



Reducing Greenhouse Gas Emissions from our Churches

Purpose

This sheet provides information on carbon emissions from the energy we use in our church buildings. It shows how simple actions can make a real difference to our total emissions.

Human-caused carbon emissions, which are mostly carbon dioxide and methane (natural gas), are the main causes of global heating, leading to droughts, storms, wildfires and warming oceans, which are threatening millions of human lives and the whole beautiful creation.

Many church buildings are only used for limited hours each week, so the emissions from our homes are usually much higher. However, reducing energy use in our churches can be a public witness to caring for God's world: as well as reducing emissions, it shows what can be achieved, and raises awareness.

Reducing greenhouse gas emissions at church

1. Purchase green electricity

This is the quickest, simplest way to make a real difference. Green electricity is accredited by government to be zero-emissions; from wind, hydro and solar generators. The small added power cost could be funded by an appeal to congregation members (for example, Pitt Street Uniting Church did this). This is a great opportunity to raise awareness at the same time. (Note: This is not the same as carbon offsets [offsetting the emissions from coal and gas fired generators, e.g. by tree planting]: trees will take 20 years or more to absorb the carbon dioxide they're meant to offset. We don't have that long – the next ten years are critical to prevent irreversible climate change!)

2. Disconnect from gas

Eleven percent of Australia's carbon emissions are Fugitive Emissions. This is the methane (natural gas) which escapes from gas well drilling, gas pipe leaks, and coal mining. It is a greenhouse gas 28 times more potent (for trapping heat) than carbon dioxide. This is a massive and little-understood problem. Burning the gas also releases carbon dioxide. Consider reverse cycle air conditioning (if it's essential to heat large spaces), and electric hot water heating.

3. Minimise embodied energy in building and renovations

Minimise embodied energy in building and renovations. Embodied energy is the energy used in making things. Concrete, bricks and steel have very high embodied energy. They can be largely replaced by timber: conventional framed walls and roofs, or engineered timber (glue-laminated beams and panels from sustainable plantations), for structures up to 12 storeys.¹

4. Reduce energy use

Space heating

- Insulation is important, but simpler and more important is to *stop draughts*. A leaky house will replace all the air inside it several times every hour. That's a lot of expensive warm air escaping. Check under skirting boards, around doors and windows, and the outside of door/window frames. Rubber seals/compounds are available to block different types of gaps.
- Only heat the rooms you need and reduce the temperature setting. Even one degree makes a significant difference.

- Simple electric radiators, while less efficient than reverse cycle air conditioning, can heat a well-sealed room with 1000 watts (1 kilowatt). Air conditioning heating multiple rooms may use 4 kilowatts or much more. Do you need to heat all those rooms?
- Your church building may contain up to ten times more volume of air than your house. Heating a huge volume of air is very inefficient. It's much better to heat the people, not the air. Electric radiators are effective and fast, and economical if only used where people are actually sitting. However they need to be close: the side walls are usually too far away. Radiators on tall stands are a good option. They switch off automatically if knocked over.

Space cooling

- Do you always need to run air conditioning? Consider ceiling fans, and improving cross ventilation; it may be as simple as making windows easier to open and close. A split-system air conditioner uses 100 times the energy of a fan.
- Shade western and eastern windows to keep out summer sun.

Water heating

- Heat pump hot water heaters are three times more efficient than traditional electric. Also consider solar thermal (roof top collector) with electric boost (though heat pumps are falling in price and easier to install).
- Choose the lower water temperature setting, and switch off when you're away.

Timers on appliances

- Consider installing push button switches which turn off after two hours. Are urns, heaters and air conditioners sometimes left on accidentally? Consider installing pushbutton switches which turn off after two hours. Users can easily push them again if they need more time

5. Install solar (photovoltaic) panels

This is an option if the roof is metal or tile, with enough hours of sunshine. Panels may be a great public witness to care for God's earth, if they're visible from the street. If the congregation can't afford them, co-operation with community green power organisations is a real option - cost is no longer a barrier.

Any excess power you generate is sold to your electricity provider. For more information go to:

<https://energysaver.nsw.gov.au/households/solar-and-battery-power/installing-and-connecting-solar-panels>

6. Reduce household waste

- Food waste and all organic materials buried in landfills decompose anaerobically (without air). This releases methane (natural gas), which is much more harmful than carbon dioxide. Home compost which is turned regularly has far lower emissions and is useful. It's practical to make your own compost even on an apartment balcony.
- Reducing use of packaging and unnecessary "stuff", saves emissions from transport, and the leaching of toxins from landfills over thousands of years.
- Remember there is no such place as "out". You can't throw rubbish "out" (out of sight and out of mind); if it's not recycled, it all goes in a hole in the ground! There is no happy place which we can ignore.

7. Energy audit

- An energy consultant can help to identify air leaks, uninsulated areas and ways to save energy use by appliances
- You can also do your own energy audit.^{2,3} A useful tool for churches is the Energy Audit Handbook produced by the UCA Synod of Victoria and Tasmania. It gives a good understanding of energy basics, reading electricity meters, and how to conduct your own site inspections.⁴

8. Five Leaf Eco Awards

Participate in the Five Leaf Eco Awards, an Australian ecumenical environmental change program specifically designed for churches. It encourages action for the environment covering five areas: Buildings, Worship, Congregation, Outreach, Community Leadership ⁵

Further Information

For more information and facts on the climate crisis, environmental worship resources, the Synod Climate Action Strategy, and what you can do go to: www.unitingearth.org.au

The Australian Religious Response to Climate Change (ARRCC) provides a wealth of resources on climate change and how people of various faiths can respond. www.arrcc.org.au

The Climate Council is an independent source of evidence based information on climate change, with infographics, facts sheets and discussion resources on a host of climate change related topics. Go to: www.climatecouncil.org.au

For information on low carbon living and building go to; www.lowcarbonlivingcrc.com.au

References

¹ Sydney Morning Herald, May 28 2019. Available at: <https://www.smh.com.au/business/companies/australias-tallest-timber-building-to-top-up-melbourne-central-20190528-p51s0g.html>

² A starting point is Renew, a non-profit sustainability organisation for over 40 years. www.renew.org.au

³ To do your own home energy audit, see the SA government site: <https://www.sa.gov.au/topcs/energy-and-environment/using-saving-energy/home-energy-audits/do-a-home-energy-audit>

⁴ Energy Audit Handbook (Vic.Tas Synod, Uniting Church in Australia 2009. Available at: <https://fiveleafecoawards.org/awards/basic-certificate/>

⁵ Five Leaf Eco Awards <https://fiveleafecoawards.org/>