

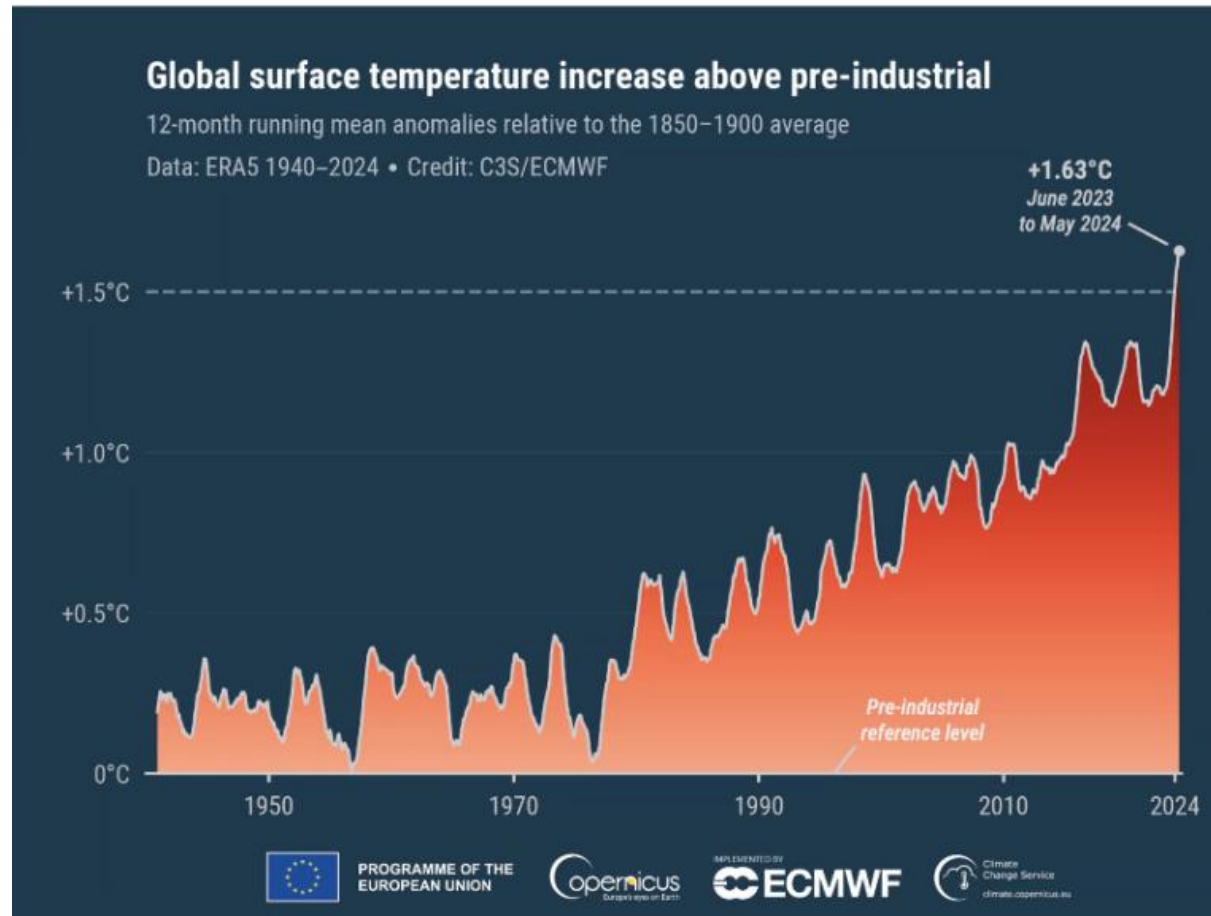
# Decarbonisation of heat in UK homes & businesses

