“George Goes Green”

St. George the Martyr, Wash Common, Newbury

Renewable Energy Project Launch

With Guest Speakers:

Sir John Houghton
Lord Carey of Clifton

11th November 2009
12 noon

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Media Release

Embargoed until 12:00pm Wednesday 11 November

Newbury church aims to be first in UK to become carbon neutral by converting from fossil fuel to renewable energy sources

Campaign backed by Nobel Laureate and former Archbishop of Canterbury

Newbury, 11 November 2009:

St George's Church, the parish church of Wash Common in Newbury, Berkshire, today announces its intention to become the first church in the UK to convert its energy supplies for both heating and electricity from fossil fuel to renewable sources, thereby becoming carbon neutral.

Announcing the launch of the ambitious project, and the fundraising campaign which he is supporting, was leading climate change scientist and Nobel Laureate Sir John Houghton. He was joined by the former Archbishop of Canterbury, Lord Carey of Clifton who lives in the parish and is a member of St George's Church.

At the launch, they spoke of their support for the project and their hope that others would follow St George's example.

The project aims to make the church building – which was built in the 1930s – into one fit for the 21st century: self-sufficient in energy, drawing its power, light and heat from renewable sources.

By using a unique combination of ground source heat pumps, photovoltaic panels and an insulating skin around the building's exterior, the church is aiming to reduce its carbon footprint, currently 15 tonnes per year, to zero by the end of next year.

St George's is also working with the Church of England's Shrinking the Footprint national environmental campaign, which has confirmed the unique status of the proposed development.

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The project is being driven the Vicar of St George's, Paul Cowan. He says:

"This is not a project we are undertaking lightly. We didn't feel that a small reduction to our carbon footprint was enough. Because the effects of climate change are now becoming critical we concluded that this is the time to be truly radical and slash our carbon emissions to zero. We're not the first church to tackle its carbon footprint, but none has yet attempted the move from fossil fuel dependent to carbon neutral. Besides the environmental benefits, we'll be turning a fairly cold and unwelcoming space into a warm, inviting and flexible venue for a much wider variety of community events. This is a win, win, win – for the environment, for the church congregation, and for the local community of Wash Common."

Lord Carey of Clifton says:

"This is a very courageous undertaking and one for which St George's deserves much credit. With more than 16,000 churches in the Church of England there is now an urgent need for exemplar projects, such as this one, to lead the way and from which others can learn and be encouraged. This ambitious project will lead the way in showing what can be achieved, with some ambition and imagination, to tackle climate change, one of the most pressing issues of our time."

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Notes to Editors

Ground Source Heat Pumps

At a depth of 1.5 metres and below, the earth remains at a constant temperature of around 11-12ºC throughout the year. For every unit of electricity used to power the pump, 3-4 units of heat are produced. St George's Church will use Ground source heat pumps (GSHP) - pipes in seven 100m deep vertical boreholes in the church grounds that are filled with a mixture of water and antifreeze. These will in collect the heat from the ground to provide heating for the church building via an efficient under-floor heating system.

Photovoltaic Cells

Solar photovoltaic (PV) cells convert the energy in sunlight into electricity. The church aims to mount a large array on its south-facing roof to generate sufficient electricity both to power the GSHP and supply its general electricity needs.

Shrinking the Footprint

More information can be found below or at www.shrinkingthefootprint.cofe.anglican.org.

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Church History and Profile

The history of St George the Martyr Church, Wash Common

From its origins at the enclosure of the Common in Victorian times, the idea of a Soldiers' and Sailors' memorial church developed in the early 20th century and hence a building fund was started. The church was named after England's patron soldier-saint and built to commemorate the fallen of the First World War as well as those who had perished on both sides in the carnage of the first Battle of Newbury in 1643.

It is one of only two churches in England designed by F.C. Eden FSA FRIBA, an authority on Italian art and architecture and is based on the early Renaissance pilgrimage chapels found by the Italian Lakes in the foothills of the Alps. The Italianate style, tall, light and airy, was also thought more suitable to the heavy clay subsoil of Wash Common.

