

Chapter 4

A stocktaking of risk mitigants and transaction enablers for sustainable energy investment

This chapter advances the discussion beyond the investment channels for sustainable energy that can be used by institutional investors to the interventions that can enable or facilitate these investments, either through mitigating risks or lowering transaction costs. By providing coverage for risks which are new and are not currently covered by financial actors, or are simply too costly for investors, risk mitigants increase the attractiveness and acceptability of sustainable energy projects. These include a range of targeted interventions generally aimed at reducing, re-assigning or re-apportioning different investment risks (e.g. credit enhancements, cornerstone stakes, and tools targeting different challenges across stages of the project lifecycle). As a subset of risk mitigants, techniques facilitate institutional investment in sustainable energy infrastructure projects by reducing the transaction costs associated with these investments while also mitigating risk in some cases (e.g. warehousing, securitisation and supporting co-investment and collaboration among institutional investors).

Risk mitigants

As introduced in Chapter 1, the classification framework presented in this report is based on the instruments and funds that are the channels for investments made today by institutional investors in sustainable energy infrastructure. Although there are important pockets of investment activity, however, investments in sustainable energy infrastructure face a multitude of barriers (described in Table 2.1) and an uneven playing field for sustainable energy in terms of costs and risks. A key challenge for policy makers (as well as private and public financial institutions) is in designing risk mitigants and other interventions that address these barriers. In order to increase the attractiveness of sustainable energy investments for institutional investors, these interventions are key to reduce the perceived risks associated with sustainable energy investment or help to make these transactions *accessible* to institutional investors in the first place.

Role of financial institutions in credit enhancement and risk reduction

The willingness of institutional investors, in particular, to finance major investment projects in any given country will be heavily influenced by perceptions of the country's investment climate. More specifically, it will be influenced by policy settings and institutions that underpin a country's economy and political processes. Investors' perceptions of risks associated with a country or market and the ability to effectively mitigate these risks will play a key role in determining financing flows. Financial institutions and governments can have an impact on these perceptions through the use of risk mitigants. For example, insurance companies, green investment banks and multilateral development banks all play key roles as providers of risk mitigants. Figures 1.1 and 1.2 (in Chapter 1) provide an overview of these diverse public and private actors and their respective focus on sustainable energy investments.¹

As opposed to instruments and funds, which are essentially types of investments, credit enhancement involves targeted interventions generally aimed at reducing, re-assigning or re-apportioning different perceived investment risks. In the context of investment in infrastructure, including sustainable energy infrastructure, credit enhancement is often used by public and private financial institutions to make such investments more attractive to investors, including institutional investors.

While infrastructure projects in general have the potential to deliver attractive risk-adjusted returns to institutional investors, there is a common mismatch between the long-term, relatively low-risk investment needs of institutional investors and the available financing structures. Investments must therefore be structured to provide risk-return profiles that match institutional investors' liability structures and expectations for steady and long-term income flows. Many of the factors that weigh against institutional investors taking more interest in sustainable energy infrastructure can be broadly described as different types of risk. These risks can make it difficult to sustainable energy infrastructure projects to obtain an Investment-grade credit rating. Rating agencies are naturally conservative, particularly when trying to assess long-term projects or contracts, and especially if there is a limited long-term performance history to evaluate (G20/OECD, 2012; Kaminker and Stewart, 2012; Kaminker et al., 2013). In emerging and developing countries, securing the sufficient investment-grade rating necessary for institutional investors to invest in certain projects is particularly challenging (Inderst and Stewart, 2014).

Sustainable energy infrastructure is becoming less policy-dependent as technology costs continue to decrease and in some jurisdictions is becoming commercially-viable without

support. However, sustainable energy investments are often still perceived as riskier than established carbon-intensive technologies. For example, technology risk – i.e. the risk that a given technology will not work as specified – is often seen by institutional investors as an important obstacle to investment in sustainable energy infrastructure. This is a particular problem for technologies at the pre-commercialisation phase and relevant for technologies such as carbon capture and sequestration which will be necessary for a transition to a low carbon economy (G20/OECD, 2012; Kaminker and Stewart, 2012). Carbon-intensive technologies are also subject to fuel-price risk and stranded asset risk but investors may perceive that these risks are more manageable (for instance through financial hedging using derivatives), more distant or less tangible and material (see Box 2.2).

Some actors have also retreated from their previous roles as providers of risk mitigants. For example, before the financial crisis, monoline insurers played an important role in providing bond issuers with insurance to upgrade the credit-worthiness of their bonds, lowering bond issuers' overall cost by giving confidence that the insured security would be paid in full. The financial crisis led to the disappearance of some significant actors such as monoline insurers that had been active in providing insurance to investors in the infrastructure market (Kaminker et al., 2013).

