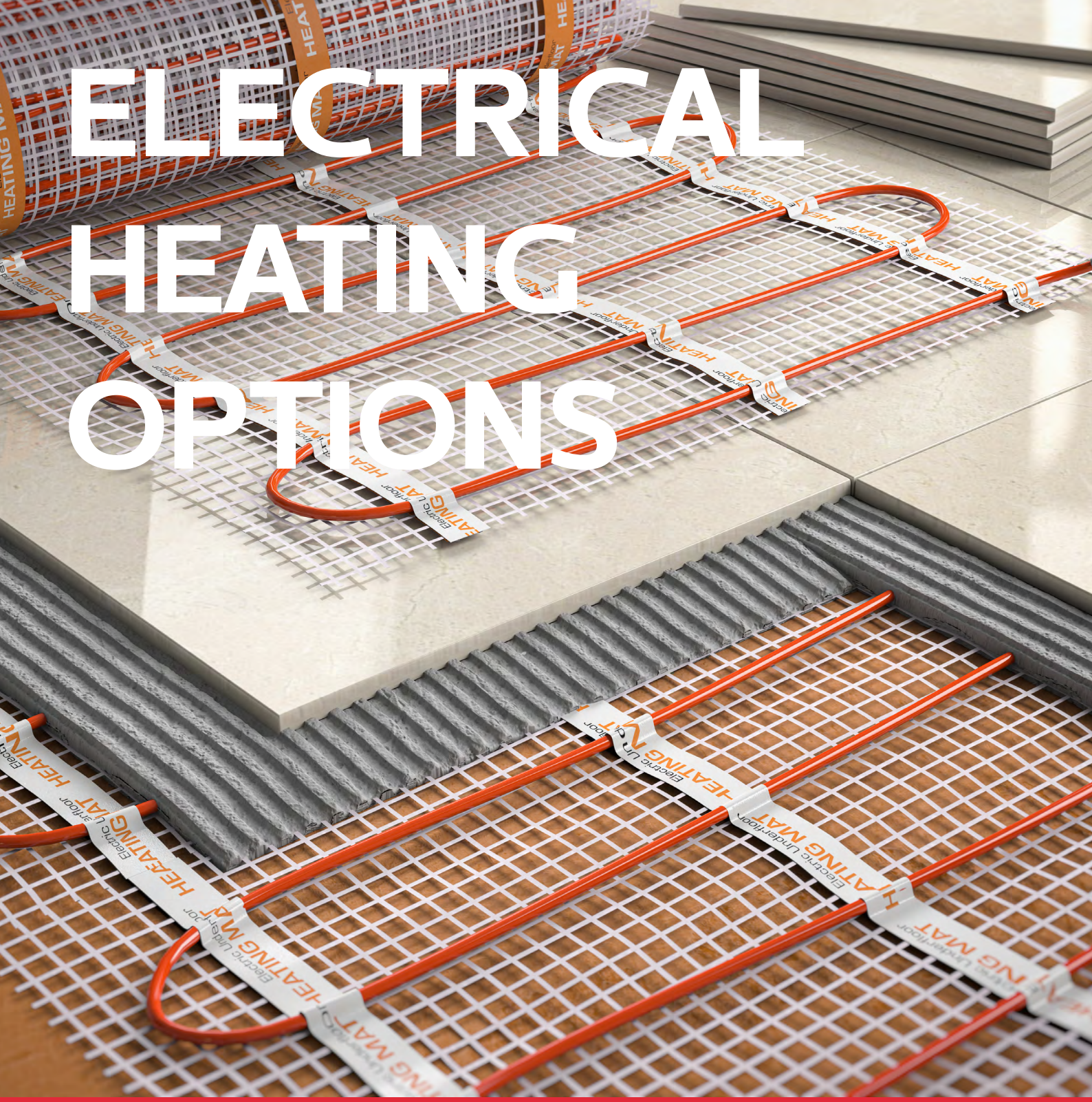
ELECTRICAL HEATING OPTIONS



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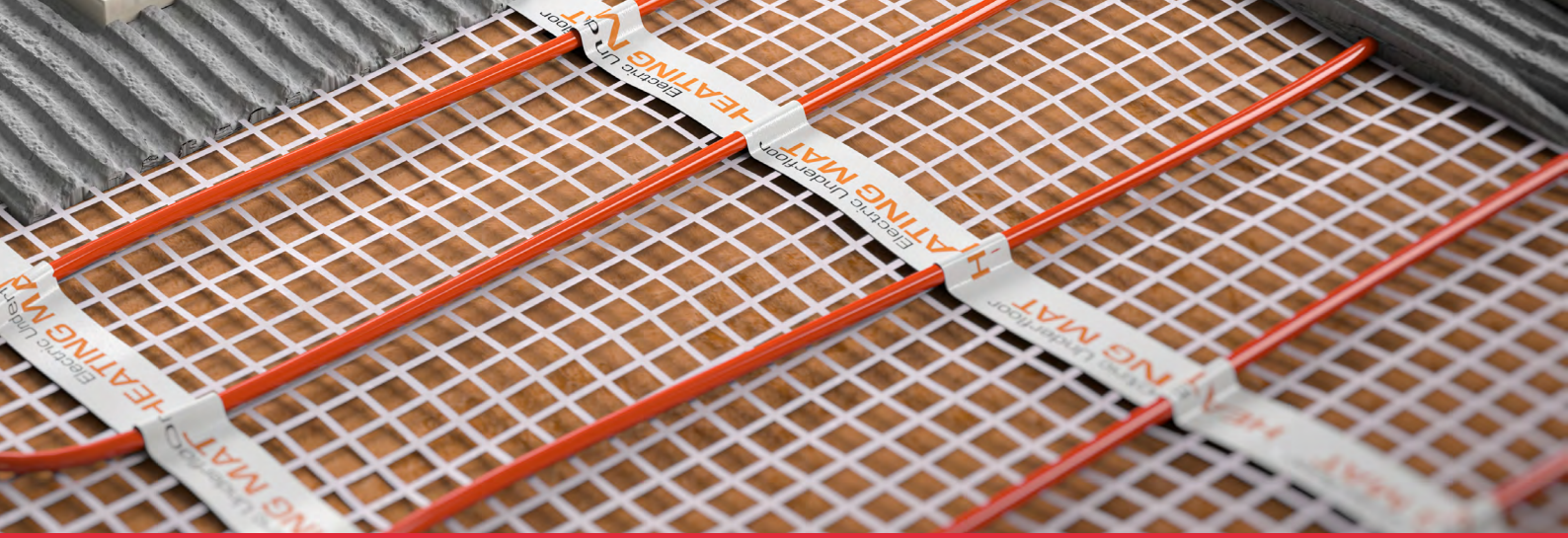

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WHY?

Electricity can be generated from 100% renewable sources both on a macro and micro level, e.g., wind farms, hydroelectric power stations and solar panels. This means that, even without microgeneration, switching to a dependence on electricity rather than fossil fuels will give a church choices of how that electricity is sourced.

HOW?

Churches are extremely varied in construction, often using multiple materials, some with few. At present (2021), electricity is much more expensive than gas: the former is generated from some other fuel, whilst gas is shipped to our homes and churches in its 'raw' state. As a result, electrical heating has been prohibitively expensive and therefore rarely used.

