EU and UN aims to reduce mercury use and emissions."

Friday 27th February

Tomorrow from 9.30 to 3.30 a meeting called "Treasure the Earth" will take place at St. John's Church, Colchester. It will focus on the fifth mark of mission: Striving to Safeguard the Integrity of Creation. Keynote speakers include Bishop David Atkinson, author of "Renewing the Face of the Earth", and Chris Walton, Outreach Director of Ringsfield Christian Eco-Study Centre.

There will be awards given for:

- The best youth initiative
- The best energy-saving idea
- The best church building initiative
- The greenest journey to the conference
- The most environmentally-friendly churchyard
- The greenest parishioner (no self-nominations)

The cost: £5. Bring lunch. For more details contact: Anne Coley, Parish Development Adviser, on 01255 676792.

Saturday 28th February

Tomorrow, and every Sunday in Lent, as part of evensong at Hexham Abbey, a series of high profile speakers will , under the general title of "Treading Lightly in Lent" speak on the challenges of climate change. For more information, contact Canon Graham Usher, Hexham Abbey, Beaumont Street, Hexham NE46 3NB.. Tel. 01434 602031
rector@hexhamabbey.org.uk

Sources:

"Ten Technologies To Save The Planet" by Chris Goodall (GreenProfile £9.99)
The Ecologist
Green Futures

Additional Prayers

If you would like to receive the prayer diary each month by email (free), please email prayer-guide@christian-ecology.org.uk For further information and requests for prayer, please write or email: Philip Clarkson Webb, 15 Valley View, Southborough, Tunbridge Wells TN4 0SY Email: pcw@christian-ecology.org.uk

Website: www.christian-ecology.org.uk

Picture on front cover: Reed Mace at Helwith Bridge Moss. by J.A.

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Prayer guide for the care of creation

February 2009

The eyes of all look to you, and you give them their food in due season.
You open your hand, satisfying the desire of every living thing.
The Lord is just in all his ways, and kind in all his doings.
The Lord is near to all who call on him, to all who call on him in truth.
He fulfils the desire of all who fear him; he hears their cry and saves them"

(Psalm 145. 15-19)

Where then does wisdom come from? Where does understanding dwell?
The fear of the Lord – that is wisdom, and to shun evil is understanding.

(Job 28. 20 & 28)

The cultivation and expansion of needs is the antithesis of wisdom. It is also the antithesis of freedom and justice. . . Only by a reduction of needs can one promote a genuine reduction in those tensions which are the ultimate causes of strife and war.

(E.F. Schumacher)

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ChristianEcologyLink

Sunday 1st February

Loving Father, you sent your Son to share the suffering of humanity. Come close to all who are suffering from war, persecution and natural disasters. Uphold those who minister to their needs and help us to remember that in serving the least of your brothers and sisters we are serving you. Amen.

Monday 2nd February

According to an FoE report "What's feeding our food?" soya beans provide 65% of all animal protein feed in Europe and 40% in the UK. Brazil alone provides 78% of the UK's soya imports, thanks to incentives from the EU Common Agriculture Policy. Huge plantations of mostly GM soya in Brazil have substantial impacts on climate change, employment and the health of local communities. Conversion of forest and savannah to plantations both releases CO_2 and reduces local employment to an average of one employee per 200 hectares. FoE calls for:

- Removal of subsidies that underpin intensive livestock farming
- A switch to livestock breeds that require less protein-rich diets
- A review of Europe's trade strategy to mitigate its social & environmental impacts.

Tuesday 3rd February

According to a new report from Deutsche Bank' between £2 trillion and £5 trillion worth of irreplaceable natural resources are lost every year from deforestation. The report points out that there is not enough metal in the ground to manufacture laptops, TV sets and vehicles to meet the increasing demand from emerging economies in the East – and our climate couldn't stand it if there were. "We cannot go on draining the world's natural capital. We need to stop racking up this massive ecological debt. We need to rethink – and dematerialise – the way we provide, light, heat, mobility and other services to consumers across the globe. Time is not on our side."

Wednesday 4th February

Next December world heads of government will meet at Copenhagen to set a path for the successor to the Kyoto Protocol.
Britain's Climate Change Act – which requires an 80% carbon reduction by 2050 - gives us a chance to show world leadership, especially if it emphasises domestic action as the key means of reaching the target, rather than on accessing carbon credits overseas. Allowing energy-intensive 'dinosaurs' to drag down the negotiations would threaten our future climate, our prosperity and our security. Short-term agendas must be banished.