## Why are we here, and where are we going?

January 2025

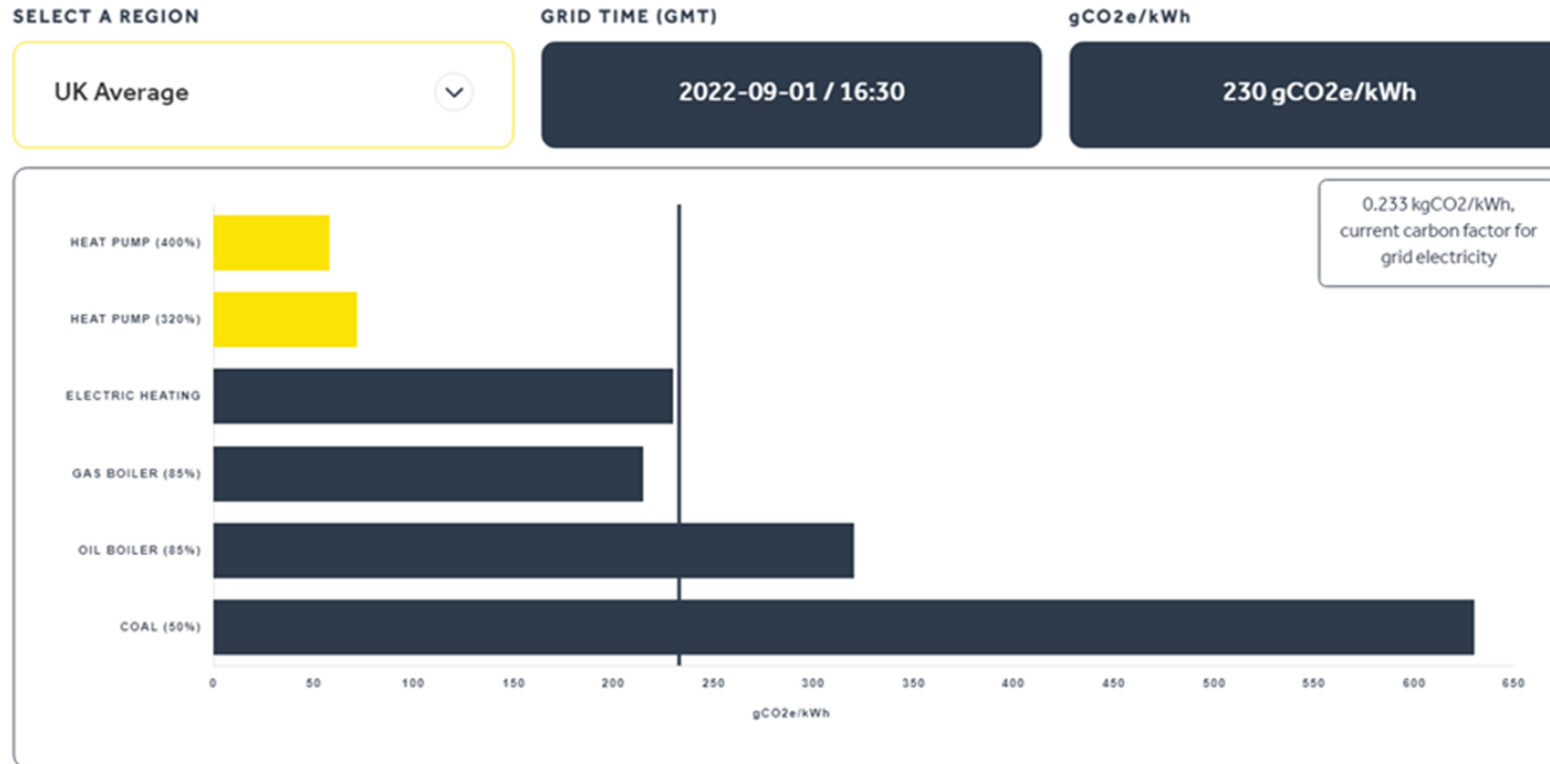


# Why are we here?



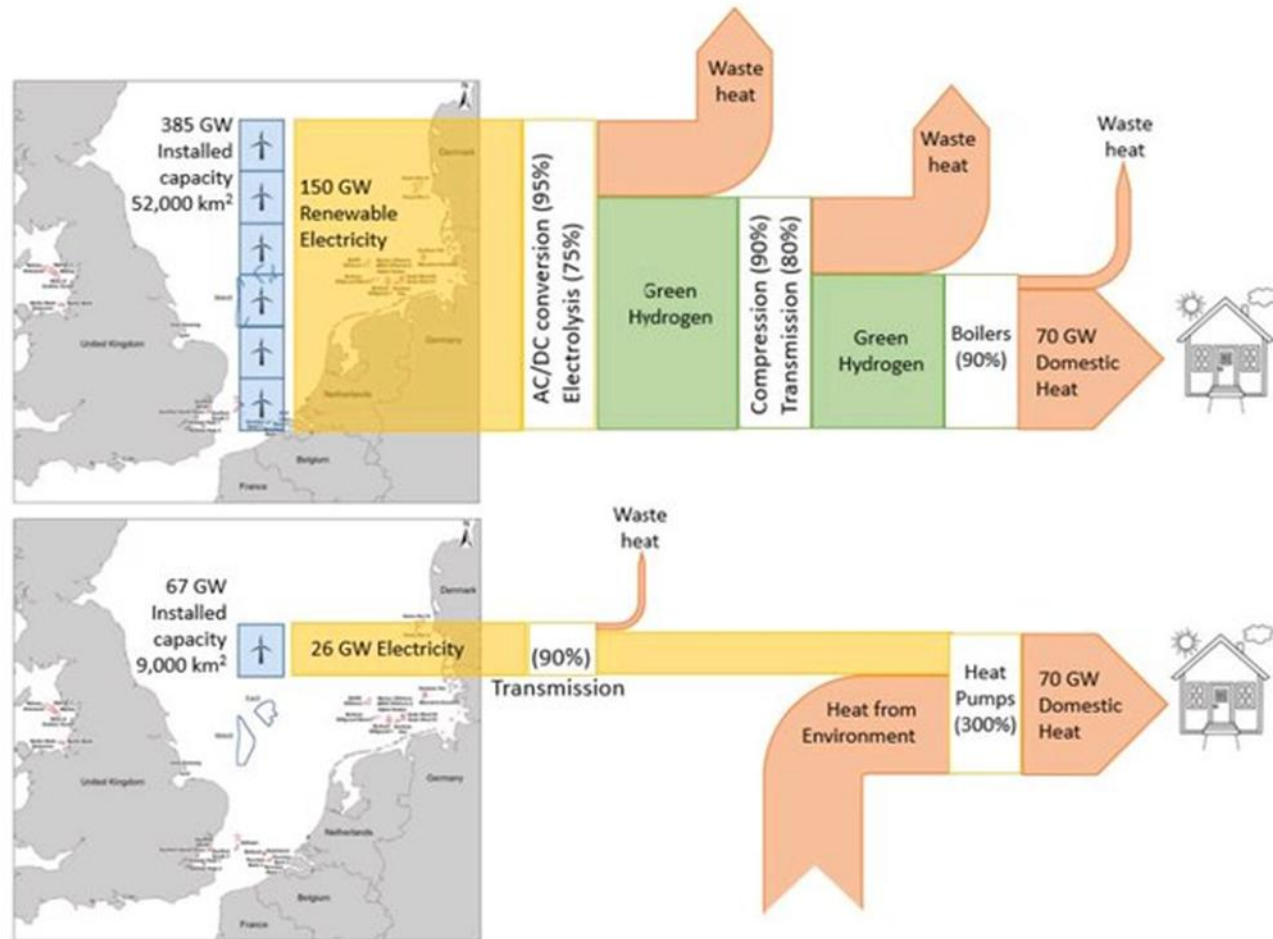
- <https://healthpolicy-watch.news>