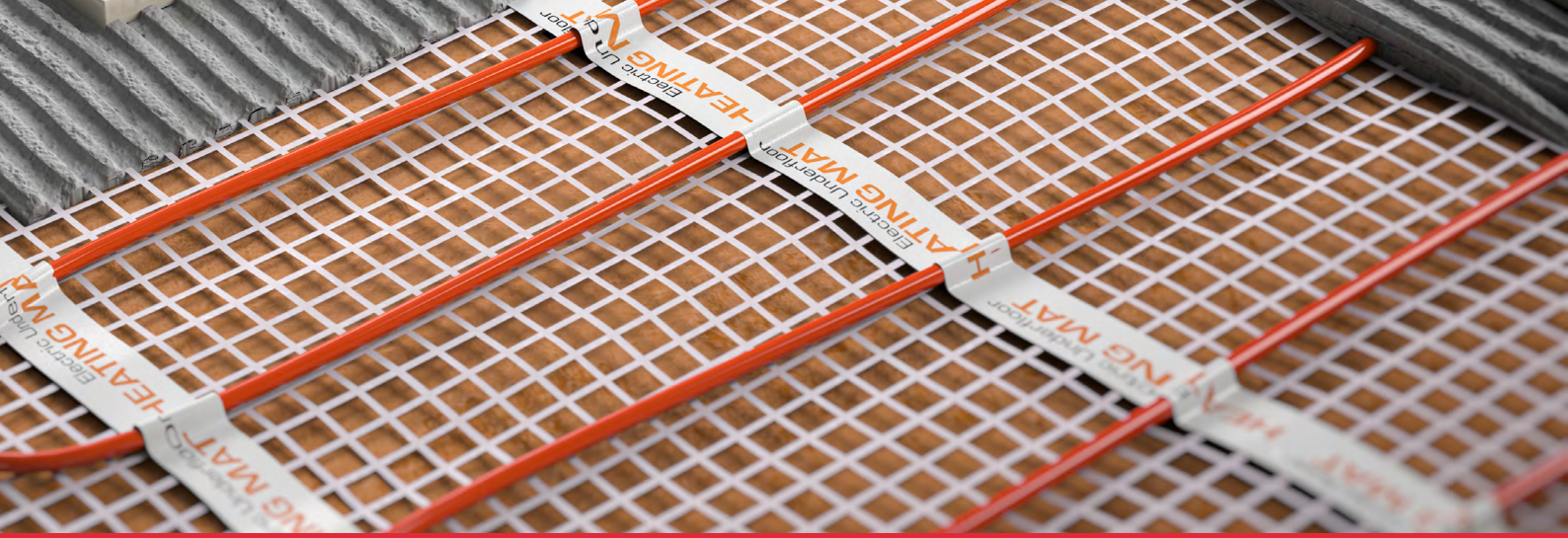
With aims to reduce carbon emissions, that is changing, and technology in this area is rapidly changing. What follows is a guide to what is available now, but will quickly be out of date:

ELECTRICAL BOILERS

These are an attractive solution as they are highly efficient, have no emissions (so no flue/chimney is needed), are cheap to install and maintain, and do not risk leaking harmful gases such as carbon monoxide. They can genuinely run off renewable sources, including energy partly powered by local microgeneration such as solar PVs, if your church can install them.

The disadvantages are that they are expensive to run, some rural churches may not have electricity and you may well need an upgrade to three-phase electricity. (Three-phase electricity can emit three times as much electricity as single phase but different cabling is required to do so.)

At present, if your church is small and used infrequently, this could be a good low carbon option; like electric cars, electric boilers will almost certainly become mainstream within the next five to ten years: https://www.boilerguide.co.uk/articles/best-electric-boilers



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UNDERFLOOR HEATING

Electrical underfloor heating is worth considering for small spaces that are well insulated. It is usually easier and cheaper to install than 'wet' underfloor heating, but will be expensive to run and will take time to heat up, so is normally only considered for small, frequently used spaces.

Like all electrical heating, it can run off solar PVs and/or renewable energy from the National Grid.

