SUMMARY REPORT OF THE OECD WORKSHOP ON

Catalysing Investment in Low-Carbon, Climate-Resilient Growth

November 7, 2011
OECD Headquarters, Paris

The workshop convened leaders from business, civil society and government to exchange experience on how to mobilise private investments for low-carbon, climate-resilient development, given the current investment gap. Workshop participants called for concrete and feasible solutions, acknowledging that the role of scarce public funds is not to finance the transition towards low-carbon growth. Rather, discussion focused on the important need for governments to better integrate climate and investment policies into a coherent "investment-grade" domestic policy framework, conducive to private investing. Participants considered the potential for innovative instruments and risk-sharing mechanisms to leverage private investments. The workshop gathered more than 100 participants, half from government (with delegates from 25 countries, including developed and developing countries) and half from the private sector (industry leaders, financiers, utilities and pension funds), development banks and civil society.

Opening Session

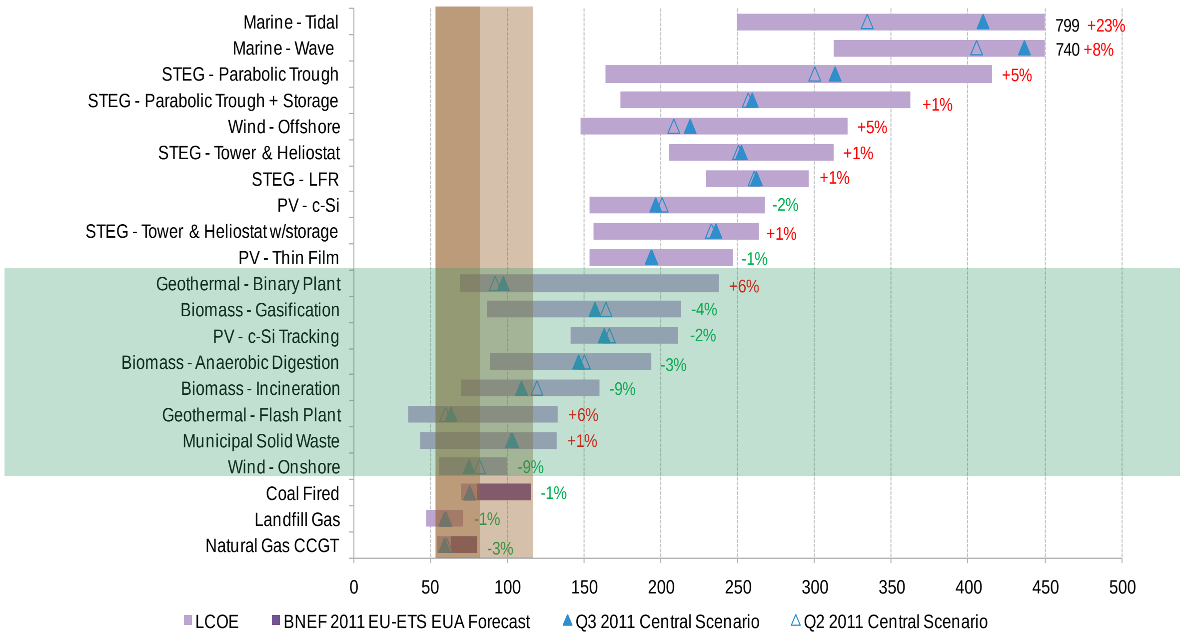
Carolyn Ervin (Director of Financial and Enterprise Affairs) and Helen Mountford (Deputy Director of Environment) of the OECD welcomed participants. In introductory remarks, they underscored the need to catalyse private investments towards low-carbon, climate-resilient (LCCR) growth, which in turn is a key pillar of green growth strategies for countries. They also noted the OECD's work on investment policy and climate policy.[1]

Keynote speaker Michael Liebreich (CEO, Bloomberg New Energy Finance) highlighted that clean energy investments have increased from USD 52 bn in 2004 to USD 243 bn in 2010 (a compound annual growth rate of 30%), driven by stimulus in China and some OECD countries since 2009. Worldwide investment in new renewable electricity generation capacity has all but overtaken that in fossil generating capacity. Clean technologies are rapidly moving down the experience curve, e.g., with drops in levelised cost

[1] OECD (2006), *Policy Framework for Investment*, OECD Publishing; OECD (2007); *OECD Principles for Private Sector Participation in Infrastructure,* OECD Publishing; OECD (2011a), *OECD Guidelines for Multinational Enterprises: 2011 Update,* OECD Publishing; OECD (2011b), *Policy Framework for Low-Carbon, Climate-Resilient investment: The Case of Infrastructure Development*.

of solar PV and wind energies among others. For illustration, BNEF data are shown in Figure 1.

