Institutional Investors as a source of non-traditional private financing

Direct investment in green infrastructure can deliver:
- steady, inflation-linked, income
- with low correlations to the returns of other investments

Source: OECD Global Pensions Statics and Institutional Investors databases
Understanding channels for institutional investor investment in green infrastructure

**Corporate investment (indirect)**
- Investment publicly traded shares (equity) or bonds (debt) by corporations active in green infrastructure
- Investment in corporate equity and bond funds

**Investment fund / vehicle (semi-direct)**
- Investment in pooled vehicles such as infrastructure Venture Capital or Private Equity funds that invest in companies or projects;
- Asset backed securities; covered bonds; aggregator bonds;

**Project investment (direct)**
- Direct investment (as a principal) in unlisted green infrastructure project
- Through equity or debt (loan or project bond with asset linkage);
- PPPs and export order facilities

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**Low/No Connection to project**

- Examples
  - Investment in pooled vehicles such as infrastructure Venture Capital or Private Equity funds that invest in companies or projects;
  - Asset backed securities; covered bonds; aggregator bonds;

**Description**
- Investment in public traded shares (equity) or bonds (debt) by corporations active in green infrastructure, or, investment in corporate equity and bond funds

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**Target Return**

**Description**
- **Target equity returns:** 5%
- **Project investment (direct)**
  - Direct investment (as a principal) in unlisted green infrastructure project
  - Through equity or debt (loan or project bond with asset linkage);
  - PPPs and export order facilities

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**High Connection to project**

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**Target Return**

**Description**
- **Target equity returns:** 5%
- **Project investment (direct)**
  - Direct investment (as a principal) in unlisted green infrastructure project
  - Through equity or debt (loan or project bond with asset linkage);
  - PPPs and export order facilities

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**Target Return**

**Description**
- **Target equity returns:** 5%
- **Project investment (direct)**
  - Direct investment (as a principal) in unlisted green infrastructure project
  - Through equity or debt (loan or project bond with asset linkage);
  - PPPs and export order facilities
Summarising challenges to scaling up institutional investor participation – policy lessons

1. Issues with infrastructure investments
   - Direct investing challenges
   - Regulatory and policy issues
     - illiquidity and direct investment restrictions e.g. capital adequacy rules (Solvency II, IORP II)
     - uncertain new policy application e.g. Solvency II for pension funds?
     - accounting rules e.g. mark to market for illiquid assets
   - Lack of project pipeline and quality historical data
     - Compounded by exit of banks (Basel III/deleveraging)

2. Issues particular to green investments
   - Risk/return imbalance
     - Market failures: insufficient carbon pricing and presence of fossil fuel subsidies
   - Unpredictable, fragmented, complex and short duration policy support
     - Retroactive support cuts, switching incentives or start and stop (PTC)
     - Use of tax credits popular with insurers can discourage tax exempt pension funds
     - Unrelated policy objective discouragement e.g. EU unbundling
   - Special species of risk, e.g. technology and volumetric require expertise and resources

3. Lack of suitable investment vehicles
   - Issues with fund and vehicle design
   - Nascent green bond markets, no indices or funds, no market for illiquid vehicles
   - Challenges with securitisation
   - Credit and ratings issues

Unintended consequences
Risk/Return
Regulatory risk
Unintended consequences
Economic geography is incredibly diverse

Source: OECD Global Pensions Statics and Institutional Investors databases, World Bank data.
Understanding the investment value chain

STAGES OF A RENEWABLE ENERGY PROJECT AND INVESTOR APPETITE

Project Development
- Institutional Capital Committed 2004-2013
- €700 Million
- No. of Active Institutional Investors: <10
- Types of Institutional Investors:
  - Private Equity Funds
  - Some Renewable Infrastructure Funds

Pre-Construction
- Institutional Capital Committed 2007-2013
- €3.0 Billion
- No. of Active Institutional Investors: ~20
- Types of Institutional Investors:
  - Private Equity Funds
  - Renewable Infrastructure Funds
  - Some General Infrastructure Funds
  - Few Pensions & Insurance Companies

Construction
- Institutional Capital Committed 2007-2013
- €3.0 Billion
- No. of Active Institutional Investors: ~20
- Types of Institutional Investors:
  - Private Equity Funds
  - Renewable Infrastructure Funds
  - Some General Infrastructure Funds
  - Few Pensions & Insurance Companies

Operations
- Institutional Capital Committed 2007-2013
- €7.5 Billion
- No. of Active Institutional Investors: >30
- Types of Institutional Investors:
  - Renewable Infrastructure Funds
  - General Infrastructure Funds
  - Insurance Companies
  - Pension Funds
  - Family Offices

Source: HgCapital (interviews; 2013)
Case study: Walney Offshore Windfarms

1. Project summary
   • Located approximately 15 km west of Walney Island, Cumbria in the UK
   • At the time of construction (2010), the biggest offshore windfarms (367MW) in the world (currently the second biggest next to the Greater Gabbard Windfarms), operation commenced in 2012

2. Key Policy Challenges
   • Offshore wind technology is still relatively more expensive and policy dependent compared with other conventional power stations and even onshore windfarms
   • Institutional investors needs to be certain about project returns while being not equipped to take on specific project-level risks