Work started in 1933 and continued until the money ran out by which point the church had been completed as far as the nave and so the end was boarded up (see photo 1.). The work had cost £5,468 and it was estimated that a further £3,500 was required for completion however it was not until the 1960s when an opportunity arose to raise the additional funding. Further growth on Wash Common led the Education Authority to seek a site for a new school and thus the surplus land on the church field was sold. This provided the much needed funds to complete the church, the cloister, campanile and vicarage in 1963-4 based on Eden's original designs which were amended by John Griffin.

St George's Today

St George the Martyr Church is a community church and increasingly the focus of community life on Wash Common and the neighbouring areas. It is vibrant and growing and currently supports an average weekly congregation of 100 adults and 20 children for which there are numerous facilities including a crèche and clubs for all age ranges. There are 170 people listed on the Electoral Roll and the choir has over 20 regular members. The Church building and adjoining community hall is used for many varied social events and there is an annual art exhibition, pilgrimage and fair.

St George's Centre and St Luke's Chapel

The centre was built almost 10 years ago for the benefit of the local community. Church members contributed to the total cost of the development project of £620,000 with over £200,000 in cash and £80,000 from church events. Additionally the local community of Wash Common contributed £20,000. The centre is used by approximately 600 per week and is the of a pre-school, afterschool club, and a wide variety clubs and societies which cater for all ages.

St Luke's Chapel, now deconsecrated, is let at a 'pepper corn' rental to local theatre group, the New Era Players. The theatre has 60 seats and the company put on five shows per year.

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Church Photographs

1. Partially completed church

2. Bell tower

3. High Altar

4. The South Transept

5. St George's Centre

6. St Luke's Chapel

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Biographies

Sir John Houghton

Nobel Laureate, Sir John Houghton was born in 1931 and read physics at Oxford University. During the 1970s he was a Principal Investigator for Space Experiments on NASA Spacecraft and in 1976 he became Professor of Atmospheric Physics at Oxford University before becoming a Director at Appleton, Science and Engineering Research Council. Sir John was then Chief Executive at the Met Office and co-chair of the UN Intergovernmental Panel on Climate Change's (IPCC) scientific assessment working group. In 1992 Sir John became Chairman of the Royal Commission on Environmental Pollution and later a Member of the UK Government Panel on Sustainable Development.

In 2007 Sir John was awarded the Nobel Peace Prize alongside Al Gore, for his leading role in the IPCC. Sir John is currently Chairman of the John Ray Initiative, an organisation "connecting Environment, Science and Christianity", as well as President of the Victoria Institute (known as 'Faith and Thought'), which is a forum for those who wish to hold together Christian faith and advances in scientific knowledge.

Lord Carey of Clifton

Formerly Archbishop of Canterbury, George Carey was born in 1935 and after graduating from London College of Divinity and King's College London he served as a curate in Islington, London. During this time he went on to research the early origins of Christian ministry and earned both M.Th and Ph. Degrees. He then taught at two Colleges before becoming a parish priest at St.Nicholas' Durham. In 1982 he became Principal of Trinity Theological College in Bristol and, in 1987, Bishop of Bath and Wells. In 1991 he was invited to take up the post of 103rd Archbishop of Canterbury and served 70 million Anglicans around the world until his retirement in 2002.

In 2002 George Carey was made a life peer as 'Lord Carey of Clifton'. Lord Carey is Presentation Fellow of King's College London, Fellow of Christ's University College, Canterbury and Fellow of the Library of Congress. He is also the recipient of some 12 Honorary Doctorates and author of 14 books. Currently he is Chancellor of the University of Gloucestershire and President of the London School of Theology.

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Revd. Paul Cowan

Paul was appointed Team Vicar of St George's, Wash Common in September 2006 prior to which he spent twelve months as Assistant Priest at Kimberley Cathedral, South Africa, a link diocese to Oxford Diocese. From 2002 to 2005 Paul was curate at All Saints' in Wokingham, a position he maintained whilst studying for his Degree in Theology at Oxford University.

In Paul's earlier career he worked in Tower Hamlets, East London for Charis, an independent ecumenical Christian charity providing intensive residential alcohol and drug therapy programmes for homeless men. He is a qualified counsellor and spent nine years facilitating group therapy and one to one counselling. Paul also managed a 'halfway house' in central London for young homeless people.

Paul is married to Hannah and they have two sons, Samuel and Joel.