Credit enhancements discussed in this chapter provide coverage for risks which are new, are not currently covered by financial actors or are simply too costly for investors to insure against. Sustainable energy infrastructure may not be perceived to be able to provide high enough returns to attract commensurate risk-capital. Credit enhancement can help to stabilise project cash flows which broadens the investment opportunities for domestic and international debt markets (Streeter, 2014). These stabilised cash flows also facilitate longer debt tenors which helps to correct the mismatch between the debt tenor and the life of a given infrastructure asset (Streeter, 2014).

The specific credit enhancement needs will depend on the country context as well as the level of development of local capital markets. Some risks, such as sovereign, currency and regulatory risks will be amplified in emerging and developing countries. The following discussion provides additional details on specific credit enhancement tools and how they have been used in the context of sustainable energy infrastructure investment.

Subordination

Debt subordination is a form of risk mitigant whereby particular classes of lenders are given priority with regard to claims on assets. By offering repayment priority to certain holders of 'senior' debt, a project can enhance its capacity to attract financing from this source. Institutional investors, for example, may find senior debt (made possible by debt subordination) attractive because it reduces repayment risk. However, in some cases institutional investors may be willing to provide subordinated debt for sustainable projects, despite a lower repayment priority and greater risk. For example, in one of the 47 investments in our sample, PensionDanmark provided a EUR 120 million subordinated loan for the Gemini offshore wind project. The decision on whether to take on subordinated debt is made based on an assessment of whether the return on the subordinated tranche makes up for the additional risk, and whether it fits well into an investor's investment mandates.

The EIB and the European Commission have launched the Europe 2020 Project Bond Initiative which provides eligible infrastructure projects with a Project Bond Credit Enhancement (PBCE) in the form of a subordinated instrument – either a loan or contingent

facility – to support senior project bonds issued by a project company. A key benefit of PBCE is the enhancement of senior bond credit ratings by mitigating the risk associated with losses in the event of default throughout the lifetime of the project, including the construction phase.² Ultimately, the PBCE is expected to widen access to financing sources, including institutional investors, by minimising overall funding costs, improving market confidence regarding the potential pipeline of transactions, and simplifying and standardising project structures (EIB, 2012). A successful example of the way that the PBCE can facilitate institutional investment is the PBCE (GBP 45.8 million guarantee, representing 15% of the bond issuance) provided for the Greater Gabbard offshore wind project off the Suffolk coast in the UK. The project became the first UK-based sustainable energy infrastructure project to attract finance from institutional investors using the programme (EIB, 2012). This guarantee facilitated a one-notch upgrade in the project’s credit rating provided by Moody’s (EIB, 2013).

Loan loss reserves

Loan loss reserves set aside capital to cover potential losses and help to reduce repayment risk. If a borrower defaults, the lender is repaid using the reserve fund. By reducing repayment risk, loan loss reserve funds can lower financing costs, motivate financial partners to broaden consumer access to green infrastructure-related loans, and extend loan repayment periods.

Some green investment banks have been active providers of loan loss reserves and often provide a percentage of loan loss coverage for lenders (Eklin et al., 2015, forthcoming). As part of its “Smart-E Loan Program”, the Connecticut Green Bank offers distinct residential energy efficiency and renewable energy financing products with corresponding loan loss reserve levels. Every time a lender underwrites an eligible loan under this programme, the Connecticut Green Bank reserves a percentage of the loan principal (between 7.5-15%) for the lender in the event of a default (Energize CT, 2013). In the Connecticut model, to promote sound lending practices and share risks, the lender assumes the “first loss” (1.5%) on its portfolio before it is permitted to access the reserve fund.

Guarantees and insurance products

Guarantees and insurance are core credit enhancement tools that are used to mitigate perceived or actual risks to improve the attractiveness of investments. When discussing credit enhancement, the terms guarantee and insurance are often used interchangeably. While guarantees are often used as a credit enhancement mechanism for debt instruments (bonds and loans), guarantees can also be discussed in the context of guaranteeing the performance of a given technology such as solar panels or wind turbines. Insurance products may protect against a range of risks such as construction or operational risk, market risks such as price changes, weather-related production volatility risks, and political, regulatory or policy issues. Institutional investors are often key purchasers of sustainable energy-related insurance policies and are helping to increase demand for these types of offerings (Gilbert, 2013). Most sustainable energy insurance products provided are risk-transfer offerings supplied to insure against risks related to production, installation, repair, and replacement of wind turbine blades or solar panels. These insurance products may also cover sustainable energy production risks linked to plant construction and operation through to energy and power distribution.

