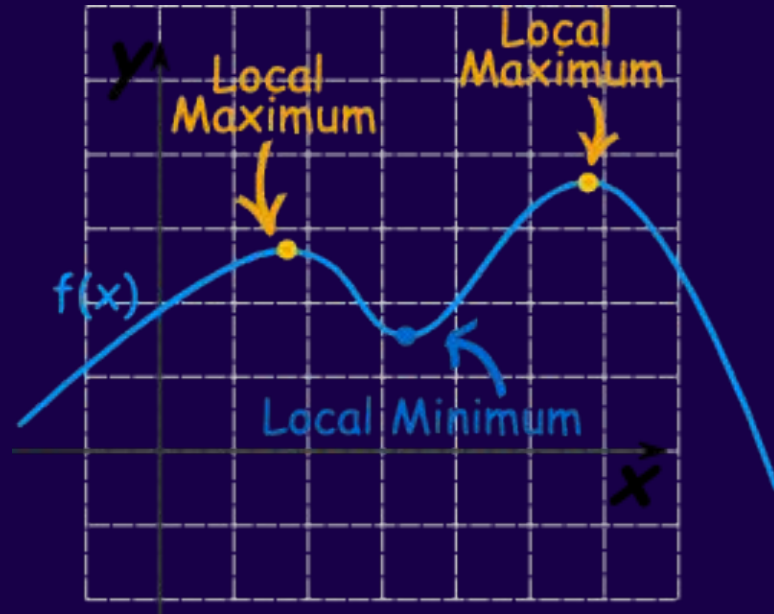


In the long run, **economics approximates to physics**

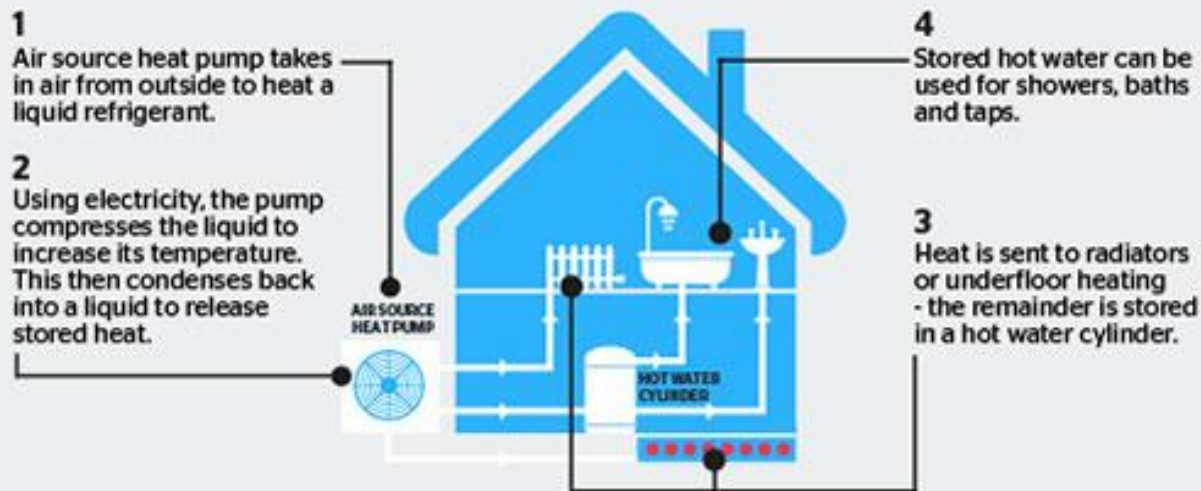


But **local minima** exist



Heat pumps are like magic

Air source heat pump



8 facts about heat pumps

Fact 1: Heat pumps are as big as a bike

This is a typical size for a 3 bed home - if you have room to park a bike outside, you can fit a heat pump



