- A Perfect Partnership –
  Case Study of Berneslai Homes & Mitsubishi Working Together.

- By John Lees & Stewart Thompson

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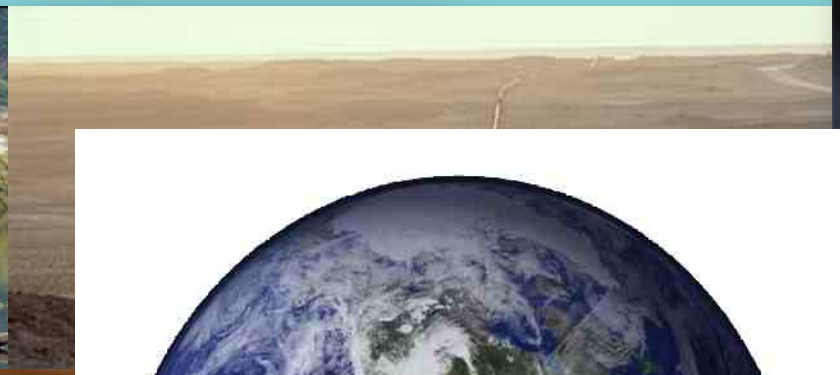
The world *is* changing



Where do we import our energy from?

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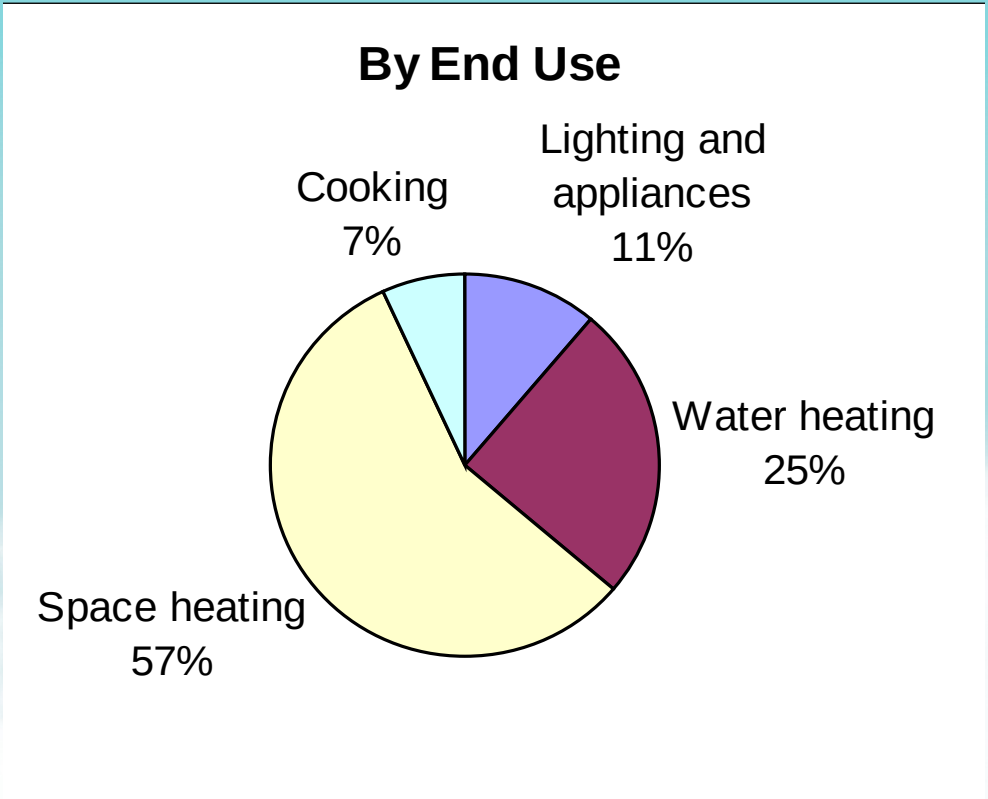
Improving Building Efficiency

Over 80% of energy use in buildings is used for space and water heating



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Any alternative mass market heating system must also be…

- As easy to use as traditional systems
- As reliable as traditional systems
- Predictable in performance & savings
- Acceptable to home owners
- Scalable

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- **So what are the alternatives?**

