



# Small changes big impact

**Richard Abraham**  
COO Portsmouth Cathedral  
since September 2019

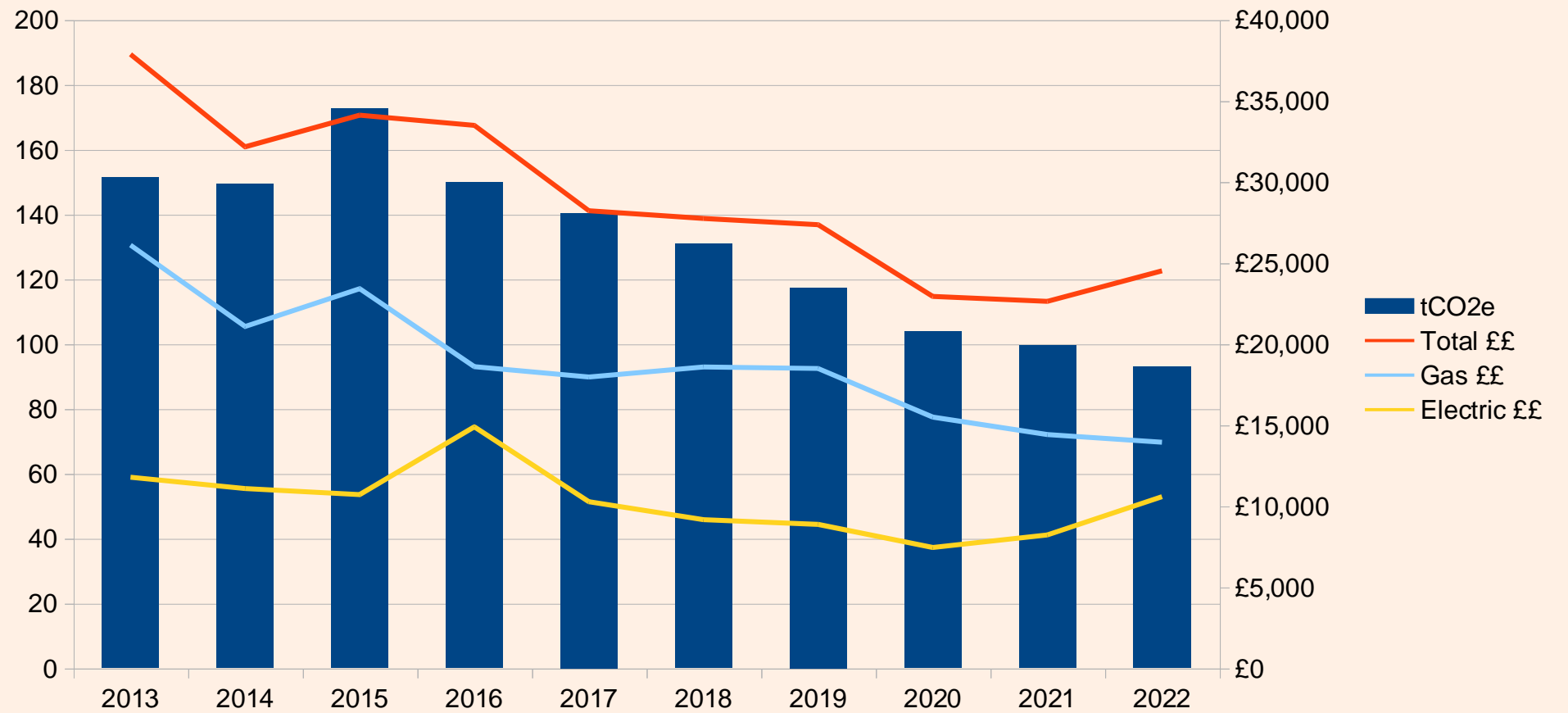








# Small changes big impact



## Carbon footprint vs. Energy spend



# Energy carbon emissions 2013–2022

Energy carbon emissions and energy spend 2013–2022: Cathedral and Cathedral House					
	2022	2021	2020	2019	2013
Scope 1 – Gas consumption tCO <sub>2</sub> e	66.91	87.08	78.02	92.51	120.87
Scope 2+3 – Purchased grid electricity tCO <sub>2</sub> e	9.21	10.33	12.23	16.72	46.68
Total energy GHG emissions tCO <sub>2</sub> e (1)	76.11	97.41	90.26	109.23	167.55
<b>Actual change v 2013 base year</b>	<b>-55%</b>	<b>-42%</b>	<b>-46%</b>	<b>-35%</b>	
Carbon intensity tCO <sub>2</sub> /m <sup>2</sup> floorspace occupied	0.024	0.031	0.029	0.035	0.054
Total weather adjusted GHG emissions tCO <sub>2</sub> e (2)	92.98	99.03	105.51	119.46	151.30
<b>Weather-adjusted change v 2013 base year</b>	<b>-39%</b>	<b>-35%</b>	<b>-30%</b>	<b>-21%</b>	
Onsite low carbon electricity generation kWh	18,598	18,745	17,274	18,679	0
Purchased energy expenditure gross	£23,898	£22,820	£22,629	£30,761	£37,868
FIT income from onsite electricity generation (3)	£2,812	£2,576	£2,653	£2,668	£0
Energy expenditure net of FIT income	£21,086	£20,244	£19,976	£28,093	£37,868



# It's the little things that matter

Small changes can make a big impact on reducing energy needs.





# A plan and advocates

## A plan starting in 2013

### Objective:

- .reduce energy carbon emissions by investing in energy efficiency projects