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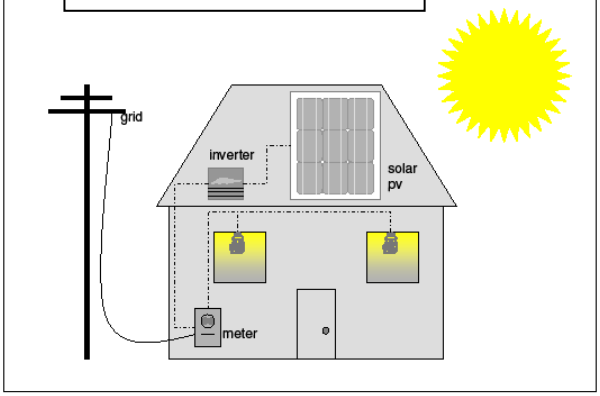
Solar Photovoltaic Cells

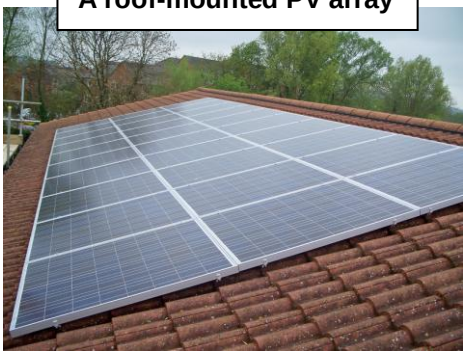
Solar photovoltaic (PV) cells convert the energy in sunlight into electricity. The church aims to mount a large array on its south-facing roof to generate sufficient electricity both to power the GSHP and supply its general electricity needs. A monitor inside the church will provide a display of real time data on electricity generation.

Solar generated electricity is created by the technology of photovoltaics (PV) – solid state semi-conductors that convert light into electricity. When a small amount of light (a photon) lands on a PV cell it gives energy to an electron. The electron moves away from the cell into an electrical circuit. The electricity created is direct current (DC). At the church this will be converted to alternating current (AC) via an inverter.

Schematic of a photovoltaic system



A roof-mounted PV array



When electricity demand on site is more than the output from the PV array, the difference is drawn from the national electricity grid. Should electricity demand be less than the output from the PV array, electricity can be exported back into the grid. This is measured using an export meter. The forthcoming Feed In Tariff means that from April 2010 all the electricity generated will produce an income for the church. An array of PV panels will be retrofitted on standard modules to the large south-facing roof. Maximum generation is obtained from unshaded roofs that face as close to south as possible and St George's roof is therefore ideal.

St George's PV array will be supplied with an interactive digital display unit so that it becomes an educational resource as well as a supplier of power. The information generated by the array will be made available, for example, to local primary and secondary schools.

Information and photographs provided by TV Energy www.tvenergy.org

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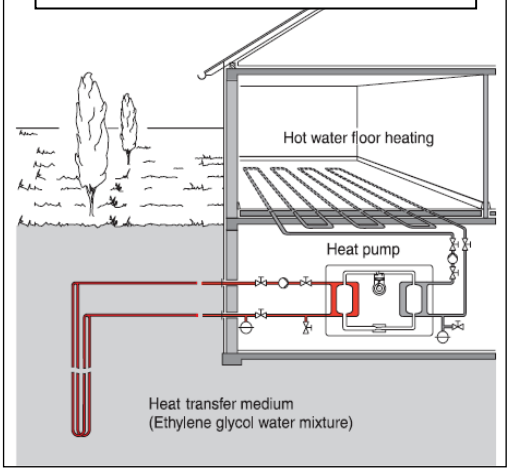
Ground Source Heat Pumps

At a depth of 1.5 metres and below, the earth remains at a constant temperature of around 11-12ºC throughout the year. Ground source heat pumps (GSHP) can pump this heat from the ground into a building to provide heating. For every unit of electricity used to power the pump, 3-4 units of heat are produced. St George's Church will use pipes in vertical boreholes to collect the heat. This will warm the church building via an efficient underfloor heating system.