Thursday 5th February

According to the Washington-based Worldwatch Institute's "State of the World 2009" report, even a 2^0 C. increase in global temperatures will bring unacceptable risks to natural and human systems, including major reductions in food carrying capacity in developing countries, severe water stress for millions of people, significant sea-level rise and coastal flooding. Temperatures have already increased by 0.8^0 C. and a further increase of 1^0 is saved up from past emissions which have yet to impact the climate.
"We have got until 2050 to go carbon neutral or face up to dire consequences. We're privileged to live at a moment in history when we can still

organic farming must be used to control weeds. Research in Brazil suggests that zero-till techniques absorb about 0.6-0.7 tonnes of new carbon per hectare per year. This suggests that if the grain-producing areas of the entire world (about 700 million hectares) were switched to zero-till methods, almost 2 billion tonnes of CO_2 would be sequestrated every year, i.e. between 5% and 10% of today's emissions.

Sunday 22nd February

Father, we thank you for the bountiful world in which we live, for the food you provide and for the abundance of its store. Help us to look after the world that you created, to study it and to learn from it. Weed out all in our lives that hinders the advancement of your kingdom. May we all become channels of your peace. Amen.

Monday 23rd February

"Hope for Planet Earth" is the title of a nationwide series of meetings with leading figures from the John Ray Foundation, Tearfund, A Rocha and Share Jesus International, aiming to educate, equip and empower Christians to take action on climate change. From today until March 13th, the team will visit fifteen towns and cities. Presentations are from 7.30 to 9.30 pm. For further information ring 020 8781 1741. For tickets at £6 in advance or £7 at the door, ring 020 8781 1740 or visit: www.faithtickets.co.uk

Tuesday 24th February

The 120,000 users of the Ellon park and Ride near Aberdeen can now earn bus fare discounts from Stagecoach for every drinks can and plastic bottle that they deposit there for recycling. The recycled materials are collected and stored by the local group Ellon Can-do which - part of Aberdeenshire Council's social services which runs projects and a day centre for adults with learning difficulties. Local councillor John Loveday said: "Ellon Park & Ride users are not only helping to reduce carbon emissions by using public transport, but can now boost their green efforts by recycling on site." The project is run by the Reverse Vending Corporation.

Wednesday 25th February

The "Love Food, Hate Waste" campaign launched in 2007 by the Government-funded Waste & Resources Action Programme (WRAP) provides tips and encouragement for those who want to cut down on food waste and shopping bills. It claims to have stopped 137,000 tonnes of waste going into the bin and saved about £300 million of householders' money. Liz Goodwin, chief executive, said: "Food which ends up in landfill produces damaging greenhouse gases and is a terrible waste of resources. We're delighted that the Love Food, Hate Waste campaign is helping households to enjoy more of their food, safeguarding the environment and saving money."

Thursday 26th February

The Swedish Government has declared a total ban on the use of mercury. Use of dental amalgam in fillings will cease and all waste containing mercury will go to a repository in Germany and paid for by the owners of the waste. Mercury is non-degradable and a major health hazard. The Swedish Environment Minister said: "The ban is a strong signal to other countries and a Swedish contribution to

replacing oil and gas in some industrial processes. He believes it possible to generate this by 2025 from renewable sources that provide most electricity without carbon emissions. He suggests this portfolio:

Wind Power	25%
Solar (mainly CSP from Africa)	25%
Tidal & Wave Power	15%
Fuel cells and biomass CHP	10%
Coal-fired stations with CCS	25%

Carbon Capture & Storage (CCS), which involves liquefying it and transporting it to safe long-term storage, is expensive and technically difficult, adding another 40-50% to the cost of running a coal-fired station. In order to get power station operators to see CCS as in their long-term interest, there needs to be a high price for carbon emissions under the EU Emissions Trading Scheme. Governments need to push the technology by offering big prizes for well-defined technical advances.

Thursday 19th February

A simpler solution is to store carbon in soils, plants and algae. The weight of certain algae can more than double every day indefinitely. Shell has invested in open-air algae grown in coastal lagoons off Hawaii to extract CO_2 from the air and convert the algae into biodiesel and animal feed. Others are experimenting with fertilising algae grown in pools with exhaust gases from coal and gas power stations. Growing algae on an industrial scale is difficult. It might be better to encourage farmers around the world to set aside small areas for algae to be grown as biofuels and animal feed. However, to replace the 80 million barrels of oil used daily by the world with diesel fuel from algae would require 4% of the area of Brazil or slightly more than the size of Britain. Yet, if world leaders decided to follow this route, the reduction in greenhouse gas emissions would be at least 25% of today's total.