# Why is electrification carbon-efficient?



<https://www.hpf.org.uk/carbonwatch>

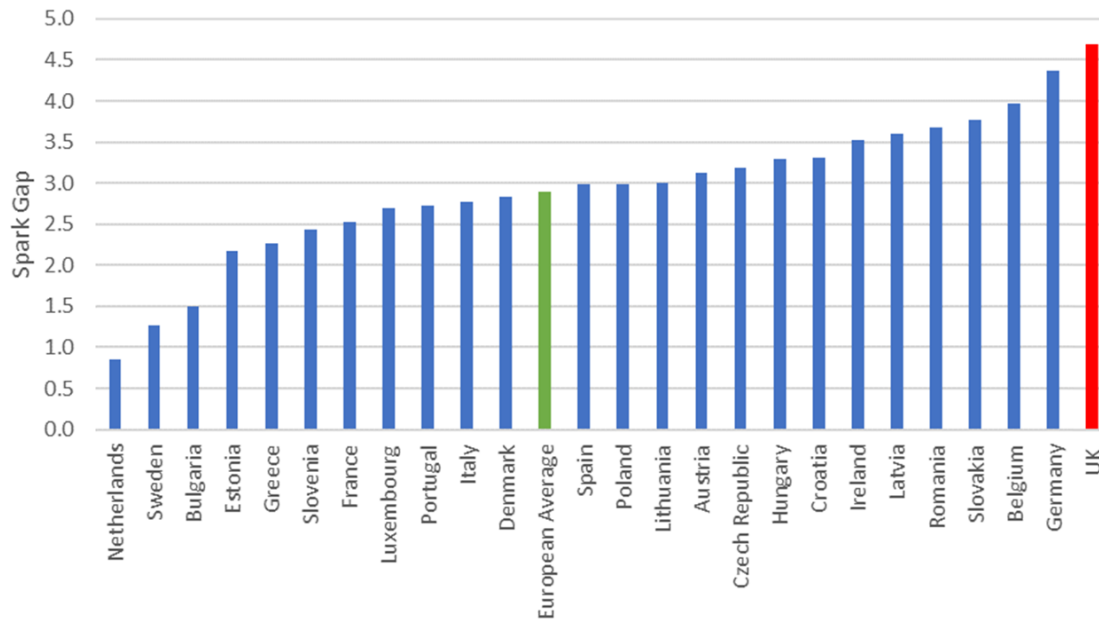
# Why is electrification energy-efficient?



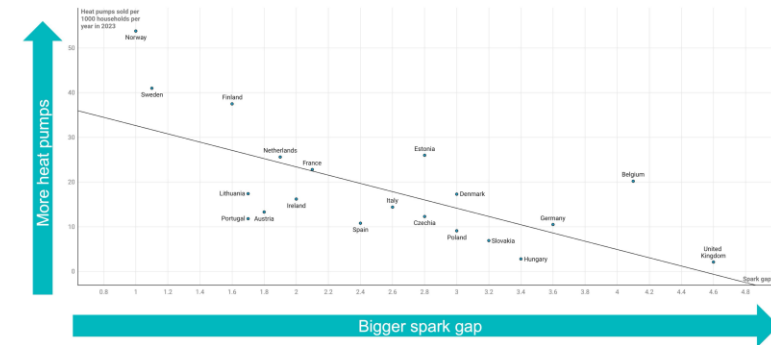
- <https://h2sciencecoalition.com/>

# The negative impact of the “spark gap”

- High electricity prices are a drag on decarbonisation
- Commercial consumers are not protected by price caps