While guarantees and insurance products can be provided by private bank or third-party actors, the public sector often has a key role to play by providing insurance and guarantees through national or supranational bodies which can play an important kick-starting role in driving sustainable energy infrastructure finance (OECD, 2014a). Bilateral or multilateral development banks often act as key providers of insurance and guarantees for sustainable energy investment. For example, the International Finance Corporation (IFC) provides a partial credit guarantee, which represents a promise of full and timely debt service payment up to a predetermined amount if the project does not provide the full repayment. The IFC's objective is to offer the minimum amount of guarantee necessary to facilitate a successful transaction (IFC, n.d.). It helps borrowers to broaden the access to investors of international and local capital markets including institutional investors, reduce borrowing costs, and extend maturities.

Export credit agencies may also play a key role in both commercial and political risk guarantees that can be instrumental in attracting institutional investors. The Danish export credit agency Export Kredit Fonden (EKF) has been particularly active in providing guarantees through their Export Loan Support Scheme which covers up to 90% of commercial and political risks for exporting companies and up to 95% of these risks for banks (Boyd and Hervé-Mignucci, 2013). Multiple export credit agencies may also collaborate on transactions such as the EUR 890 million financing for the Belgian offshore Northwind project which included the Danish EKF as well as export credit agencies from Norway (GIEK) and Belgium (ONDD). Institutional investors for the Northwind project included Danish pension fund PensionDanmark as well as commercial banks.³

Credit enhancement for bonds

Third-party guarantees can improve the credit-worthiness of bond issuances. For example, specialised financial guarantee insurance can also be purchased to guarantee financial obligations linked to asset-backed securities. Asset-backed securities are securities that are derived from a pool of loans or receivables. In the case of sustainable energy, energy efficiency loans or solar leases could be pooled, securitised and issued as an asset-backed security. The process of pooling or warehousing these loans or receivables is discussed further in the report. To provide a credit enhancement, a specialised insurance provider guarantees or “wraps” the asset-backed security to insure against losses. The insurance wrap typically increases the credit rating of the issuance. Monoline insurers used to be the key provider of this type of credit enhancement.

A letter of credit is an additional credit enhancement for bonds. A letter of credit is a commitment by a financial institution, usually a bank, to guarantee payments for the principal and interest on debt issuances. If the bond issuer is unable to make payments, the letter of credit is drawn to repay bond holders. For both letters of credit and surety bonds described later, the credit rating will be linked to the creditworthiness of the monoline insurer or bank providing the guarantee. Due to this linkage, if the institution providing the guarantee is downgraded, the relevant bond may similarly suffer a downgrade. Furthermore, overcollateralisation, where the collateral which “backs” the issue is greater than the principal amount of the issue, can be used as a tool for credit enhancement, such that a buffer is created between the value of the assets and the amount of debt raised. This provides additional coverage and a high debt service coverage ratio, and can fund a reserve in case of defaults.

Performance guarantees

A performance guarantee is a risk mitigant provided to give owners confidence that a given technology or system will perform as expected. Project developers in search of investment partners must seek to provide assurances that projects will meet the financial expectations of project investors. Performance guarantees serve to ensure the expected level of guaranteed revenue in the long-term.⁴ Project developers often ask the engineering, procurement and construction (EPC) contractor for comprehensive guarantees. For example, almost all large-scale PV projects have performance guarantee contracts (Taylor and Williams, 2011). The provision of a performance guarantee can be also be insured by a commercial reinsurance company to provide solar plant operators and investors with greater planning security, which will give investors, including institutional investors, more confidence about revenue derived from projects (Munich RE, 2010).

Project completion coverage

A surety bond is an example of an insurance product that guarantees completion of a contract or fulfilment of an obligation. In the case of sustainable energy projects, surety bonds are useful to ensure project completion if a contractor defaults. Project contractors purchase these surety bonds from surety companies which assume liability for non-performance. If a contractor defaults, the surety company must find another contractor to complete the project or compensate the project owner for any losses incurred (SBA, n.d.). Surety bonds therefore provide a type of insurance for project completion.

Production risk coverage

An additional type of insurance product provides financial protection against volumetric risk (the risk that electricity delivered by a project is lower than expected). Traditional insurance products and parametric insurance products⁵ cover revenue lost due to shortfalls in forecast energy production as a result of insufficient wind, solar or other energy sources. Institutional investors that seek stable, long-term yields are increasingly demanding these types of insurance products to provide stability.

