

SHRINKING THE FOOTPRINT

Climate Change and St. James's Church Piccadilly

Climate Change and COP21 Paris, December 2015

UN-Secretary-General Ban Ki-moon has called climate change the **'defining challenge of our time'**, and in many countries, the impacts have already been felt for some time.

The COP21 Summit in Paris from 30 November to 11 December 2015 is the next best chance for the global community to make a shared commitment to mitigation of the causes of climate change in an attempt to limit average global temperature increase to 2C° and adaptation to its effects.

More than 35,000 participants from every country are expected.

Alongside the official negotiations will be parallel meetings involving NGO's, business people, scientists, workers and many others.

Preparations for this UN event are being closely watched - and influenced by many campaigning groups, and the leadership of faith groups is demanded. As the United Reform Church says in its Earthyear campaign

<http://earthyear.org/>



“ the world needs a treaty in Paris that will lead us all towards a gentler, kinder world in which all life can flourish ”

United Reform Church, Earthyear



At St. James's we stand in solidarity with those taking part in a **Pilgrimage to Paris** under the auspices of the People's Pilgrimage, Operation Noah, and others.

We have been on our own pilgrimage in time, here in Piccadilly, rather than a physical journey, to provide information, raise awareness and take action.

For more information about our work and programme of events, please visit our website:

http://www.sjp.org.uk/our_planet.html

'Climate change, demographics, water, food, energy, global health, women's empowerment - these issues are all intertwined. We cannot look at one strand in isolation. Instead, we must examine how these strands are woven together. Solutions to one problem must be solutions to all'.

Ban Ki-moon

Our information about the history of Earth's atmosphere comes from ice cores drilled up to 3 miles deep in the Antarctic.

This ice has been building up for a million years in places, trapping bubbles of ancient air as it formed. Melting the ice releases the air, so its composition can be analysed.



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UNDERSTANDING ENERGY

We are all familiar with the concept of quantifying energy in food and calorie-watching is a multi-million pound industry in the UK.

Bread provides 75 calories per slice, a hamburger delivers 267 and spinach provides only 6 calories per cup.

We are often much less clear about the energy provided by fossil fuels and electricity for heating, lighting and transport. The same principle applies, but the quantities are so much bigger that we have to change the measuring system and use kilowatt hours or Units.



One kWh is an amount of energy, equivalent to 3,600,000 joules.

One joule is approximately the amount of energy required to lift an apple one metre. By contrast, the chemical energy available in eating an apple is 223 000 joules.

So to use 1kWh of energy, you could lift 3,600,000 apples from the floor to a table or boil an urn for 15 minutes.

An average person needs about 3kWh in food energy each day.

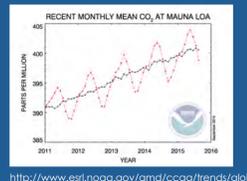
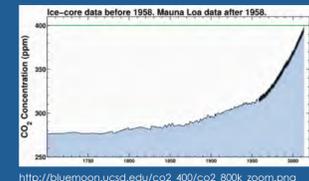
In 2014 St James's used about 295,000kWh in gas and electricity or the equivalent of boiling an urn continuously for 10 years or 83 years' worth of food for a 4 person household.

ENERGY USE AND CARBON DIOXIDE

Most of this energy was generated by burning fossil fuels, either directly in a gas boiler on site to provide the heating, or indirectly in a coal-fired power station to generate the electricity.

Burning fossil fuels produces carbon dioxide. Carbon which has been sequestered for millions of years below ground has rapidly been returned to the atmosphere over the past 200 years.

Generating electricity is responsible for more emissions than burning gas directly; hence emissions are measured in carbon dioxide equivalents (CO₂e).

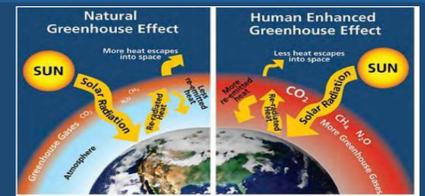


1k Wh of energy from natural gas = 0.1836 kg CO₂e.

1k Wh of energy from electricity generated in a coal-fired powered station = 0.5246 kg CO₂e.