- ."recycling" resulting savings+income

.Focus: energy use in Cathedral House and the Cathedral

.Target: 20% reduction in weather-adjusted emissions

.Outcome: by 2019 achieved 21% reduction in tCO<sub>2</sub>e

### Measures/KPIs

- .better controlling and monitoring of energy use/billing
- .good housekeeping
- .incorporating insulation/draught-proofing in building repairs
- .switching lighting to LED over time
- .some onsite low carbon electricity generation
  - .microchip and solar PV



"Standing on  
the shoulder  
of giants"

The late Professor Michael Purvis,  
Former Chapter and FAC member



# Heating Schedule and Data loggers

"Richard notified me Tuesday lunchtime that someone had reported the Cathedral Hall as too warm.

"I was looking at the app today and the hall has a set temp of 18C at 1530 on a Monday but with no subsequent night setback time. The next time shown is 0700 on a Tuesday. This means the boilers will run through the night until they calculate it's not necessary as the 07.00 temp required is shown as 16C.

If this setting was from Monday past then it might explain the hall feeling very warm on Tuesday morning (i.e. the boilers would have run through the night).

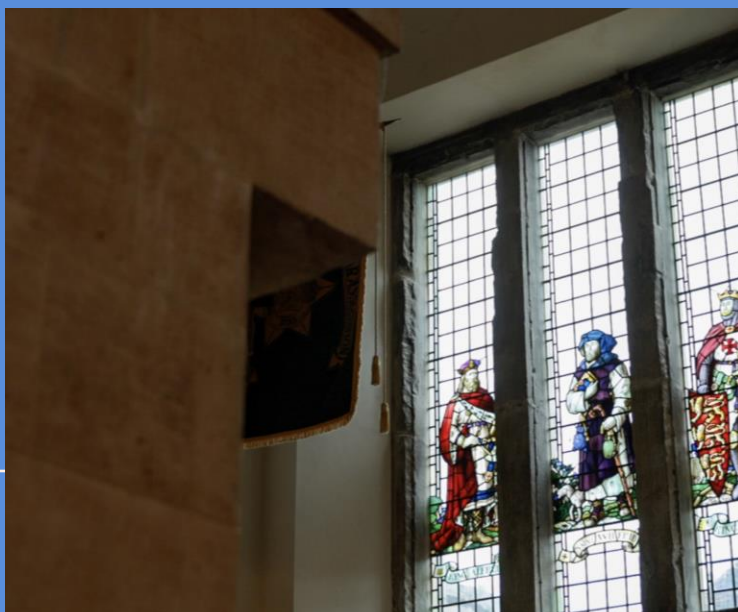
Perhaps you and XXXX could review times and temperatures. The hall gets little solar gain and can consume a lot of gas at a time when the south side of the building has a lot of solar gain."







# In the cathedral





# Sealing draughts

(Nave window sealing and trial secondary glazing)