3. Key Policy Finding
   • Policy stability that provides investors with clear and long-term policy frameworks
   • Financial structuring and support that serves to create steady and predictable cash-flows and mitigate various risks
Policy conclusions from case studies

- **Policy stability** that provides investors with clear and long-term policy frameworks
- **Financial structuring and support** that serves to create steady and predictable cash-flows and mitigate various risks
- **Better governance and education** of institutional investors to enable them to:
  a) understand the different investments channels available across the capital structure and
  b) build the necessary capabilities to manage the risks associated with these investments
- **Enhanced data collection** on green infrastructure investments and their historical performance, and better standardisation of the information collected
Comments and discussion

• **Comments on the topic and context?**
  – Any other work in this area we should be aware of within governments or elsewhere?

• **Comments on the case studies?**
  – Do you have any other case studies that you would like to bring to our attention?
  – In particular, we are looking to go beyond renewable energy and agriculture to energy efficiency, water and transport
  – Particularly in non-OECD countries
Future work options – for discussion

1. Green initiatives and the insurance sector - experiences with investment and underwriting

2. Financial instruments for infrastructure and green investments

3. ‘Green Deals’ country case studies

4. Institutional investors and green cities

5. Impact of environmental risks on institutional investors’ portfolios

6. Fiduciary duty

7. Defining green investment
Understanding the investment value chain

- VC: +4
- Corp RD&D*: +15
- Gov RD&D*: +15
- PE: +1
- Public markets new equity: +5
- Total company investment: 41
- Re-invested: -1
- Asset finance: +149
- SDC*: +80
- Total investment: 269
- M&A/ Buy-outs etc.: +51
- Total transactions: 319

Note: Includes corporate and government R&D, and small distributed capacity. Adjusted for re-invested equity.

Source: Bloomberg New Energy Finance
Case study 1: Investment in solar PV power generation in the United States by the global insurer MetLife

Institutional investor: Life Insurer (USA)
Green investment: Solar photovoltaic (PV) power generation
Location: Domestic (USA)
Return: Not disclosed
Type of investment: Direct equity

Policy conclusions

• This case is a leading example of direct investment in solar PV power generation by an insurance company. Institutional investors seek long-term policy stability and predictable cash flows guaranteed by long-term power-purchase contracts which extend for two decades or more. The first lesson to be drawn is that public authorities should provide clear and stable long-term investment plans which promote green infrastructure investment. In the Webberville Solar case, the Austin City Council passed a resolution that set a renewable electricity goal of 30% by 2020, with 100 MW of that power coming from solar energy. Since 2011, Austin Energy has set even higher target of 35% renewable energy by 2020 and 200MW of solar development by 2015. In addition, a set of supportive tax environment and policies also served to promote investment in solar energy in the residential sector.

• This long-term policy framework helped reduce the political and regulatory risks associated with a higher-cost form of electricity generation than fossil-fuel alternatives, such as solar. MetLife also bought into the project at a later stage of the project’s development in partnership with a specialised investor and operator of solar parks, Longsol Holdings. This helped avoid risks associated with the earlier, riskier, phases of the project such as construction.

• The second lesson to be drawn is that it is important to provide the mechanisms which enable institutional investors to take predictable cash flows. In the Webberville Solar case, the project was made possible due to Austin Energy’s commitment to purchase all of the facility’s power for 25 years. Institutional investors were able to expect a long-term cash flows extending as long as 25 years which similarly function as long-term fixed-income.
Case Study 2: Investment in agriculture in Brazil by the U.S. pension fund TIAA-CREF

Institutional investor: Financial services company incorporating retirement, asset management, mutual funds, and life insurance (AuM of over USD 500 billion)

Green investment: agriculture

Location: International (Brazil)

Type of investment: Direct equity

Policy conclusions

- The main lesson from this case study for institutional investors wishing to gain exposure to green growth agricultural investments is the importance of local knowledge and governance of institutional investors to understand the different investments available across the capital structure, investment channels and their associated risks and risk-adjusted returns and build the necessary capabilities to manage these investments.

- TIAA-CREF have used Radar to identify, acquire and monitor properties in Brazil and to negotiate lease and crop management contracts. Having people positioned in the country of the farmland working directly with the farmers and crop managers was a key part of their business model. This also required investing significant resources in the due diligence of land ownership and dispute resolution.

- For TIAA-CREF’s farmland investments in Brazil sustainability and ‘green’ investment is not at odds with profitability. By focusing on existing high quality farmland and investing in its sustainable management, they have increased the value and productivity of their assets.

- Regarding the role of government in creating an enabling framework for green growth investment in Brazil, much progress has been made towards creating a stable, investment-grade business environment where investors can be confident that the rules of doing business will not rapidly change.

