

Principles for Investment grade policy and projects

**Report produced for the
Capital Markets Climate Initiative (CMCI)**

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It should be noted that while the principles have been developed in consultation with a wide range of stakeholders from the private and public sector it is not a consensus view and does not represent any individual organisation's position. The principles should be used for guidance only and should not replace normal due diligence and do not constitute professional advice. The Capital Markets Climate Initiative (CMCI) is not a legal entity, rather a grouping of parties with a shared interest and willingness to collaborate. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained within this publication, and, to the extent permitted by law, CMCI, the UK Department of Energy and Climate Change (DECC), the authors and those involved in the consultation process of CMCI do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.



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1. Aims and objectives

This document sets out 5 operational principles derived from discussions and reports prepared for the Capital Markets Climate Initiative (CMCI). These principles are aimed at policy makers from developed and developing countries to help address the issue of how to use public policy and public sector capital to leverage private sector capital into mobilising the estimated \$1 trillion global incremental investment per year by 2030 that is required to meet the climate change and energy opportunities and challenges (IEA 2009¹).

Private capital can only be catalysed at scale in the timescales envisaged through active engagement with governments. The long term objective of these principles is to encourage investments into climate change solutions to become the 'business-as-usual' investment paradigm. This requires immediate investments into projects and longer term changes to the policy environment. Both of these need to happen together to increase the confidence and capacity of the public and private sector to deliver the overall environmental, economic and social benefits of tackling the climate change challenge.

The principles are aimed at the following stakeholders:

- **National governments:** to help assess and plan national policy that will lead to long term capital investment in climate change solutions.
- **International climate finance programmes/institutions:** to help prioritise the focus for capacity building support and deployment of de-risking instruments.
- **Private sector:** to help identify the appropriateness of policy and project support for de-risking capital investments.

Therefore CMCI is publishing this working draft to:

- open up the working draft principles to consultation to help build a consensus view from governments and the private sector;
- continue to build the evidence base for policy development;
- help test the applicability of the principles in practice.

¹This investment covers energy investments only (industry, transport and building use).

2. Background

The Capital Markets Climate Initiative (CMCI) was set up by Minister Gregory Barker in the UK Department for Energy and Climate Change (DECC) to help respond to current questions posed by governments as to how to mobilise private sector capital into climate investments².

CMCI seeks to support the scale up of private finance flows through the creation of an open-source platform that shares the expertise and experience of financial sector experts with governments in identifying why, where and how public action can leverage climate-friendly private finance and investment.

Working Group 1 (WG1) is one of two work streams identified under CMCI set up to develop a set of principles and toolkit to enable the development of 'investment grade' policy and projects. Working Group 2 (WG2) will identify, develop and share lessons from in-country experiences.

- **'Investment grade' policy** creates the general environment which attracts private sector capital into a number of different solutions and if designed well will achieve the scale of investment required.
- **'Investment grade' projects** creates a partnership between public and private sector organisations to more actively manage individual risks associated with a particular project.

This first phase of WG1 focuses on analysis to identify and draw together lessons from a wide-range of cross-country experiences identified by CMCI members, the emerging experience and lessons from WG2, and existing work on the potential supply of climate-friendly private investment and public finance instruments to leverage this. This phase aims to help understand the approach that investors take in assessing the invest-ability of low carbon solutions and will feed into the development of a set of principles, and ultimately toolkit, that will allow policy makers to develop policy that will meet the objective of scaling up private sector capital flows into these solutions.

In drafting this paper CMCI has engaged with a range of stakeholders including banks, pension funds, insurance companies, rating agencies, actuaries, international finance institutions, national government agencies, think tanks, fund managers and other finance experts.

This document is drawn from a number of sources (see references and Annex 6) and as such it is not possible to reference every source of information in the text. What is included here is those areas that are common across each of the reports and publications referenced.

² CMCI was set up to examine all types of climate investment (energy, transport, land use, adaptation etc) however these principles are derived from the experience of the private sector which is heavily dominated by investments in the renewable energy sector.

‘Investment Grade’ Policy

Public policy will play a critical role in mobilising significantly scaled-up investment in ‘low carbon’ assets such as renewable energy and energy efficiency. To be effective such policies need to be ‘investment grade’, in other words financing issues need to move to the heart of policy development.

Central role of risk and return

Risk and return are central to evaluating options for investment. To shift more capital the investment opportunities must be commercially attractive compared to alternative uses of capital, with different capital providers having different appetite for risk and expectation of the return for that risk.

As policy has the ability to create more attractive conditions, it is itself a risk: policy changes can impact and even wipe out returns, for example a change in government or response to economic conditions. This explains the central focus on the stability and durability of any framework. Confidence in underlying market drivers, and the fact that governments are serious about delivering (enforcing) the policy are also key to the perception of durability.

The risk-return equation also means that a target, an incentive, or availability of public finance alone will not be sufficient if there are cumulative high risks associated with other factors in closing a deal. ‘Investment grade’ policy means that all relevant factors within the boundary of a deal or investment need to add up from a finance perspective (obviously within the set of country, currency and broader business environment factors).

Terms like ‘low carbon’ and ‘climate finance’ cover a broad range of investment opportunities with differing risk profiles. Underlying policy or public finance interventions will need to be designed with greater specificity, particularly e.g. in areas like energy and infrastructure policy. Identifying the characteristics of the parts of the finance sector that policy needs to target to achieve objectives will further help resolution in policy design.

Policy & Public Finance: an integrated package

There is a considerable track record of using public finance to leverage greater private capital. In general, private financiers are looking for well-targeted, well-designed and scaled public finance that fits actual gaps on the ground, including underserved areas like smaller deal size (SME level).

Integration is needed between policy development and availability of targeted public finance tools: a well designed policy environment can be one of the most effective ways of reducing risk for investors; or put another way it is likely to be more effective tackling policy-related risk (or gaps in policy) through policy development, rather than by buying down those risks through public finance.

Clarifying how systems are likely to change, at what scale and over what timeframe, will help financiers anticipate market opportunities.

(Kirsty Hamilton, RE Finance Project, Chatham House)³

³ Chatham House, 2009, Unlocking Finance for Clean Energy: The Need for ‘Investment Grade’ Policy, Kirsty Hamilton, Renewable Energy Finance Project

3. Principles for investment grade policy

The following principles are aimed at developing investment grade policy and projects. The principles were developed by examining case studies (see Annex 2), through dialogue and consultation with private and public sector organisations within CMCI (see Annex 3 and 4 for more detail on the principles following this consultation), a review of existing barriers identified (see Annex 5) and outputs from progressive business and investor groups (see Annex 6).

Principle 1: An early and ongoing managed dialogue with institutional investors and local and international private sector should be set up.

- Policy objectives need to be transparent at the start of the process, the public value case assessed and all options for delivery of those objectives explored.
- Critical stakeholders to achieving the policy objective should be identified and be involved in the dialogue from the beginning. All critical stakeholders⁴ should be clearly highlighted.
- This dialogue should be regularly reviewed during policy development and following policy implementation to ensure objectives are met. This process should be as transparent as possible.

Principle 2: A clear, long term and coherent policy and regulatory framework should be implemented.

- A good general investment climate needs to be evident and include a coherent governance and regulatory structure, clear enforcement rules and property rights and a strong rule of law.
- Investment timescales and policy timescales must align as far as possible (policies with a 10-15 years visibility), be predictable and include a transparent review process during that timescale. A clear legally binding framework set over a long period can help build confidence in the underlying policies.
- Mitigation and carbon reduction strategies should be aware and mindful of adaptation strategies to ensure resilience is integrated in key economic sectors.
- A clear and strong system for Measurement, Reporting and Verification of emission reductions and use of climate finance should be implemented as soon as is practicable and linked into corporate and project governance requirements around risk disclosure.

Principle 3: Price signals in the market should support the deployment of low carbon alternatives ensuring that any social costs associated with a transition are well managed.

- Direct and indirect subsidies for technologies yet to reach cost competitiveness with high carbon alternatives should be supported, should be set at a level that provides public value and affordability, should include transparent timelines for reviews, be time bound.
- Fossil fuel subsidies (direct and indirect) should be made transparent and then phased out while ensuring access to affordable energy remains a priority.
- Mechanisms to deliver a price on carbon (cap-and-trade scheme or tax) should be included in national economic planning once the domestic investment market is sufficiently developed to support such a price⁵.

⁴ including but not limited to monopoly utilities, rating agencies, investors (trustees and fund managers), actuaries, venture capital, project developers

Principle 4: Underpinning economic drivers should be realigned to support sustainable growth.

- The general market for low carbon technologies and services should be improved through good use of regulation and standards including building codes, equipment and appliance standards, waste standards, transportation policies and carbon sink management.
- Low carbon energy, water, waste, land and transportation systems policy should be developed, include investment in the infrastructure required, be coordinated across government ministries and be based on integrated resource planning while being mindful of internationally agreed targets and ambitions.
- General public sector finance should be refocused away from high-carbon sectors as a clear demonstration of long term economic policies including ‘greening’ of public sector infrastructure and education including ‘green’ skills development.
- The wider regulatory framework should be fully supportive towards investments in climate solutions (for example, financial regulation not restricting long term investments).

Principle 5: National governments should have active programmes of public (climate) finance to support, underpin and develop investment grade projects that mobilise private capital.

- *Enabling environment:* Governments should coordinate and prioritise financial and capacity building support for developing investment grade projects and policy and, where appropriate, work with international financial institutions and donor governments to support this.
- *Deal flow:* Governments should work with international public finance to support the creation of good project deal flow including supporting the setting up of project developers, fund managers that can provide project aggregation and the engagement of rating agencies in these projects at an early stage.
- *Risk-finance:* Risk-mitigation measures should be provided through a clear structure. Existing international financial mechanisms which support further private sector investing should be highlighted and where appropriate subsidised where climate investments require additional short term support (such as foreign exchange hedging or political risk guarantees).
- *Direct investment:* Governments should work with international public finance to directly leverage increased private capital inflow by providing seed capital or concessional finance for large investment structures such as public-private partnership fund structures.

⁵ Further discussion with CMCI members and other organisations is required to understand what ‘sufficiently developed’ means in practice.

4. Policy scoresheet

The following is a first draft 'investment grade' policy scoresheet which could be used to help test and develop investment grade policy.

The scoresheet is aimed at helping governments develop policy that can achieve scale in investment. It is noted that even with a low 'score' projects may still attract private sector investment if the returns are sufficiently high to overcome the risks. However, the level of returns required to overcome these risks are not seen as sustainable in the long term and will therefore not develop the overall market for climate investing.

Investment Grade Policy Scoresheet			
Instructions: Against each principle score the level of implementation on a traffic light system (sub principles are used to guide the overall score)			
Green: Fully implemented			
Amber: Process of implementation underway			
Red: No confidence in likelihood of implementation			
		<i>Investment Grade Policy</i>	
Principle 1: An early and ongoing managed dialogue with institutional investors and local and international private sector should be set up.			
Transparent objectives			
Critical stakeholders engaged			
Review process in place			
Principle 2: A clear, long term and coherent policy and regulatory framework should be implemented.			
Good investment climate			
Predictable and long term			
Resilience is integrated in key economic sectors			
System for Measurement, Reporting and Verification implemented			
Principle 3: Price signals in the market should support the deployment of low carbon alternatives ensuring that any social costs associated with a transition are well managed.			
Subsidies for technologies not yet cost-competitive in place			
Plan for fossil fuel subsidy phase out in place			
Plan for supporting a price on carbon in place			
Principle 4: Underpinning economic drivers should be realigned to support sustainable growth.			
General regulation and standards support green growth			
Low carbon energy, land, water, waste and transportation strategy developed			
Research and development and education priorities green sectors			
Financial regulation supports long term investments			
Principle 5: National governments should have active programmes of public (climate) finance to support, underpin and develop investment grade projects that mobilise private capital.			
Support for enabling environment			
Support for risk-mitigation finance			
Support for direct investment			
Support for deal flow creation			

5. Next steps

It is noted that it will be difficult for governments and public finance institutions to deliver all of the above in the short to medium term and therefore prioritising actions is important. However, work to deliver both investment grade policy and projects should start in parallel.

CMCI Working Group 1 will further refine the principles to include more detail on policy development including effectiveness and efficiency of particular policy design as enough evidence is gathered through these experiences. In particular, the weighting (prioritisation) of each of the principles and sub-principles will be explored through this process. The prioritisation of the principles may change in the presence or absence of an international deal and therefore this will be closely followed by CMCI.

The principles will be tested and further developed through Working Group 2 of CMCI in bilateral discussions. In addition the case studies of policy implementation as they are developed by other groups and organisations will be analysed using the principles to test their effectiveness.

The principles will be shared with other governments working on similar issues to try and build a consensus view (these are a 'working draft') on how to most effectively catalyse low carbon markets. The benefits of coordinating approaches and support to scale and speed up progress that can be made will be explored with organisations in the best position to address key gaps (for example international finance institutions, national governments and new mechanisms such as the Green Climate Fund).

The best long term use of the principles will also be explored with relevant stakeholders. For example, the possibility of the principles feeding into existing guidelines and frameworks, such as the World Bank 'Doing Business' index or the emerging OECD policy framework for Low Carbon Climate Resilience Infrastructure investment and their ongoing Investment Framework Reviews, will also be explored. The principles could also be used by the private sector to analyse the policy environment of a particular country to help judge whether it is 'investment grade'.

Therefore CMCI will now:

- open up the working draft principles to consultation to help build a consensus view from governments and the private sector;
- continue to build the evidence base for policy development (while there is limited implementation at present there is likely to be a large scaling up of policy and finance instruments over the next few years with valuable lessons that need to be captured);
- test the applicability of the principles in practice through Working Group 2 bilateral engagements and other stakeholders.

ANNEX 1. The finance sector and climate investing

One-size does not fit all in 'low carbon' and at national level policy makers will need to be clear about objectives, and expectations, of what parts of the finance community need to be mobilised, and over what timeframe. There are three parts of the financial system⁶ that form the investment supply chain:

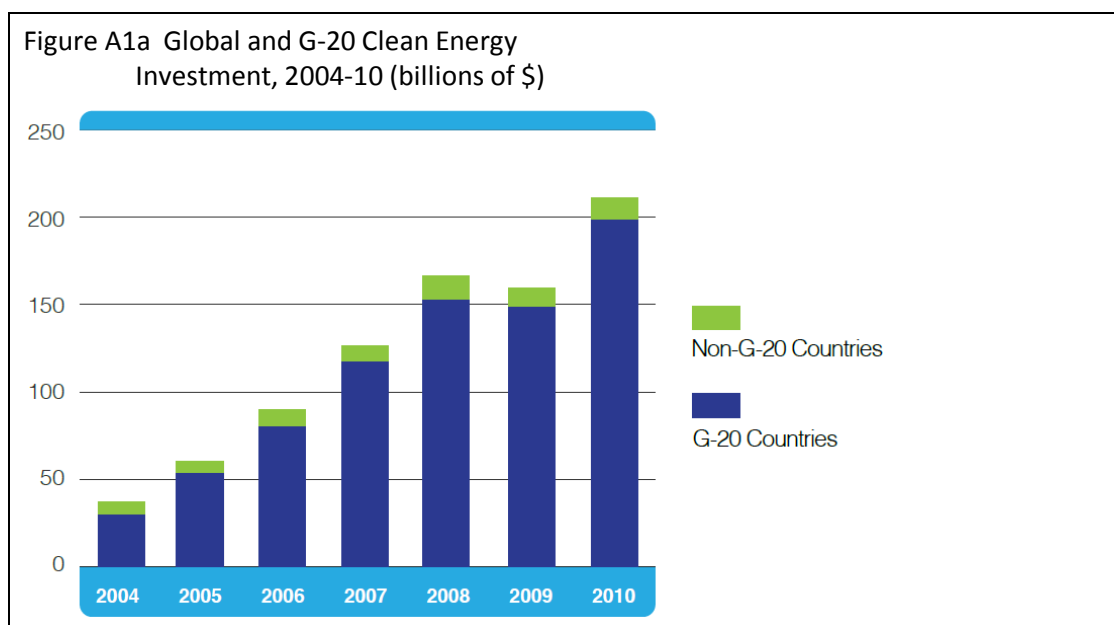
- Capital providers (e.g. institutional investors including pension funds, mutual funds, sovereign wealth funds, insurance funds and hedge funds)
- Capital facilitators (e.g. banks, asset managers, brokers and advisors)
- Project developers (e.g. companies)

Understanding which part of the finance sector a particular policy or intervention is designed to influence and at which point in the evolution of a low carbon asset is important in ensuring maximum leverage for limited finance.

A1.1 Current state of climate investing

In aggregate globally, investments in 'clean energy' are up significantly and closing in on fossil energy. Bloomberg New Energy Finance (BNEF) estimates that in 2010 a record US\$243 billion was invested in the 'clean energy sector', an increase of 30% over 2009 levels (Figure A1a). Growth occurred in all regions, although the 2010 over 2008 (GFC) percentage growth in the Americas was less than other regions (Figure A1b).

Another feature was that the 2010 over 2008 percentage growth was much stronger for clean energy investment than for fossil energy and the total investment for clean energy was the nearest it has ever been to fossil energy (Figure A1c). The most obvious explanation for this is the targeted support schemes for clean energy in government economic stimulus packages; however, related to this is the rapidly declining cost of some technologies (e.g. solar PV) as greater economies of scale are being achieved.



⁶ Venugopal, Shally et al. 2012

Figure A1b Total Investment in Clean Energy by Region
2007-10 (billions of \$)

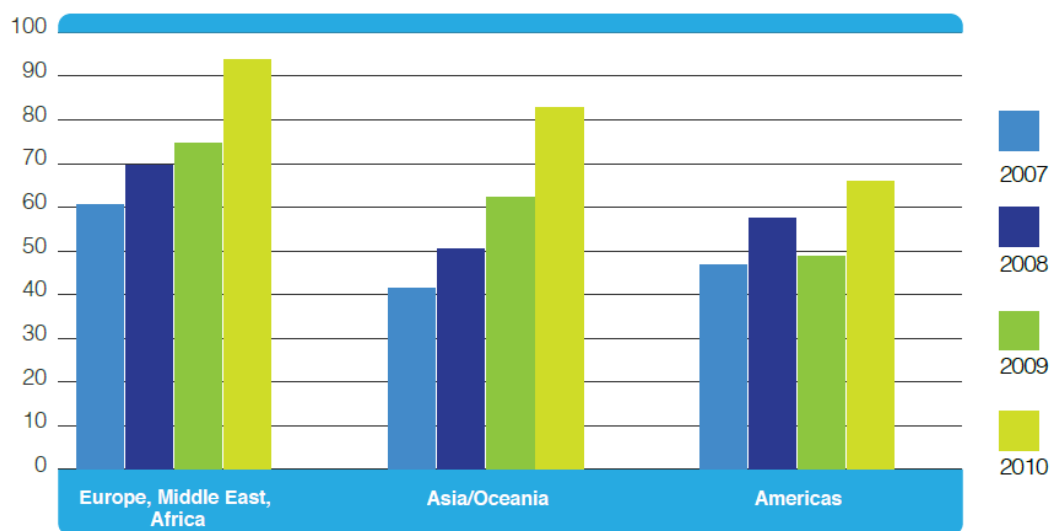
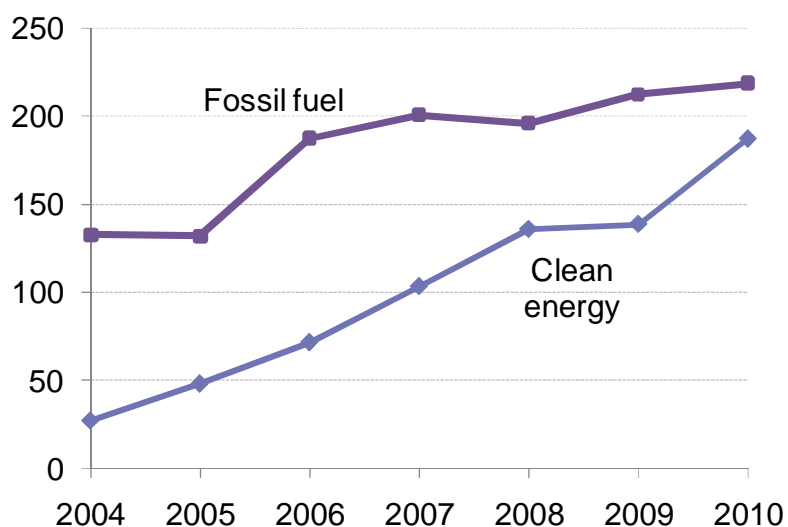


Figure A1c

Clean energy versus fossil-based generating capacity, Investment 2004-10, \$billion



Notes

Source for A1a and A1b: Bloomberg New Energy Finance

Source for A1c: IEA, EIA, Bloomberg New Energy Finance

Figures A1a and A1b: Dollar amounts do not include research and development investments

Figure A1c: Investment for new build - fossil fuel calculated from EIA & IEA numbers; clean energy taken from Bloomberg New Energy Finance totals. Clean energy capacity includes small distributed capacity.

Some country data for 2010 stands out⁷:

- China solidified its global number one position (achieved in 2009 over the United States) with another 39% increase and world-record investment of \$54.4 billion.
- Germany made it to number two, with \$41.2 bn, a 100% increase over 2009
- The United States dropped to third place, with \$34 bn (although this was a 51% increase over the recessionary 2009 level)
- Brazil, at \$7.6 billion invested, is sixth in the G20 and second to China in developing countries.
- The United Kingdom dropped out of the top ten G20 countries, with a 70% decline in investment
- Spain, after showing historical leadership, also declined significantly (54%) in 2010, though its \$4.9 bn still ranked eighth.

The stories behind these countries' performance provide many of the key lessons set out in Annex 2.

A1.2 Investment barriers

Low carbon projects usually involve higher capital costs and longer term financing than high carbon alternatives. Low carbon projects face a combination of risks from policy risks and project (economic) risks. The majority of project risks will be tackled through scaling the market for these investments while policy risks need to be more actively managed (see Annex 5 for a detailed analysis of barriers to investment).

Rating agencies are a key stakeholder that will ultimately assess the 'investment grade' of policies and projects and should be encouraged to engage in the process of addressing barriers from an early stage.

Five sets of barriers and risks have been identified which these draft principles attempt to address:

Domestic policy barriers

- Policy certainty (longevity) including overall governance issues in-country
- Policy complexity
- Transaction costs/bureaucratic hurdles (complying with policy/licensing/reporting requirements)
- Land allocation, access and security of ownership
- Policing and enforcement of obligations and incentives
- Existing subsidies and policy support for high carbon alternatives

Domestic market barriers

- Cost of technology compared to high carbon equivalent
- Human and operational risk (lack of trained people)
- Limitations of support infrastructure (for example, electricity grid infrastructure)
- Capacity of domestic project developers
- Domestic equity funding structures

⁷ From *Who's Winning the Clean Energy Race* - 2010 Edition; A publication by Pew Charitable Trusts and The Clean Energy Economy, developed from data by Bloomberg New Energy Finance

- Long term viability of state utilities
- Operational track record of particular technology/project in country
- Source and accessibility of spares or feedstock
- Competitor risks

General financial barriers

There are several challenges when investing in other countries and currencies which are not related to climate change:

- Country risk: possibility of defaults or other factors leading to non-return of invested capital including economic risks such as inflation.
- Currency risk: Exchange rate fluctuations making returns volatile.

Climate specific financial barriers

Other risks, above and beyond the domestic policy and market risks, are more directly related to low carbon investments:

- Deal flow problems: insufficient number of commercially attractive deals making diversification in investment portfolios difficult.
- Complexity risks: difficulty evaluating multiple, overlapping risks making it easier to invest in business-as-usual investments.

Physical risks

In addition (although not widely included in risk analysis at present) the physical risk from climate change itself will play an increasingly important role. Changes to expected rain fall and water availability, as well as rising sea levels, will potentially have a significant impact on investments.

A1.3 Investment opportunities

National governments can provide a clear and stable investment climate to enable the scaling up of investments into this sector. Annex 3 highlights the range of policies that can support this.

When international public finance is used to leverage private capital it should do so through:

- **Capacity support:** The ability for governments and domestic companies to develop low carbon (investment grade) policies and projects is often not strong. Therefore, support for capacity and technical assistance for policy and project development should be provided⁸.
- **De-risk finance:** To achieve scale in investments it is also important to build early public-private partnerships to demonstrate what is possible. International public finance should be used to underpin and develop early 'investment grade' projects to allow the private sector to move into new markets and help build up the technical capacity (and policy capacity) of a country to further develop solutions at scale⁹.

⁸ This is highlighted under 'enabling environment' and 'deal flow' in principle 5.

⁹ This is highlighted as 'risk-finance' and 'direct investment' in principle 5.

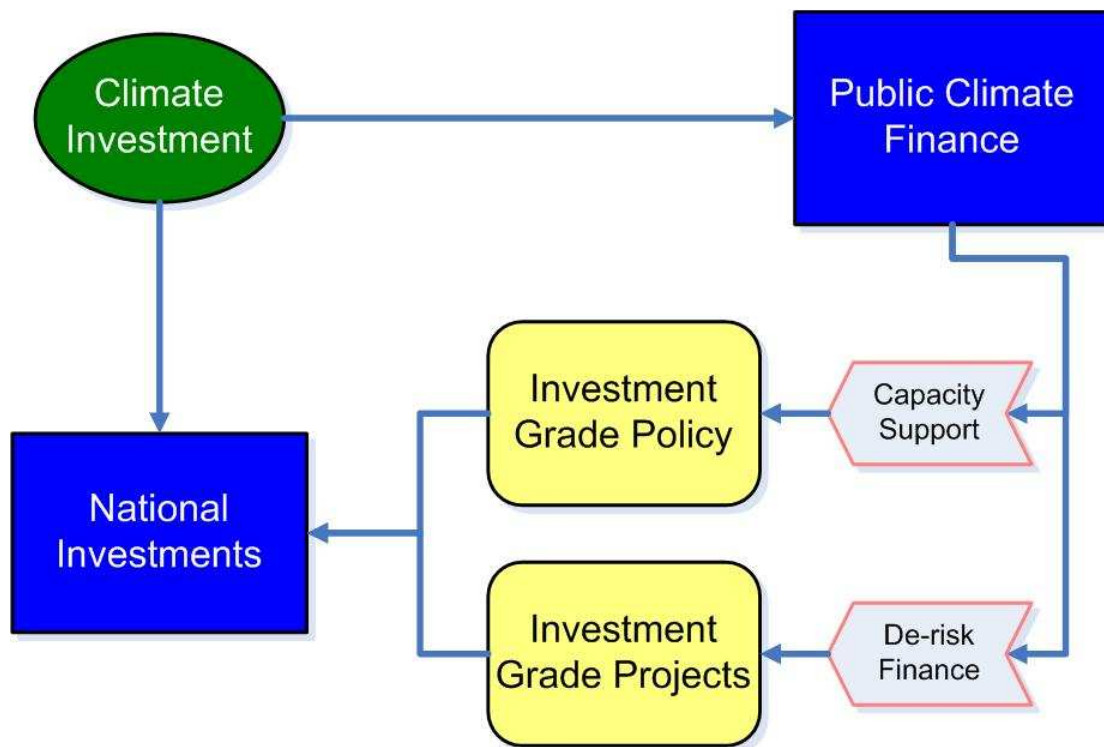


Figure A2: Public sector interventions into climate investment

‘Climate finance’, a useful term for policymakers, will need clarification. For example, does it relate to how policies to deliver emissions reductions intersect with policy to drive investment into underlying assets? Grid and distribution infrastructure do not in themselves deliver near-term emissions cuts, but may be essential to an energy system equipped to deliver higher penetration of renewables, and greater flexibility on the demand side.

This also highlights the importance of early attention to the sequencing, planning and integration of underlying infrastructure planning and financing, and may benefit from a cross-border or regional approach (e.g. power sector) as financiers look for growth potential. It is also vital that national governments, International Finance Institutions, Bilateral Finance Institutions, donor governments and other sources of public sector climate finance work together to coordinate and prioritise capacity support and de-risk finance use.

ANNEX 2. Case studies

To help understand the level of effectiveness of certain policy interventions several case studies have been examined. The majority of these have been derived from Bloomberg New Energy Finance and Deutsche Bank information¹⁰. However, it is clear that while there is a lot of experience in developing and implementing policy the majority is still at a very early stage. Therefore, CMCI will continue to work with partners to keep up to date with lessons learnt during the deployment of policies and technologies to ensure the principles outlined remain relevant.

A2.1 Public-private engagement (principle 1)

CMCI, through Working Group 2, have been working in India and Kenya to try and develop climate investment opportunities. Here we summarise the current engagement on these two case studies. This will be updated as the discussions progress.

India

The Capital Markets Climate Initiative (CMCI) has identified the Indian solar sector as being an area of specific interest and a subject for engagement in 2011/12. Working Group 2 of CMCI has conducted detailed work on defining the barriers to scaling debt finance and specific 'solutions' to catalyse action. This has been developed by members of CMCI and Indian industrialists, financiers and policy makers.

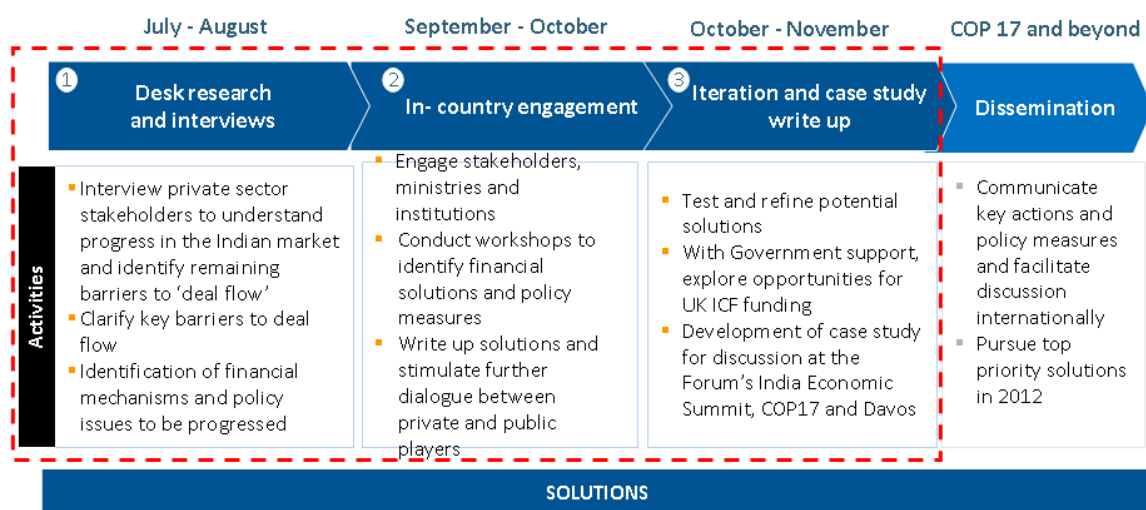


Figure A3: CMCI Working Group 2 engagement model in India in 2011

India has already shown significant progress in deploying renewable energy

- The wind sector has shown strong progress - now the 5th largest in the world
- India is on track to deliver on its ambitious goals for solar power – thanks to the regulatory framework and incentives offered through the National Solar Mission and State programmes

¹⁰ *Who's Winning the Clean Energy Race - 2010 Edition*; A publication by Pew Charitable Trusts and The Clean Energy Economy, developed from data by Bloomberg New Energy Finance

Renewable Energy Policy Case Studies, August 2011; A paper developed for CMCI WG1 by DB Climate Change Advisors, Deutsche Bank Group

Global Climate Change Policy Tracker – Winners and Losers, July 2011, DB Climate Change Advisors

Innovative models for deployment have emerged:

- **Off-grid rural solar solutions:** effective business models are providing solar power for rural communities and spurring local economic activity; but more needs to be done to get these models to scale
- **Financial innovations:** effective collaboration between public and private finance is already happening on the ground and can unlock significant flows of capital, demonstrated through:
 - Lines of credit for domestic banks
 - Partial credit guarantee offered by the Asian Development Bank
 - Guarantees offered by the US Overseas Private Investment Corporation (OPIC)
 - Solar park financing initiatives.
- **Partnership is needed:** agreement that more should be done to develop these practical solutions through public private partnerships

However, India is not seeing the scale of investments that are required. During discussions the following barriers in achieving this scale of investment were identified:

Financial

- Project economics and debt capacity
- Availability of financing instruments
- Lack of non-recourse financing¹¹
- Sector limits and bank market appetite

Policy

- Power Purchase Agreement issues (tariff changes, non-inflation adjustment)
- Project size and pipeline, timelines
- Policing of Renewable Power Obligations/viability of Renewable Energy Certificates

Market

- Engineering, procurement and construction availability
- Land and water access
- Evacuation infrastructure
- Limited technology experience

The following solutions have been identified and a more detailed analysis of the issues and potential solutions in each of these areas is now underway.

- Designing a solar Power Purchase Agreement breach of contract insurance instrument
- Making long term foreign exchange hedging available at an affordable cost for solar projects
- Detailed design and launch of a Solar Park Financing Vehicle (SPFV)
- Expanding the Asian Development Banks Partial Credit Guarantee Facility
- Supporting the emergence of an Indian market for Renewable Energy Certificates (REC)
- Catalyse the emergence of a Credit Default Swap market to serve the solar market
- Support design and structuring of a Solar Guarantee Fund

¹¹ Non-recourse finance is finance where the investor (or lender) is only entitled to repayment from specific assets or cash flows (it is not possible to get the return from the organisation that is managing the project if the project fails).

Kenya

To identify potential ‘intervention points’ where collaborative initiatives could unlock private capital for green growth in Kenya the World Economic Forum, as part of the Capital Markets Climate Initiative, convened three conference calls in mid November, 2011. These calls brought together a range of 30+ stakeholders from the public and the private sector to focus on two classes of renewable energy deployment:

- Small scale distributed renewable power and;
- Large scale (utility) renewable power

And one thematic issue:

- The role of capital markets in driving/chanelling renewable investment.

Calls focused on establishing the current state of activity in Kenya and exploring the barriers (and success factors) encountered by the business and investor community.

From discussions two clear categories of challenges to wider market participation emerged:

- a) Financing: including the availability of debt and equity finance for developers, PPA bankability and access to risk mitigation instruments
- b) Market maturity: including issues around availability of project performance data, land access and taxation

Policy barriers were also discussed, and featured as implicit within discussions on financing and market maturity. The group recognised the need to engage with the Kenyan government and take vital steps towards delivering a robust ‘enabling environment’.

The engagement in Kenya is ongoing and further detailed work will take place in 2012.

A2.2 Policy certainty (principle 2)

Investors can cope with policy certainty that incentives will decline.

Germany is also a good example of how investment can be sustained even as incentives taper off. The key issue is certainty. DB considers the German FiT as a model for good policy design, particularly the wind FiT as “it sets an initial tariff, follows a digression schedule¹², allows for extensions of the initial tariff for sites with lower capacity factors (i.e. less wind resource) and directly passes on the costs to end-consumers.”

Italy is another example where demand for renewable energy technologies, in this case solar PV, is still seen as robust even though FiT rates are being progressively cut.¹³

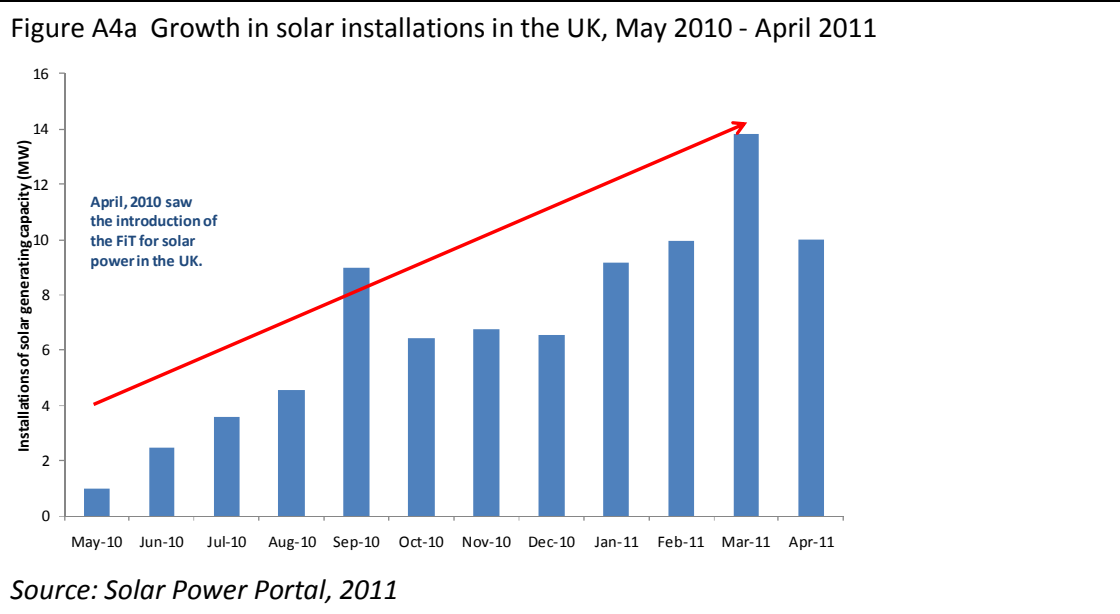
¹² Whereby tariffs are reduced based on a published schedule and this schedule is periodically reviewed to allow further cost reduction. For example, in 2005, 10 per cent of electricity in Germany came from renewable sources and 70 per cent of this was supported with feed-in tariffs. The average level of feed-in tariff was €0.0953 per kWh in 2005 (compared to an average cost of displaced energy of €0.047 kWh). The total level of subsidy was €2.4 billion, at a cost per consumer of €0.0056 per kWh (3 per cent of household electricity costs). (Source: Stern Review of the Economics of Climate Change). The tariffs are lowered every year to encourage more efficient production of renewable energy. As of 2008, the annual reductions are 1.5% for electricity from wind, 5% for electricity from photovoltaics, and 1% for electricity from biomass.

¹³ *Global Climate Change Policy Tracker – Winners and Losers*, July 2011, DB Climate Change Advisors

While the policy certainty around Feed-in-Tariffs have been seen to deliver large changes in investments governments inherently have a lack of information to set the price properly and therefore such subsidies have been liable to change (see Annex A2.3).

Spain provides an example of an uncertain policy environment. In December 2010, Spain implemented retroactive FiT cuts for solar PV schemes “to grant the Government leeway in keeping consumer energy prices at a moderate level”.⁵ A 30% reduction in the revenue that solar projects can earn will be in effect for the next three years. Retroactive changes in policy are seen as particularly harmful for investment. The cut in the FiT has resulted in extreme policy risk in Spain and has been challenged in court by project developers and investors.

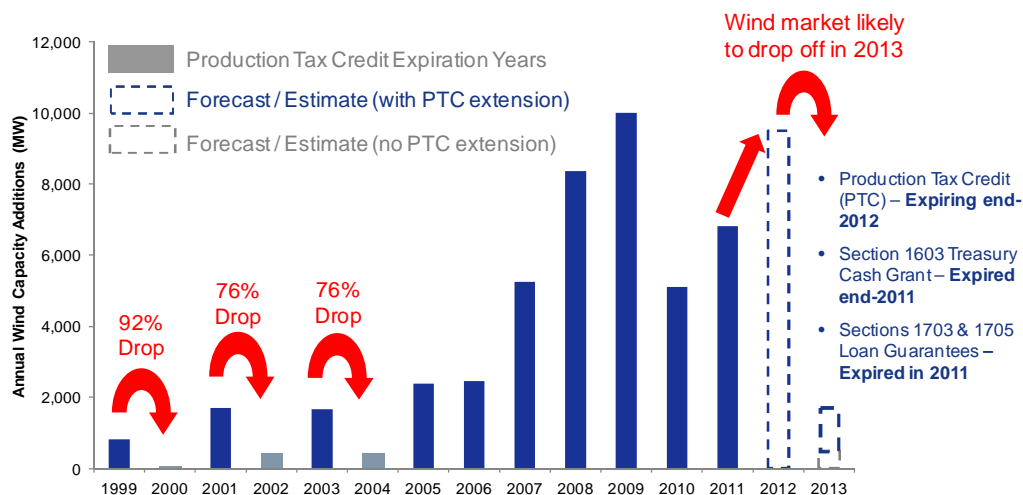
In the UK, FiTs for solar (and other renewables) introduced in April 2010 have produced immediate results. PV installations from April 2010 to June 2011 soared (Figure A4a).



The effect of subsequent changes to the solar PV tariffs in the UK remain to be seen.

The US provides a telling example of the effects of ‘on-again off-again’ policy, in this case in the availability (and expiration) of production tax credits in the wind sector (Figure A4b). This has increased financing costs due to an uncertainty of cash flows and has hindered the emergence and ongoing growth of robust domestic wind development and supply chain industries.²

Figure A4b Historic Impact of US Production Tax Credit Expiration on Annual Wind Installations



Sources: American Wind Energy Association, Bloomberg New Energy Finance, DBCCA Analysis 2011

Figures A4a and A4b provided in "Renewable Energy Policy Case Studies, August 2011"; DB Climate Change Advisors

An additional issue with incentive schemes with short time windows is that this can lead to increased equipment and installation costs if there is a sudden demand for deliveries needed before incentive schemes expire.¹⁴

A2.3 Use of subsidies (principle 3)

Investment responds well to targeted support, if incentives are attractive enough.

Taking China and Germany as success case studies, it is instructive to look at the trend of investment over time and map this against changes in incentive structures (Figures A5a and A5b).¹⁵

¹⁴ *The impacts of policy on the financing of renewable projects: A case study analysis*, October 2011, A CPI Report. This report that looked at examples of wind and solar projects in the United States, Spain, Italy and Denmark noted that three factors stood out in all case studies: (1) The duration of revenue support had the largest impact on financing costs; (2) Revenue certainty is the second most important factor; and (3) Investors' perceptions of risk also significantly impact project financing costs.

¹⁵ From *Renewable Energy Policy Case Studies*, August 2011; A paper developed for CMCI WG1 by DB Climate Change Advisors, Deutsche Bank Group

Figure A5a China wind energy deployment and policy timeline

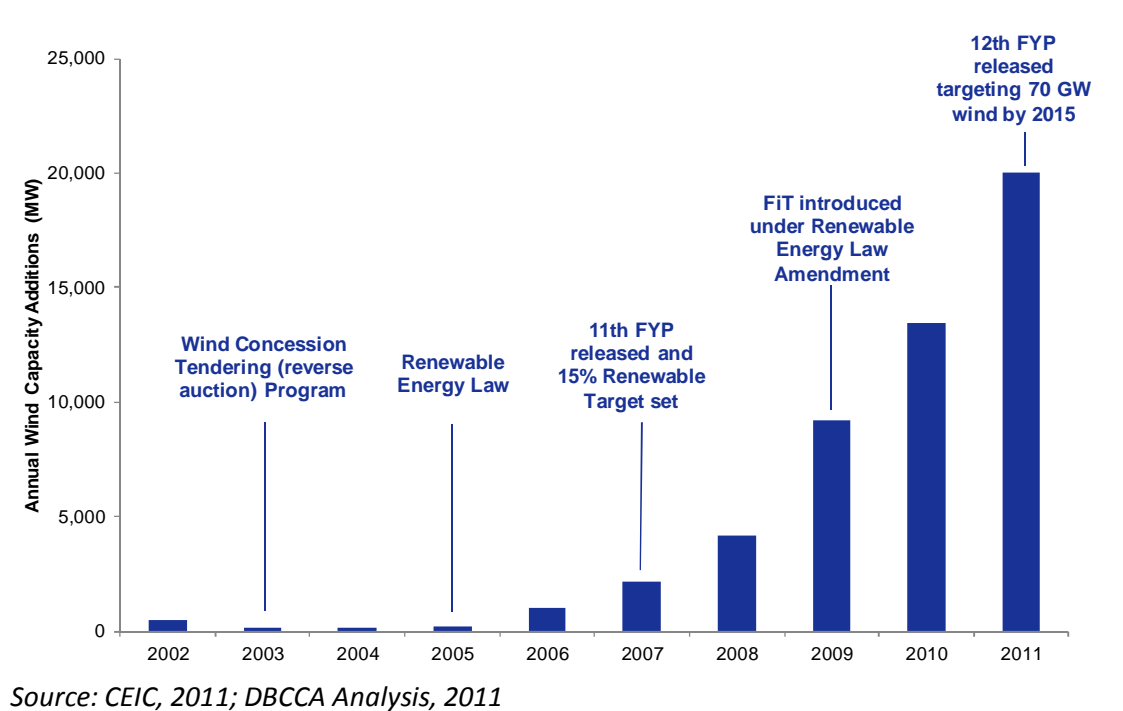
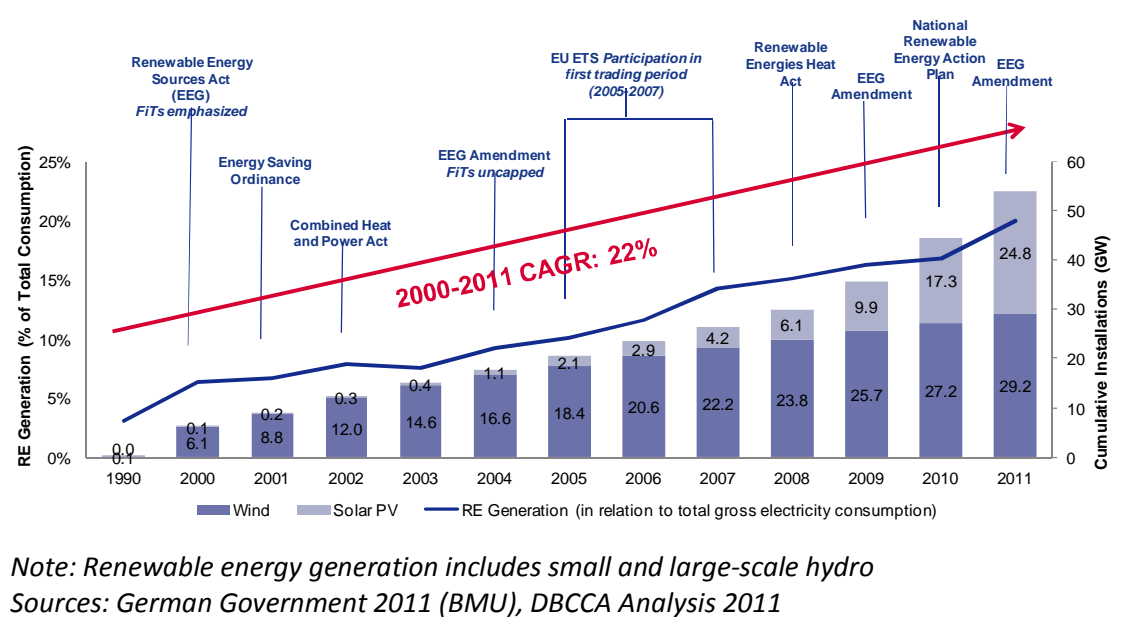


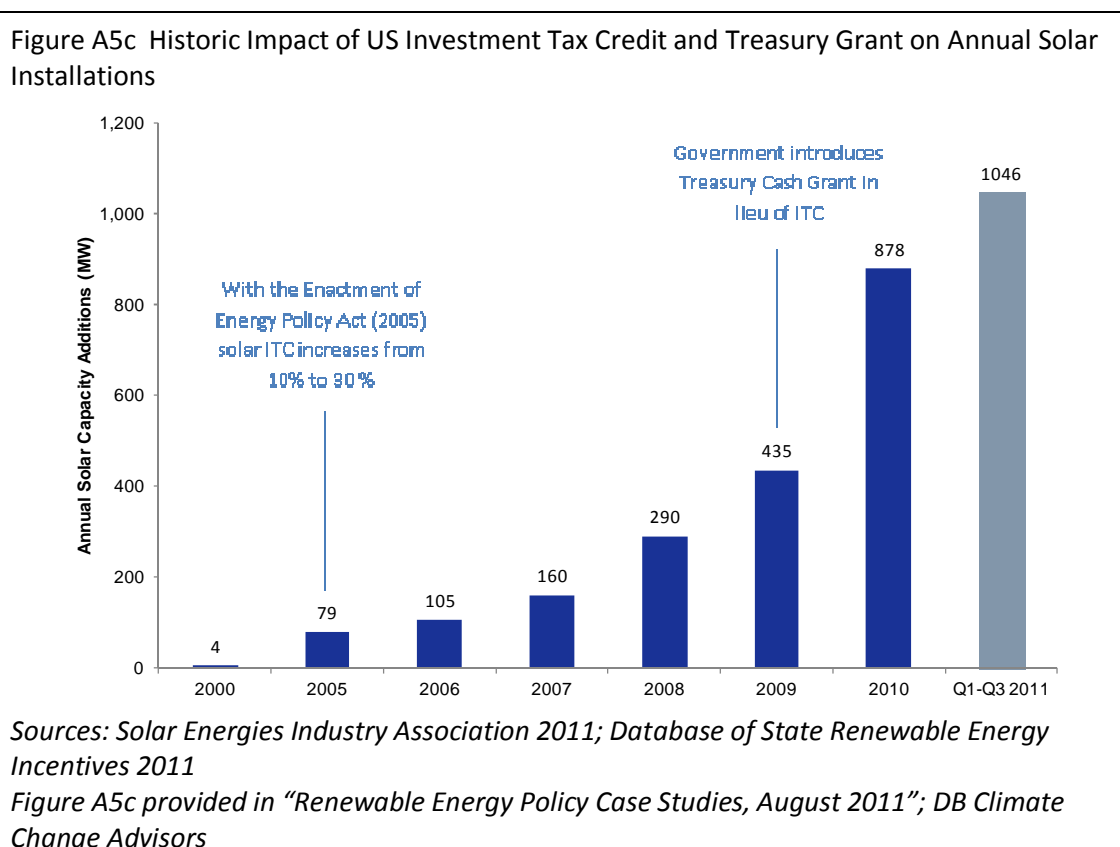
Figure A5b German renewable energy deployment and policy timeline



The China example shows the effect of different types of incentives, in particular the very strong effect of the feed-in tariff (FiT) programme introduced in 2009. The Germany example shows a more steady and constant rise across a range of increasing policy incentives, which in the terminology of DB Climate Change Advisors (DB) reflects the core policy attributes of “transparency, consistency and longevity” (TLC). A FiT scheme has been central to the success in Germany. According to BNEF, FiT schemes have proven to be the most effective

policy mechanism in driving wind and solar deployment – 59% of global wind capacity and 87% of global solar PV capacity have been deployed in FiT markets.¹⁶

In the United States, the dominant form of federal government support for traditional and renewable energy has historically been provided through the tax code in varying forms of tax incentives – e.g. in the case of renewables, Production Tax Credits (PTCs) for wind, biomass and small hydro, and Investment Tax Credits (ITCs) for solar and geothermal. These have produced some good results, e.g. in the case of solar. But these measures can produce inconsistent results and US government stimulus measures in 2009 also provided for Treasury cash grants in lieu of PTCs and ITCs. The effects of these measures on annual solar installations can be seen in Figure A5c.



Efficiency and effectiveness are policy buzzwords; but the meaning can be unclear and, in practice, these can pull in different directions.

Calls for policy to be efficient and effective are common and make sense. But what does this mean exactly? And can these happen together, or are there reasons why these may be conflicting goals?

It is clear that providing generous incentives can be an effective way to stimulate investments in clean energy, if the metric of effectiveness is the level or growth of installations in a given time period. So it might be seen that Spain's initial FiT programmes were very effective. But, if by efficiency it is meant low or least cost, then a consideration of efficiency in the Spain case can lead to a quite different perspective. The design of Spain's FiT policy did not follow some of the better practice examples of Germany's FiT policy, in

¹⁶ Assessing the Effectiveness of Clean Energy Policy, May 2011, Bloomberg New Energy Finance

particular those that contained the cost, especially the cost to the government. As a result, as Spain's government came under fiscal pressure following the global financial crisis, the FiT scheme became seen as overly generous, so not sustainable. This resulted in the retroactively applied cuts to the tariffs. Looking at this fuller story, the scheme might be seen as ultimately not effective because it was not efficient (the rents paid to the industry sector became seen to be excessive in the face of the need for public fiscal restraint).

This said, investments in clean energy in Spain in the decade 2000-2010 were nearly \$75 billion, placing it 3rd globally behind the US (\$164 bn) and China (\$148 bn) and well ahead of Germany (\$39 bn) who came in 5th behind Brazil (\$42 bn).⁵ Arguably, had it not been for the GFC, Spain's situation and any judgements about the effectiveness of its FiT policies might be quite different.

The measure of efficiency should not just be seen in terms of fiscal cost to governments. If the costs of what ultimately are seen to be overly generous tariffs are just passed on to consumers, there is a 'political economy' risk which ultimately can be expected to bring the pressure back onto governments.

Results from Brazil's recent auctions illustrate the success of auction mechanisms in securing low-price contracts for renewable energy. However there are potential downside risks from auctions. While Brazil's energy regulatory agency has focused auctions on mature technologies, it has (1) allowed developers to submit bids that assume excessively high capacity factors;¹⁷ and (2) traditionally been lax in imposing fines on projects whose annual energy output is less than the contracted amount.¹⁸

In August 2011, clean energy generation projects (including wind power) for the first time competed directly with non-renewable (such as natural gas-fired units) and large hydro projects in Brazilian auctions.¹⁹ Wind power emerged as the major winner in these auctions, claiming over half of new contracted capacity (2.88 GW) at an average price of \$62/MWh. Wind power projects continued to "run the table" during Brazil's most recent auction in December 2011 – winning 81% of total contracted capacity (976 MW) at an average price of \$57/MWh. If constructed, these wind power projects will more than triple Brazil's installed wind power generating capacity at a \$/MWh cost 62-64% below what Brazil had been paying new wind power projects under its feed-in-tariff PROINFA program.²⁰

As was the experience in China, however, there is always a risk in reverse auctions that participants will bid in below what is financially viable and then fail to build projects. Evaluating the 78 wind projects contracted in Brazil's August 2011 A-3 and capacity auctions, BNEF calculates that 32 of these projects – representing 870 MW of new capacity (40% of total capacity tendered) – will deliver an annual return to equity of less than 10%.²¹ Annual equity returns on many of these projects appear to be below 7.5%. Even taking into account the burden of Brazil's non-compliance penalties, returns of this magnitude may provide

¹⁷ In the range of 58 – 60%, which no commercial-scale wind project in the world has ever achieved. Source: Bloomberg New Energy Finance 2011

¹⁸ Should a project's output be less than 90% of annual contracted energy, the project is supposed to face non-compliance penalties ranging from 0.001% to 10% of the announced investment in each project; as noted, however, Brazil's regulators often waive such fines

¹⁹ One for primary energy and one for reserve energy

²⁰ Under the PROINFA program - which was a Feed-in Tariff and quota system – average tariffs were \$136.0/MWh

²¹ Yielding an annual equity return above 10% seems to require a project to have an annual capacity factor of at least 45%; by comparison, for onshore wind in the US, the Energy Information Administration assumes an average annual capacity factor of 34%.

inadequate incentive for developers to actually construct their projects – hence recreating the specter of “bid but not built” projects that has played out in the wake of capacity auctions in the UK and elsewhere.

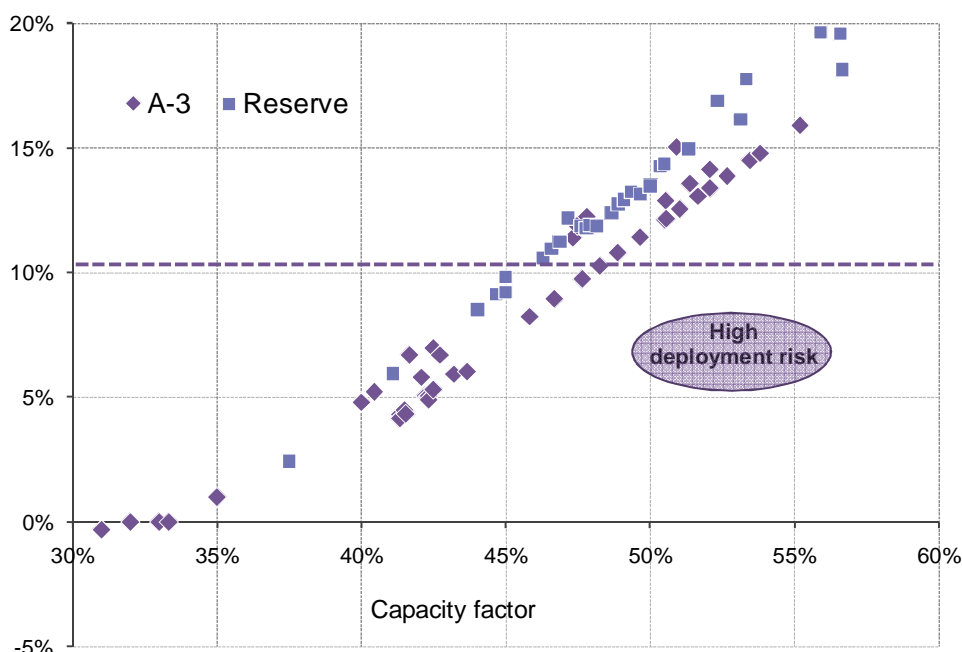


Figure A5d Estimated equity returns of the winning wind bids in the A-3 and capacity auction versus capacity factors for these bids, 2011 (%). Source: Bloomberg New Energy Finance, 2011
 Note: Assumes CAPEX costs of nearly \$1.9m/MW, fixed OPEX costs of \$50,000 per year as well as a \$3-\$6/MWh hedge structure, 70:30 gearing ratio and a 8.75% cost of debt. Annual inflation fixed at 5% for 20 years.

However, it is critical to recognize the role of state-subsidized loans in lowering financing costs for wind developers who have bid into Brazil’s regulated auctions. *Banco Nacional de Desenvolvimento Economico e Social (“BNDES”)* - Brazil’s state-owned development bank - is able to provide low-interest loans (“soft dollar” loans) in order to stimulate growth of target industries such as alternative energy. Since 2000 BNDES has committed roughly \$10 billion of loans to support development of Brazil’s wind resource; BNDES loans to Brazilian wind developers appear to carry interest rates 500-750 basis points (bps) below prevailing commercial rates. Based on current commercial rates for Brazilian wind developers (14% - 15% per annum), BNDES debt reduces borrowing costs for eligible wind projects by roughly 40%. Nearly every wind project that has bid into any of Brazil’s auctions has done so with the benefit of debt from BNDES.²²

Therefore the tentative conclusion from Brazil is that right now auctions may succeed in deploying mature, large-scale renewables such as wind power generation – provided that governments extend low-cost financing to investors in such projects.

²² Developers of other low-carbon technologies (e.g. biomass and small hydro) can access BNDES financing on terms similar to those available for wind projects; hence BNDES financing is similarly ubiquitous in the bids from developers of these technologies participating in Brazil’s regulated auctions. BNDES low-cost debt is generally not available, however, to developers of more mature technologies such as natural gas-fired turbines or large hydro facilities.

Definitions of efficiency and effectiveness could usefully be further clarified and elaborated beyond the more quantitative and narrow forms often favoured by analytical groups. Some attributes of 'good policy' reflecting these terms might be:

Efficiency

- Price discovery or contestability elements in the process that sets the levels of support – whether in the initial setting of fixed support tariffs or where the support is more dynamic and variable in nature.
- Clearly programmed review processes or schedules whereby the levels of support can be changed (down and up) depending on the changed economic circumstances
 - Related to this can be the extent to which incentives can be backed out, e.g. as technologies achieve 'grid parity' (so become commercially viable without incentives) in given country circumstances
- Means to minimise 'friction losses' (e.g. transaction costs and 'clip the ticket' costs) which add to overall project costs and mean less of investors' money gets to 'the ground' of the actual project or programme developer
- Means to encourage the early and vigorous uptake of lower cost renewables and energy efficiency measures before more costly ones – albeit noting that support is needed across the full R&D to commercialisation cycle, with the type of support depending on the stage

Effectiveness

- The scale of outcomes (whether in energy or greenhouse gas mitigation terms) in a given period of time as compared with reasonable objectives for the levels of potential outcomes
- The speed with which finance gets deployed, e.g. how long it takes between when public finance is provided by donors and when investments on the ground are evident
- The scale of investments compared with the scale of public monies that have been instrumental in helping to make these happen ("leverage")
- The progressive engagement of, and building up of, domestic finance and capacity – so the lessening of the need for international support
- The avoidance of 'clogging up' support processes with projects and programmes that ultimately prove to have had little chance to be implemented (this can also be seen as relating to efficiency as such process mis-steps are likely to increase costs, especially if some level of support is provided to proposals that do not ultimately process and this support is not recoverable)

Moreover, efficiency and effectiveness are not just about the efficiency and effectiveness of providing incentives to stimulate investment. These important expectations of 'good policy' need to be more broadly applied – e.g. in the fuller context of "investment grade policy".

In this context CMCI will continue to collate case studies of subsidy regimes around the world to build the evidence for the efficiency and effectiveness of the different methods used to set the price for renewable technologies (auction, fixed price feed-in-tariff, tax credits etc).

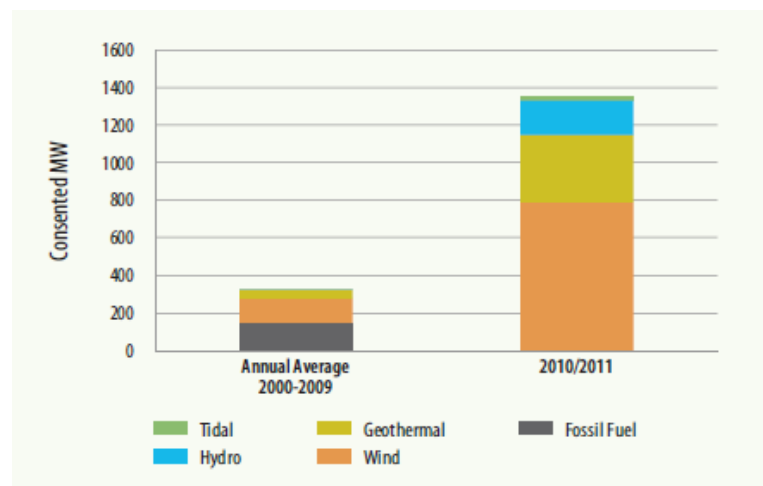
A2.4 Price on carbon (principle 3)

An example for the development of wind energy in New Zealand provides a somewhat different story. The positive incentives ‘kick start’ for this sector occurred in 2003 and 2004 under the NZ “Projects to Reduce Emissions” (PRE) scheme. This was a bid-in contestable domestic projects scheme where the incentive provided was the awarding of Kyoto compliance units (AAUs or ERUs) for emission reductions that would occur in the first Kyoto period. A number of wind farms were awarded credits under this projects scheme before the policy was shut down in favour of the development of a national domestic ETS. However, wind farms have continued to be built without any incentive, beyond the additional profitability achieved because the market price for all electricity has been lifted by the cost of carbon imposed on fossil generators operating at the margin. New Zealand now has 16 onshore windfarms in operation, totalling around 615 MW.

Another measure of the success of this ‘price on carbon’ means to support clean energy can be seen in Figure A6 which shows the increased level of consents (permits) for ‘new build’ power stations in the period before and after the introduction of the NZ ETS.

Figure A6

New Zealand electricity sector,
Consents (Permits) for new build, annual totals
period before and after NZ ETS



Source: Report on The New Zealand Emissions Trading Scheme, 30 June 2011

This New Zealand example highlights that aspects of policy other than just positive supporting elements on the 'green side' (e.g. those that are happening on the fossil fuel 'brown' side) are also important to begin to get a full picture of the extent to which policy might be described as "investment grade". As Report 1 in the initial set of CMCI WG1 reports²³ sets out in detail, there are a range of elements falling into a number of categories that might be used to make such assessments.

A2.5 National investment priorities (principle 4)

The existence of national financial institutions, and international collaboration between national institutions, matters.

Brazil's total clean energy investment in 2010 was \$7.6 bn with 40% invested in biofuels, 31% in wind and 28% in other renewable energy sources. With almost 14 GW, Brazil has the world's seventh largest installed clean energy capacity to complement its significant biofuels capacity.¹

The very proactive role of BNDES, Brazil's development bank, is a key feature of the Brazilian approach to supporting clean energy investment that sets it apart from other developing countries, and developed countries. BNDES is the main provider of long term financing in Brazil, lending directly or through financial intermediaries including local banks.

In 2010, BNDES investment in climate finance was over US\$ 3 billion, representing about 14% of total climate finance by bilateral financial institutions (BFIs) and the fourth highest behind JICA (Japan), AfD (France) and KfW (Germany).²⁴ To further put this in context, BFI's invested about 60% more climate finance in 2010 than the multilateral development banks. Moreover, a key point of difference for the BNDES finance total is that this is primarily invested in Brazil, whereas the figures for e.g. JICA, AfD and KfW reflect development

²³ From *Investment Grade Policy*, Report prepared by Aled Jones, Anglia Ruskin University (Cambridge) for CMCI WG1.

²⁴ From *The Landscape of Climate Finance*, October 2011, A CPI Report

assistance investments in other countries – including Brazil. In addition to BNDES investing domestic sourced funds, it has been a counterparty of these other BFIs. For example, in October 2011, the European Investment Bank provided a EUR 500 million loan to BNDES for projects in the renewable energy sector supporting climate change mitigation.

BNDES provides finance through specific **credit lines** (e.g. for environmental projects supporting sustainable development; for reforestation, conservation and forest recovery; for projects contributing to power efficiency; and for public sector transport systems), **programs** and **funds** (e.g. the Amazon Fund that promotes projects for preventing and combating deforestation as well as for conservation and sustainable use of the forests of the Amazon biome; and the BNDES Clean Development Fund which supports companies and projects that potentially generate Certified Carbon Reductions.)

A2.6 Developing country experience

Most of the studies in this subject area look primarily at lessons from developed countries; but to what extent are the lessons transferable to developing countries?

A key point about so-called ‘good policy’, whether this is because it is efficient, effective and/or innovative, is that this must be context-relevant. This can be seen in a temporal sense (e.g. given prevailing economic conditions) or a geographic/national circumstances sense, including with regard to international political and policy settings.

In particular what might be promoted as good, or ‘the right’, policy in modern developed country economies may not be suitable or feasible (yet anyway) in developing countries. Most analyses that have been drawn on in the development of this paper primarily cover large OECD countries. The developing countries included are the large, rapidly emerging ones, e.g. China, India, Brazil, Indonesia, South Africa, Argentina.

It can be expected that looming over any policy discussions on enhanced levels of investment in renewable energy will be the question of international support – including on technologies and finance. This brings a political dimension to the national circumstance issue that is mostly lacking for investments in developed countries – although exists to some extent for investments in economy-in-transitions countries. (This suggests that perhaps there are some valuable and transferable lessons to be learned from investments in these EIT countries..... e.g. by EBRD, EIB and other FIs.)

This said, it is also a matter of fact that the large developing countries are looking to many of the same policy instruments to stimulate investment in clean energy as those that have been used in leading developed countries. But are they learning the best (and right) lessons? And to what extent are their experiences readily transferable to the next level of mid-size and rapidly growing developing countries? What is their current clean energy investment story? The evidence base and current body of analysis on these issues in these countries is seemingly still quite limited or too new to derive detailed assessments. More work is needed in this area.

ANNEX 3. Investment grade policy

This section draws heavily on consultations carried out through CMCI and the various private sector initiatives outlined in Annex 6.

A3.1 Long, Loud and Legal and TLC (principle 2)

Most policy documents from the investment community will start with a similar call to governments: the need for long term and predictable policy. Whether this is referred to as long, loud and legal or transparency, longevity, certainty and consistency (TLC) the key message is the same.

The key criteria are:

- Investment timescales and policy timescale must align and need to be predictable (long) – typically 10-15 year timescales
- Policy must make deals more commercially attractive than business-as-usual investments (loud/consistency)
- A clear legally binding framework set over a long period including transparency over any reviews that will occur will build confidence in the underlying policies (legal/certainty/transparency)

A ‘sunset’ clause or transparent review plans (in terms of timing, scope) for policies which is predictable is as important as any initial subsidy put in place. This gives investors confidence that the policy will not be retrospectively changed and therefore investments can be made into high capital cost projects.

Therefore, a clearer and more consistent policy signal is required. This includes addressing all aspects of a policy environment (not just climate change specific policies). For example, without an energy system wide view, regulations in planning, energy and consumer markets may not stand the test of a full risk assessment for investment. An integrated approach to energy, transport and land-use policy is needed.

Delivering a low carbon economy needs sub-sector strategies and improved integration of the different levels of government required to deliver the objectives (for example, closer links between planning regulations and infrastructure banks. In addition governments need to show their long term commitment by providing support for new industries, technologies, infrastructure and practices on the basis of a comprehensive and long term policy framework including emission reduction targets. However, this level of policy integration and analysis, while difficult, should not be allowed to delay implementation and action.

Policy should be subject to stress testing which should be done in an open and transparent way to increase the confidence in their economic sustainability.

A3.2 MRV and governance (principle 2)

A key aspect to lowering the risk of any investment is the ability to demonstrate that returns will find their way back to the project or investor. The economic strength of a particular country will be the main driver of any risk assessment.

The overall governance environment of a country is the first factor that most investors will explore. If there is little evidence of a strong rule of law then any investment will be difficult. If there is evidence of countries changing the terms of deals or not enforcing contractual

agreements (or favouring domestic partners over international capital providers) then investment will be difficult. The ability to assign some of the contractual arrangements (such as power purchase agreements) directly to lenders or investors may go some way to manage these risks in the short term.

However, strong and dedicated institutions with clear responsibilities for implementing policies are a better way to lower the perception of risk. Measurement, reporting and verification (MRV) systems at the national level for carbon savings or renewable obligations, where revenue is dependent on these factors, needs to be in place before projects will get financed. Over the medium term a move to mandatory disclosure standards for companies and projects will assist in simplifying the risk assessment process. Any MRV system should also be able to monitor the deployment and use of climate finance projects.

Therefore, synergies with international development activities and policies should be sought wherever possible.

Other factors within the governance of a country that need to be well understood before investments take place include land rights and tenure, bureaucracy associated with devolved power (city, region, state and national), grid access rights, import tariffs and any restrictions on the repatriation of investment returns.

With appropriate MRV mechanisms in place a subsequent mandatory requirement for risk disclosure to investors from companies should be implemented.

A3.3 Adaptation risk (principle 2)

The insurance sector are leading research efforts into adaptation and are keen to encourage governments to support proposals that catalyse adaptation efforts through risk management, loss prevention and risk transfer, particularly in those countries most vulnerable to the impacts of climate change. These include appointing a national risk officer with the mandate to develop a holistic risk management culture, facilitating community, regional and state level loss reduction activities, climate-proofing existing infrastructure investments, putting in place appropriate zoning and building codes and enforcing these, providing a suitable enabling environment for risk management, including insurance.

A3.4 Subsidies with sunset clauses (principle 3)

With a long track record and deployment at scale, high carbon alternatives typically have lower capital costs and lower perceived risks than their low carbon equivalents currently. The use of subsidies to encourage the deployment of new technologies until they achieve a large enough market penetration to become cost-competitive is therefore necessary. Investor and business groups, however, differ in their choice of subsidy.

As far as possible any subsidy should be technology agnostic and should focus on the carbon content (it is better to regulate for a generic carbon content mix for fuel than to specifically focus on biofuels for example). Exceptions to this come when technologies are immature and require higher subsidies initially to make them cost competitive. For example, earlier stage technologies such as solar will need higher levels of support than widely adopted technologies such as wind. In certain circumstances (for example when investor experience with a particular technology is low) subsidies will be needed to help create the market even if technologies are fully cost-competitive. If limited rents are to be provided in these cases a clear methodology for reducing these rents over the short term as market confidence grows needs to be in place and transparent (see below on 'sunset' clauses).

A number of different subsidy regimes have been implemented (see section A2.3):

- Feed-in-Tariff (FiT)
- Power Purchase Agreements
- Tradable Renewable Certificates
- Auctions
- Tax credit
- Low carbon vehicle subsidies
- Differential tax regimes on carbon content (on buildings, products, cars etc)
- Accelerated depreciation of assets

There is currently not enough evidence to show whether any of the above subsidy regimes offers a more effective (scale of deployment resulting from the policy) and efficient use of public money. Current implementations are based on relatively small deployment levels compared to the scale of deployment required and the majority of such schemes are based on Feed-in-Tariffs. Therefore, different businesses, business groups and investor groups support different forms of subsidies although Feed-in-Tariffs are the most common (see Annex 2).

Ensuring appropriate 'sunset' clauses (lowering the subsidy as technologies become more cost competitive through increased deployment) and demonstrating the predictability of certain subsidies would increase investor confidence. This would increase the long term certainty in such subsidies which is key to attracting finance as well as reduce moral hazard and limit adverse selection. This also encourages innovation and moves technologies more quickly towards cost competitiveness. Therefore, a transparent review process for any subsidy is required. This approach would strongly enforce the overall investor confidence in the 'long, loud and legal' nature of policy. Without this transparency the investment community are likely to require much higher returns from such investments as they perceive the likelihood of future governments changing subsidies as high and therefore investors will seek excess rents in the short term to counter this policy risk (these excess rents are in turn likely to drive policy makers to change the subsidy level in the short term 'proving' the investor was right to perceive the policy risk as high).

It is likely that a mix of subsidies will be needed in different countries depending on the availability of grid infrastructure, technology maturity and market effectiveness. Building the capacity to design and deploy these incentives should be a high priority. Direct support is more flexible and preferential to indirect support (through schemes such as tax credits).

Underpinning these subsidies could be an effective and efficient way of deploying international finance and there are a number of ways to do this.

A3.5 Eliminate perverse incentives (principle 3)

Taking into consideration the necessary austerity measures, it is difficult to increase the subsidies for renewable energy worldwide (estimated at \$57 billion²⁵ in 2009) without reducing the subsidies on fossil fuels (\$312 billion in 2009).

Eliminating perverse incentives is required to create a level playing field for low carbon investments. The phasing out of such subsidies should be well planned over time and

²⁵ IEA 2009

communicated clearly. A plan to ensure that any social costs associated with such a transition are well managed should be developed at an early stage.

A3.6 Carbon pricing (principle 3)

A carbon price delivers a clear accounting tool and is technology/solution agnostic (it avoids policies picking ‘winners’). However, unless it is set at a high level (for example, \$100 per tonne) it is not transformational and will not overcome market inertia away from high carbon investments (unless the price is significantly higher than currently anticipated).

Implementing a carbon price is usually politically very difficult as it has the potential to significantly disrupt ‘business-as-usual’ (large incumbent industries that provide significant employment) and therefore reforms to introduce a trading scheme or carbon tax should be implemented once the market is sufficiently developed to support such a price. However, revenue derived from a price on carbon will result in lower policy risk premiums associated with investments (the additional return sought by the private sector due to the future uncertainty over returns) than investments reliant on government subsidies. The investment community perceives the likelihood of future governments removing revenue streams as much less likely than the removal of subsidies (costs).

A carbon price can be delivered through many different policy routes such as a cap-and-trade system or carbon tax. Each different policy framework will work better in different conditions and may be more acceptable to certain industries/stakeholders. A cap-and-trade system is seen as an efficient market mechanism for uncovering the optimal carbon price for a set emissions cap although the ability for a market to respond to very steep emissions caps has not yet been tested. A carbon tax is much simpler to design but is less flexible. Therefore, a tax is likely to be better for driving carbon accounting across organisations that are not carbon intensive.

It is noted that several governments have found it difficult to pass legislation relating to a carbon price. However, this further undermines the confidence of investors in governments as to whether they will keep other policies in place that ultimately drive a reduction in the use of high carbon alternatives.

A3.7 Regulation and standards (principle 4)

While not always affecting short term financial returns regulations and standards within a market can vastly reduce the risks of the long term viability of projects. Improving building codes, equipment and appliance standards (including supporting ‘smart’ equipment measures), transportation policies (such as low carbon fuel standards), carbon sink legislation (to support land-use changes) and measures to influence consumer behaviour (including labelling and efficiency standards) are all key to develop a long term and stable market for low carbon products, enabling a larger role out of renewable energy infrastructure and supporting a transition to a lower carbon transport system. Such policies ultimately also make high carbon investments less attractive.

Particular policies can be used to create an ongoing demand for innovation within the low carbon sector including the use of Japanese ‘top-runner’ style standards where the best in class low carbon technology becomes the minimum standard in future markets. With a changing market it may also be necessary to examine changing demands on market regulators and potentially merge/reform some of these to address new challenges.

A3.8 Infrastructure support (principle 4)

The development of local and diversified infrastructure (whether electricity grids, low carbon urban transport or agricultural supply chains) is vital in supporting the overall enabling environment for such low carbon projects. Without the ability to connect low carbon projects to the ultimate source of financial return (the consumer) no long term financing is possible. Direct investment in infrastructure is critical.

A3.9 Capital availability and financial regulations (principle 4)

One issue that has been highlighted during the consultation process of Working Group 1 in CMCI is the possible restriction on capital available for these types of investment vehicles due to changing legislation aimed at tackling risks in the finance sector. There is a perception in climate financing that there is plenty of capital available for investment in low carbon projects: *'build it and they will come'*. However this is yet to be tested and may change in the context of new legislation.

Following the recent turmoil in global financial markets caused by bad risk management in the finance sector, government's have naturally reacted to reduce the risks of such events happening again in the future. However, one consequence of new legislation could be a reduced availability of capital for long term climate change investments. For example, the requirement that banks have increased Tier 1 capital under Basel III may limit balance sheet lending (for example, senior debt) and restrictions on equity investments potentially limits the pool of available capital for private equity vehicles.

Within Europe Solvency II will have a similar impact on insurance sector investments. Also The Pension Protection Act of 2006 has put increasing pressure on defined benefit pension funds, linked with mark-to-market accounting, to focus more on shorter-term assets and matching their liabilities with government bonds. The US Dodd-Frank Wall Street Reform and Consumer Protection Act will have similar impacts in the US investment market.

The key issue within these regulations is the perception (either real or inferred) that it requires funds to invest in liquid assets. This reinforces the move to mark-to-market²⁶ investments and allows for a better short term knowledge associated with liabilities and risk exposure (and therefore the perception of better risk management) as well as allowing for more 'competition' in the market (clients deciding to move their investments between funds require liquidity). However, there is a possibility that it will restrict precisely the type of investments that are intended to be encouraged under climate financing regulations – namely longer term investments into private equity and infrastructure type vehicles.

There also remain a number of quantitative and qualitative investment restrictions on pension funds that could limit the amount of available capital (for example, restrictions on geographies or asset classes in which they can invest). Some investors also view carbon as a commodity and are restricted by legislation from investing in it.

As a next step, CMCI will seek appropriate views from the finance sector on the likely impact of such legislation to the availability of capital and engage with the appropriate government departments and agencies to try and understand this possible issue further.

²⁶ Mark to market, or fair value accounting, allows for assets to be valued based on their current market value (and therefore values are subject to more frequent changes).

A3.10 Technical assistance (principle 5)

Technical assistance (assistance in creating FiTs regimes, tax credits) and capacity building across the board is a key priority for engagement between domestic governments and international public finance organisations and donor governments. Governments should work with international financial institutions and donor governments to coordinate and prioritise financial and capacity building support for developing investment grade projects and policy.

This not only includes developing the capacity for policy making and implementation but also supporting the domestic market capacity to enable the creation of good project deal flow. For example, supporting the setting up of project developers, building the capacity of the domestic financial sector, supporting fund managers that can provide project aggregation and engaging rating agencies in projects at an early stage.

ANNEX 4. Investment grade projects

This section draws heavily on consultation carried out through CMCI and the various private sector initiatives outlined in Annex 6.

Investing in pilots and showcase projects is often a good way to demonstrate the ability of a country to develop low carbon projects and to build confidence in the market. If designed well it can also be used to enhance capacity building around climate change policy development.

International climate finance (for example, through structures such as the Green Climate Fund currently being designed) can be used to lower the risk of the private sector investing in such projects. Initially a reform of the Clean Development Mechanism to allow more pilot projects to be implemented at scale would be very useful.

However, it is important to re-emphasise that international financial mechanisms are not a substitute for national policy and regulation – without clear, consistent and long term policy frameworks no amount of financial mechanisms will reduce the risk of investments to investable levels. In fact complex financial mechanisms aimed at compensating market drivers from domestic policy will only put off investors further and are costly to implement.

International financial support should therefore be firstly targeted at underpinning and strengthening the ability of national governments to set up, implement and enforce national policy frameworks (for example, by providing capital to support or guarantee Feed-in-Tariff prices, to underwrite a minimum price of carbon credits or to set up national programmes such as a Green Investment Bank which can provide seed capital for large investments or preferential rates on investment capital).

Two possible options ('windows') for deploying new climate specific public sector finance in partnership with private sector capital were outlined in Sierra (2011):

- Support country based private sector investments (for example, allocations for risk mitigation tools such as subordinated debt which can be channelled through local banks)
- Support private sector investment structures directly (for example, investing into private funds to provide additional leverage or risk management through concessionary finance or by providing higher credit ratings for funds through the engagement of international finance institutions)

A combination of the above two options is also a possibility and would allow both project development and capital deployment in parallel. Existing climate investments currently operate under the first of these two options²⁷.

A4.1 De-risk finance for projects

A number of de-risk finance instruments already exist and have track records in being deployed. However, they may need prioritisation and coordination into a more specific climate change focussed engagement and new innovative approaches will be needed.

²⁷ In Sierra (2011) a third option of investing in the enabling environment (option A in Sierra 2011) is covered here under investment grade policy and should be a core part of public financial support over and above project specific support. A fourth option (option D) combined the options outlined here.

For example, the following instruments can be used:

- Lower cost lending/debt;
- Lower risk on equity investments (public sector first loss etc);
- Capital market de-risk mechanisms (guarantees, insurance including political risk insurance such as MIGA, subsidised cost of foreign exchange hedging etc)
- Project subsidies, grants and technical assistance (e.g. direct assistance for FiTs or future carbon price guarantees or paying for due diligence or deal aggregation)
- Support for adaptation projects in developing countries.

In the first stages of developing a low carbon project access to low cost debt is vital. This is true for large scale energy projects, energy efficiency service companies, transport projects and land-use projects. The creation of loan guarantees, low interest rate loans, grants or even creating new national entities that can specifically focus on deploying lower cost debt such as national infrastructure banks should be a high priority.

In the recent past the private sector has had a wealth of opportunity to invest in 'low risk' debt through the over-reliance of developed country governments on debt. The reduction in returns and the increased risk associated with developed country sovereign debt may lead to a greater diversity in the debt market. Therefore, governments should be prepared to issue new debt vehicles linked to long term strategies.

However, over the long term the cost of debt from the general 'market' will mainly be driven by the financial attractiveness of the underlying projects and general macro-economic trends (which will impact the cost of debt for high carbon investments as well).

A4.2 Investment funds leverage

A number of ideas are familiar to capital markets and are currently being tested for their suitability for climate investments or are in concept stage. While all are considered nascent, those emerging initiatives with a relatively larger track record of using public climate funding to catalyze private investment are listed first. A number of these proposals aim to scale up the funding available, albeit indirectly, for project support.

- ***Pledge Funds***²⁸ aims to catalyze private capital -- private equity, sovereign wealth funds and pension funds -- by investing equity or near equity alongside pooled funds. This approach is most appropriate where investors do not have access to capital for projects that have, on paper, strong financial rates of return but private capital is reluctant to invest based on perceived geographic, country, and execution risks. The public fund, which to date has examples from International Financial Institution (IFI) or bilateral Development Finance Institutions, pledges to provide a small amount of equity, or near equity, into a private fund to encourage much larger pledges from private investors. These can be global funds, sector specific funds, or regional funds.
- ***Fund of Funds*** approaches allow the public funder to invest as a limited partner into a private Fund, which, in turn, holds a portfolio of other private investment funds.

²⁸ Brown and Jacobs (2011) and Center for American Progress (2010)

The Fund of Fund general partner is responsible for selecting the best performing funds to invest in based upon the past performance and other due diligence. This approach can provide for diversification of risk. Like the Pledge Fund, a Fund of Funds approach aims to increase access to private capital by allowing investment in a wide range of funds with different risk profiles. The public funder's focus would be on creating the criteria for use of its resources (sector, regional, venture) and on building a transparent process for selection of the Fund of Fund manager, and on monitoring and evaluation. Mechanisms like reverse auctioning would have to be considered if the risk profile of investments warranted a concessional element. One caution for Fund of Funds structures is that fees can be higher because they include two layers of investment fees. This might deter some large pension funds, which prefer to make investments directly, while others feel that the value from these structures are sufficient to warrant the costs.

- **Public-Private Partnership Models**²⁹ can use the Fund of Funds approach, but use Multilateral Development Bank (MDB) or other international financial institutions to anchor the initiative³⁰. Under this model, funders contribute equity to a Fund of Fund and investments are complemented by IFI risk reduction mechanism's technical and project development assistance. Another variant is to focus on technology development by investing in venture capital funds³¹. Proponents of this model suggest that the involvement of an IFI, with its networks on the ground in developing countries, coupled with knowledge of the public sector players and complementary risk mitigation capabilities, will provide the comfort needed to institutional investors who do not know the market³².

A4.3 Innovative instruments

'Innovative finance' is another key policy term; but again it would be helpful to know what this means.

To be 'innovative', seems also to be a growing test of smart policy on many fronts. But what are the metrics by which this can be assessed? One possibility is that innovative policy is something that scores highly on all, or some particularly key, elements of what is seen as being 'efficient and effective' – e.g. using the attributes above, plus those more broadly set out under 'investment grade policy'. This "what is innovative?" question might usefully be informed by further scholarly endeavour through ongoing CMCI WG1 work. Notably, the term innovative seems quite subjective in nature so "in the eye of the beholder". It is likely that a survey approach is needed to determine what is perceived as innovative.³³

Other potential instruments, which are more at the concept stage, would draw from other fields to adapt instruments that have not yet been widely used for public sector support for climate investments. These may be classed as 'innovative' finance instruments.

²⁹ See Brown and Jacobs (2011) and WEF (2011)

³⁰ The GEF Earth Fund used a variant of this model, but with the funds that it invested in managed by a public entity (like an IFI) instead of a private fund. Lessons can be learned from an independent assessment which supported the model in principle but which was critical of the methods and approach taken in the first phase, calling for more clarity on the funds objectives and the role of the private sector, and for use of competitive processes for the selection of funds

³¹ Nassiry and Wheeler (2010) provides the Center for Global Development proposal for a Green Venture Fund.

³² See Brown, and Jacobs (2011) and WEF (2011)

³³ Also see *Innovative Climate Finance*, December 2011, A report of the UNEP BFIs Climate Change Working Group

- **A low-carbon Export Credits Facility** could provide a form of trade finance that can help encourage private investment in developing countries. Private export-credits, offered by private financial institutions and often backed by governments, facilitate trade by mitigating non-payment risk between parties involved in an export transaction. Export-credit agencies assume the risk of non-payment through direct export-credit financing, export-credit insurance, or export guarantees, thereby offering channel to leverage private sector finance. An export-credit facility could potentially target low-carbon development and other green projects³⁴.
- **Carbon Price Support Mechanisms** seek to create financial products that can convert carbon-linked cash flows into equity and debt funding. These include proposals like guaranteed carbon sales contracts to address the concern that carbon revenues do not contribute to the initial capital funding of low-carbon projects. Other proposals call for carbon price support facilities that reflect the uncertain nature and volatile price of carbon offsets. Public climate funds could backstop these facilities.
- **Green or Climate Bonds** are usually asset-linked or asset-backed bonds where the proceeds are used to undertake or re-finance environmental projects or climate change solutions³⁵. Public institutions, such as the MDBs or potentially Green Investment Banks with public climate finance support, could hold first-loss tranches or partial guarantees from early bond issuances in developing countries, thereby helping create a market³⁶. A strong market would, in turn, allow investors to access large pools of capital, reduce the average cost of capital, and provide a low-cost exit for construction phase capital and for bank long-term debt. The bonds would allow institutional investors of pension and insurance funds to match stable long-term returns from operational infrastructure with their liabilities³⁷.

³⁴ OECD: "Monitoring and Tracking Long-Term Finance to Support Climate Action" (forthcoming)

³⁵ Some environmentally themed bonds have returns tied 'green' indicators, such as the FTSE4Good Index.

³⁶ Sean Kidney, personal communication. See also <http://www.seankidney.com/articles/a-new-class-of-bonds>

³⁷ OECD (2011a)

ANNEX 5. Barriers to private sector investment

As part of the CMCI consultation on the best use of public funds to catalyze private sector investment (conducted for the Climate and Development Knowledge Network by the Brookings Institute) a paper was produced to provide a set of options for the Green Climate Fund. The following table highlights the barriers to private sector investment identified during that consultation.

Barrier	Description
Common Barriers Across Sectors	
<i>Country and Policy Barriers</i>	
Business conditions	Political climate, enforceability of contracts and agreements
Investment climate	Intellectual property rights, capital controls, currency risks
Regulatory environment	Lack of well established and resourced regulator
Price controls	Subsidies, government interventions that deviate price from market
<i>Market Barriers</i>	
Incomplete financial markets	Lack of liquid and deep domestic equity and debt markets
Capital restrictions	Restrictions by investment type: corporate vs. household
Mispriced risk	Lack of information and incorrect risk-adjusted return estimates
Lack of insurance	No protection against climate related damage (e.g. natural disasters)
Start-up barriers	Higher for low-carbon investments
Sector Specific Barriers	
<i>Energy, Transport, and Biofuels</i>	
Technology risk	Uncertain returns from specific technologies
Consumer demand	Uncertain demand for renewable energy and alternative fuel vehicles
Fossil fuel subsidies	Distorts market price and increases required rate of return
Cost recovery	Returns to investment often not realized by initial investor (agency problem)
Network effects	Many technologies require networks (e.g. solar and fuel require grid capacity)
Technology cost gap	Technology costs higher than fossil fuel competitors
<i>Forestry</i>	
International Policy Risk	Uncertain international enforcement for programs (e.g. REDD+)
REDD+ Credit Price	An overflow of credits into specific markets could reduce price
Opt in/out clause in Article 3 of Kyoto Protocol	Most countries opt out of accounting for sink/source values of forest practices in domestic emission trading regimes
Temporary credits	The temporary nature of credits generated by CDM forest projects hinders international investment

Compliance market policy uncertainty	First commitment period of Kyoto ends in 2012 and it is unclear how many countries will sign up to a second commitment period
Competing interests of stakeholders in forests	Local interests may not always be aligned with investment interests
Forest governance	Seed planning zones, reforestation standards and hydrologic and wildlife management guidelines are designed for the current climate regime
Agriculture and Land Use	
Food security and economic growth	Climate friendly agriculture projects may slow or curtail the speed of economic development, trade, and food security in developing countries reliant on this sector for growth
Limited track record for emissions reduction	Need to demonstrate on-the-ground that shifts in management can lead to reduced net emissions
Difficulty in monitoring and reporting	Monitoring, reporting and verification is difficult due to the high potential for reversibility in agriculture, difficulties in measuring nitrous oxide and methane, and the cost of measuring diverse and changing farm practices
Farmer knowledge and information	Farmers lack information about benefits and liabilities associated with carbon market contracts and other technical options for mitigation
Carbon market alone is not enough incentive	Credibility and value of agricultural offset credits has been hindered by slow progress toward cap-and-trade markets and by challenges in setting national standards for monitoring, reporting, and verification
Ineffective carbon credit deployment	Low demand in agricultural sector and limited focus on productivity
High initial risks and low returns	Slow accumulation of carbon and productivity benefit over years or decades
Waste Management	
Time required for plant set up	Average time for a waste management company to get a plant up and running can be up to seven years in <i>developed</i> countries.
Landfill alternative	Operating a landfill is a low cost alternative to other, climate friendly waste management processes
Small market for recycled products and compost	More common in developing countries.
Small rural populations	High operating costs difficult to recover in areas of low population density
Recycled concrete production	Recycled concrete can provide positive environmental and economic benefits, but its availability faces logistical challenges and new quarry sites are difficult to obtain
Inconsistent definitions of waste	Different regulatory bodies define waste differently, affecting the strategic use of waste. More consistent and stable global regulatory standards would enable long term strategic investment
Limited integration with manufacturing processes	Increases costs and reduces opportunity for systematic and consistent waste retrieval

ANNEX 6. Principles and voluntary actions

There are a number of principles, voluntary actions and research groups that influence the approach of policy development and private sector responses to climate change. All have fed into the development of the principles set out in this document. This section summarise some of these groups.

A6.1 Research groups and projects on climate finance

Some of the key projects set up to explore the issues of climate finance are:

- **Overseas Development Institute, European Climate Foundation & Climate Policy Initiative**
The State of Global Climate Finance report provides a ‘state of the art’ assessment of climate finance at the global and selected national levels.
- **World Economic Forum, International Finance Corporation & United Nations Foundation**
The Critical Mass Initiative sought to catalyse public-private collaborations to help pioneer a new wave of bankable and scalable transactions in low-carbon infrastructure, in developing and emerging economies.
- **UNEP SEFI**
SEFI is the UNEP Sustainable Energy Finance Initiative - a platform providing tools, support, and a global network.
- **World Resources Institute**
Leveraging private climate finance project to explore various case studies of public-private partnerships.
- **Joint EFC-EPC Working Group on the International Financial Aspects of Climate Change (EU group)**
The purpose of the joint European Economic and Financial Committee-Economic Policy Committee (EFC-EPC) Working Group is to bring together expertise on international climate finance and consider practical solutions to outstanding issues.
- **Green Climate Fund Transitional Committee**
The Transitional Committee comprises 40 members, with 15 members from developed country Parties and 25 members from developing country Parties, with members having the necessary experience and skills, notably in the area of finance and climate change.
- **OECD**
Various work streams within the OECD feed into this space including work in progress on “engaging the private sector in financing climate action” and an emerging set of policy recommendations for low-carbon, climate-resilient Investment, focused on infrastructure.
- **San Giorgio Group**
The Climate Policy Initiative (CPI) and the World Bank Group have launched a working group of key financial intermediaries and institutions actively engaged in green, low-emissions finance.
- **Renewable Energy Finance Project (Chatham House)**
This project works directly with leading mainstream renewable energy financiers on their perspective of the policy conditions required for accelerating investment into renewable energy.

- **UN Secretary General's Sustainable Energy for All**
This group brings together world leaders from the public and private sectors to help improve access to clean energy, energy efficiency and increasing the contribution from renewable energy.
- **International Energy Agency (IEA)**
The IEA are starting a new project looking at the role of energy technology policy and climate finance in scaling up low carbon technologies.

In addition relevant reports have been published by various stakeholder groups such as the World Bank, IFC, ADB, KfW Development Bank, Deutsche Bank, OECD, GEF, Climate Policy Initiative, UNEP FI, Global Climate Network, Center for American Progress, Overseas Development Institute, LSE Grantham Research Institute, World Resources Institute, Chatham House, Bloomberg New Energy Finance, Institutional Investors Group on Climate Change (IIGCC), Investor Network on Climate Risk (INCR), Mercer, KPMG, PwC, McKinsey, E3G, Low Carbon Finance Group, WWF, Brookings Institute, Pew Centre, Carbon War Room, Climate Change Capital and the UN Foundation as well as a number of leading banks, financial organisations and asset managers.

A6.2 Public sector principles for climate finance

Further work is being undertaken by the OECD working group (see above) public policy framework for low-carbon, climate-resilient infrastructure investment and instruments for green investment (OECD forthcoming 2012). A summary of the OECD *Principles for Private Sector Investment in Infrastructure* (OECD 2007) is included for reference. The *Principles* focus on five main areas of policy making and include the following recommendations, which are also relevant for green projects:

- Ensure the financial sustainability of projects through an assessment of long-term revenue flows, affordability for government and the costs and benefits of alternative modes of financing. Incentives and guarantees may be necessary to make returns on green projects comparable to 'brown';
- Provide a sound institutional and regulatory environment for infrastructure investment, including facilitating access to capital markets through the phasing out of unnecessary obstacles to capital movements and restrictions on access to local markets and removing regulatory barriers. For green investments, providing a stable policy environment around carbon pricing is required;
- Ensure public and institutional support for the project and choice of financing;
- Make the co-operation between the public and private sectors work by promoting transparency and appropriate contractual arrangements. Including environment performance criteria into contractual specifications / calls for tender could specifically assist the development of green growth related projects;
- Promote private partners' responsible business conduct.'

A6.3 Private sector principles

The financial sector as a whole has several initiatives that aim to help organisations incorporate sustainability and environmental challenges into their business decisions. These principles help inform government's as to the decision making process that the private sector follow in making investment decisions. They demonstrate an appetite from the private sector to engage in this issue.

The following initiatives cover climate finance in some way:

- Carbon Principles
- Climate Principles (Climate Group)
- The Equator Principles
- UN Global Compact
- London Accord
- UN Principles for Responsible Investment
- ClimateWise (insurance sector)

A number of investors support the following initiatives:

- Carbon Disclosure Project
- Global Reporting Initiative
- OECD Guidelines for Multinational Enterprises

In addition to voluntary codes and/or principles some investors are members of, or support, the following finance groups:

- Investors Network on Climate Risk (INCR) (run by Ceres)
- UNEP Finance Initiative
- Institutional Investors Group on Climate Change (IIGCC)
- Investor Group on Climate Change (IGCC)

A number of the investors are also represented on various sustainability or climate change business groups such as the World Business Council for Sustainable Development (WBCSD) and those listed below.

There are also a number of progressive business lobby groups on climate change around the world including:

- EPC (Business for the Climate), Brazil
- Lideres Empresariales para el Cambio Climatico, Chile
- The Prince of Wales's EU Corporate Leaders Group on Climate Change, EU
- German CEOs for Climate Protection (2 degrees), Germany
- Climate Change Business Forum, Hong Kong
- Irish Corporate Leaders on Climate Change, Ireland
- Japan Climate Leaders' Partnership, Japan
- Climate Change Centre, Korea
- Business Leaders Group on Climate Change, Mexico
- Corporate Leaders Group on Climate Change, South Africa
- SE Asian Corporate Climate Initiative, South East Asia (based in Singapore)
- The Climate Platform, Turkey
- The Prince of Wales's UK Corporate Leaders Group on Climate Change, UK
- Business for Innovative Climate and Energy Policy (BICEP), USA
- United State Climate Action Partnership (US CAP), USA

The Millennium Development Goals (MDGs) are also often referred to in investment reports however investors are not 'signed' up to the MDGs. One of the defining aspects of the MDGs is that they outline targets that are time bound (2000-2015) whereas the majority of the

principles, actions and groups above are process based. The MDGs therefore set a level of ambition for change (it remains to be seen whether these targets will be met).

Each set of principles or group usually identifies climate risk (or environmental risk) as a strategic issue that signatory organisations need to set up processes to handle. In particular the main themes they encourage signatories to implement include:

1. Have an internal policy for climate risk management
2. Have the capacity/capability to identify the risks in, and impacts of, their business operations
3. Have a management process and clear line of responsibility (usually to board level)
4. Monitor and review.

Each initiative will articulate and create a structure for implementing the above in different ways. It should be noted that in none of these initiatives have the organisations that have signed committed to making more climate-related finance available. However, they are putting in place systems and processes that will allow them to manage these investments once the policy environment is conducive for them to do so. Each of these groups, and in particular the business and investment membership groups, are very active in articulating the need for policy change.

A6.4 Private sector policy assessment

Assessments of “investment grade” or “best in class” policy often focus on the nature and level of positive incentives for clean energy; but a broader set of criteria need to be tracked.

For example, the Deutsche Bank (DB) ‘Climate Policy Tracker’ report has a major section on what it refers to as a “Best in Class” analysis. This report assesses each country (and region) covered according to 6 criteria:

Emission Controls

- A binding emissions target
- A renewable electricity standard
- A long-term energy efficiency plan

Financial Support

- Feed-in tariffs
- Long-term government-based ‘Green Bank’
- Tax benefits

Long-term grid improvement plan

An illustrative example of the visual output of the DB assessment (showing some of the smaller countries/regions to better highlight the diversity of the visual representation) is provided in Figure A7.

Figure A7. 'Illustrative' Best-In-Class assessment by DB Climate Change Advisors (showing smaller countries/regions to highlight diversity of visual format)

Country	Emissions Control			Financial Support				Long-term Grid Improvement Plan	Budget strength (deficit as % of GDP in 2010)	Capital Investment (\$bn) 2000-2010	GDP 2010 (Real growth rate \$ tn)
	Binding/Accountable Emission Target	Renewable Electricity Standard	Long-term Energy Efficiency Plan	Feed-in Tariff	Long-term Govt-based 'Green Bank'	Tax Benefits	Long-term funding programs				
New Jersey	✓	✓	✓	✗	✗	✓	✓	✓	-2.1%	-	\$0.50
Australia	✓	✓	✓	State-level	✗	✓	✓	State-level	-4.2%	9780	\$1.24
Canada	✓	State-level	✓	State-level	✗	✓	✓	State-level	-2.5%	20482	\$1.57
Indonesia	COP Acc	✓	✓	✓	✗	✓	✓	✗	-1.1%	1681	\$0.71
Norway	✓	⌚	✗	✓	✗	✓	✓	✓	+9.9%	5767	\$0.41
Mexico	COP Acc	✓	✓	✗	✗	✓	✓	State-level	-1.8%	4516	\$1.04
United States	COP Acc	State-level	State-level	State-level	⌚	✓	State-level	State-level	-10.0%	164085	\$14.66
Texas	✗	✓	✓	✗	✗	✓	✓	✓	-2.2%	-	\$1.14
South Africa	COP Acc	✓	✓	✓	✗	✗	✓	⌚	-5.3%	351	\$0.36
UAE	✗	State-level	✓	✗	✗	⌚	State-level	State-level	< 1.5%	105	\$0.32
Russia	✓	✓	⌚	✗	✗	✗	✗	✓	-3.9%	640	\$1.47

Key to best-in-class ratings:

✓	The policy exists at a national level and generally displays TLC
✓	The policy exists at a national level, but has been negatively modified/proposals are in place to negatively modify - creating greater investor uncertainty
✗	No policy exists
State-Level	The policy exists at a sub-national level only
State-Level	The policy exists at a sub-national level only, but is only present in a minority of states and/or has been negatively modified/proposals are in place to modify negatively - creating greater investor uncertainty
⌚	The policy is only in tentative or planning stages or is dependent on certain provisions such as a legally binding agreement or funding
COP Acc	The policy is a submission to the Copenhagen Accord and is not a national binding target

We also show the level of the budget deficit in each country as a potential barometer on government policy, especially where subsidies run directly through the budget. Red indicates a deficit over 5% of GDP.

Finally we show the actual amount of clean energy investment over the last decade and the latest level of GDP to see how significant this level of investment is relative to the national economy.

Source: *Global Climate Change Policy Tracker – Winners and Losers, July 2011, DB Climate Change Advisors*

ANNEX 7. CMCI Working Group members

While this document is not a consensus document and will not necessarily represent the views of the individuals or organisations involved in the consultation CMCI is grateful for the active involvement of its members. Working Group 1 and 2 members include the following people:

a) Financial Services

- Abyd Karmali, Merrill Lynch/Bank of America
- Adam Hart, London Bridge Capital
- David Bresch, SwissRe
- David Russell, USS
- Emma Howard – Boyd, Jupiter Asset Management
- Helene Winch, BTPS
- Imitiaz Ahmad, Morgan Stanley
- James Cameron/Rupert Edwards, CCC
- Jonathan Maxwell, Sustainable Development Capital
- Marcus Stuttard, LSE AIM
- Mark Fulton, Deutsche Bank
- Mark Hoskin, Holden
- Michael Liebreich, NEF
- Michael Wilkins, Standard and Poors
- Mungo Park/Cindy Hung, Innovator Capital
- Nick Robins/Claire Abeille, HSBC
- Ole Sorensen, ATP
- Peter Cameron, Aviva
- Peter Dickson/Claudio Vescovo, BNP Paribas
- Peter Gutman, Standard Chartered
- Robert Johnson, Royal Bank of Scotland
- Rowan Douglas, Willis Re
- Rupesh Madlani, Barclays Capital
- Stephen Adams, Goldman Sachs
- Trevor Maynard/Alexandra Vincenti, Lloyds

b) Foundations/Think Tanks/Industry groups

- Alexandre Chavarot/ Tatiana Zervos, Clinton Climate Initiative
- Celine Herweijer, CDKN
- Chris Canavan, Soros Foundation
- Justin Mundy, Prince of Wales Sustainability Unit
- Kathy Sierra, Brookings Institute
- Kirsty Hamilton, Chatham House
- Mark Kenber/Ben Ferrari, The Climate Group
- Mattia Romani/Rick Samans, GGGI
- Maya Forstater and Simon Zadek, SARI/GGGI
- Miles Austin, CMIA
- Murray Ward, GtripleC
- Nick Mabey, E3G
- Penny Shepherd, UKSIF
- Stephanie Pfeifer, IIGCC

- Sean Kidney/Nick Silver, Climate Bonds

c) Professional Services

- Jon Williams, PWC

d) Government/ IFI officials

- Jan Corfee-Morlot/Virginie Marchal/Celine Kaufmann, OECD
- Josue Tanaka and Terry McCallion, EBRD
- Keith Palmer, Infracore
- Mark Tomlinson, PIDG
- Shilpa Patel, IFC
- Simon Brooks, EIB

ANNEX 8. References/Further Reading

Accenture, Social Intelligence & Barclays, 2011, *Carbon Capital: Financing the low carbon economy*

All Pensions Group (APG), May 2009, *Investing in Climate Solutions: Opportunities for Pension Funds*, APG.

Association for Sustainable and Responsible Investment in Asia (ASRIA), September 2008, *carbon Disclosure Project Report 2008 – Asia ex-Japan*, Research Institutions Carbon Disclosure Project, in UNEP FI, Oct 2009.

Ayele, Y., 2011, *Voluntary Associations Between Corporations: A comparison between ClimateWise and the Equator Principles*, Essay for Bachelor of Arts, Harvard

Bridging the gap 2011, *NAMA submissions to the UNFCCC: An overview from a transport perspective*, Pathways for transport in the post 2012 process, www.transport2012.org

Brown & Jacobs, 2011, *Leveraging private investment: the role of public sector climate finance*, Overseas Development Institute

Cambridge Programme for Sustainability Leadership (CPSL), 2009, *Transformational Change Model: Achieving a Low Climate Risk Economy*

Center for American Progress and the Global Climate Network, November 2010, *Leveraging Private Finance for Clean Energy*.

Centre for Low Carbon Futures, 2011, *pathways to a low carbon economy: the business response to climate change*

Ceres, 2010, *The Ripple Effect: Water Risk in the Municipal Bond Market*

Chatham House, April 2010, *Scaling up Renewable Energy in Developing Countries, Finance and Investor Perspective's*, Kirsty Hamilton

Chatham House, UNEP and Bloomberg New Energy Finance, January 2010, *Private Finance for Renewable Energy: A Guide for Policymakers*, Produced by Kirsty Hamilton Chatham House, written by Sophie Justice.

Chatham House, 2009, *Unlocking Finance for Clean Energy: The Need for 'Investment Grade' Policy*, Kirsty Hamilton, Renewable Energy Finance Project

Chartered Insurance Institute, February 2009, *Coping with climate change*, in UNEP FI, Oct 2009.

Climate Bonds Initiative, December 2009, *Financing a rapid, global, transition to a Low-Carbon Economy draft report*

ClimateWise, The Geneva Association, MCII & UNEP FI, 2010, *Global insurance industry statement on Adapting to climate change in developing countries*

DB Climate Change Advisors, July 2011, *Global Climate Change Policy Tracker Winners and Losers*, Deutsche Bank

DB Climate Change Advisors, April 2011, *GET FIT Plus: De-risking clean energy business models in a developing country context*, Deutsche Bank

Deutsche Asset Management, April 2009, *Investing in climate change*, in UNEP FI, Oct 2009.

Edwards, 2010, *Advance Market Commitments/Emission Reduction Underwriting Mechanisms for climate change finance*, Climate Change Capital

Edwards, Caldecott & Gray. July 2011, *Signal failure? Real economy signals for developing country climate finance and the future of the Green Climate Fund*, Climate Change Capital

Edwards. August 2011, *The Green Climate Fund and the implementation of Emission Reduction Underwriting Mechanisms*, Climate Change Capital

FTSE, 2010, *FTSE Environmental Opportunities Index Series*, FTSE Factsheet

Goldman Sachs, 2007, *BRICS and Beyond*, Goldman Sachs Global Economics Group

Hansard, H.L., October 2008, in UNEP FI, October 2009.

de Sécheval, H., 2009, *Solvency II: the reason why this project must be reviewed*, speech to the European Parliament

Henderson Global Investors, Universities Superannuation Scheme, RAILPEN Investments & Insight Investment, January 2008, *Managing the Unavoidable: Understanding the Investment Implications of Adapting to Climate Change*, Briefing Paper.

IEA 2011, *Deploying Renewables: Worldwide prospects and challenges*, International Energy Agency (in prep)

IEA 2010, *Energy Technology Perspectives 2010: Scenarios & Strategies to 2050*

IEA, 2009, *World Energy Outlook (2009)*, International Energy Agency

IEA 2008, *Deploying Renewables Principles for Effective Policies*, International Energy Agency

IEA, 2003, *World Energy Scenarios (2003)*, International Energy Agency

Institutional Investors Group on Climate Change (IIGCC), Investor Network on Climate Risk (INCR), Investor Group on Climate Change (IGCC), & UNEP FI, 2009, *2009 Investor Statement on the Urgent Need for a Global Agreement on Climate Change*, Combined Statement.

IIGCC, INCR, IGCC, UNEP FI & UN PRI, November 2010, *Global Investor Statement on Climate Change: Reducing Risks, Seizing Opportunities & Closing the Climate Investment Gap*

Institutional Investors Group on Climate Change (IIGCC), Investor Network on Climate Risk (INCR), Investor Group on Climate Change (IGCC), & UNEP FI, 2011, *Investment Grade Climate Change Policy: Financing the Transition to a Low Carbon Economy*

IIGCC, 2011, *Positioning paper on green bonds*, Statement by the Institutional Investors Group on Climate Change (IIGCC)

Institutional Investors Group on Climate Change (IIGCC), 2011, *Non-Carbon Market Financing Mechanisms for Climate Change Mitigation and Adaptation in Developing Countries*

IIGCC position paper on EU climate and energy policy, 2010, *Shifting Private Capital to Low Carbon Investment*

Intergovernmental Panel on Climate Change (IPCC), 2007, *Climate Change 2007 The Physical Science Basis*, Cambridge University Press, UK.

Investment Management Association (IMA), July 2009, *Asset Management in the UK 2008, The IMA's Seventh Annual Survey*, London, UK.

Lee, Iliev & Preston, 2010, *Who owns our future? Intellectual Property and Energy Technologies*, Chatham House

Lehman Brothers, September 2007, *The business of climate change II – Policy is accelerating, with major implications for companies and investors*, in UNEP FI, Oct 2009.

Lloyd's, 2009, *Climate Change and Security: Risks and Opportunities for Business*, Authored by Dyer, G. for Lloyd's and the International Institute for Strategic Studies.

Mackay, D., November 2008, *Sustainable Energy – without the hot air*, Version 3.5.2, UIT, Cambridge, UK.

Mercer, June 2009, *Carbon risk and carbon trading: Investment considerations*.

Oddo Securities, April 2008, *Climate change – To store or not to store?*, in UNEP FI, Oct 2009.

Mercer, 2011, *Climate Change Scenarios – Implications for Strategic Asset Allocation*

Nassiry & Wheeler, 2011, *A Green Venture Fund to Finance Clean Technology for Developing Countries*. Center for Global Development.

Next Ten, 2010, *2010 California Green Innovation Index*

OECD, 2007, *Principles for Private Sector Investment in Infrastructure (OECD 2007)*

www.oecd.org/daf/investment/ppp

OECD, 2008, *An OECD Framework for Effective and Efficient Environmental policies*

OECD, 2011 (a), *The role of pension funds in financing green growth initiatives, OECD working paper on finance, insurance and private pensions*

OECD, 2011 (b), *Pension Fund Investment in Infrastructure: Policy Recommendations*

OECD, 2011 (c), *Sources of finance, investment policies and plant entry in the renewable energy sector*

OECD, 2011 (d), Summary report of the OECD workshop on *Catalysing Investment in Low-Carbon, Climate-Resilient Growth*, November 7, 2011

OECD, 2012 (forthcoming), *Policy framework for low-carbon, carbon-resilient investment: The case of infrastructure development*

Office for National Statistics, December 2009, *Investment by insurance companies, pension funds and trusts, 3rd Quarter 2009*, Statistical Bulletin, Newport, UK.

Pew Charitable Trust, 2010, *Who's winning the clean energy race?* 2010 Edition: G-20 Investment Powering Forward

RAILPEN Investments, HSBC & Linklaters, November 2009, *Climate Change Investment Risk Audit, An Asset Owner's Toolkit*.

Rippey, P., 2009, *Microfinance and Climate Change: Threats and Opportunities*, Focus Note 52, Washington D.C., CGAP, February.

Sierra, 2011, *The Green Climate Fund: Options for Mobilizing the Private Sector*, Climate & Development Knowledge Network submission to the GCF Transitional Committee

Silver, Cox & Garret, 2010, *The Impact of Climate Change Overseas on the UK Financial Services Sector*, International Dimensions of Climate Change (Foresight), UK Government Office for Science

Sprott Asset Management, c2009, *Investment Implications of an Abrupt Climate Change*, Toronto, Canada.

Stadelmann, Castro & Michaelowa, 2011, *Mobilising Private Finance for Low-Carbon Development: tackling barriers to investments in developing countries and accounting of private climate flows*, Climate Strategies

Standard & Poor's, 2011, *Global Clean Energy Investment in the Spotlight*

Stern, N., 2006, *Stern Review of the Economics of Climate Change*, HM Treasury, London, Chapter 18: Understanding the Economics of Adaptation.

Sustainable Forestry Initiative (SFI), 2009, <http://www.sfiprogram.org/index.php>, Accessed 28th August, 2009.

The Carbon Trust, September 2008, *Climate change – a business revolution? How tackling climate change could create or destroy company value*.

The Pew Charitable Trusts, 2010, *Who's Winning the Clean Energy Race? Growth, Competition and Opportunity in the World's Largest Economies*, G-20 Clean Energy Factbook.

The Prince of Wales's UK Corporate Leaders' Group on Climate Change (UK CLG), 2011, *Seize the day: A call to action for UK climate leadership*

UBS Investment Bank, June 2007, *Q-Series: Reacting to climate change – How are climate change reactions driving opportunity and risk?*, in UNEP FI, Oct 2009.

Office of Public Sector Information (OPSI), November 2008, *Climate Change Act 2008*, http://www.opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1, Accessed 16th April, 2010, United Kingdom.

- UN AGF, 2010, *Report of the Secretary-General's High-level Advisory Group on Climate Change Financing (UN AGF)*
- United Nations Environment Programme (UNEP), SEFI and New Energy Finance, 2009, *Global Trends in Sustainable Energy Investment*
- United Nations Environment Programme (UNEP) and Partners, October 2009, *Catalysing low-carbon growth in developing economies, Public Finance Mechanisms to scale up private sector investment in climate solutions.*
- United Nations Environment Programme Finance Initiative (UNEP FI), October 2009, *The materiality of climate change, How finance copes with the ticking clock*, A report by the Asset Management Working Group of the UNEP FI.
- United Nations Environment Programme Finance Initiative (UNEP FI), July 2009, *Fiduciary responsibility, Legal and practical aspects of integrating environmental, social and governance issues into institutional investment*, A report by the Asset Management Working Group of the UNEP FI.
- United Nations Environment Programme Finance Initiative (UNEP FI), April 2009, *Green Paper on Financing a Global Deal on Climate Change*, Draft Version, Produced by the UNEP FI Climate Change Working Group.
- United Nations Environment Programme (UNEP) and Partners, October 2009, *Catalysing low-carbon growth in developing economies, Public Finance Mechanisms to scale up private sector investment in climate solutions.*
- United Nations Framework Convention on Climate Change (UNFCCC), August 2007, Working paper 8. Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention. Fourth workshop, Vienna, 27-31 August 2007.
- United States Green Building Council (USGBC), 2009, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>, Accessed 28th August, 2009.
- University Superannuation Scheme (USS), 2009, *Investments Overview Document*
- US EIA 2010, *International Energy Outlook 2010*, US Energy Information Administration
- Venugopal, Shally et al., 2012 (forthcoming), *Private Climate Finance Investment Risks*, WRI Working Paper, World Resources Institute, Washington DC
- Ward M., 2010, *Engaging Private Sector Capital at Scale in Financing Low Carbon Infrastructure in Developing Countries (Draft Report)*, Asia Development Bank, GtripleC & United Nations Foundation
- World Economic Forum, April 2011, *Green Investing 2011: Reducing the Cost of Financing*
- World Economic Forum Critical Mass Initiative, 2011, *Critical Mass Initiative Working Report: Scaling Up Low Carbon Infrastructure Investments in Developing Countries.*