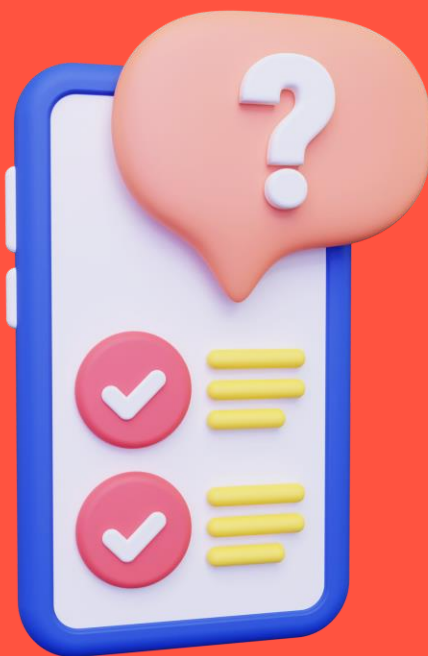


£1,250  
Investment  
in 2022





# Surveys and stakeholder feedback



Maximum  
temperature  
reduced  
from 18 to 16  
degrees





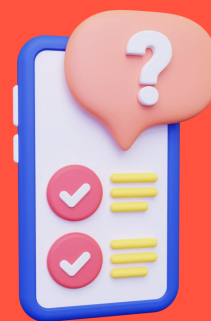
# Heating pads for chairs



£500  
pilot investment  
in 2022 with  
Shop Assistants  
& Welcomers



# In the cathedral





# In the wider cathedral estate





# Solar panels on Cathedral house



£9,500  
Investment



# Adding LED fixtures



£12,000 over  
seven  
years (£1,700  
/annum on  
average)