Figure 1: Levelised cost of energy q3 2011 ($/mWH)



Carbon forecasts from the BNEF European Carbon Model with a 2020 horizon $74/tCO2. Coal and nat gas prices from the US Department of Energy EIA Annual Energy Outlook 2011. % change represents change in mid from Q2 2011.

Source: Bloomberg New Energy Finance

However, near-term issues such as the EU debt crisis, U.S. climate skepticism or the ambitious government stimulus spending programs coming to an end threaten the sector's access to financing. He stressed that although the world's shift to clean energy is inevitable, the speed with which it will happen is in question. Concerted action is required on two fronts to make sure it happens as quickly as possible: levelling the playing field, and smart support. *"Smart policy support for clean energy means mechanisms designed to drive down costs, not mechanisms that create long-term protected markets. All clean energy policy must be designed to have market-based price discovery at its heart."* Governments have a role to play by removing subsidies and barriers to innovation and trade, neutralizing externalities, improving risk transparency, setting standards and financial regulations and developing smart support. The latter refers to the use of market mechanisms that enable price discovery, avoiding the "green jobs fallacy," focusing on R&D and cost reduction, education, public procurement and adequate use of public-private partnerships. He concluded that what we need is broad political will to craft regulation that encourages diversity and competition, not regulation that holds it back.

Session I. Risks, Barriers and Opportunities

This session, moderated by Sabine Miltner (Group Sustainability Officer, Deutsche Bank), focused on the key barriers and opportunities for private sector investment in low-carbon, climate-resilient development, and on the policy environment needed to overcome these challenges.

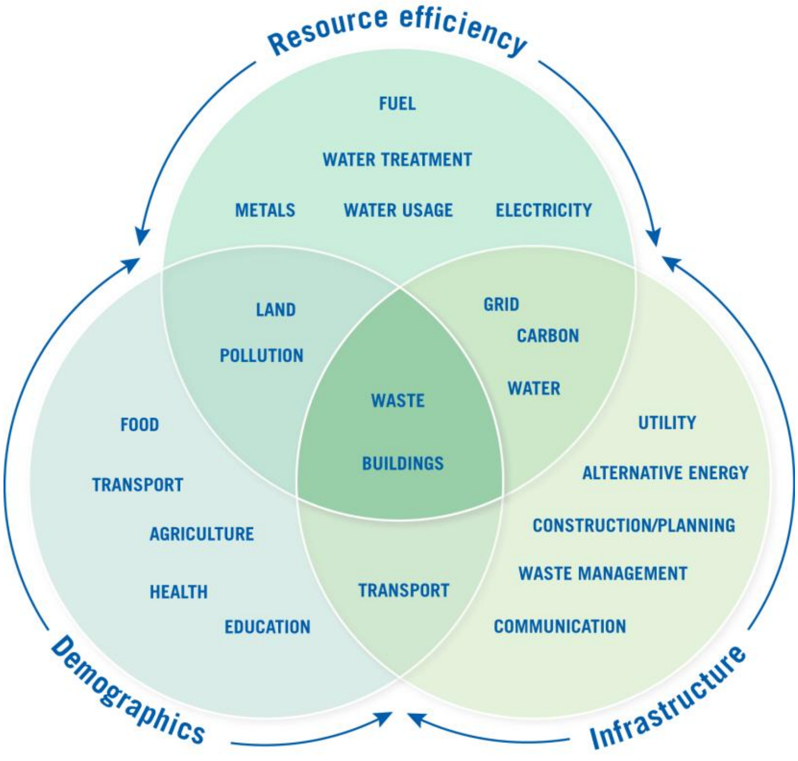
Along with administrative, trade and technology barriers, panellists Dörte Fouquet (Director, European Renewable Energies Federation) and Erastus W. Wahome (Chief Economist, Ministry of Finance, Kenya) identified several other barriers to private investment, including the lack of regulatory and policy clarity, limited information availability and institutional support, and poor access to finance and credit markets. These vary across different country contexts but will inevitably need to be addressed by policy to facilitate the flow of capital to LCCR investments.