Friday 20th February

Charcoal has long been known as a simple way to improve soils. Also, at the low temperatures used in charcoal kilns to burn woody or plant material, volatile gases and liquids can be collected and used for cooking or (on an industrial scale) for electricity generation. Only recently has the role of "biochar" in storing carbon been properly assessed. In a New South Wales pilot plant run by BEST Energies the application of 10 tonnes of "biochar" to the soil tripled the mass of wheat crops and doubled that of soybeans. If the plants used in this case were mass-produced, not only would soil fertility be dramatically improved, but millions of tonnes of carbon could be stored permanently in soils. The challenge is to find a mechanism that rewards village enterprises in developing countries for producing charcoal and adding it to soils.

Saturday 21st February

Ploughing inevitably exposes the humus in soils to oxygen in the air and makes it likely to rot. Rainfall and removal of post-harvest waste also increases the erosion of the carbon-rich top layer of soils. Zero-till farming, now commonly used in North and South America, disturbs the soil as little as possible. A cover crop during the winter protects the soil from erosion and provides organic material, so encouraging earthworms that improve the lower soil. However, weed control is a bigger problem with zero-till methods, so herbicides not permitted in

avert a climate catastrophe that would leave the planet hostile to human development and well-being. But there's not much time left. Sealing the deal to save the global climate will require mass public support and worldwide political will to shift to renewable energy, new ways of living and a human scale that matches the atmosphere's limits."

Friday 6th February.

Chris Goodall in "Ten Technologies to Save the Planet" examines the progress made by scientists, entrepreneurs and investors towards solving global warming through advances in technology. "Now governments across the world need to aid these people through intelligent and sustained support. Electorates in turn need to support politicians who understand the necessity for coherent and sustained climate change programmes for the long term."

Saturday 7th February

Wind power is now a mature technology which provides Denmark with almost 20% of its electricity, while China has doubled its wind generating capacity every year since 2005, with a target of 50 GW. of capacity by 2015. If Europe were to derive 25% of its electricity from wind power, this would require one huge wind turbine for every 3,000 people. For Britain this would require 20,000 offshore wind turbines or as many as 35,000 onshore. If all the turbines were offshore, they would fill an area of 100 km. by 160 km. Clearly something else is needed.

Sunday 8th February.

Loving Father, you have given humankind matchless gifts of skill and ingenuity. Help us now, in this time of crisis, to pool all our resources and work together, in your Name, to save your world from the dire consequences of ignorance, greed and folly.

Monday 9th February

The development of solar PV panels for generating electricity is currently held back by the lack of cheap and efficient materials. If a way could be found to print huge volumes of cheap semiconductors, the scope for solar PV, especially in warm sunny countries, seems unlimited. Meanwhile attention has turned to Concentrated Solar Power (CSP) whereby parabolic troughs covered in reflective material concentrate the sun's power on to a thin tube containing oil which, when heated, is passed through water to generate steam for powering a generator. The Andasol plant in Spain already generates enough electricity for 50,000 European homes. A new CSP plant in Algeria can, additionally, burn gas at night. To bring this electricity to northern Europe would require High Voltage Direct Current cables. A 580 km. long undersea cable between Norway and Holland cost 1 euro per kilometre to build, but a 1,200 km. overland HVDC link across China carries 3,000 MW of electricity and was built by Siemens at substantially less cost. To satisfy 25% of UK electricity demand would require 500 Andasol-type plants, but the technology for building and scaling up reflective and transmission cables is already mature. CSP could indeed provide power, not only to Europe, but to most of the world.

Tuesday 10th February

The Pentland Firth between mainland Scotland and the Orkneys has one of the fastest tidal races in the world. Aberdeen-based Lunar

Energy is developing a giant turbine weighing 2,500 tonnes for placing on the sea bed there to generate electricity. It is also installing, in partnership with power generator E.ON, eight similar turbines off the Pembrokeshire coast to provide electricity for 5,000 homes by 2011. A different type of design of turbine, the MCT, sits just above the surface in Strangford Lough. The German utility RWE plans to build a seven-turbine MCT farm off the coast of North Wales where there is easy access to the electricity transmission system.

Wednesday 11th February

A Severn barrage, if built, would produce electricity only on the ebb tide. The design currently favoured would be for a single dam stretching 16 km. across the estuary from Cardiff to Portishead. It would take 10 years to complete, at a cost of £38 billion and would generate about 5% of UK electricity. More promising is the Pelamis wave collector.

