

The **Methodist** Church
Southampton District

Reducing the Carbon Footprint of our Energy

On Zoom
23 March 2022

John Evans

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Meeting Plan

- Devotions and introduction
- Methodist Response: Net Zero by **2030**
 - **Action for Hope**
- **Measure, reduce, offset – quick fixes?**
- Our situations
- Longer-term reductions
- Discussion

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Action for Hope

- Faith-consistent use of assets
 - Investments, purchasing power, **buildings** and land
- Wisdom
 - Theology, wisdom, prayer
- Lifestyles
 - Including traditions of simple living

Eco Church

- **Buildings**, Land, Community and Global Engagement
- Worship and Teaching
- Lifestyle, Community and Global Engagement

Complementary – each feeds into the other

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Romsey in 2014-5 – inefficient pew mounted heating to be removed



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Reporting procedures

- Modified annual return questions
 - Has your church had a Climate Sunday service in the past year?
 - Does your church have a plan to reduce its carbon footprint?
 - Do you have a plan for reducing single use plastics?
- **Reporting of energy and carbon consumption of churches**
- Estimates of membership carbon footprints by surveying ~120 churches (out of ~4000)
- Plan to Methodist Council in April 2022
- Announcement in May?

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Climate Stewards approach



• Measure

- Energy consumption

• Reduce

- Green supplier
- Building use
- Energy management
- Heating, insulation, lighting

• Offset

- Authentic community carbon projects

Total Annual Emissions: 17.41 tCO₂

💡 Energy: 13.69 tCO₂

🏠 Main Church Building: 13.69 tCO₂

🚗 Travel: 2.24 tCO₂

👥 Congregation: 2.24 tCO₂

🍽️ Food: 305 kgCO₂

🔍 View details

💰 Expenditure: 799 kgCO₂

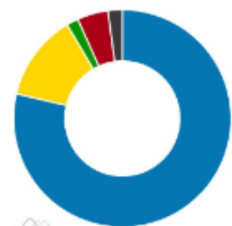
🔍 View details

🗑️ Waste & Water: 370 kgCO₂

🔍 View details

Example church

Carbon Footprint 2020



Energy - 78.6%
 Travel - 12.9%
 Food - 1.8%
 Expenditure - 4.6%
 Waste & Water - 2.1%

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Establish a baseline for 2022-23

- Need reliable readings for start of the next Financial Year (September)
- Use the past year 2020-21 as a dummy run
- Ensure end point is reliable at end of 2021-22
 - **Use recorded not estimated readings:**
- **Energy (kWh) , carbon footprint (tons CO₂e) and costs/incomes (£)** relating to:
Gas consumption; Electricity consumption. Energy generation.

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Conversion of energy to CO₂e (metric tons)

- Conversion Factors
 - Carbon intensity in 2021 (CO₂e/kWh)
 - Gas 183 kg
 - Electricity 192 kg
 - E.g. 10000 kWh electricity in 2021 equated to 1920 kg (1.92 tCO₂e)
 - –if perfectly efficient!
- Carbon footprint calculators – propose to use Climate Stewards
 - <https://www.climatestewards.org>
 - <https://www.climatestewards.org/offset/>
 - <https://footprintr.me>
 - <https://360carbon.org/en-gb/>
 - Estimate for 10000 kWh electricity 2.91 tCO₂e

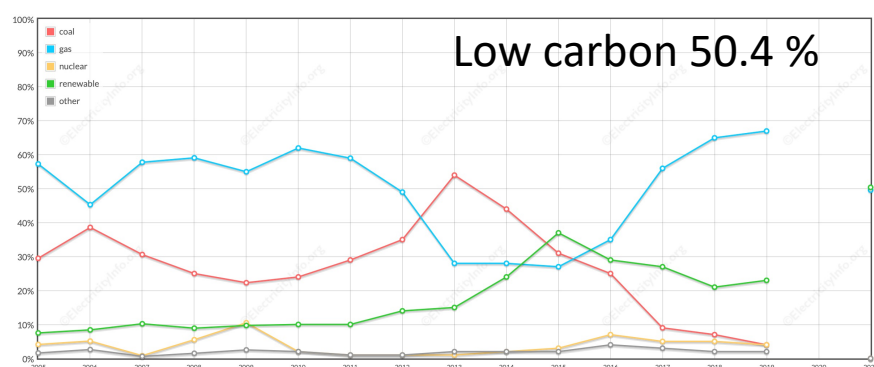
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Quick CO₂e reduction options - option 1

