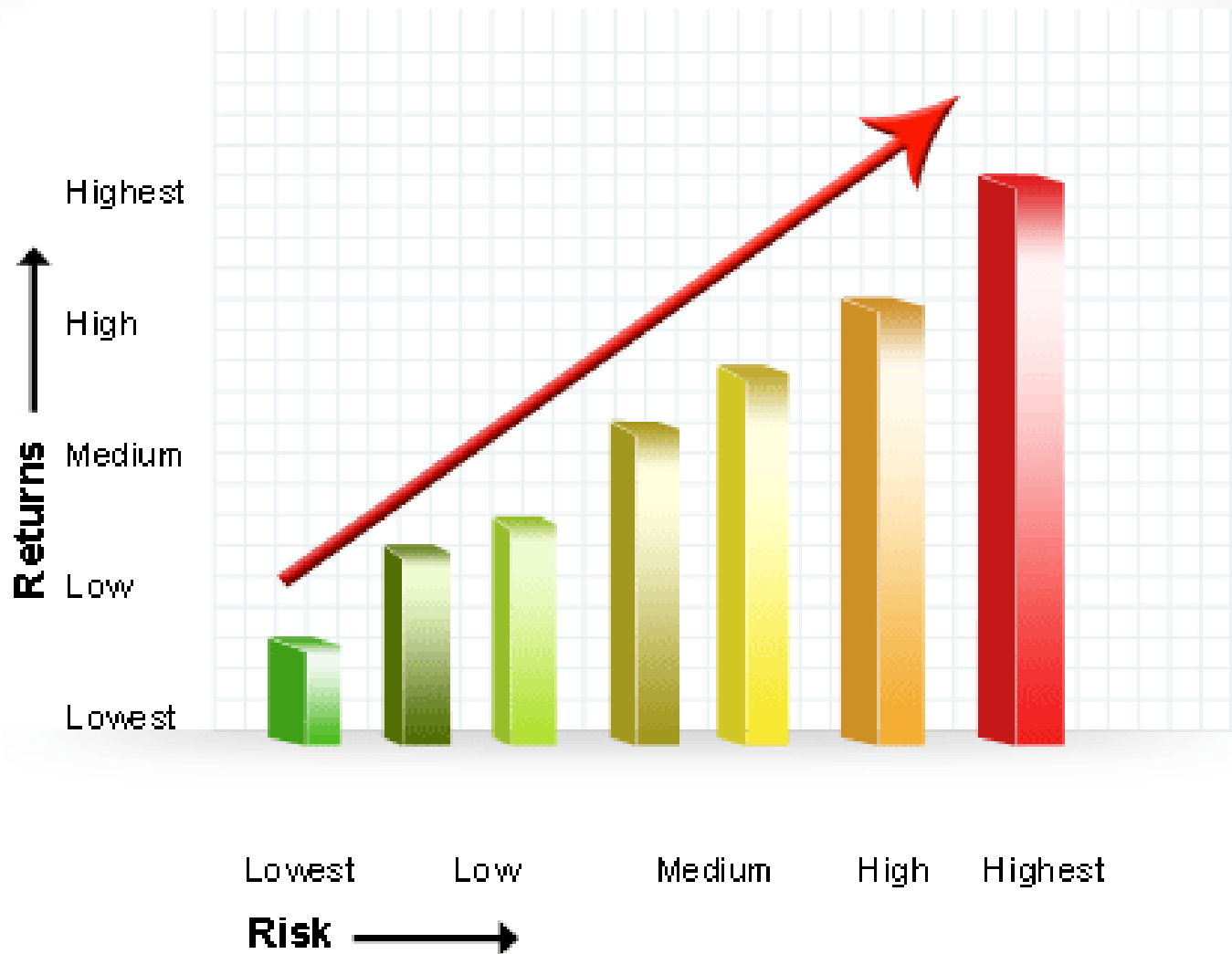
Starts per hour

Power Factor

Peak current draw / soft start







- Bond Fund
- Secure Fund
- Protector Fund
- Balanced Fund
- Growth Fund
- Enhancer Fund
- Index Fund

Investment for growth

“running at a loss”

confident ?? – FIT ?