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Biomass

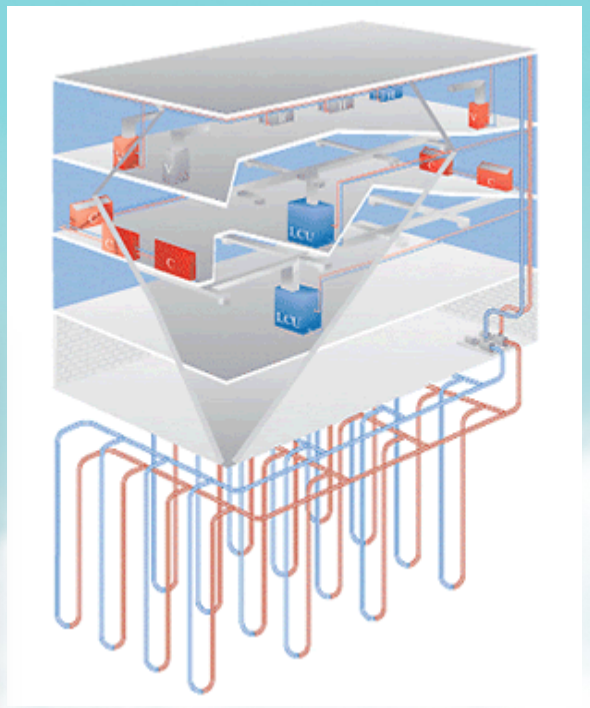
- Commercial energy crops
- Pellets from fast growing trees
- Not scalable
- Waste disposal

Solar Thermal

- Low cost domestic hot water
- Space heating limitations
- Seasonal performance

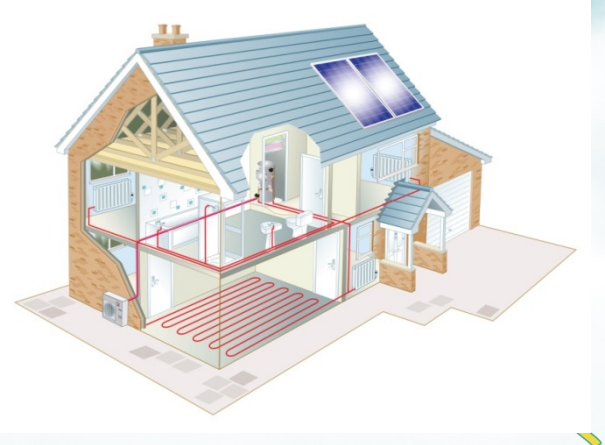
Ground Source Heat Pumps

- Efficiencies are high
- Installation Costs



ASHPs - the only mass market domestic alternative

- ✓As easy to use as traditional systems
- ✓As reliable as traditional systems
- ✓Predictable in performance & savings
- ✓Acceptable to home owners
- ✓Scalable



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- **What is an Air Source Heat Pump?**

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Harvesting Low Grade Renewable Energy

A fresh approach to people, homes and communities

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What is a Heat Pump?

*A **heat pump** is a machine or device that moves heat from one location (the 'source') at a lower temperature to another location (heat sink) at a higher temperature*

High temp heat output

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- **Golden Rule No.1**

Design

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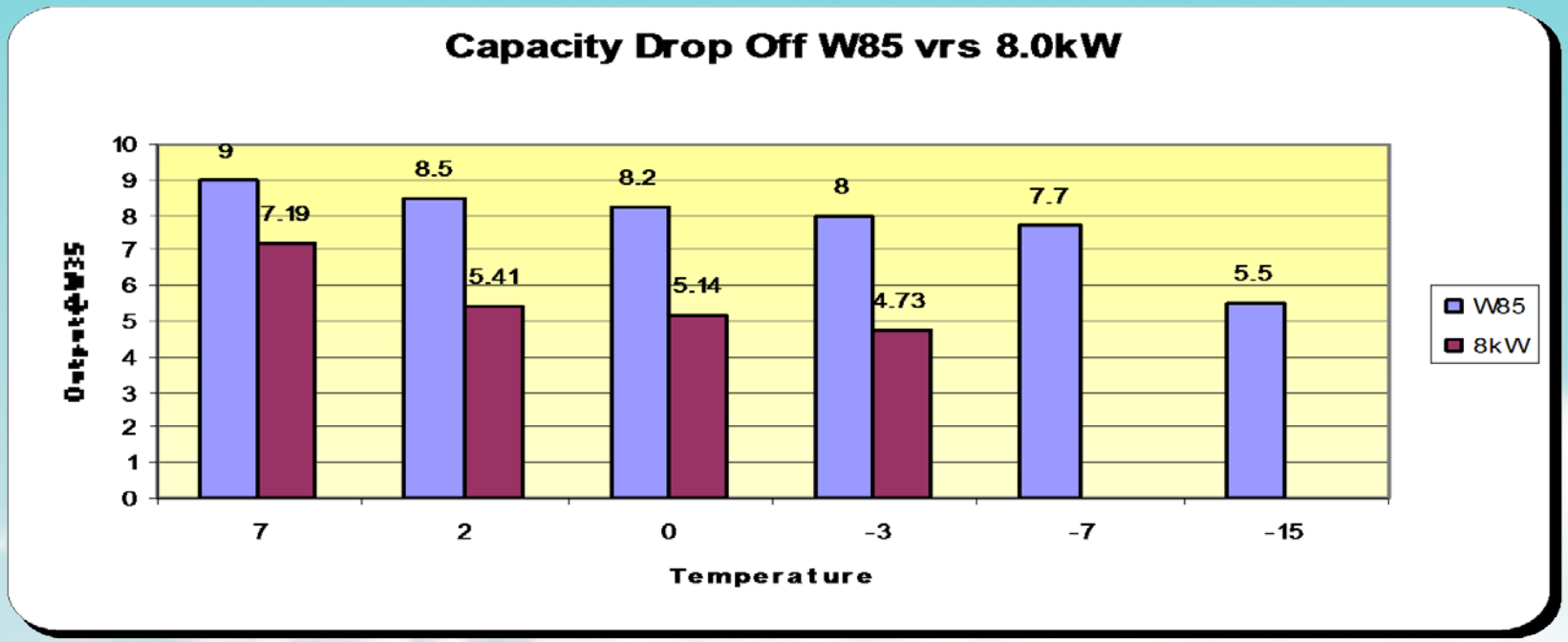
Capacity Drop Off



