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Coming to terms with your church heating

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Some principles

- **Understand how you are using your church**
  and how you would like to use it in the future
- Investigate the needs of all your kinds of user and usage

- **Come to terms with your system,** its controls, and its condition
  and explore what works and what doesn't
- Can you make better use of it? *Can historic measures be reinstated?*
- Consider the scope for localised systems, *and for better controls.*
  to meet needs better without wastefully heating the whole space

- **Remember to look after the building and its contents:**
  this means control of moisture, not just heat, and to avoid fluctuating air and radiant temperatures stressing things.

- **Be critical:** Ask awkward questions, do pilots to try things out.
- Seek to minimise capital costs, running costs and carbon.
- Watch out for restrictions on electricity supply.

Keep things simple and do them well. Prevention is better than cure.

Every little helps: *use multiplier effects to save energy and carbon quickly*

ENGAGE PEOPLE to start with, *AND for example …*

BE LEAN - Halve the demand

Review requirements and standards, improve control and management, reduce losses, avoid waste.

times

BE MEAN - Double the efficiency

Replace or add equipment if necessary, use it effectively, minimise system losses, tune it up, monitor performance.

times

BE GREEN - Halve the carbon in the supplies

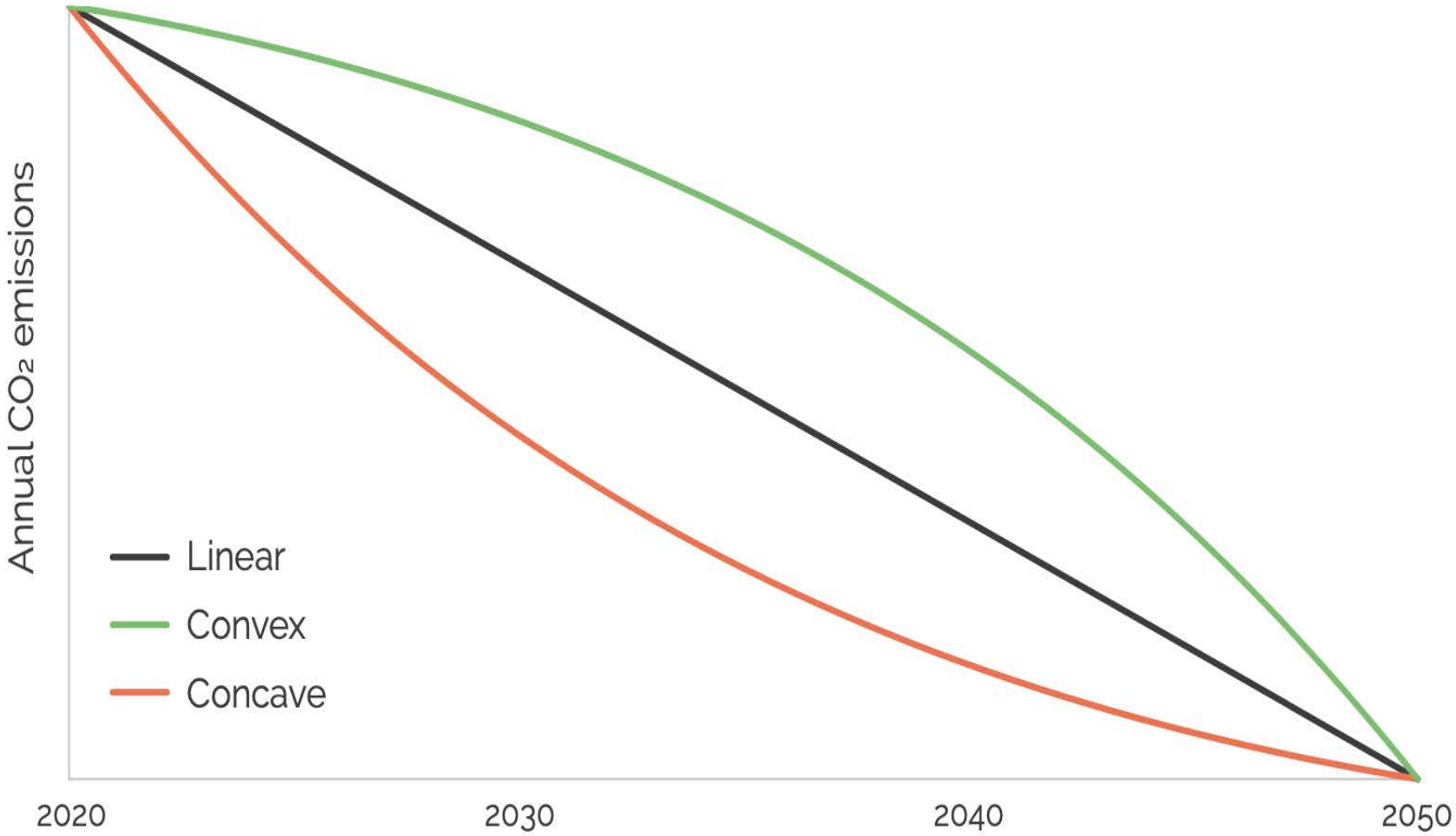
With on-and off-site measures

equals

You're down to one-eighth of the CO_2

Possible Decarbonisation Trajectories

A quick start minimises cumulative emissions



Ref: R Lowe & T Oreszczyn, *Building Transition Decarbonisation Pathways, creds.ac.uk/wp-content/uploads/CREDS-decarb-transitions-brief-2020.pdf*

Local heating can be very efficient:

Experiments with 16-zone thermal manikin

Indicative Watts to increase personal comfort by 1°C:

250	Local convector heater