Lead speaker Charlie Thomas (Head of Environmental Investment, Jupiter Asset Management) described Jupiter's successful strategy for environmental investment and record of long-term outperformance against global equity markets funds. He stressed that regulations and fiscal incentives are key drivers for low-carbon investments, and that changing the traditional silos for environmental investment requires broader understanding of interaction (Figure 2). A growing number of investors feel that the policy debate is moving too slowly to foster innovation and long-term, stable capital. Capital markets have their own issues -- such as short-termism, discount rates and externalities accounting -- constraining environmental investing. Charlie Thomas foresaw investments both for mitigation and adaptation in the long run, and noted that risk capital markets (venture, private and public equity) work can work equally well for environmental innovation.

Participants concurred on the need for clear and stable policy and regulatory frameworks, in order to drive low-carbon investments at a rate sufficient to close the climate change "investment gap." Principles of transparency, longevity and certainty (TLC) in low-carbon policy regimes are essential for investors.

As highlighted by Tamsin Ballard (Department of Energy and Climate Change and Department for International Development, UK), best practices include: predictable and clear policy objectives, and predictable policies and regulations, as well as a pipeline of investment-grade projects to enable capital flows from institutional and other large "long-term" investors. A project-based, bottom-up approach is insufficient.

Figure 2: Jupiter Asset Management Environmental Investment Universe



Source: personal communication, Charlie Thomas, Jupiter Asset Management, 2011

Policy support is key at the early stages of low-carbon development to enable large-scale private investment. As technologies move away from a subsidy-driven model, Arati Prabhakar (Chair of the Efficiency and Renewables Advisory Committee, U.S. Department of Energy) reminded participants that policy still needs to support emerging industries. Despite diverging views among participants on feed-in-tariffs, they agreed that FiTs can be effective during a transitional period, if set up right and well-designed (as in Germany, with predictability for a progressive reduction and a view to public sector affordability).

Discussion called attention to the necessity to unlock energy efficiency and the systematic challenges of doing so. Despite favourable economics, energy efficiency faces investment barriers such as high upfront and transaction costs, split incentive, and dependency on consumer behavioural change. Energy efficiency and electricity grids are both being neglected, which indicates that some of the most economically efficient investments are not occurring. The discussion challenged the traditional view of infrastructure investment as occurring in distinct sectors. An increasing number of enhanced investment opportunities take into account sectoral interdependence and multiplicity of drivers such as climate change, resource efficiency, energy security, economic development. A prime example is the water-energy nexus.

On the question of the sequencing between developing financing tools and instruments or getting the policy framework right, there was agreement on the need to do both in tandem, as it will take time to construct the right enabling environment.

Session II.a. Innovative Instruments and Policies

In order to attract private capital flows towards low-carbon development, at the speed required to close the investment gap, innovative instruments need to be providing the risk/returns investors are looking for. The session, moderated by Fred Kittler (Managing Director, Firelake Capital Management), concentrated on the potential of innovative financial instruments, such as "green" bonds, to raise and direct investments from pension funds and other institutional investors. Fred Kittler began by discussing how to decompose project risk and mitigate with policy and outlined how to raise efficient financing for low carbon growth, emphasising the need to establish the basis for tradable securities. Overall the session discussed considered how effective and efficient leveraging of private capital with scarce public sector resources could enable large scale financing to occur.