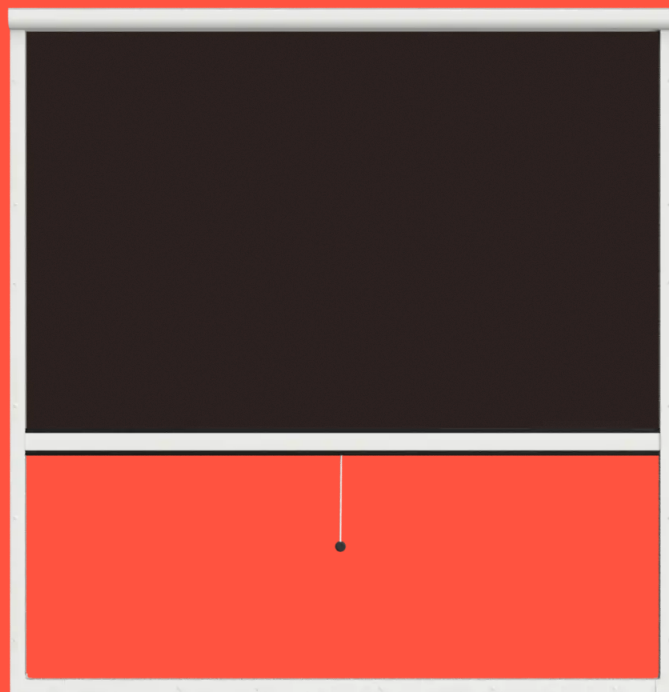


# More smart heating – app controlled





# Heat retention blinds



Circa  
£600 a  
year



# New boilers



£11,000 in  
2021 for  
new boilers  
for Cathedral  
House

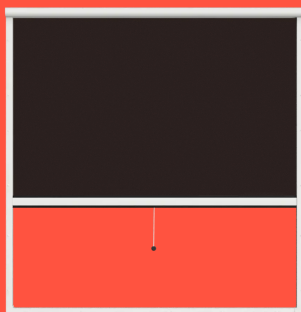


# Clear messaging & signage





# In the wider estate





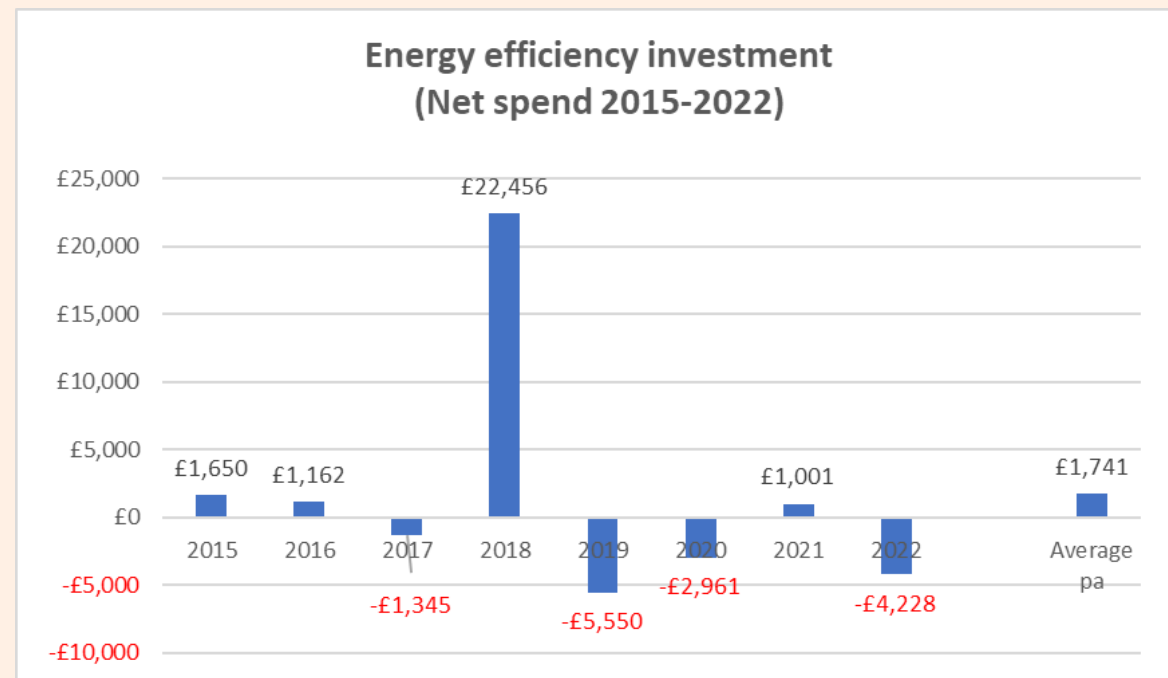
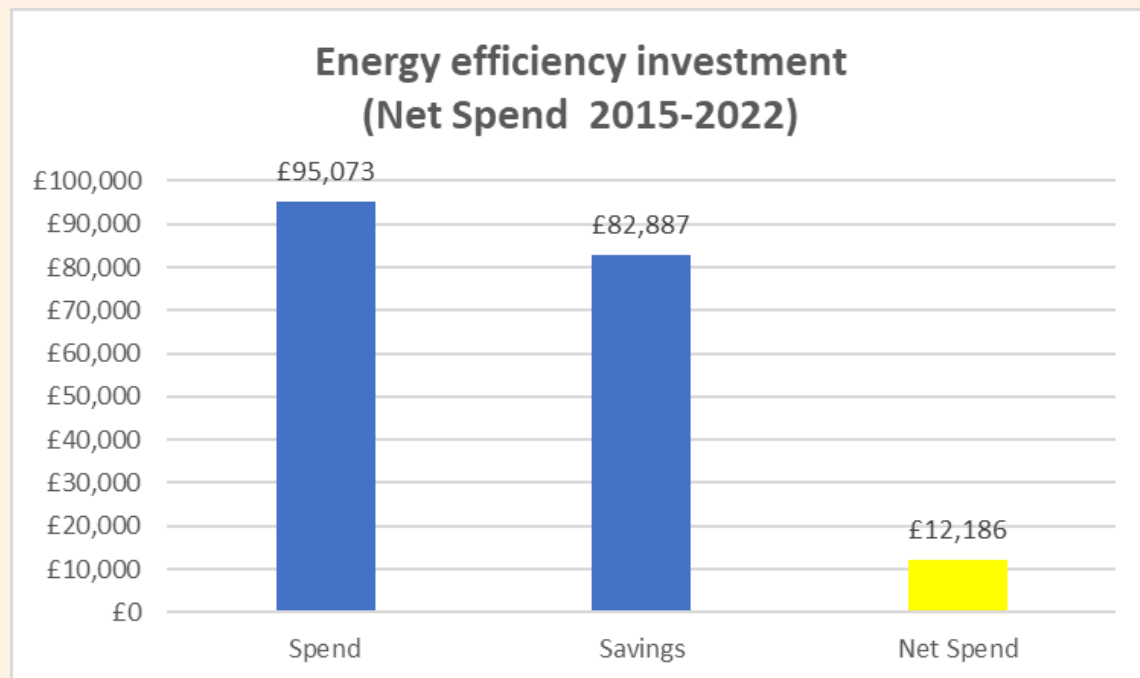


# The Financial Bottom Line



# Bottom line: it saves us money

(With the energy crisis maybe more than that)



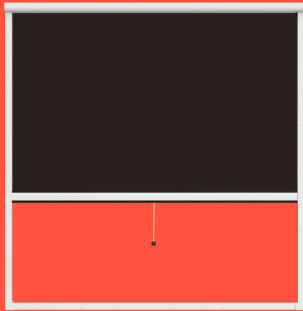
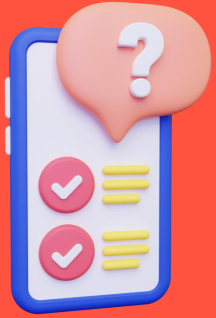


# What next?

Big investment is good – but smaller investments can still make a difference!



# More of the same



and...



# Keeping ahead of the game...

- Our energy consultant identifies areas for improvement – and then we implement
- Heating Feasibility Study currently underway







# Thank you

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