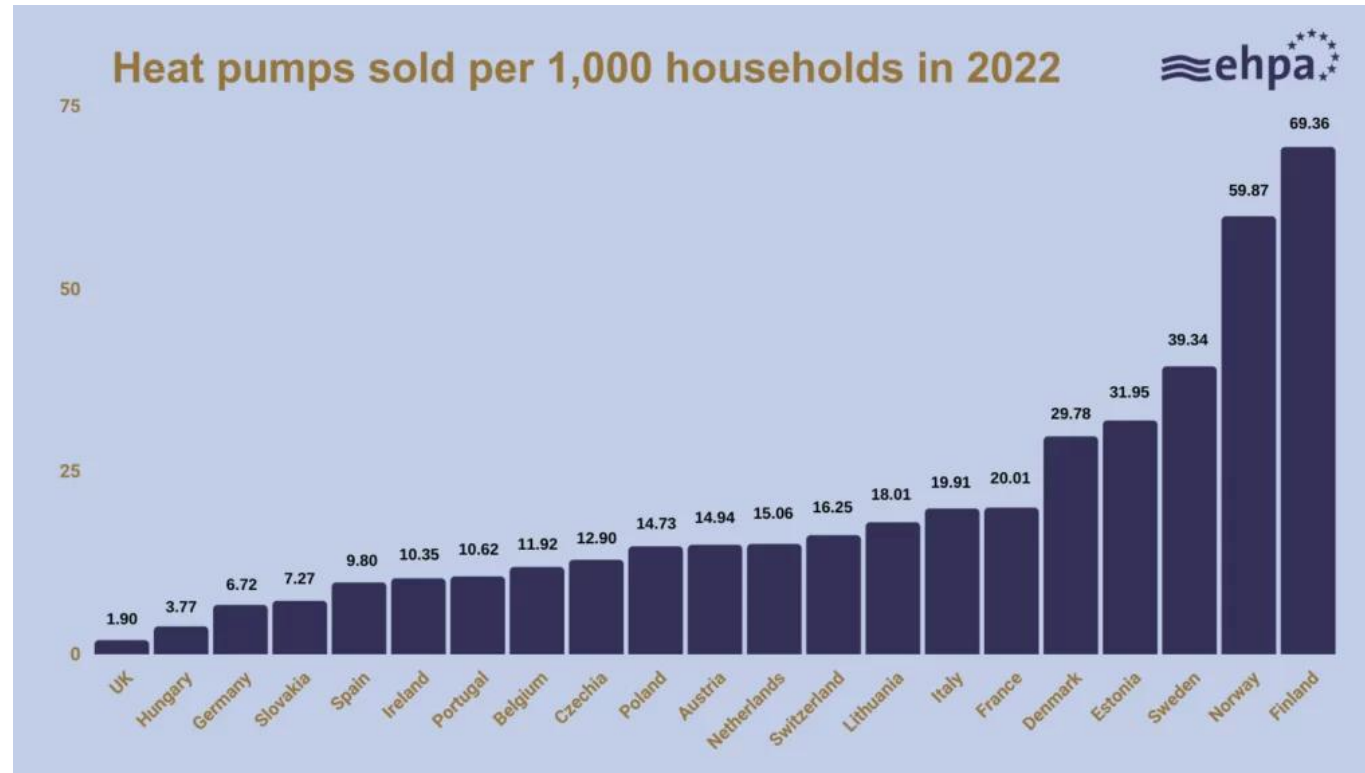


## Bigger spark gap means fewer heat pumps



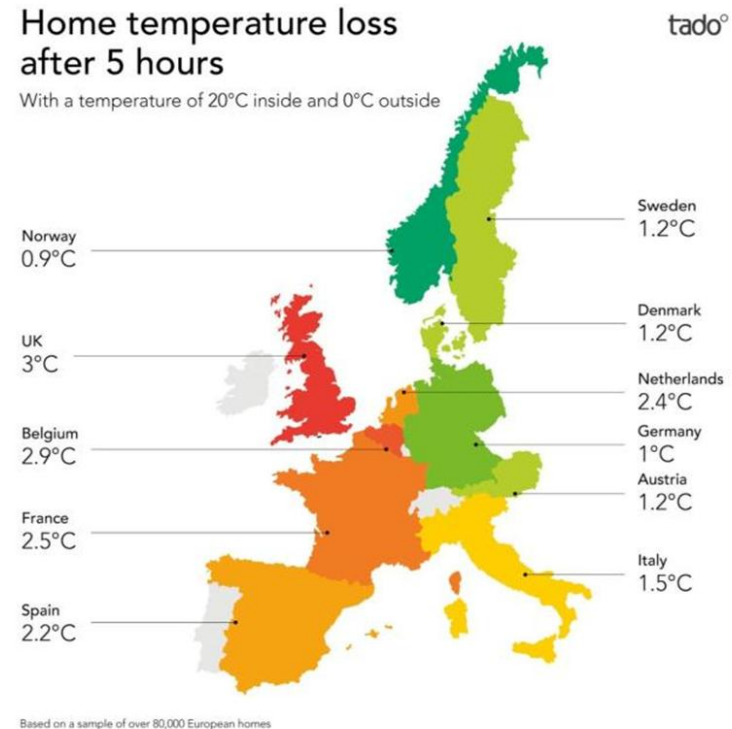
# UK status & comparisons in graphs – deployment

- The result of years of poor electrification policy compared to the EU



## Why is UK heating such a challenge?

- UK housing stock is amongst the worst for thermal performance in Europe
- But the building does not know where the heat comes from, so this is not a heat pump problem
- 55°C is now the common design flow temperature in Building Regulations for all heating technologies, including boilers





## Once upon a time

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- "There is no long-term prosperity without action on climate change"
- "There is no energy security without investing in renewables"
- "Climate and energy security go hand-in-hand"
- "We can bequeath our children a greener planet and a more prosperous future"
- "There really is room for hope"