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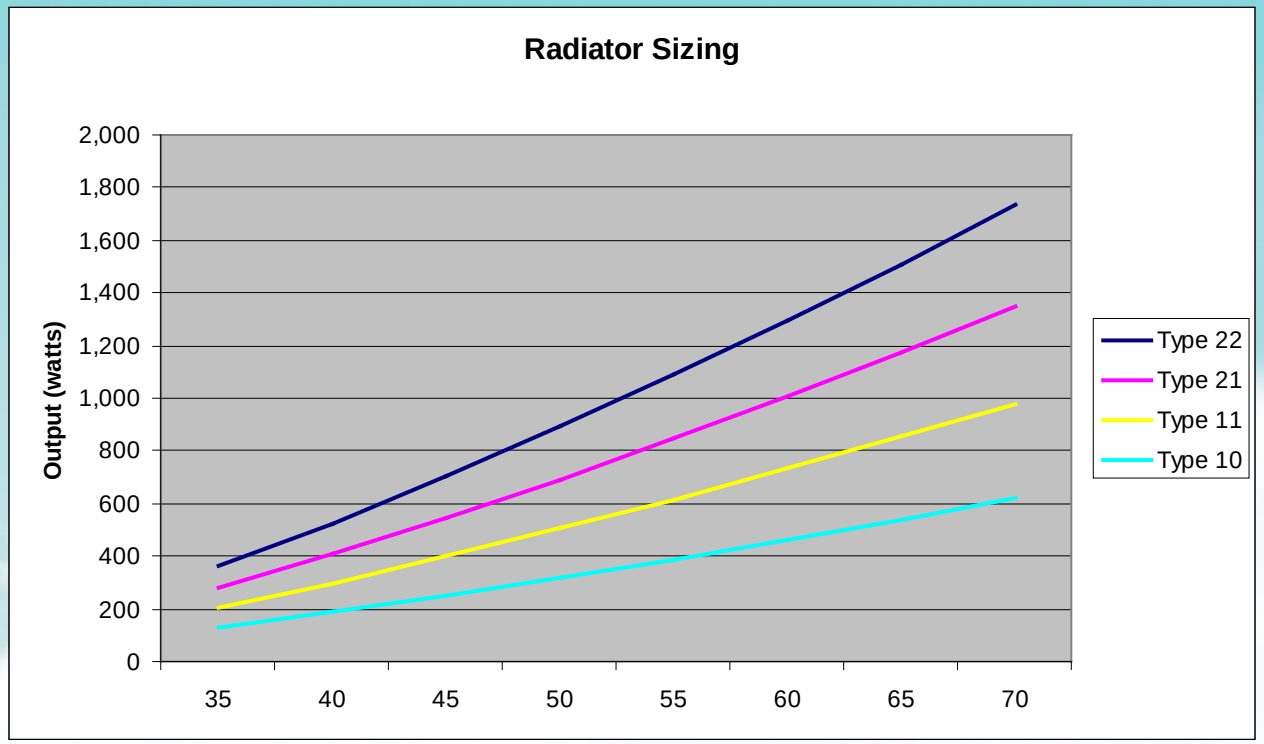
Radiator Selection

ASHP Flow Temp



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- **Golden Rule No.2**
- **Installation**

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Install Requirements

- Outside – floor or wall
- Condensate removal – drip tray if high level
- Single Phase Electric Supply (3 phase 14kw)
- Insulate pipes
- Vibration Pads
- Position / (airflow)
- Air Outlet Guide Extra
- Reduce to 500mm in front

