Small changes big impact

Richard Abraham
COO Portsmouth Cathedral
since September 2019
Small changes big impact
Carbon footprint vs. Energy spend

portsmouthcathedral.org.uk

@portsmouthcathedral
## Energy carbon emissions 2013–2022

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
<th>2019</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1 – Gas consumption tCO2e</td>
<td>66.91</td>
<td>87.08</td>
<td>78.02</td>
<td>92.51</td>
<td>120.87</td>
</tr>
<tr>
<td>Scope 2+3 – Purchased grid electricity tCO2e</td>
<td>9.21</td>
<td>10.33</td>
<td>12.23</td>
<td>16.72</td>
<td>46.68</td>
</tr>
<tr>
<td>Total energy GHG emissions tCO2e (1)</td>
<td>76.11</td>
<td>97.41</td>
<td>90.26</td>
<td>109.23</td>
<td>167.55</td>
</tr>
<tr>
<td>Actual change v 2013 base year</td>
<td>-55%</td>
<td>-42%</td>
<td>-46%</td>
<td>-35%</td>
<td></td>
</tr>
<tr>
<td>Carbon intensity tCO2/m2 floorspace occupied</td>
<td>0.024</td>
<td>0.031</td>
<td>0.029</td>
<td>0.035</td>
<td>0.054</td>
</tr>
<tr>
<td>Total weather adjusted GHG emissions tCO2e (2)</td>
<td>92.98</td>
<td>99.03</td>
<td>105.51</td>
<td>119.46</td>
<td>151.30</td>
</tr>
<tr>
<td>Weather–adjusted change v 2013 base year</td>
<td>-39%</td>
<td>-35%</td>
<td>-30%</td>
<td>-21%</td>
<td></td>
</tr>
<tr>
<td>Onsite low carbon electricity generation kWh</td>
<td>18,598</td>
<td>18,745</td>
<td>17,274</td>
<td>18,679</td>
<td>0</td>
</tr>
<tr>
<td>Purchased energy expenditure gross</td>
<td>£23,898</td>
<td>£22,820</td>
<td>£22,629</td>
<td>£30,761</td>
<td>£37,868</td>
</tr>
<tr>
<td>FIT income from onsite electricity generation (3)</td>
<td>£2,812</td>
<td>£2,576</td>
<td>£2,653</td>
<td>£2,668</td>
<td>£0</td>
</tr>
<tr>
<td>Energy expenditure net of FIT income</td>
<td>£21,086</td>
<td>£20,244</td>
<td>£19,976</td>
<td>£28,093</td>
<td>£37,868</td>
</tr>
</tbody>
</table>
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 tCO2e

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

portsmouthcathedral.org.uk

"Standing on the shoulder of giants"

The late Professor Michael Purvis, Former Chapter and FAC member
“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

richard.abraham@portsmouthcathedral.org.uk