



Investing in Clean Energy

How to maximize clean energy deployment from international climate investments

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The Global Climate Network

The Global Climate Network (GCN) is a collaboration of independent, influential and progressive research and policy organisations in countries key to tackling climate change. Together, members of GCN are committed to addressing the constraints faced by sovereign governments in agreeing international action.

GCN is working to:

- **Address** the political (economic, social and cultural) constraints barring the way to action by bridging the divide between domestic and international policy
- **Promote** equitable solutions that take into account the huge development, financial and energy challenges countries face
- **Champion** ideas and innovations to help construct a new political narrative that links action on climate change with enhanced economic and social well-being.

GCN members are:

ippr, London, also acting as the secretariat for the Network: The UK's leading progressive think tank with a strong track record on research and policy.

Center for American Progress, USA:

Founded by John Podesta, former Chief of Staff to President Clinton.

Research Centre for Sustainable Development, China:

An institute of the Chinese Academy of Social Sciences. Dr Pan Jiahua, its director, is one of 12 members of the Chinese Experts Committee for Climate Change.

The Energy and Resources Institute, India: The country's leading climate and

energy research institute whose director-general, Dr Rajendra Pachauri, chairs the UN's Intergovernmental Panel on Climate Change and is a close adviser to the Indian government.

Bellona Foundation, Norway: Bellona is renowned internationally for its groundbreaking work on carbon capture and storage and other important low carbon technologies.

International Centre for Energy, Environment and Development, Nigeria: ICEED has expertise in climate change and energy policy. Ewah Eleri, its director, is lead author of Nigeria's Renewable Energy Master Plan.

The GCN aims to help governments clear a pathway towards an effective and fair international agreement for avoiding dangerous climate change by proposing bold low-carbon policies and using data and analysis to persuade policymakers that climate change mitigation is in their interest.

Alone, each GCN member has significant credibility and influence. By producing joint research, staging events together and seeking to influence policy, GCN can help bridge the dangerous divide that exists and is currently widening between international negotiations and national politics.

The Climate Institute, Australia. Set up in 2005, the Institute is a leading voice in climate research and advocacy, pioneering clean technology and investment solutions with government and business.

IMBEWU Sustainability Legal Specialists, South Africa: An influential Johannesburg based legal consultancy specialising in sustainability law with a strong climate change focus.

Dr Rajendra Pachauri (see above) and Lord Chris Patten of Barnes, former European Commissioner for External Affairs, are GCN's first patrons.

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Executive summary

Finance is central to international negotiations on climate change. The 1992 United Nations Framework Convention on Climate Change (UNFCCC) obliges industrialised countries to help the developing world meet the costs of reducing greenhouse gas emissions. However, no agreement has yet been reached concerning the overall sum of developing country climate costs or how finance should be raised and spent.

The Copenhagen Accord, supported now by more than 120 countries, states that, 'developed countries commit to a goal of mobilizing jointly \$100 billion a year by 2020 to address the needs of developing countries.' While this sum falls short of credible estimates of 2020 developing country costs and the Accord does not state how the finance will be raised, it is now taken by many to represent an international climate financing target.

Perhaps because of existing obligations under the UNFCCC, the debate about how and how much climate finance will flow from developed to developing countries has always been highly politically charged. The direct and wider economic impacts of the 2008/09 financial crisis have left many developed country governments with higher levels of public indebtedness than in recent years. The United States, for example, is projected to have a likely debt-to-GDP ratio of 72.6 per cent in 2011, compared with a pre-crisis ratio of 42.2 per cent in 2007. Consequently, many OECD governments are cutting public expenditure and thus face constraints when committing funds to meeting international climate finance obligations.

Beneath the high estimates of global costs and current pledges of finance, what price tags should we attach to particular actions in particular countries? What is the best way for some of the ambitious plans already published by developing countries to be financed, through what mechanism and from what sources? These are the questions that many within the community that follows climate change negotiations, policymakers and financiers are now asking.

The Global Climate Network (GCN) set out to answer these questions in a two-stage study of climate change financing, focused on mitigation and specifically clean energy. Stage one examined in detail the costs of installing clean energy capacity in GCN member developing countries, according to existing or anticipated government plans, and proposed a range of mechanisms to help ensure the required levels of investment are available. Stage two engaged policymakers, affected firms, banks and finance professionals and other experts in a series of national dialogues. Participants were asked for their views on real-world barriers to financing and to respond to the outcomes and proposals from stage one of the study.

Identifying climate mitigation needs in developing countries

This paper summarises four separate, national studies, examining and making estimates of the costs of installing renewable and low-carbon electricity generation capacity in China, India, Nigeria and South Africa. Specific sectors examined are: hydro, wind and solar in China; solar in India; gas and small-scale hydro in Nigeria, and solar and wind in South Africa. These have been identified as priority sectors for each nation by the respective governments.

GCN estimated the average annual cost in each national sector between 2010 and 2020 and compared these costs with 2009 levels of actual investment. We find that capital expenditure across the sectors and countries must almost double from around \$34 billion in 2009 to an average of \$63.6 billion between 2010 and 2020. Excluding China, for which 2009 investment in its wind sector exceeded estimated average costs for 2010–20, the average annual investment needed is \$15.93 billion but the current gap is around \$15.73 billion. India, South Africa and Nigeria are currently only investing \$0.2 billion, a tiny fraction of what would be required to fulfil existing government ambitions.

In the case of many clean energy technologies and especially those included in this study, the high per-unit energy generation costs compared with incumbent technologies – known as incremental costs – largely result from capital costs: they are cheap to run but very expensive to install. Thus the investment challenge is twofold. Developing countries need help in gaining access to capital, because they are seen as riskier jurisdictions in which to invest (and the technologies themselves as riskier investments). Furthermore, anything that can reduce the investment costs, by making the technologies or the capital cheaper, will reduce the incremental cost.

A solution to the capital problem is fast becoming the holy grail of clean energy financing. The United Nations Advisory Group on Finance – charged by Secretary-General Ban Ki-moon with analysing how \$100 billion of climate finance might be raised – will report within the next few days. It examines a range of proposals and options, but is expected to argue that ‘careful and wise use of public funds in combination with private funds can generate truly transformational investments’ and calls for further work in this area.

Applying itself to this challenge, GCN has looked in detail at how governments can intervene to help increase the sum and reduce the cost of clean energy investments in developing countries. While we acknowledge in this paper that the issue of how to finance developing country incremental costs remains open and highly contentious, it is increasingly clear that governments should commit a proportion of a future climate funds to help provide incentives and reduce risks for private investors, thereby reducing the costs of capital and sparking a rapid deployment of clean energy.

Mechanisms to leverage private finance

GCN proposes five mechanisms that could be used by individual developed country governments or an international climate fund to help developing countries access private capital. These are:

1. **Loan guarantees.** Governments agree to underwrite loans to clean energy projects with taxpayers’ money to safeguard the private investor against defaults.
2. **Policy insurance.** Governments could insure investors against the risk of policy uncertainty. They could do this through standard insurance or by issuing ‘put’ options that they would buy back if policies changed.
3. **Foreign exchange liquidity facility.** Governments can offer credit to help guard against risks associated with currency exchange fluctuations.
4. **Pledge fund.** A developed country government-backed fund that would identify and analyse smaller, relatively low-risk clean energy projects and offer these to investors that would pledge to invest a set amount of equity capital up front.
5. **Subordinated equity fund.** For higher risk clean energy projects, a government-backed fund would invest a proportion of the equity but receive returns last.

GCN estimates that for every US\$1 of public finance invested, between US\$2 and US\$10 could be leveraged from the private sector by using these mechanisms. A GCN–Center for American Progress paper containing a greater level of detail on these mechanisms is published alongside this summary.

Findings from GCN national dialogues

The purpose of the national dialogues, which in some cases took the form of workshops and in others the form of face-to-face interviews, was to explore the barriers to private sector investment in low-carbon energy technologies, projects and programmes, and the potential policy solutions and instruments that could leverage private investment. Researchers from each GCN member organisation followed a common format that was agreed collectively beforehand. The following major themes emerged.

A. Barriers to private sector investment in low-carbon energy

A lack of policy instruments to guide investment; the relatively high costs of renewable energy technologies; high risks and relatively low returns; potential financiers' limited experience of clean energy technologies and lack of technical expertise to appraise investments in low-carbon sectors; and poor competition in energy markets, were all cited as barriers to private investment.

B. Performance of existing financial instruments and mechanisms

Subsidies for clean energy, such as feed-in tariffs, were viewed as important, alongside measures to incentivise banks to reduce lending to fossil fuel-based projects, existing international funds for climate mitigation, and use of the Clean Development Mechanism.

C. Role of the public sector

Public funds have a role in helping to make clean energy technologies commercially viable, especially by supporting research, development and demonstration, supporting deployment and commercialisation, and creating infrastructure to support low-carbon energy projects.

D. Views on GCN-proposed leveraging mechanisms

Loan guarantees and policy insurance mechanisms were seen as being the most useful of the five mechanisms proposed by GCN. A subordinated equity fund was viewed favourably in developing countries, but not in developed countries. A foreign exchange liquidity facility was also considered important in the context of investments in developing countries in general.

Conclusions

GCN's study, along with supporting literature, points to the need for an investment partnership between public and private sectors with three equally important key elements, all of which are critical in the development of an international climate change fund that is consistent with the UNFCCC.

- 1. Using developed country public funds strategically:** Governments collectively should allocate a proportion of the proposed \$100 billion fund to foster an investment partnership with the private sector. This will help lower the costs of capital and, if successful, drive innovation, which will also make clean energy cheaper and so reduce the resulting incremental costs.
- 2. Ensuring stable long-term policy is in place in developing countries:** A second key element in a clean energy investment public–private partnership is the use of deployment mechanisms and other public policy tools in developing countries to create the environment for private sector investment.
- 3. Addressing incremental costs:** Finally, it is GCN's view that there is a critical role for clean energy investment public–private partnerships in dealing with incremental costs. GCN's study has primarily examined capital costs and investment barriers. As those challenges are met, however, the resulting deployment of clean energy will in most cases lead to a per-unit energy cost that is higher than that offered by incumbent sources. Any international fund must be capable of assisting with incremental costs too, ensuring that they do not fall on the shoulders of poorer consumers in developing countries with limited ability to pay.

About the Center for American Progress

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is “of the people, by the people, and for the people.”

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