The three elements of St Georges' GSHP are:

- Ground loop - comprises lengths of plastic pipe buried in the ground in a borehole. The pipe is filled with a mixture of water and antifreeze, which is pumped round the pipe in a closed circuit absorbing heat from the ground. Seven 100m deep boreholes will be drilled in the church grounds.
- Heat pump - works by using the evaporation and condensing of a refrigerant to move heat from one place to another. The evaporator takes heat from the water in the ground loop; the condenser gives up heat to a hot water tank which feeds the distribution system. A compressor, which uses electricity, moves the refrigerant around the heat pump. It also compresses the gaseous refrigerant, to increase the temperature at which it condenses to that needed for the distribution system.
- Heat distribution system - consists of a new 'wet' under-floor heating system. This is the most efficient system for a heat pump as it requires only low-grade heat with temperatures of 30-35°C.

Schematic of a GSHP System



A Heat Pump

Energy is needed to activate the heat pump cycle and to compress vapour for the production of useful heat. Using grid electricity the energy efficiency is still better than a modern gas condensing boiler. But St Georges' Church plans to become a carbon neutral church by running the heat pumps on electricity generated by photovoltaic panels.

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Draught Reduction and Insulation

In order to improve the thermal efficiency of the church building itself there is a need to reduce draughts and to insulate the building fabric.

Draught reduction:

1) The main north entrance door will be enclosed by partial glazing of the cloisters which will create a “thermal lobby”. This will reduce the volume of air available to be drawn into the church when the main door is opened (see diagram below).
2) The external door in the north transept is to be improved and the proposed glazing of the north transept will introduce a barrier between the main church space and the outside.
3) The leaded light and minor windows will be replaced with double glazed units and secondary glazing will be installed in the clerestory and stained glass west window.

Insulation solutions:

1) The underfloor heating system includes an insulation layer of foamed recycled glass beneath the heating pipes. The floor will be finished with 50mm stone slabs, which transmits heat most effectively.
2) The walls, which are solid brick masonry, are to be clad externally with a multilayer 100mm thick insulation and rendering system. This will be applied to all the walls of the church up to the eaves and has a self coloured render finish which will replicate the current white painted exterior (see diagram below).
3) The roof is to be insulated with an extremely light weight multi-layer membrane insulation system which will be attached to the rafters of the roof.

Overall, these improvements to the building significantly improve the thermal efficiency and hence the heating demand of St George’s.

Architects impression of the thermal lobby

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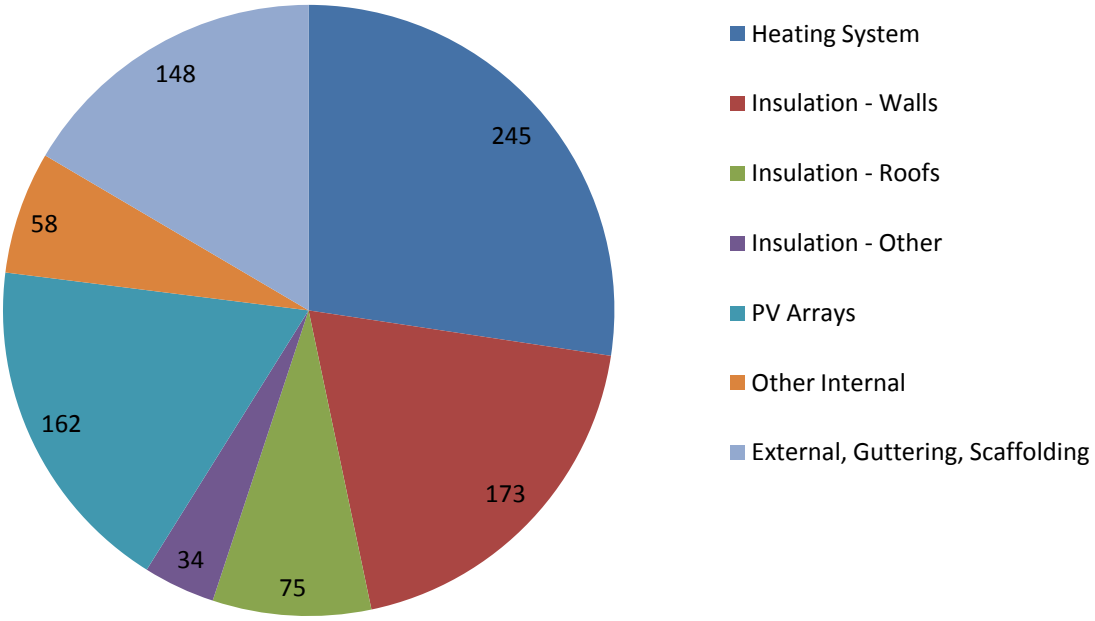
Project Economics

The installation costs of this project are estimated at £908,000. To secure this large amount many funding sources are needed. They include Government and Corporate Grants, Charitable Trusts, Landfill Communities Fund, Local Councils and Diocesan and National Church Organisations. St George's Congregation will be contributing and also holding Church Events and it is hoped that the local community of Wash Common will as they did for our previous project.

Cost Areas - £908,000
(incl. VAT, Professional Fees and Contingencies)



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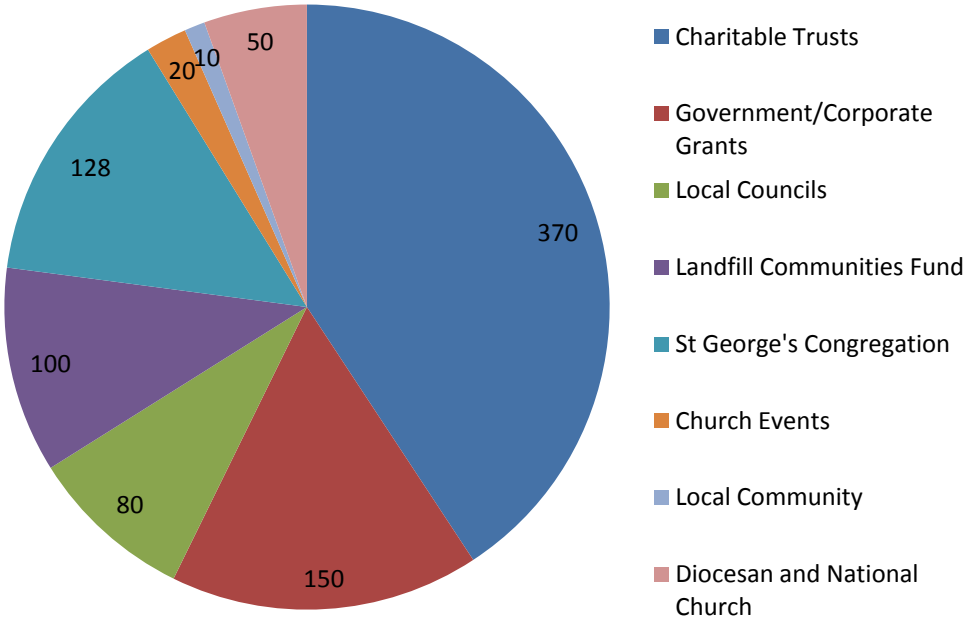
St George's Church has a good track record when it comes to raising funding for local community resources. St George's Centre, adjacent to the church was built nearly ten years ago for the benefit of all those in the community. Church members contributed over £200,000 in cash and £80,000 from church events to the cost of the £620,000 development project. Additionally, the local community of Wash Common contributed £20,000 in cash. The development was delivered on budget and time and the same team of people are involved in the management of this new project.

Funding Targets - £908,000



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Shrinking the Footprint

The Church of England's National Environmental Campaign

'Shrinking the Footprint' is the Church of England's national strategic campaign to enable its members and institutions to address - in faith, practice, and mission - the pressing issue of climate change. It aims to challenge, encourage and support the whole body of the Church to shrink its environmental footprint to create the "The 20% Church" by:

- Making a difference now by following the Shrinking the Footprint path - simple steps to reduce consumption of non-renewable resources by 2008
- Planning to make a difference in the future through a growing series of strategic initiatives and partnerships which will change Church activities, structures and processes, producing sustainable reductions in the Church of England's carbon emissions to 20% of current levels by 2050.

Shrinking the Footprint's first challenge to the Church is to lighten its energy load to mitigate its impact on future climate change. Measuring the Footprint - the Church of England National Energy Audit - is the first step. Later activities will look at issues such as biodiversity, waste and water management, transport and other contributing factors, and also at what steps should be taken to adapt to climate changes already likely to occur in the next 20-40 years.

Shrinking the Footprint is supportive of St George's project and intends to list details on their website in the near future.

www.shrinkingthefootprint.cofe.anglican.org

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Photograph

Lord Carey and Revd. Cowan displaying a sample PV cell

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How to find us... (you can also use www.achurchnearyou.com)