Figure 3: Decomposing project risk and risk mitigation policies

Project risk category	Example	Mitigation policy
Buyer risk	Buyer default, Ethanol policy change	FIT, credit guarantees
Distribution	Grid overload, Work stoppage	Grid standards, market
Operations	Wiring failure, Refinery mishap	Service agreements, Monitoring standards
Technology	Solar panels degrade Low refinery yield	Performance data, Interface standards
Resource	Volcanic ash cloud High feedstock price	Insurance, contracting

Source: personal communication, Fred Kittler, Firelake Capital Management

Lead speakers Christopher Kaminker (Economist, OECD) and Raffaele della Croce (Economist, OECD) analyzed the role of pension funds in financing green growth initiatives based on their recent report. Despite the growth of institutional investor assets under management in OECD countries and of the private sector's investment share in the infrastructure sector (which includes LCCR projects), there are still barriers to investment. Barriers relate to the lack of investment opportunities (insufficient government support to infrastructure projects, risk-return profile of projects), to investor capabilities (lack of regulatory framework or pension fund governance) and to the general investment conditions (lack of data research and definitions for the asset class).

Pension funds are looking for stable, predictable cash flows able to match the long term maturity of their liabilities. Although green bonds could offer these features, and are particularly suited to financing renewables and energy efficiency, OECD pension funds allocate approximately 50% on average to fixed income, problems such as the illiquidity and lack of scale and sustainability of the market have been limiting their use to investors. The panel noted that green bonds require policies to improve the profitability of low-carbon investments, and that pension funds may not be able to take the level of risk associated with LCCR investments. The green bond market has now grown to around USD 16 billion dollars since 2008,[2] but is only a tiny fraction (just 0.017%) of the capital held in global bond markets valued at USD 95 trillion.

Scaling up the nascent market requires developing "investment-grade policy frameworks", appropriate financial regulations (addressing issues within Basel III and Solvency II). Finally, investors need to de-compose any bond into its constituent parts and calculate the price of the bond compared to the price of the unbundled investments. Standardising and rating green bonds is paramount before investors will evaluate a green bond and consider any allocation. As a first step, a standardised definition of what is green would be useful. In this respect, governments should support the setting up of a rating agency or standard setter to rate and certify green projects and bonds.

Imtiaz Ahmad (Executive Director, Morgan Stanley) illustrated a Morgan Stanley Green Bond mechanism that proposes to deliver reliable sources of financing at better value for money and larger scale relative to alternatives such as blending mechanisms. It entails partnerships with the multilateral development banks (MDBs) and the public sector on loan guarantees that enable risk-sharing mechanisms to open up investment for the clean energy sector from the capital markets on the large-scale level. When combined with regulatory policies within the host country at a national or regional level, such a green bond instrument is likely to be far more effective than concessional financing.

All participants agreed on the importance of risk-sharing mechanisms between public and private sectors. Using credit enhancement and loan guarantees can help mitigate risk (e.g., operational and technology risk) and improve returns of low-carbon projects, thus reducing cost and raising business certainty. Though not discussed much in this workshop, risk-sharing is also critical in terms of delivering adaptation solutions. Development banks play a key role to help developing countries access financing using loan guarantees and facilitating insurance mechanisms, including pooled insurance for adaptation purposes. Financial instruments that repackage risk allow allocating each risk component to a different stakeholder ready to bear it.

Scarce public sector resources need to be leveraged. The notion of public finance leveraging private finance to close the investment gap was a recurring theme throughout the workshop. One participant, however, nuanced the position, reminding that, in the context of tight public budgets, governments will have fewer resources to support investment, and should instead focus their efforts on supporting consumer demand.

Torben Moger Pederson (CEO, Pension Denmark) described his experience with direct investments in off-shore wind parks (PPP-type) and suggested adding a fourth criterion to TLC, focusing on how to incentivize investments towards pipelines of multiple projects instead of standalone projects. MDBs' experience however is that working on individual projects enables it to control risk, unlike large investment frameworks, which are slow to structure and use.

Though independent power producers do not have the funding capability to meet clean energy demand, guarantees on supply (e.g., with power purchase agreements) can encourage industry, such as Alstom or GE to carry the financing, as described by panellist Helle Juhler-Verdoner (VP Global Affairs, Alstom Power). However such agreements need to be reviewed with a view to full cost recovery over time. Another idea is for governments to bear the initial risk of large-scale low-carbon investments, for example through public-private partnerships (PPPs). When used appropriately, PPPs benefit all parties—public authorities, private operators and institutional investors providing long-term funding and contractual certainty about risk sharing. Henrik Breum (Director, Vestas Wind Systems) added some of the experience and initiatives that Vestas is bringing to the table to make wind projects not only bankable but attract a broader range of

[2] There could be $30-70 billion more in "green" corporate bonds based on different estimates.

investors including institutional investors, such as proprietary performance guarantees for power generation.

