2021: The Year of the Heat Pump?

9th March 2021



Infinitas Design Ltd

Background

GROUND SOURCE HEAT PUMP ASSOCIA

- Chartered mechanical design engineer
- Specialist in renewable heat systems, heat pumps and heat/cool networks (7 years +)
- Chair of the Ground Source Heat Pump Association
- Complete heat pump advocate





What is a Heat Pump? (How does it work?)



Converts low grade, free energy to high grade useful heat, hot water and cooling



Heat Pump Ranges...



80kW for heating and hot water in 2 houses



800kW for heating and hot water for a large campus

And bigger!



Heat Pumps are Flexible....

- ▶ Size 3kW 10MW+
- Resource air, water, ground, waste heat, etc
- High and low temperature (30°C 90°C)
- Heating AND cooling
- New build and retrofit
- ▶ Houses, offices, leisure centres, mixed use developments, etc
- ► Great for 4th & 5th generation heat networks









- 26 leased homes.
- Heated with oil & electric
- Low EPC = homes cannot be re-rented
- Tenants benefit from clean heat (clean air) and no increase in heat price (where boilers are used)







Why 2021 Year of the Heat Pump?

- Partly UK gov policy
- Conversation changed end of 2020
- Greater awareness of climate change and carbon reduction
- Greater awareness of air quality
- Covid-19?
- People wanting to 'do their bit'

Innovative ways of operating heat pumps



What is Holding Us Back?

- The policy landscape
- Lack of skilled designers/installers/maintenance
- Myths and poor installs
- Price of gas and electricity





1 - The Policy Landscape – Aspirations vs Reality



- People are still going ahead with heat pump projects
- Making the finances work is KEY



- 2 Lack of Skilled Installers, Designers, etc
 - General problem across engineering and construction industries
 - Lack of investment in renewables means employers don't train up
 - Too many cowboys!



GSHPA and HPA are delivering training courses and education from nursery school children to gas-fitter upskilling





4 – Gas and Electric Prices

Fiscal Background – Energy Prices



Belgium ик 💥 Greece Spain Germany Portugal Austria \$ Luxembourg Denmark Ireland ltaly France Netherlands Sweden Finland Pence per kWh

Chart 5.4 Industrial gas prices

	Gas @ 3p/kWh	Electric @ 15p/kWh
Annual heat demand kWh	25,000	
Efficiency	90%	350%
Annual cost of heat	£833	£1,071



What's Next?

- Decarbonisation of the grid
- Carbon taxes?
- Clean air
- Time of use tariffs
- ► Thermal storage & demand side response
 - Peak shaving and cost saving





Questions.....

and thank you <u>www.infinitas-design.co.uk</u> www.gshpa.org.uk

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