- Energy Supplier example

- <https://electricityinfo.org/uk-domestic-electricity-suppliers/>

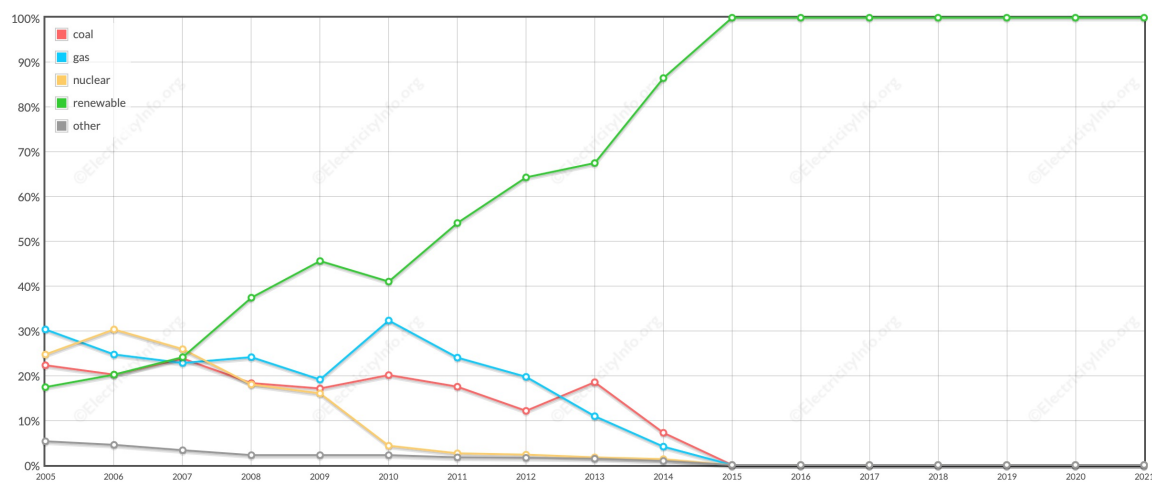
Southern Electric (SSE)



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Change to a Green Supplier (example)

Ecotricity



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Quick CO₂e reduction options – option 22

• Offset the rest

Electricity	<input type="text" value="10000"/>	<input type="text" value="kWh"/>	Renewables <input type="text" value="50"/>	<input type="text" value="⌵"/>	
Natural Gas	<input type="text" value="10000"/>	<input type="text" value="kWh"/>	Renewables <input type="text" value="0"/>	<input type="text" value="⌵"/>	
Biomass	<input type="text" value="Amount"/>	<input type="text" value="kg"/>			
Coal	<input type="text" value="Amount"/>	<input type="text" value="kg"/>			
Heating Oil	<input type="text" value="Amount"/>	<input type="text" value="litres"/>			
LPG	<input type="text" value="Amount"/>	<input type="text" value="kg"/>			

Calculate

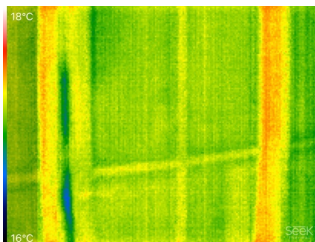
Reset

Description	Emissions	Cost
Electricity: 10,000 kWh (of which 5,000 kWh is renewables)	1.46 tCO ₂	£29.14
Natural Gas: 10,000 kWh	2.15 tCO ₂	£42.90
Total	3.60 tCO₂	£72.04

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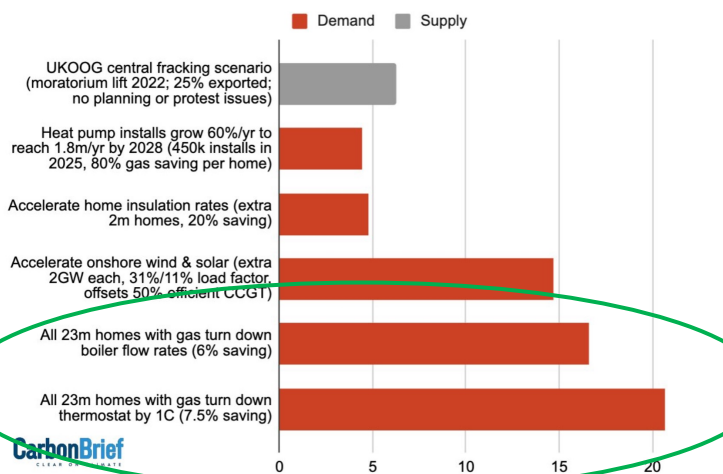
Quick CO₂e reduction - option 3

- Energy management
 - Timing of heating
 - Temperature of heating
 - Efficiency of boilers
- Adopt low energy lighting
- Chase drafts



Renewables, efficiency and heat pumps offer significant near-term potential to cut UK gas demand and imports

Impact on UK gas supply and demand in 2025, TWh



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Meeting Plan part 2

- Devotions and introduction
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 - Action for Hope
- Measure, reduce, offset – quick fixes?
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Reductions

- Flooring
- Secondary glazing
- Lighting
- Air purifiers



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Alternative supplies (1)

- Solar Panels

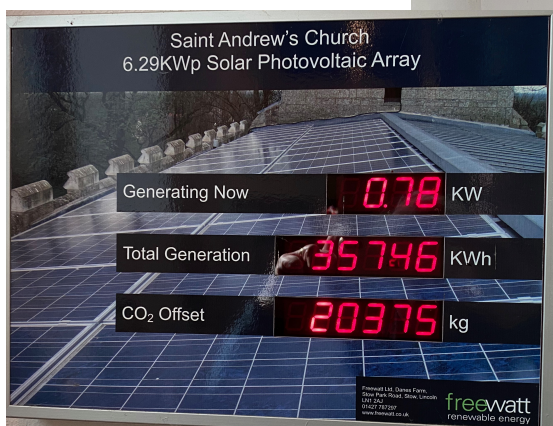
- Need shade-free ~south facing site.
- Maximum output Spring to Autumn
- Without a feed-in tariff need a battery system equivalent to daily generation to use the electricity generated (More expensive than the panels)
- A diverter makes solar power the priority source for an immersion heater



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Our Origins!

Epworth, Lincolnshire

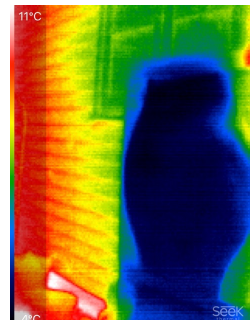
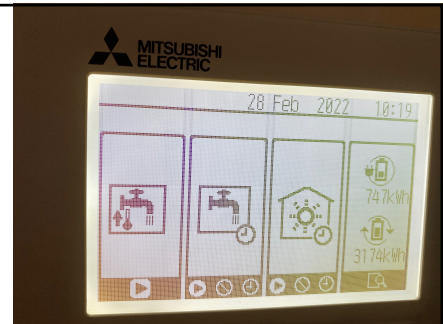


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Alternative supplies (2)