CARBON DIOXIDE, GLOBAL WARMING & CLIMATE CHANGE

Carbon dioxide is a potent greenhouse gas and represents about 82% of all greenhouse gas emissions into our atmosphere. It acts as a blanket around the earth preventing radiated heat from escaping to space, warming the air, oceans and land surface. This in turn leads to instability in weather patterns and to large scale climate change. Global warming is anthropogenic. **97% of all scientific research groups agree that human activity is the dominant cause of current global warming trends.**



SHRINKING THE FOOTPRINT : Church & Earth

In 2005, London's 480 churches produced 22,600 tonnes of CO₂e, which is enough to fill the volume of each church. In 2006 the church established **Shrinking the Footprint**, a national campaign which has adopted the UK government's targets:

42% cut in emissions by 2020 and 80% reduction by 2050.

In 2009 'Church and Earth' was established with a strongly worded manifesto, including:

"The environmental challenges facing humanity in the 21st century are immense; the most urgent and pressing is climate change. People and societies have woken up late to the enormity, urgency and severity of this threat. Commentators and campaigners are consistent in drawing attention to what the human species is doing to cause the problem... Yet in spite of mounting scientific evidence for global warming and its existing and future impacts, concerted and substantial action nationally and internationally remains elusive.

There is no place for passive or complacent faith in God, believing that he will protect us from the consequences of reckless actions; nor any over-confidence in ourselves, presuming that human ingenuity is bound to find 'techno-fixes' that will conjure up cheap and painless solutions."



Our vulnerable atmosphere - if the thin layer of gases around us were rolled into a ball.

(Science Photo Library)

St James's and Shrinking the Footprint

Shrinking the Footprint supports individual churches in implementing measures to reduce their emissions, including auditing which facilitates comparisons across different churches. In 2005 our overall energy rating was band F – very poor! Over the past 5 years we have:

- Established behaviour plans to support staff and other users in reducing their energy use.
- Installed roof insulation and a new energy-efficient boiler,
- Installed LED lighting throughout the rectory and market, improving efficiency by up to 80%
- Changed our energy supplier to Ecotricity; we no longer buy coal-fired electricity.
- Photovoltaic cells on the roof have been generating solar power for the past decade.

This contributes a small percentage of our lighting needs, but more importantly serves as a potent symbol of what can be achieved in the heart of the city on a listed building.

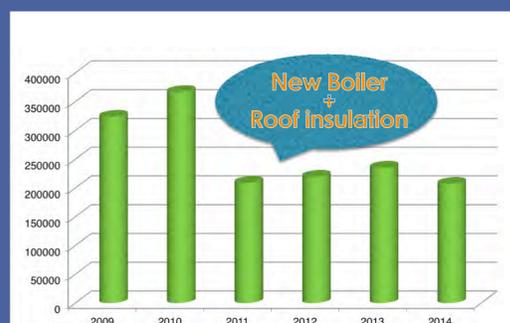


PV Panels installed on the roof of St James's Church

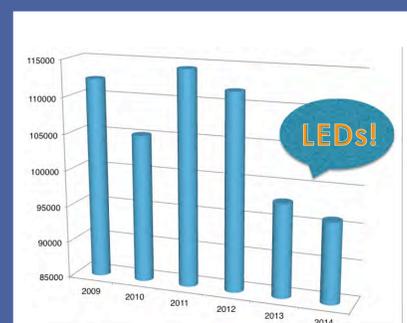
We use about twice as much gas as electricity, so overall our CO₂e production in 2014 was 29% less than in 2009.

29% reduction achieved in 5 years BUT 42% is required by 2020 AND 80% by 2050

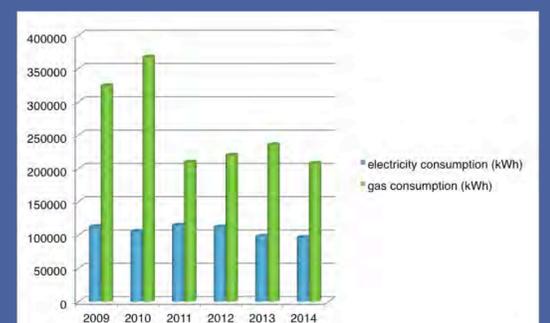
	kWh	CO ₂ e	% CO ₂ e
SJP Reduction in annual gas consumption since 2009	116,475	21385	36
SJP Reduction in annual electricity consumption since 2009	16,253	8527	15



St James's Gas Consumption (kWh)



St James's Electricity Consumption (kWh)



Comparative year on year consumption (kWh)