## But, then...

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- “...there’s nothing ambitious... without being honest with the public... and without any meaningful democratic debate...”
- "We need sensible, green leadership."
- "A politics that is transparent, and the space for a better, more honest debate."
- “This debate needs more clarity, not more emotion.”



## Ripping out the emotion...

- “... never forcing people to rip out their existing boiler and replace it with a heat pump.”
- “Nobody will be forced to rip out their boiler as a result of our plans.”



# Progress at macro-scale





## The grown-up conversation

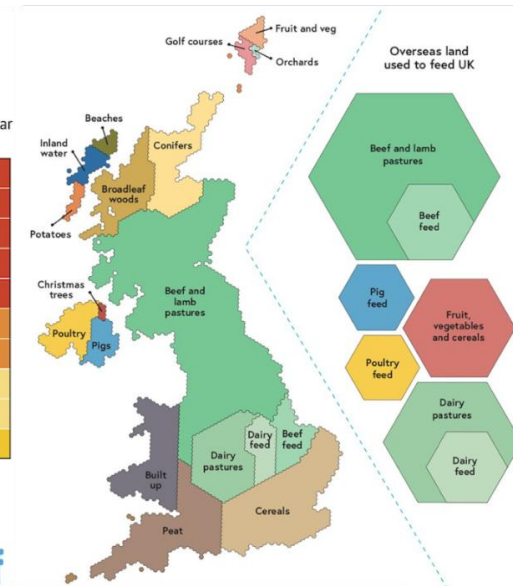
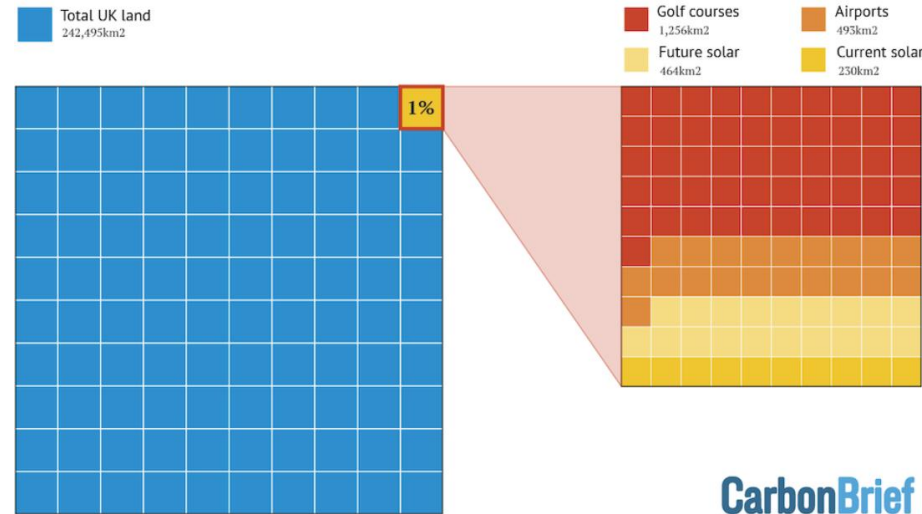
- Why the burning of fossil fuels needs to stop
- Electrification is the chosen pathway, because electricity will be zero carbon & why flexibility works
- There is an electrification solution for all homes, including heat networks
- We've been here before..., with central heating
- Empowering through knowledge