RADIANT HEATING

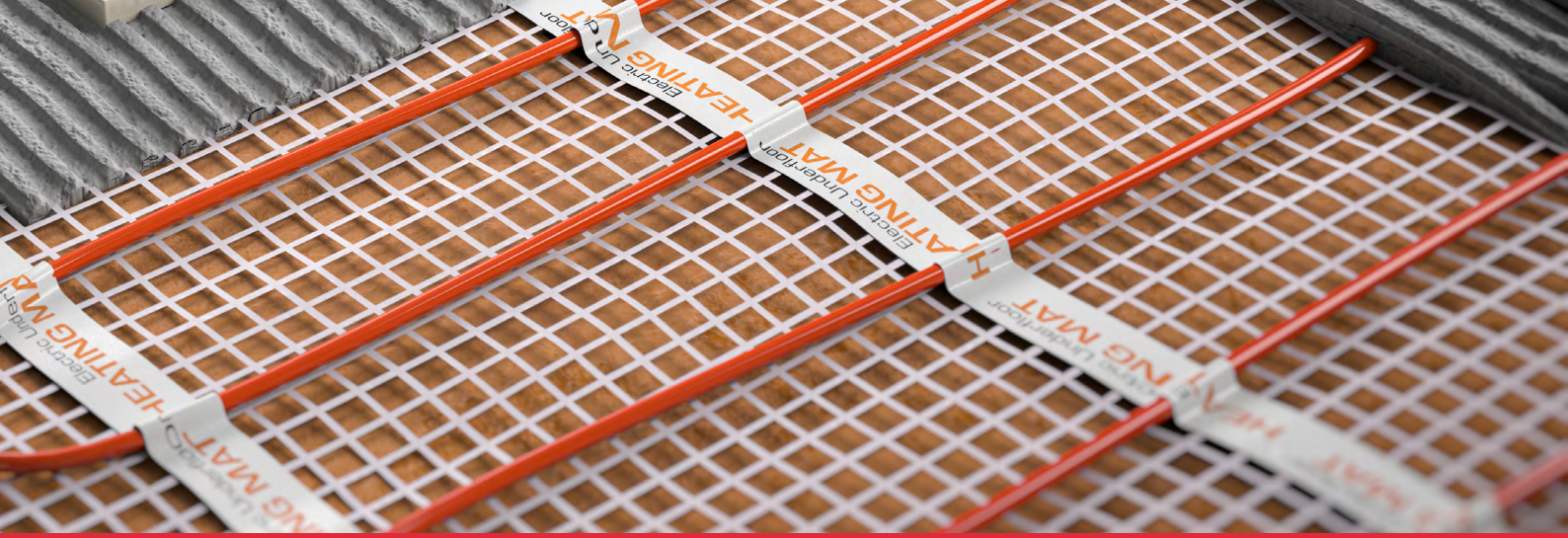
Radiant heating works in the same way as the sun; you feel warm as its rays heat you, even if the air around you is cooler. Infrared waves warm objects (or people) in their direct pathway heating them up. When they heat up, those objects warm other things too.

Again, the technology of radiant heat panels is developing, with many now available. In addition to the 'patio-heater' type, there are others which do not glow and are simply smart super-slim panels placed at appropriate places in your church. They can be run from solar PVs as well as from grid electricity.

They tend to be relatively low cost to install, low cost to run (pre-heating of the space is not required), and you can add more panels to systems as funds become available. Getting enough coverage in large/high buildings can be challenging and, with some systems, there can be a risk of people's heads being hot and their feet cold.

KEEPING PEOPLE WARM

Depending on your church layout, there are some fun and effective people-eating ideas, e.g. hot pew cushions, under-pew heaters or under-carpet heating. Whilst these can be low cost to install and run, there may well be challenges in your situation. For example, you may not have pews, carpet heaters may be a trip hazard, or you may have historic floors or pews which are likely to make these options unsuitable.



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LONGER READS & OTHER RESOURCES

Susan Logan of Ecoteric led a webinar on heating systems; electrical systems are discussed in the second half of it: https://www.youtube.com/watch?v=bGwk6q0QAk0 (starts at 6.06 minutes)

Richard Lowes of the UK Energy Research Centre talks at a Climate Assembly UK weekend about why we need to move to electricity for our heating:
https://www.youtube.com/watch?v=x4hQ8GUJYno

CASE STUDIES

A number of churches profiled here have moved towards electrical heating systems:
https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies

STRATEGIC DEVELOPMENT GOALS

Taking action on this topic will contribute to these UN Strategic Development Goals: