

Climate Bonds can fund the rapid transition to a low-carbon economy

The window for immediate complementary action

A strong Copenhagen Agreement is vital for the world's future. But we know that a new Agreement will take time to have a strong impact.

In the meantime the world is being warned by senior climate scientists like Rajendra Pachauri and James Hansen, that we have to see emissions going down by 2015 to avoid dangerous climate change tipping points.

Carbon caps and pricing should have started the process of sequentially developing and deploying mitigation opportunities. However, the failure to secure agreements thus far has meant no reduction in global emissions — indeed emissions have been rising at nearly twice the rate they were when Kyoto was signed. The small window available to grow the critical low-carbon industries is closing and avoiding two-degree warming will require simultaneous and rapid industry growth across all mitigation opportunities.

Whatever our 2050 targets might be and the nature of the binding agreement to enforce them, rapid progress on low-carbon industries within the next five years will be critical to allowing any long-term measures a chance of success.

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History & definitions of bonds

Bonds: the Great Innovation

The bond market is the great innovation that distinguishes western capitalism from previous economic systems.

Bonds issued by Renaissance Italian city states, such as the *prestanze* of Florence or the Venetian *prestiti*, proved to be financial innovations of the first order, in that they created debt securities that had the same status as traditional fixed property. In time they came to be called 'mobile property' (as in the later French innovation of *credit mobilier*).

The initial issuer had to have the power to compel uptake of the bond issue (as in the first cases, where the bonds were a form of tax) or the sovereign status to inspire confidence that an assurance of paying fixed interest for a period of years would be guaranteed.

Eventually the bond market expanded to accommodate issues from private firms (debentures) backed by the reputation and market strength of leading merchant banks (like Barings in London, or

A fresh initiative

The **Climate Bonds Initiative** is an international network which promotes the development and use of Climate Bonds. These bonds provide for large scale issuance of long-term debt to overcome medium term investment barriers to achieving economies of scale in low-carbon industry sectors. The bonds can thus finance that global transition at speed and at scale.

The Initiative is:

- Developing proposals for a financial architecture that will support the rapid application of debt funding for climate change mitigation and adaptation.
- Bringing the three key actors to the table – industry, investors and governments – to develop the basis of a tripartite agreement under the Climate Bonds concept.
- Demonstrating how to engineer investibility through scaled-up mitigation and adaptation pilot schemes in both developed and developing countries.

The Climate Bonds Initiative started as a project of the **Network for Sustainable Financial Markets (NSFM)**, an international network of finance sector professionals, academics and others dedicated to improving financial market integrity and efficiency. www.sustainablefinancialmarkets.net

It now operates as a joint project of NSFM and the **Carbon Disclosure Project (CDP)**, an independent not-for-profit organisation that collects and distributes high quality corporate climate change information for integration into business and policy decision-making. See www.cdproject.net

Goldman Sachs in New York) which acted as their underwriters.

Climate Bonds

Craig Mackenzie and Francisco Ascui*, writing in their report on *Investor leadership on climate change* describe Climate Bonds thus:

"The idea of a climate bond is an extension of the green bond concept. Green bonds are issued by a government or corporate entity in order to raise the finance for an environmental project. The issuing entity guarantees to repay the bond over a certain period of time, plus either a fixed or variable rate of return. Climate bonds would be issued by governments (or others) to raise finance for investments in emission reduction or climate change adaptation."

* Mackenzie, C and Ascui, F. *Investor leadership on climate change: an analysis of the investment community's role on climate change, and snapshot of recent investor activity*. Published by the UNEP Finance Initiative and UNPRI, 2009.

Work streams

1. Policy models and advice

A large-scale and rapid shift to a low-carbon economy, while delivering sustainable societies for all nations, will depend on the mobilisation of private finance to assist with public policy imperatives.

The Climate Bonds Initiative provides advice to governments, industry and finance on how to achieve those changes.

The Initiative is developing policy proposals for all three sectors; including:

- Using private finance to fund renewable energy feed-in tariffs, without further impost on today's energy consumers.
- Logjam-breaking energy efficiency schemes (e.g. how we can get to 85% of housing stock within 10 years).
- Enabling institutions, such as Climate Investment Banks.

We are also looking at financing terrestrial sequestration and in adaptation.

2. Developing agreed definitions and standards for Climate Bonds

In a fast growing environment assessment of the legitimacy of bond labeling will become a challenge for investors. Already some issuers, such as the World Bank, have found it necessary to obtain independent verification of the "green" claims to re-assure investors.

The Climate Bonds Initiative's International Standards and Certification Project aims to reduce the cost of labeling and verification for issuers and for investors, and to enhance the liquidity of the market, by developing agreed standards for the labeling of thematic climate bonds.

3. Demonstration projects

The Climate Bonds Initiative is working in a number of jurisdictions advising on the creation of 'proof-of-concept' projects that will help achieve energy security and demonstrate investibility and financing with Climate Bonds.

Climate Bonds

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Advisory panel

New York	Antonia E Stolper Partner, Shearman Sterling LLP Specialist in large scale project contracts Prof. Graciella Chichilnisky UNESCO Professor of Mathematics and Economics and Director, Consortium for Risk Management, Columbia University
Madrid	Peter Sweatman Chief Executive, Climate Strategy & Partners
Brussels	Louis Perroy Actuary and carbon finance specialist
London	James Cameron Vice Chair, Climate Change Capital Nick Robins HSBC Climate Change Centre of Excellence Sean Hanafin Managing Director, Citigroup Melissa McDonald AXA Investment Managers Bryn Jones Investment Manager, Rathbone Brothers Vicki Bakhshi Governance and Sustainable Investments, F&C Management Stephen Fawkes Head of equities research, Matrix Capital Raj Thamotheram Responsible investment specialist Paul Dickinson CEO Carbon Disclosure Project Prof. Michael Mainelli Z/Yen Consulting, Gresham College Jeremy Leggett Executive Chairman, Solarcentury Richard Murphy Chartered Accountant, taxation policy consultant Alex Veys CIO, Partnership Assurance

London	Lawrence Bloom Climate Prosperity Xavier Lecacheur Development and climate change Christoph Harwood CEO Marksman Consulting Phillip Wolfe Former chair, UK Renewable Energy Association, director Wolfeware Colin Hines Convenor, Green New Deal Robert Webb Renewable energy technologist
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Coordinating team

London	Sean Kidney, Chair Corporate and government policy consultant Nick Silver Consulting actuary, pension fund advisor, climate-related insurance expert
Sydney	Dr Karl Mallon Chief Scientist, Climate Risk Australia Consultant to insurers, telcos, WWF
Chicago	Prof. Cynthia Williams University of Illinois, College of Law Corporate law and securities expert Franz Maritsch Engineering consultant, expert in development of large-scale power plants
Wilmington	Paul Hughes Broadcaster and energy efficiency advisor. Environmental Communication Foundation
Oxford	Jasper Sky Oxford University Environmental Change Institute, Dangerous Climate Change Assessment Project
Rome	Prof. John Mathews ENI Chair of Competitive Dynamics and Global Strategy, LUISS University

Standards Working Party

Prof. Benjamin Cashore, Yale University, Professor of Political Science and Forestry
Prof. Daniel Farber, University of California at Berkeley, Professor of Law and Director of the Energy Research Group
Prof. Errol Meidinger, State University of New York at Buffalo School of Law
Plus Antonia Stolper, Dr. Karl Mallon, Prof. John Matthews, Prof. Cynthia Williams, Sean Kidney

Partners

The Climate Bonds Initiative works collaboratively on its work streams. Examples of current partners are:

- > International law firm Shearman Sterling LLP, on developing project description standards for Climate Bonds and on supporting international liquidity of Climate Bonds.
- > The Climate Prosperity Alliance, advising cities around the world about turning the challenge of climate change into an opportunity.
- > The State of the World Forum, on financing options for States and Cities in Brazil participating in the Forum's '80% by 2020' program.
- > Tomorrow's Company, a London-based think-tank.
- > UKSIF - the sustainable investment and finance association.
- > UK Association for the Conservation of Energy, on energy efficiency scheme design.
- > The Caribbean Policy Research Institute, on models for climate bonds for Jamaica and the Caribbean.
- > Carbon Advisory Services on decarbonisation policies for the Maldives.

* Note that Advisory Panel and Coordinating Team members serve in their personal capacities; organizational affiliations are listed for identification purposes only.

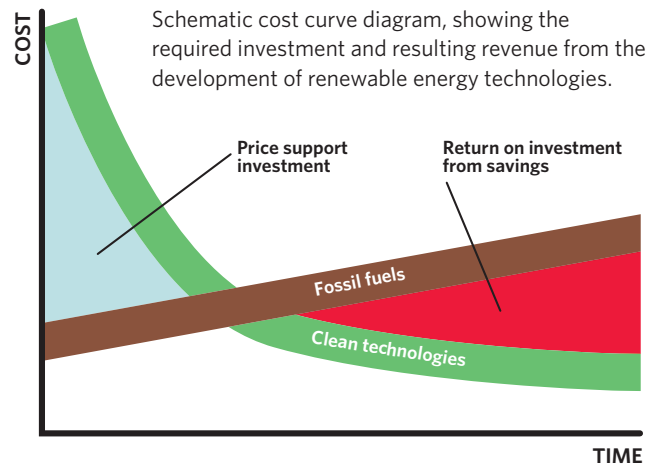
The 10-point case

The solution paths and barriers are largely understood

1. Climate change is an extraordinary challenge facing the world community, fuelled by a mix of continuing increases in anthropogenic greenhouse gas emissions and environmental feedback loops that threaten uncontrollable change.
2. **The solution paths are largely understood:** a rapid *global* shift from emission-producing to clean-energy generation; energy efficiency measures to buy time until that shift can be completed; and sequestering carbon through agriculture, forestry and other measures. It has been estimated that **\$10 trillion will be required in the coming decade¹** to fund the transition to a low-carbon economy, at a pace rapid enough to head off run-away climate change. That would only require an investment of 1 % a year from the world's largest pension funds, every year for just 10 years.
3. There are three central aspects of the problem:
 - **Urgency** – the critical constraint on avoiding a 2°C warming will be the time taken to develop and deploy the industries of the low-carbon economy.
 - **The Catch 22 of low-carbon industrial development** – many zero and low-emission commodities are currently low-volume and therefore high-cost. They will naturally increase in volume and decrease in cost – even to the point of being cheaper than fossil fuels (as has already occurred with solar hot water, biomass and wind power in several countries). But the urgency means that this process has to be short-circuited so that high volumes are developed and deployed even at high cost, with an accelerated transition to low cost occurring as a result.
 - **Developing countries are where the climate challenge will be won or lost**, but the deployment of high-cost, low-carbon solutions represents a potentially unreasonable opportunity cost compared to short-term poverty eradication, and a competitive disadvantage to third-party funders.

Climate Bonds can fund the transition to a low-carbon economy

4. The urgent need for deployment can be addressed by mechanisms that: (a) develop a suite of critical low-carbon industries in parallel, (b) establish annual growth rates for low-carbon industries that average 25% per year until 20% of resource capacities harnessed and (c) are in place and growing in key jurisdictions by 2014.
5. The volumes of investment required are large – more than \$10 trillion at about \$1 trillion per year.² Bonds allow us to borrow against future economic benefits to allow for the investment needed now to deliver those benefits.
The past 200 years have seen numerous successful national initiatives to build infrastructure to meet environmental or social challenges: the vast sewer construction projects of the 19th and early 20th centuries that removed the spectre of cholera in Europe; the building of national energy grids to power the 20th century's economic booms; the building of hospitals as the foundation of modern health systems. Much of this effort was financed by the issuing of bonds – long-term debt repayable at pre-agreed rates, guaranteed by governments.



Climate bonds are infrastructure bonds tailored specifically for financing climate solutions.

Climate bonds, tied to specific climate change mitigation or adaptation investments, allow governments to raise capital, or support the private sector in raising capital to:

- Build renewable energy generation and its enabling infrastructure.
 - Widely implement energy efficiency measures in cities and industries.
 - Support adaptation measures that will boost the economic development of communities in the face of climate change.
- There is more than enough private capital in the world to fund the necessary transition.**
- The capacity of government to directly fund the transition to a low-carbon economy from current revenues (taxation) is limited. But, with some US\$120 trillion of institutional funds under management plus retail investor and corporate funds, adequate capital resources exist.
 - The scale of investment required will demand a constructive partnership with long-term investors, who manage the larger bulk of the world's deployable capital. This can be seen as a new partnership between private capital and governments.

6. Institutional investors will invest in long-term Climate Bonds given adequate and secure returns.

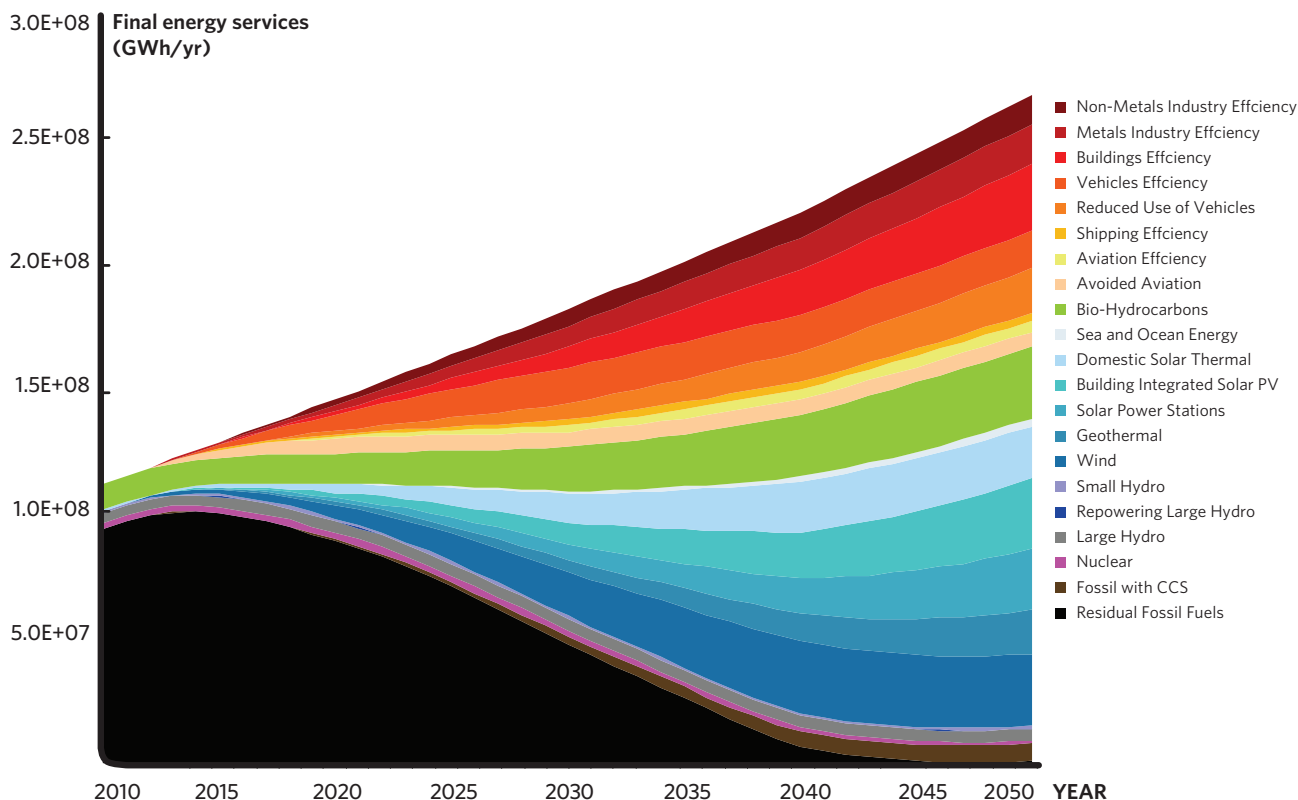
Pension funds, for example, understand the importance of supporting the shift to a low-carbon economy. But they also have to ensure secure returns for their members. Long-term bonds are well suited to both the financing of long-payback energy projects and to providing pension funds with security of returns over the longer term.

For investors, Climate Bonds will simply be investments in new Fixed-interest opportunities, packaged to be more attractive than many existing options. Given the scale of likely offerings, they can be expected to become a new asset class.

Because Climate Bonds will be novel, and because of the large scale of issuing required, government contingency guarantees or political risk insurance will be essential.

While capital may be available, the challenge is in constructing opportunities for that capital that will allow investors to meet their obligations while funding the essential low-energy transformation.

^{1,2} *Climate Solutions II: Low Carbon Re-Industrialization*, A Report to WWF International. Prepared September 2009 by Climate Risk Ltd. See www.climate-risk.net



7. The trajectory of renewable energy generation costs is downward, and has been for the past 20 years. Generation costs will continue to decline, eventually being lower than fossil-fuel energy costs, particularly if aided by the economies of scale of large-scale developments. Volume will drive price competitiveness with fossil fuel generation. Bonds can be used to borrow against longer-term cost reductions and pay for the scale of investment required in the immediate future.
8. Investibility will be enhanced by using accelerated economies of scale to bring forward cost savings from declining renewable energy prices or from reduced energy consumption, then capturing the difference between business-as-usual costs (i.e. fossil-fuel-based electricity costs) and converting those savings into long-term revenue streams used to repay investors.

The investibility of specific initiatives will depend on delivering secure, long-term returns at competitive levels of risk, rather than on values arguments.

Investibility for long-term investors will also involve the aggregation of individual low-carbon economy initiatives into larger scale opportunities for investment. It will require a close engagement between government, investors and industry.

The investments required to address climate change can be profitable – for investors, for companies involved, and for national economies stimulated by capital spending and clean-energy innovation. Climate Bonds can help keep the planet inhabitable for billions of humans while funding our pensions.

9. **The transition to a low-carbon economy presents capital with what is likely to become the largest commercial opportunity of our time: investing in clean energy and low-carbon infrastructure.**
10. **Achieving the scale and speed of development needed will require an active enabling role on the part of governments, at all levels.**

Fossil fuel energy generation can be displaced before 2050 if we engineer investibility to grow the low-carbon economy.

The graph above identifies the low-carbon industry segments needed to avoid tipping points and models their individual contributions over time. The upward limit of average, global growth rates for the various industry segments is 30%; on that basis we have to see all (not just a few) low-carbon industry segments growing at maximum rates by about 2014 to avoid two-degree warming. The sooner rapid growth starts the shallower the trajectory needs to be. The longer it is delayed the steeper and more difficult the transition.

From the *WWF Climate Solutions II* report.

Talk to Us!

Endorse our efforts: We value your in-principle organisational support.

Join the discourse: Provide comment on Climate Bonds proposals, send delegates to Climate Bonds seminars, share ideas in your own networks.

Support the Initiative: Become a corporate member. Consider funding a demonstration project. Donate!

For more information contact Sean Kidney, convenor, on sean@climatebonds.net.

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