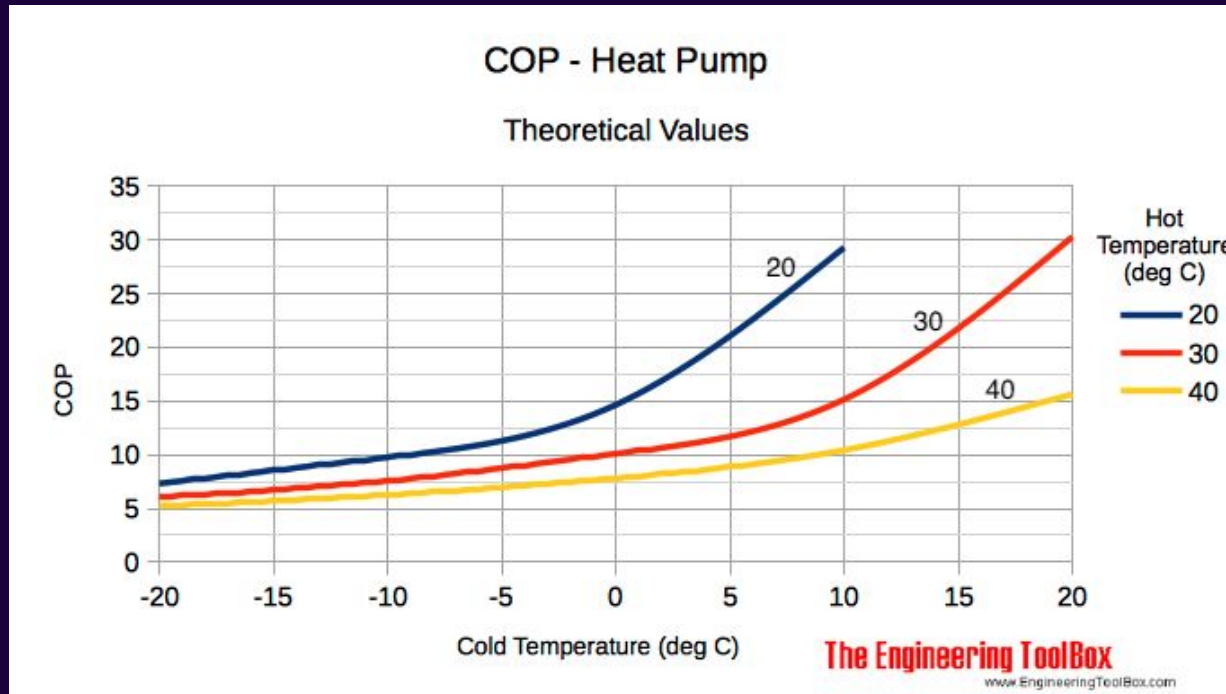
Fact 2: Heat pumps are **quiet**

Heat pumps generate roughly the same amount of noise as a dishwasher (40 - 60 dB) but because it sits outside your home you're probably won't even notice it



Fact 3: Heat pumps still work well in ARCTIC temperatures

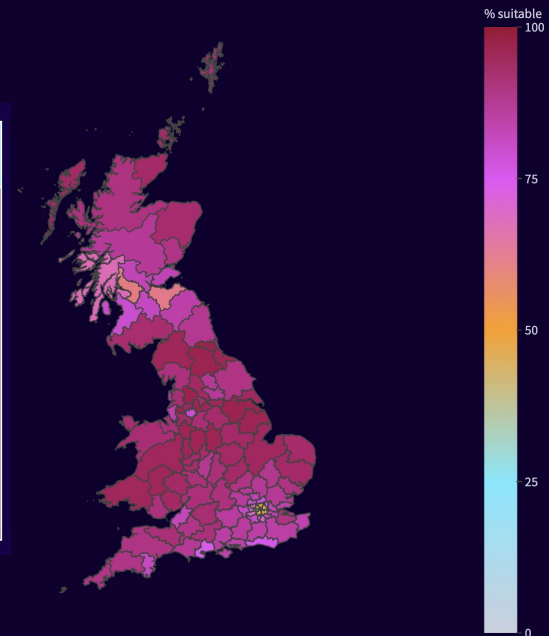
Heat pumps are more efficient than a gas boiler - even at freezing temperatures!



Fact 4: Heat pumps already work in **most homes**

Heat pumps are already suitable for 15m UK homes. Some just require a little bit of work like simple, low cost insulation or a hot water tank upgrade

	No of suitable Properties	New % opened up	Cummulative % of homes
Heat pump ready	3,691,455		17%
Insulation solution	6,130,423	12%	29%
Microbore solution	7,584,266	7%	36%
Hot water tank solution	14,548,675	31%	67%
Combi boiler solution	18,057,910	19%	86%
Flats solution	21,063,107	14%	100%