# Where should new assets be deployed?

## Golf courses take up more space than solar power in the UK

Current and future solar power land use compared to other uses

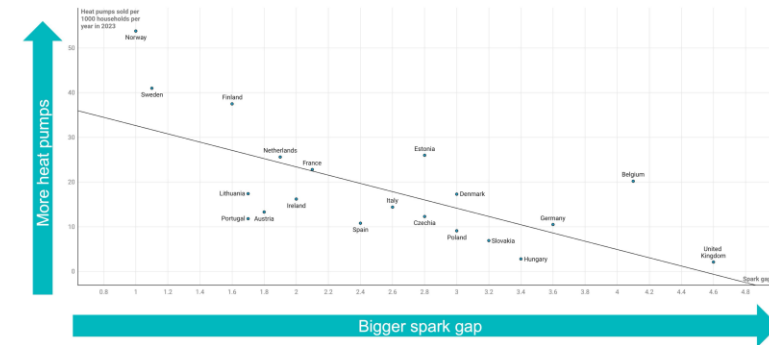


CarbonBrief

## Make it affordable for all

- The lowest carbon heat must be the lowest cost heat
- Collaboration with the finance sector & mobilising private capital
- Waste not... insulation, waste heat recovery, natural resources, zoning
- Protecting those that need it
- Electrification for social good, describing & delivering the health dividend

Bigger spark gap means fewer heat pumps



## Urban air-quality

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- Burning fossil fuels for heat generates CO<sub>2</sub>, CO, NO<sub>x</sub>, SO<sub>x</sub> & particulates (PM<sub>2.5</sub>)
- Approximately 25% (location specific) of urban air pollutants are derived from heating
- Condensing mode operation reduces levels of pollutant emissions
- 25,000 – 35,000 premature deaths per annum are attributed to poor air-quality
- Heat pumps are zero-emissions devices at the point of use





## In your own time

- Adopt each technology at the right time
- No premature removal of anything
- Fabric 1<sup>st</sup> or fabric 2<sup>nd</sup> ?
- The transmission spine and distribution networks will cope
- Revised EPCs, Connection Readiness Indicator, Smart Building Rating
- There's time, provided that we start **NOW**



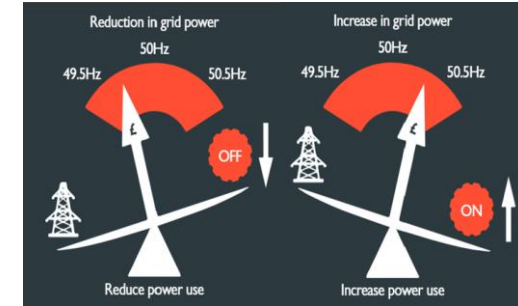
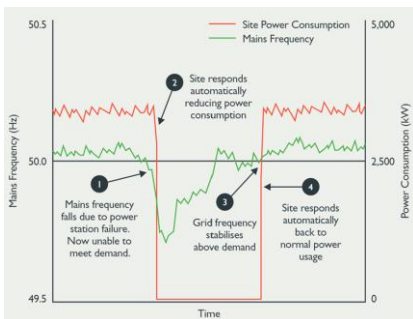
## Waste heat