A view emerged that developing countries need special technical assistance to develop appropriate policy frameworks, as well as specific risk-sharing mechanisms backed by MDBs.

Keynote lunch address

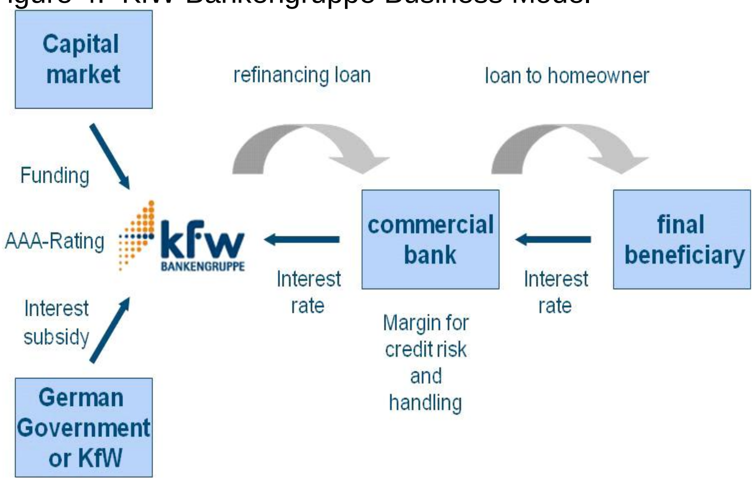
Howard Berke (Executive Chairman, CEO and co-founder, Konarka Technologies) underscored three priorities: first, put a price on carbon, using market mechanisms to avoid picking technology winners and losers; second, lower the cost of capital; third, focus on demand and consumerise the low-carbon industry (by convincing consumers that they deserve to pay a premium on low-carbon), so as to avoid lowering prices and thus profitability. In this vision of the future, a key government role may be in working with the younger generation and through the education system to generate demand for clean technologies and practices of the future.

Session II.b. Innovative Instruments and Policies

Learning from best practices is crucial to overcome the scarcity of public finance and strengthen its leveraging role and ability to catalyse private investments. Moderator Barbara Buchner (Director CPI Venice, Climate Policy Initiative) emphasized the need for effective green finance, calling for a better understanding of the role of public finance to take on risks the private sector isn't able to bear. She also highlighted the need for effective delivery for public money as well as seeking the most effective balance between public and private capital. The session presented lessons learned from public-private institutions experienced with co-financing arrangements in low-carbon infrastructure.

The Workshop highlighted three key challenges:

Figure 4: KfW Bankengruppe Business Model



Source: Personal communication Gudrun Gumb, KfW, 2011.

In Germany, KfW banking group has achieved public-private leveraging ratios of up to 1/16 (in its housing scheme). As lead speaker Gudrun Gumb (VP European Affairs Department, KfW Bankengruppe) explained, KfW business model (Figure 3) consists of distributing refinancing loans with subsidised interest rates to commercial banks, which are required to keep interest rates low for users. Interest-subsidised loans help overcome capital and information barriers.

UK initiatives in this area demonstrate that significant reforms may be required to establish LCCR infrastructure. As emphasized by Nick Mabey (CEO and Founding Director, E3G), the UK developed its strategy along three lines: i) managing risk and uncertainty to unlock investments,

ii) scaling-up private finance, and iii) building a demand market. To create certainty in the market, the development of UK clean energy policy benefited from bi-partisan agreement across government (i.e., constitutional amendment) and will entail restructuring of the power sector from a commodity-based market to a long-term contract market. To scale-up flows, the UK is also creating a Green Investment Bank inspired from the KfW experience, and which will be complemented with additional demand side policies based on the “equal value principle,” to make sure that demand side policies have fair and equivalent support to supply side policies.

The Overseas Private Investment Corporation[3] has acquired experience in mobilising private investment in developing countries, mostly towards energy, forestry and water projects. John Moran (Managing Director, Investment Development and Coordination, OPIC) explained that OPIC uses eligibility criteria for investors and policy standards for projects to identify business opportunities with promising cost and returns. It has a strong record in mobilizing foreign direct investment, and in particular capital from private U.S. investors and businesses. Its financial products include debt financing, insurance (on expropriation, geopolitical, currency and regulatory risk) and investment funds and their business model includes working with local business partners as well as other development finance institutions.