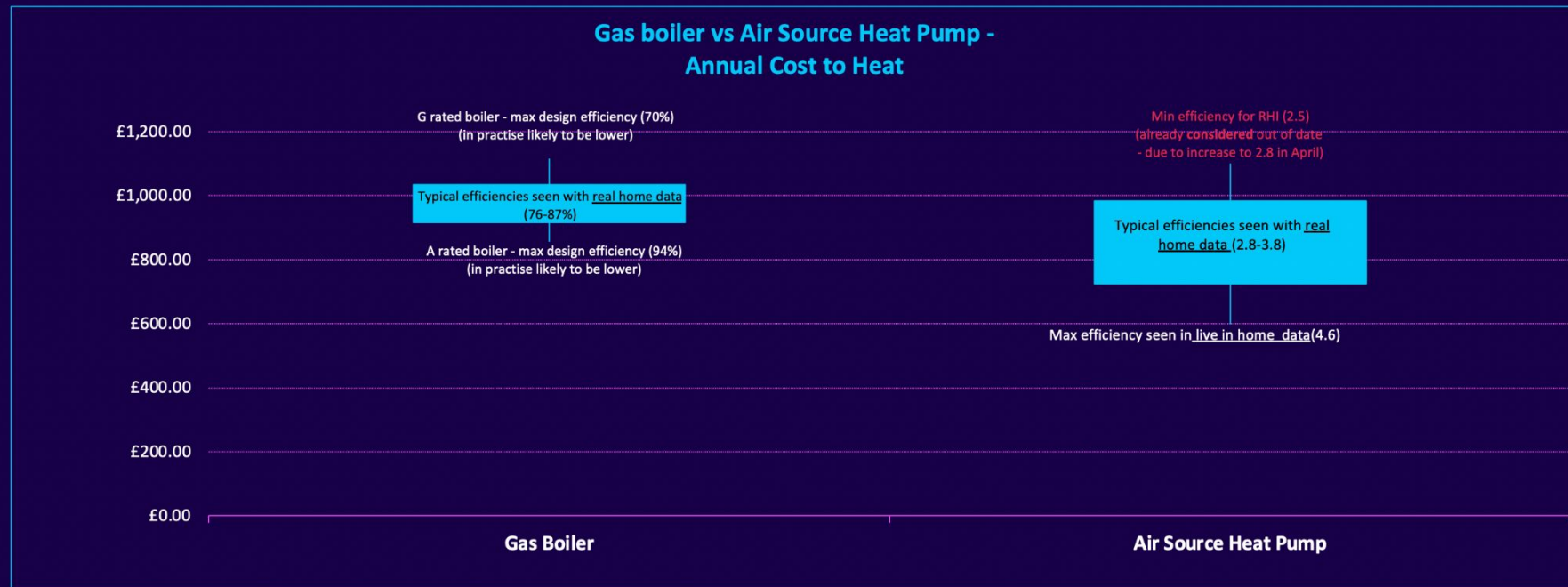
Fact 5: Heat pumps will soon **cost as little as a gas boiler**

We'll be able to install a heat pump for a similar price as a gas boiler once the government's Boiler Upgrade scheme grant becomes available.

	<i>GAS - TODAY</i>	HEAT PUMP - TODAY (no optimisation)	HEAT PUMP - APRIL (with our optimisation)	HEAT PUMP - FUTURE
AVG COST (inc materials + labour)	£2.5k	£10k	£8k	£3k
GRANTS AVAILABLE			-£5k	
NET COST	£2.5k	£10k	£3k	£3k

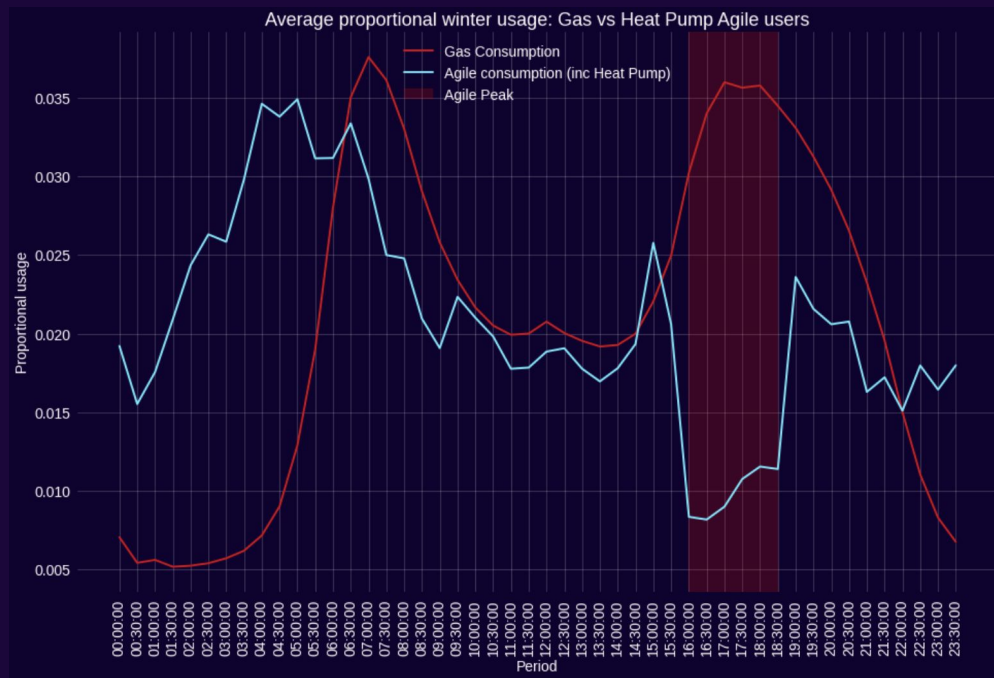
Fact 6: Heat pumps are now cheaper to run than gas boilers

From April, heat pumps will be cheaper to run than gas boilers because they are on average around 4x more efficient



Fact 7: Heat pumps can reduce stress on the grid

Heat pumps can automatically optimise to run at the cheapest, greenest times to help save money and help balance the grid



Fact 8: Heat pumps are the **best way to decarbonise heating**

Heat pumps already lower CO2 emissions by 75%. Once the grid is 100% green, home heating will be 100% carbon free

Carbon savings: comparing carbon emissions per kwh of heat delivered
Rolling weighted average carbon intensity of Heat Pump (today): 60.3 gco2/kwh
Rolling weighted average carbon intensity of Gas: 238.9 gco2/kwh