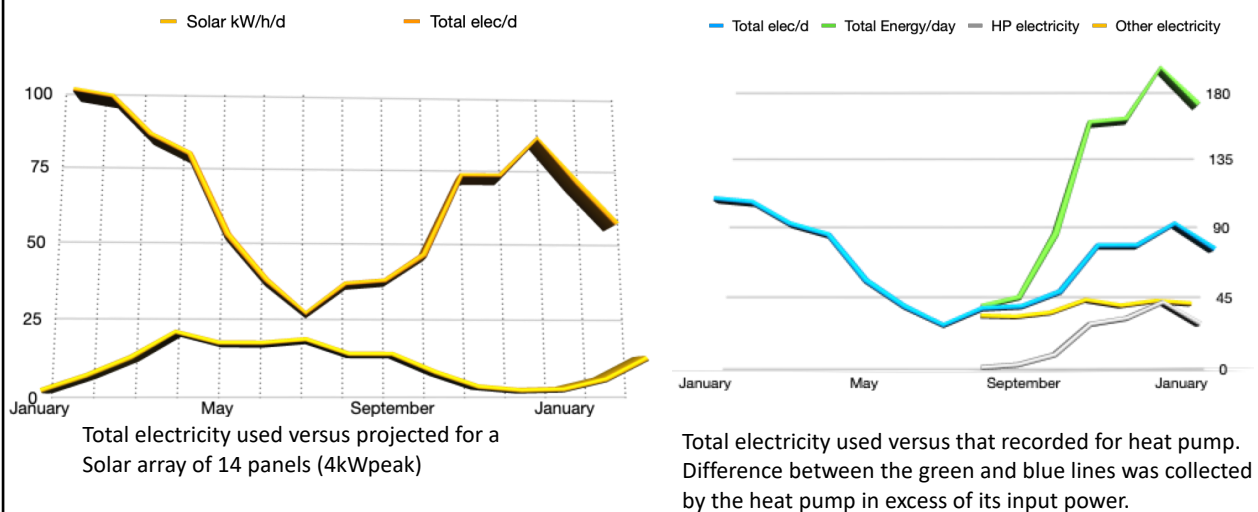
- Heat pumps

- Maximum output Autumn to Spring
- Energy captured proportionate to that used
- Energy captured is larger than that needed for the heat pump (~4)
- Energy can be captured from underground piping or from the air
- Delivery can be to water or to air.



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Comparison of alternative supplies (domestic) January 2021 – February 2022(kWh per day)



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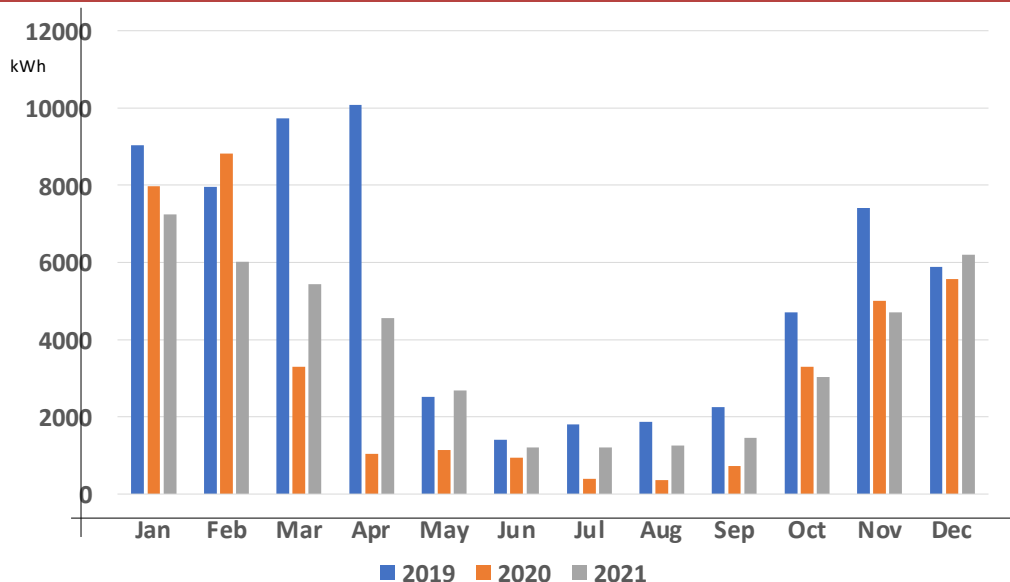
Ofgem: Domestic RHI Newsletter March 2022

New government Boiler Upgrade Scheme (BUS) due to launch in Spring 2022

The BUS will provide financial support for the installation of heat pumps (and biomass in certain circumstances) in homes and small non-domestic buildings to support the transition away from fossil fuel heating.

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Tracking trends: Total Energy Consumed



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