- **Golden Rule No.3**

  Easy to Use

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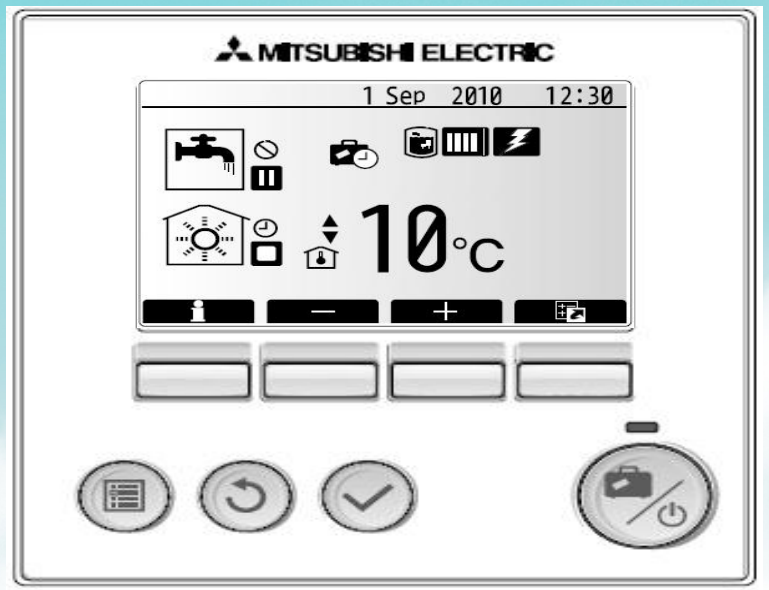
Third Generation Controller



A fresh approach to people, homes and communities

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Easy to Use Control

- Wireless Thermostat
- Easy installation & positioning
- Easy operation from living space
- Simple & Easy to use: only 4 buttons

Why Air Source Heating at Berneslai Homes

- **Berneslai Homes are a key partner in the delivery of Barnsley Council's Home Energy Efficiency Strategy 2011 – 15 and as an organisation we have a clear focus on reducing our own carbon footprint.**
  - We will seek opportunities to reduce the carbon footprint of the housing stock.
  - We will strive to reduce fuel poverty amongst our tenants.
  - We will continue to improve the housing stock, reducing heat lost from those homes.
  - **We will look into introducing alternative technologies to fossil fuelled energy.**

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Why Air Source Heating at Berneslai Homes

- Our low Carbon Strategy is:
- Continuing to improve the thermal performance of our Council houses.
- Using high efficiency condensing boilers and heating systems.
- Ending the use of domestic installations that burn coal by 2015.
- Replacing coal burning district heating boiler plant so that they run on non fossil fuels like biomass and have heat meters in system dwellings.
- **Reducing reliance of fossil fuel for domestic heating and subject to affordability to cease to install new gas heating systems from 2015.**
- To utilise the Micro Generation of electricity, particularly through the installation of Solar PV

Why Air Source Heating at Berneslai Homes

- Based upon our current housing stock we believe that this type of heating can offer the most potential to meet our objectives.

- Berneslai Homes have the resources and skills within Construction Services to install this technology.

Why Air Source Heating at Berneslai Homes

- OUR JOURNEY SO FAR.
- MCS Accredited to Supply, Design and Install Heat Pumps.
- Trained Operatives to be competent.
- We have carried out pilot schemes on different manufacturers technologies.
- We have trialled different methods of installing Air Source Heat Pumps.
- Introduced heat pump technologies into our new build programme.

Why Air Source Heating at Berneslai Homes

- OUR JOURNEY SO FAR.

- Up to date we have around 75 properties installed with different Heat pump technologies.
- We have recently completed a programme installing 37 Mitsubishi Air Source Heat Pumps.
- We have a current programme across two refurbishment schemes for 2013-14 installing around 100 Heat pump systems.
- We have budgeted for a further 350 installations in 2014-15 refurbishment projects.
- Our Ambition – To fit ASHP for all suitable replacements in our programmes and to stop fitting new gas systems by 2015.

Why Air Source Heating at Berneslai Homes

- Refurbishment Scheme at Worsbrough/Ward Green.

- Procurement Exercise.
- Tenant involvement & Choices Event.
- Property Survey in accordance with MCS accreditation.
- Installation.
- Tenant involvement, system explanation, understanding, and education.
- System/technology monitoring and data analysis.

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Air Sourced Heating - 37 homes at Worsbrough

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Air Sourced Heating - 37 homes at Worsbrough

Air Sourced Heating Energy

- **What have we learned.**
- Systems will only work efficiently if they are:-
- Designed correctly.
- Installed Correctly.
- Commissioned Correctly.
- MOST IMPORTANT OF ALL
- The end user (our Residents) are educated in how to operate the heat pump system.

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