A snake-like chain of these 750 tonne structures is loosely moored to the sea floor. When aligned to the wave direction it rises and falls, so pushing hydraulic rams which pump oil under pressure in order to drive a turbine generating electricity. Three Pelamis generators, costing £6 million in all, are to be installed off Portugal's stormy north-west coast and will be followed by 20-30 others generating 30 MW of electricity – the same amount as six of the biggest onshore wind turbines and at a fraction of the cost.

A key difference from the tidal barrage concept is that every tidal barrage is unique and therefore costly, whereas the cost of other tidal and wave devices will fall as more are produced.

Thursday 12th February

Almost two-thirds of the people of Denmark get their hot water and heat from over 400 district heating systems. 75% of these systems also produce electricity. About 60% are fuelled by gas, but the 40% fuelled by wood or domestic waste are, in effect, carbon neutral. The combined heat and power (CHP) plant at Boras in Sweden uses about 270,000 tonnes of wood chips to generate most of the heat and much of the electricity for 25,000 homes and 2,000 offices. If 20% of Europe's 1 billion hectares of forests were converted to growing fast species such as willows to fuel CHP plants, enough energy would be produced to heat all Europe's homes at today's levels.

Is this the answer to Russia's throttlehold on Europe's gas supplies?

Friday 13th February

From today until Sunday a "Storm of Hope" CEL Retreat weekend takes place at Ringsfield Eco-Study Centre at Beccles, Suffolk NR34 8JR led by Rev. Chris Walton and other CEL members. For details and booking, please ring 01524 36241.

Saturday 14th February

Super-insulated homes have been around since the first "passivhaus" was built in Germany in 1991. A full refurbishment of an existing home to passivhaus standards would require 16 times less heating than the average UK home and would save several tonnes of CO_2 emissions per house each year. At Hanham near Bristol, Barratt Homes have applied to build 195 homes, which will generate zero net CO_2 emissions with carbon credits to spare. A biomass CHP system will provide all the energy. Highly efficient insulation will be a design feature. A rainwater harvesting system will cap mains water usage at 80 litres per person per day, as required by Level 6 of the Code for Sustainable Homes. A planning decision is expected in March.

Sunday 15th February

"The exclusion of wisdom from economics, science and technology was something we could perhaps get away with for a little while, as long as we were relatively unsuccessful; but now that we have become very successful, the problem of spiritual and moral truth moves into central position." (E.F. Schumacher)

Give us, loving Father, the wisdom so to deal with the things we possess that they may never possess us. Deliver us from reliance on our cleverness in science and technology. Banish our fears as we face unprecedented challenges to our way of life, and keep our feet always on the path of justice and peace. For the sake of your Son, who died to redeem us all.

Monday 16th February

Despite a century of research, over three-quarters of the energy in petrol-driven cars is wasted as heat, mostly from the exhaust and cooling systems. Diesel cars are better, but still waste most of the energy in the fuel. By contrast, electric motors turn 80% of the power delivered by the battery into useful motion. Hybrid petrol/electric cars are a step towards fully electric models, but the dual propulsion system makes them expensive, complex and heavy. An all-electric car, with electric motors driving each wheel, does without the complex system of gearboxes, cooling and power transmission. A light electric car costs about 80 p. an hour to run and produces about 3 kg. of CO_2 per hour from recharging its battery – compared to the 10 kg. of CO_2 produced by an efficient petrol car. However, there are four roadblocks:

- A battery that will drive a car for 100 miles might cost £5,000, though mass production would bring this down;
- Lithium for the battery is limited in availability;
- 6% of UK taxes come from fuel duties. Electric cars are currently free of duty, but how long will this continue if the government was losing substantial revenue?
- The longer the range of an electric car, the heavier the battery needed to power it.

Perhaps the future lies with two types of electric car – one with a small battery enabling the owner to drive to work and recharge the battery during the day. The other, with a heavier battery and a greater range, might be borrowed from a company car pool or a local car-sharing club.

Tuesday 17th February

Batteries for large commercial vehicles would be too large and expensive for economic use. City buses can be converted to fuel cells. Other commercial vehicles could be run on cellulose-based ethanol, but large lorries making long journeys would need to use liquid fuels until a way can be found of making diesel from agricultural wastes. Meanwhile the resulting CO_2 emissions can be offset by sequestrating carbon in soils, plants or algae.

Wednesday 18th February

According to Goodall, electricity demand would rise by about 50% to meet the extra requirements of electric cars, space heating and