- 2,860TWh waste heat in the EU, almost enough to heat the EU
- Enough waste heat in London for 790,000 homes
- Waste heat & coolth to be designated a pollutant
- Would Local Authorities benefit from a statutory duty to identify & use waste heat?



# Flexibility

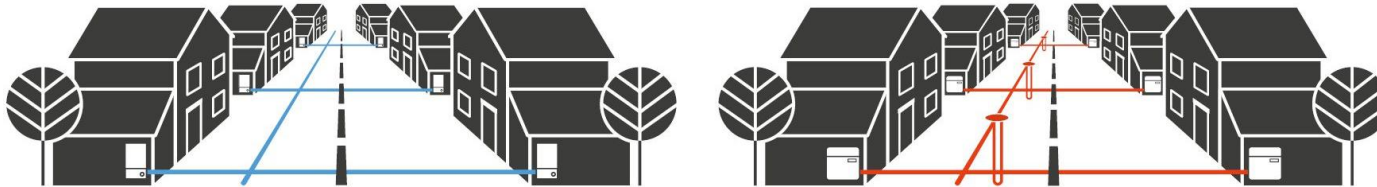
- National Grid ESO balances the grid
  - Peaking plant is the conventional mechanism for balancing
  - Grid scale battery deployment increasing
- Load demand management is more cost-effective
  - Reduces generation demand
  - Reduces cable capacity
- Payments for DSM & DSR
  - Thermal storage
- Grids are changing rapidly, with new opportunities to participate





## Where next?

- Future Homes Standard, air-source or ground-source with passive cooling & PV
- “Heat the streets” retrofit



- District heating with waste heat recovery & storage
- New PDR, SAP11, RdSAP11



## Government mixed messaging & confused consumers

- Ban on replacement fossil fuels off-gas - Delayed
- Action on electricity pricing - Delayed
- Future Homes Standard – Delayed
- Ban on the sale of ICEs – who knows?
- Enhanced Permitted Development Rights - Coming
- Enhanced government support programmes



Credit : Rochak Shukla

## **Immediate geopolitical considerations**

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- Ukraine & Middle East : impact on fuel pricing currently very modest, but could change
- New Trump administration : likely to embolden the fossil fuel sector & could impact the hydrogen debate
- Baku COP29 : likely to debate finance, but highly unlikely to result in intentions to phase out fossil fuels in any way
- How will the insurance sector react to increase climate & weather related impact
- How will the finance sector influence decarbonisation

## The Prime Minister's role

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- The simple message must come from the very top, and only has to be said once, but with conviction
- We can do it
- We can make it affordable
- We can ensure that no one is left behind
- "We can bequeath our children a greener planet and a more prosperous future"
- "There really is room for hope"





## ... & finally, a shameless plug

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- <https://podcasts.apple.com/gb/podcast/the-happy-heat-pump-podcast/id1787675196>
- [https://open.spotify.com/show/3xGCOyx90e5XuGFn4kFqO0?si=FFiwAZOsT\\_iJwSrOUr\\_oBg](https://open.spotify.com/show/3xGCOyx90e5XuGFn4kFqO0?si=FFiwAZOsT_iJwSrOUr_oBg)
- <https://youtube.com/@happyheatpumppodcast?si=ywJurLpWu4ahxU7P>



# Thank you

[www.hpf.org.uk](http://www.hpf.org.uk)

<https://www.hpf.org.uk/advice/homeowners>

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