100	Local radiant panel
35	Local foot warming mat
<10	Heated chair or cushion

* S Kohn, *Development of a Personal Heater Efficiency Index,* MSc Thesis, University of California, Berkeley (2017).

Heated cushions in pews:

a pilot in a Wren church

a permanent installation

Left image Fig 6, from https://squaremilechurches.co.uk/wp-content/uploads/2024/07/W300-Toolkit_SUSTAINABILITY-R4-FINAL2.pdf

User-friendly contriols

"In a Machine for Living, I want to be in the driving seat" – OCCUPIER

"We sell dreams and install nightmares" – CONTROLS MANUFACTURER

THE RUNBACK TIMER:

The most neglected control?

perhaps no longer … ?

PEOPLE ARE THE BEST JUDGES OF WHAT THEY WANT … BUT

YOU CAN NEVER HAVE TOO MUCH OF A GOOD THING

SEE ALSO: B Bordass, A Leaman & R Bunn, *Controls for end users,* Building Controls Industry Association BCIA (2007)

What might go wrong when considering changes?

- **Asking the wrong questions:** e.g. keeping church warm - *not looking after the building, its interior, and conditions to suit users and usage.*
- Focusing too much on the heating system: *remember heat losses, draughts, humidity, water ingress, condensation, damp, mould and rot.*
- Expecting to have to make big changes, *not better use of what you have: check performance, maintenance, controls, scope for tweaks.*
- Looking at individual parts, *but not whole system performance.*

- **Providing a poor brief,** *and/or getting the wrong advice.*
- Obsession with air temperature, *not people's experiences.*
- Accepting advice too easily: "*silly" questions are seldom stupid ones.*
- Not doing pilot projects and visiting & scrutinising similar installations.
- Rushing decisions, being too optimistic, *or not open minded enough.*

- **Unmanageable complication:** *hard to understand, control, maintain.*
- Unusable controls, *leading to poor performance, waste and cost.*
- **Damaging fabric,** surfaces and organs, *by proximity, unsuitable design or operation, and excessive fluctuations in temperature and humidity.*