- One of the potential barriers for institutional investors wishing to invest in farmland is where governments look to control the ownership of farmland as a mechanism to control the management of that land. This is a particular issue in parts of the world where farmland yields are very low, which could benefit from high-quality institutional investment. Attention clearly must be given to any transition arrangements to ensure existing landholders are not disadvantaged by new arrangements, and smarter regulations could help exert influence on how land is managed without restricting ownership. This may help encourage capital to flow into productivity enhancing investments, supporting the broader “Freedom of Investment for Green Growth” agenda.
Case study 3: Investment in offshore windfarms in the United Kingdom by Dutch Pension Fund PGGM

Institutional investor: PGGM (Pension Fund: EUR 128 billion AuM)
Green investment: offshore wind energy (367.2MW)
Location: International (UK)
Return: 8-10%
Type of investment: Direct Equity

Policy conclusions

• In this case, the combination of the favourable UK government policy incentives and the project-specific financial engineering, allowed institutional investors to achieve a quasi-fixed income position and make a decision to undertake a long-term investment in offshore windfarms, a technology which is still a distance from commercialisation and grid parity.

• The first lesson to be drawn is that providing a clear and stable policy framework in support of long-term green investment is an essential element in enabling institutional investors to evaluate and manage such long-term risks. Institutional investors are usually required to evaluate and manage long-term risks that affect their portfolios. To this end, a clear and stable long-term policy framework combined with a well-established set of instruments (here ROCs) plays a decisively key role in ensuring that investors can evaluate and manage risks necessary to make investment decisions and secure sufficient risk-adjusted returns. The Government effectively created the conditions under which a project pipeline can develop.

• The second lessons is that providing risk transfer opportunities and financing vehicles which can help to mitigate risks and increase the appeal for institutional investors is a key element in allowing institutional investors to build long-term investment portfolios. In this case, various financial engineering approaches such as monetisation of power-purchase agreements and deferred instalments of payments for equity stakes enabled DONG Energy to structure projects in a way that de-risked the investments and offered the same income positions as fixed income securities to the institutional investors. Risk transfer opportunities for long-term projects, particularly during their early phases serve to mitigate political and regulatory risks and create the appropriate conditions to attract institutional investors to long-term investment for green infrastructure.
Case study 4: Bonds and green growth / CRC Breeze Finance: the securitisation of onshore windfarms and issuance of first Asset Backed Security in France and Germany.

**Policy conclusions**

- This case illustrates how private capital markets can finance renewable energy when the data on illiquid investments and their performance necessary for investors and credit rating agencies to evaluate risks are appropriately available, and right risk transfer mechanisms for long-term projects are provided in order to mitigate political and regulatory risks and increase their appeal for institutional investors and other providers of long-term financing. Private investors are required to evaluate and manage long-term risks that affect their portfolios.

- The first lesson to be drawn is that the appropriate provision of objective and high quality data on infrastructure and a clear and agreed benchmark is a key element in enabling private investors to assess the risks in green infrastructure investments and to understand correlations with other assets. Most institutional investors require that debt instruments such as bonds carry at least investment grade ratings to invest in them. Rating agencies are naturally conservative particularly when trying to assess very long-term projects or contracts particularly if there is a limited long-term performance history on which to draw. Eventually, without objective and high quality information which enable private investors to assess and monitor risks and performance of green investments, private investors are reluctant to make such allocations.

- The second lesson to be drawn is that risk transfer instruments have an important role to play in facilitating institutional investors’ investment in green infrastructure. Institutional investors are looking for investments which provide steady, long-term and preferably inflation adjusted income streams. They are concerned that insufficient returns will be generated given the risks involved in a project. It illustrates a key point that it is not sufficient to create a return for investors; the return must be attractive relative to all other investment opportunities, taking into account the risk involved. Risk mitigation and credit enhancement tools are important in attracting private investors for what would otherwise be lower risk-adjusted rates of return than they would normally seek.

- Since the issuance of these bonds, an important development has occurred in the market for tailor-made insurance and derivative solutions aimed at protecting weather-related earnings volatility. This has been driven by the joint efforts of the European Wind Turbine Committee (EWTC), initiated by the insurer Swiss Re. It gives European insurers and reinsurers a forum to discuss trends and technologies with representatives from the wind energy sector, including wind turbine manufacturers, project developers, plant owners and operators, lenders and engineers. The EWTC dialogue aims to support the development of tailored insurance products that better meet the needs of the industry.

- One of the key outcomes of the EWTC has been the development of a number of innovative risk transfer products which comprise insurance products to manage weather volume risks and risks associated with the construction and operation of renewable power infrastructure, including third party liability, contractor plant and equipment and assets.
SECTION 1: THE ROLE OF INSTITUTIONAL INVESTORS IN FINANCING GREEN INFRASTRUCTURE

• Investment requirements and economic context
• The state of green investing
• Channels for institutional investment
• Barriers for institutional investment

SECTION 2: CASE STUDIES

• Case study 1: Investment in solar PV power generation in the United States by the global insurer MetLife
• Case Study 2: Investment in agriculture in Brazil by the U.S. pension fund TIAA-CREF
• Case study 3: Investment in offshore windfarms in the United Kingdom by Dutch Pension Fund PGGM
• Case study 4: Bonds and green growth / CRC Breeze Finance: the securitisation of onshore windfarms and issuance of first Asset Backed Security in France and Germany.

SECTION 3: POLICY IMPLICATIONS