Domestic policy remains primordial. Though carbon price alone cannot drive the transition, it is an important part of getting the domestic policy framework right. Policy reforms will be needed including reform of fossil fuel subsidies. Ola Göransson (Deputy Director, Sustainable Urban Development, Ministry of Environment, Sweden) reminded participants of the example of the Swedish carbon tax policy. Supported by the right mix of regulations and policy tools (such as housing construction standards), it has been shown to drive investment towards low-carbon infrastructure in the housing sector.

As described by Steve Schiller (Chair, California Energy Efficiency Industry Council, U,S,), other successful mechanisms include the Property Assessed Clean Energy (PACE) programmes, which were originally tested in the U.S. (2008 pilot program initiated in California) and bond finance investments (with rebates or incentives programs). Further development of such mechanisms could help to overcome barriers to energy efficiency.

Other key elements of effective good practice policy for a decarbonised energy policy include: coherent and quantifiable R&D strategy, taking a portfolio approach, RD&D to support development and deployment of clean technologies, coordinated partnerships engaging industry, international cooperation, capacity building, and effective monitoring and evaluation. Cecilia Tam (Senior Energy Analyst, IEA) stressed out that the main challenge is finding the right balance between ensuring investor confidence and controlling total cost of action.

[3] OPIC is one of the U.S. Government’s development finance institutions.

Session III. Navigating the Policy Challenge

The closing session highlighted recommendations on how to move towards a coherent and stable policy framework, integrating investment, development, finance and climate policy ambitions.

A presentation by Sandra Garavito (Ministry of Environment, Colombia) on Colombia’s experience highlighted the challenge for developing countries to align development priorities with low-carbon strategies. Carbon price is not Colombia’s first choice, though policies such as tax incentives, renewable portfolio and standards are being considered. As developing countries are still building the largest share of necessary infrastructure for development, there are opportunities to create LCCR infrastructure now and avoid lock-in. Building climate resilience is a priority for Colombia, to reduce future adaptation costs and limit vulnerability. Despite low-carbon private investments opportunities, building climate-resilient infrastructure is seen by the private sector as the government’s responsibility, given challenges to attract private investments towards adaptation. There is greater knowledge about the meaning of low-carbon investment opportunities compared to climate-resilient ones. Participants underscored the need to consider mitigation and adaptation together. Panellist Peter Wehrheim (Head of Unit, Climate Finance and Deforestation, DG CLIMA, European Commission) emphasized the importance to improve the regulatory framework for adaptation at the national and supranational levels within the EU.

Another global challenge is to mainstream climate actions into overall government budget and planning, not just greenhouse gas mitigation but also adaptation. More generally. panellist Tomonori Sudo (Japan International Cooperation Agency, Japan) stressed the role of regional cooperation and the need to consult between the private and public sector on how to manage climate change risks. Governments have a role to play in terms of capacity development for diaologue and decision proceses.

Moderator Josué Tanaka (EBRD) noted that it was symptomatic that the workshop rarely discussed the role of carbon markets, given the current environment. While carbon markets are already playing an important role, particularly in Europe, there is now a necessity to harmonise across fragmented carbon markets, reduce cost of access and set up the accounting right.

Jan Corfee-Morlot (Senior Analyst and Climate Finance Team Leader, OECD) highlighted the lack of common vocabulary and framework between climate and investment policy, and the need to integrate them. The request of the Colombia Government to the OECD for a chapter on green investment policy is a step in the right direction. Simon Brooks (VP, European Investment Bank) reminded that a key message from the workshop was the need for a stable policy framework.

The closing discussion clarified the role of pension funds: though guarantees from green bonds can give a quick fix to overcome some investment barriers, Fiona Stewart (Senior Analyst, OECD) stressed that pension funds should not and cannot be forced to deliver green investments. It is the responsibility of regulations to correct market failures. Finally, referring to Basel III and Solvency II, participants noted the regulations’ short-term bias, which is misaligned with long term nature of low-carbon investments.