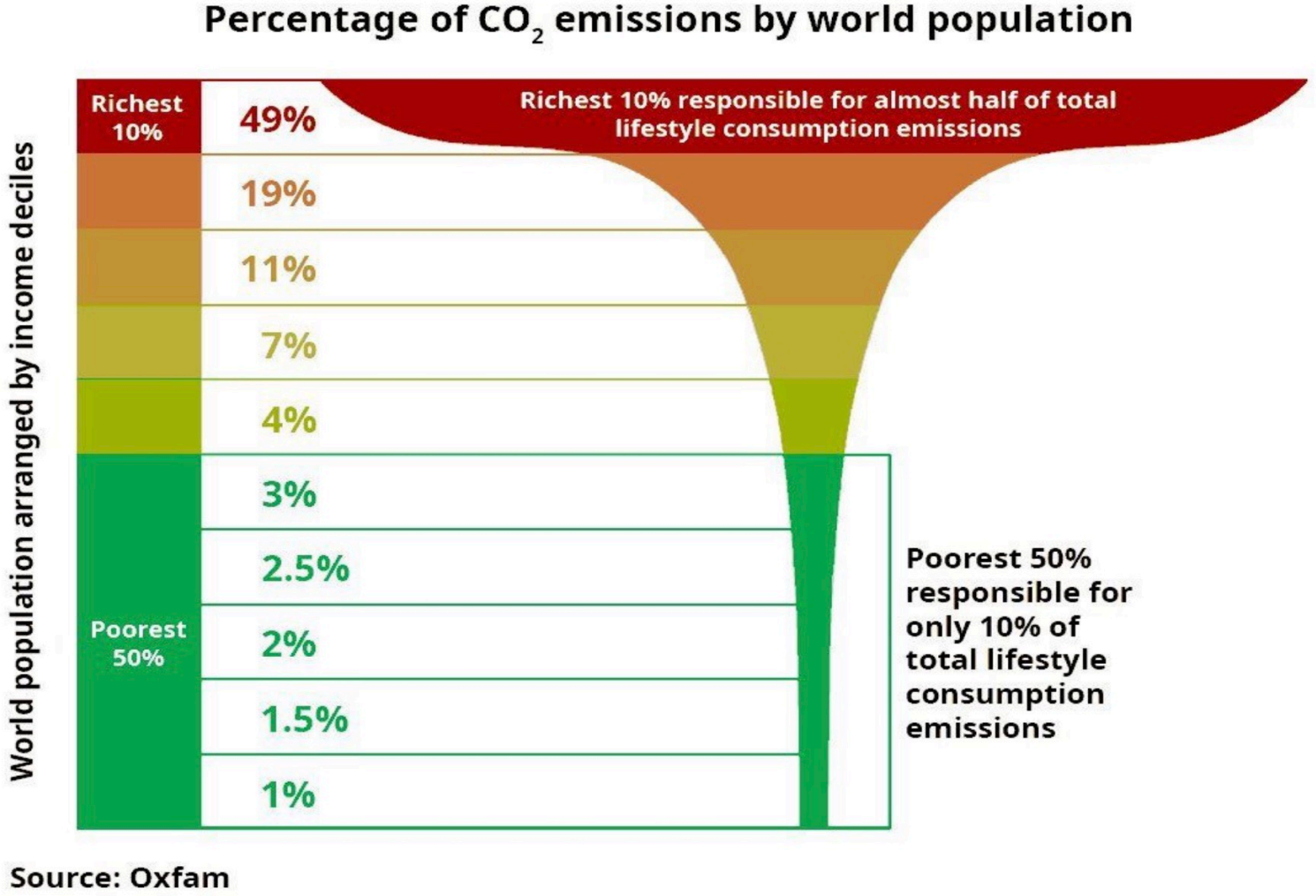
- **Lacking a strategic perspective, and going down blind alleys.**

Let’s discuss a few cases of yours

1. What have you got?
2. What does it mean?
3. What might be done?
4. What about the longer term?

"A constrained world cannot afford the rich "

GEORGE MONBIOT



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