Josué Tanaka concluded the workshop by highlighting the need to look at the scope and relevance of individual measures in a broader policy context. Governments should select domestic priorities for project investments according to relevance and feasibility criteria, and to longer term goals, drawing on evidence-based policymaking. This workshop was a small contribution to strengthening the evidence-base for action.

[Catalysing Investment in Low-Carbon, Climate-Resilient Growth]

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OECD Headquarters, Paris
Final Agenda

Opening session

Welcoming remarks:
- Helen Mountford, Deputy Director, OECD Environment Directorate
- Carolyn Ervin, Director, OECD Directorate for Financial and Enterprise Affairs

Keynote address:
- Michael Liebreich, CEO, Bloomberg New Energy Finance

Session I. Risks, Barriers and Opportunities

This opening session will consider overarching priorities for public and private action to fill financing gaps to deliver on climate goals, looking across timeframes, sectors and in different country contexts. In particular, what are the key domestic barriers to private sector investment in low carbon, climate resilient development and what do governments need to do to overcome these?

Moderator
- Sabine Miltner, Group Sustainability Officer, Deutsche Bank

Lead speaker:
- Charlie Thomas, Fund Manager & Director, Jupiter Asset Management

Panel discussion and roundtable:
- Doerte Fouquet, Senior Advisor, First Solar
- Arati Prabhakar, Chair of the Efficiency and Renewables Advisory Committee, US Department of Energy
- Tamsin Ballard, UK Department of Energy and Climate Change and Department for International Development (DFID)
- Erastus W. Wahome, Chief Economist, Ministry of Finance, Kenya

Session II.a. Innovative Instruments and Policies

Focusing on the need to activate capital markets, this session will take stock and assess the potential of different instruments to scale up green investment, e.g. green bonds, to raise and direct private investment from pension funds, hedge funds, and other institutional investors towards low carbon investment.

Moderator
- Fred Kittler, Managing Director and Co-Founder, Firelake Capital Management

Lead speakers:
- Christopher Kaminker, Economist and Raffaele della Croce, Economist, OECD

Panel discussion and roundtable:
- Imtiaz Ahmad, Executive Director, Morgan Stanley
- Torben Moger Pederson, CEO, Pension Denmark
- Henrik Breum, Director, Vestas Wind Systems
- Helle Juhler-Verdoner, VP Global Affairs, Alstom

Hosted lunch

Keynote address:
- Howard Berke, Executive chairman, CEO and co-founder, Konarka Technologies

Session II.b. Innovative Instruments and Policies

This session will concentrate on lessons from institutions working across the public-private interface to "green" infrastructure investment. In particular, how can the private sector be encouraged to increase investment in low-carbon climate-resilient (LCCR) infrastructure? What are the best practices and leading policies in the development of LCCR buildings, energy, transport, water and other infrastructure sectors?

Moderator:
- Barbara Buchner, Director CPI Venice, Climate Policy Initiative

Lead speakers:

- Gudrun Gumb, Vice-President, European Affairs Department, KfW Bankengruppe
- John Moran, Managing Director, Investment Development and Coordination, OPIC

Panel discussion and roundtable:

- Cecilia Tam, Senior Energy Analyst, IEA
- Nick Mabey, CEO & Founding Director, E3G
- Ola Goransson, Ministry of Environment, Sweden
- Steve Schiller, Chair, California Energy Efficiency Industry Council, US

Session III. Navigating the Policy Challenge (16:30-18:00)

This closing session will highlight recommendations on how to move towards a coherent long-term and stable policy framework. It will help to frame the policy debate and highlight questions of how to better integrate investment, development or finance and climate policy ambitions into a coherent framework to incentivise private sector engagement.

Moderator:

- Josué Tanaka, Managing Director, Energy Efficiency and Climate Change, EBRD

Panel discussion and roundtable:

- Sandra Garavito, Ministry of Environment, Government of Colombia
- Jan Corfee-Morlot, Senior Analyst & Climate Finance Team Leader and Fiona Stewart, Senior Analyst, OECD
- Peter Wehrheim, Head of Unit, Climate Finance and Deforestation, DG Clima Action, EC
- Tomonori Sudo, Japan International Cooperation Agency, Japan
- Simon Brooks, Vice-President, European Investment Bank

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www.oecd.org/env/cc/financing
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