Political risk coverage

For political risk coverage products a relatively established market exists (UNEP, n.d.). Political risk insurance can be especially useful in less developed countries where the risk relating to the country's political and macroeconomic environment is among the key barriers to investment (Venugopal and Srivastava, 2012). The World Bank's Multilateral Insurance Guarantee Agency (MIGA) helps private investors, including institutional investors, by insuring eligible projects against losses relating to: 1) currency inconvertibility and transfer restriction, 2) expropriation, 3) war, terrorism, and civil disturbance, 4) breach of contract, and 5) non-honouring of financial obligation (MIGA, n.d.). For equity investment, MIGA guarantees up to 90% of the investment, in principle. For loans and loan guarantees, MIGA generally offers coverage of up to 95% of the principal (or higher, on a case-by-case basis), plus up to an additional 150% of the principal to cover interest that accrues over the term of the loan (MIGA, 2012).

Policy and regulatory risk coverage

Additional insurance offerings have emerged to cover policy risk. Policy risk can include both legal and regulatory changes. Policy risk is frequently highlighted as one of the most significant risks facing investors in sustainable energy and has a significant role in dissuading investors from allocating capital to this sector (Parhelion, 2012; Micale et al., 2013). In particular, retroactive policy change risk is highlighted as a principal concern as it directly impacts expected and historical revenues from projects and lowers investor confidence in the stability of the financial support available over the investment lifetime (Parhelion, 2012; Frisari et al., 2013; Micale et al., 2013). Government could pre-commit to reduce these risks, e.g. through contractual penalties in the case of material policy changes. Retroactive changes to feed-in tariffs have notably been involved in recent years in a series of investor-state disputes (OECD, 2014, forthcoming; IISD, 2012). Foreign investors involved in renewable energy projects could initiate international investment arbitration to seek damages, under provisions included in bilateral investment treaties (BITs) and other multilateral agreements (OECD, 2014, forthcoming; Gaukrodger and Gordon, 2012). There is also a key role for the public sector to provide policy risk insurance products as the private sector will not underwrite these types of risks when there is a lack of alignment of interest between the “risk influencer” (i.e. the government) and the “risk carrier” (i.e. investors or insurers) (Parhelion, 2012, p. 1).

The US Overseas Private Investment Corporation (OPIC) is one of a few public institutions which provide regulatory risk insurance against policy changes, in addition to their political risk guarantees. Its regulatory risk product can protect against regulatory actions impacting on sustainable energy projects, such as 1) material changes to feed-in tariffs, 2) critical changes to taxation or other regulations affecting the project’s ability to operate, 3) revocation of licences or permits necessary for the operation of a project, 4) improper interference with carbon credit generation or sales, and 5) repudiation of a concession, technical assistance, or forestry-related services agreement by a foreign government (OPIC, n.d). As policy risks are increasingly recognised as a major barrier to investment flows to climate financing, the United Nations Environment Programme has also recently proposed to establish a policy insurance mechanism. This mechanism, which is to be funded by both the private and public sector, will insure policy risks specifically related to sustainable energy investment. The proposed coverage would engage local insurers in developing countries and international reinsurers to facilitate investment in sustainable energy technologies (UNEP, n.d.)

Currency risk protection

Currency risk is a particular concern for infrastructure projects in developing countries due the currency mismatch between project revenues and debt finance. Project revenues are typically denominated in local currencies. However, due to the size and duration of financing and the lack of established domestic financial markets, project financing is usually provided in widely-traded international currency (e.g. US dollar, euro or yen) (Venugopal and Srivastava, 2012). Currency swaps can be used to address these foreign exchange risks for sustainable energy projects which have local currency revenues yet pay debt in a foreign currency.

Public investment funds

Governments can play a pivotal role in facilitating the flow of institutional capital into infrastructure assets including sustainable energy infrastructure by seeding investment funds that can attract outside sources of capital. Equity funds formed as partnerships of public and private institutions could become important sources of finance and providers of organisational capacity and expertise in support of the financing of infrastructure projects including sustainable energy infrastructure projects.

Multilateral development banks, such as the European Investment Bank, have been particularly active in setting up infrastructure or sustainable energy investment funds that attract institutional investors. Green investment banks may also seek to create investment funds. Australia's national green investment bank, Clean Energy Finance Corporation (CEFC), is developing an unlisted sustainable energy fund in partnership with Colonial First State Global Asset Management that would attract institutional investors. CEFC plans to invest much as AUD 80 million for the fund dedicated to sustainable energy and plans to raise up to an additional AUD 500 million from private investors including superannuation funds (Paton, 2014). CEFC CEO Oliver Yates noted that "by providing a new investment option for superannuation funds and other institutional investors, the Fund will attract new sources of investment in renewable energy, unlocking new sources of capital for the market and expanding the investor base for this sector" (Parkinson, 2014). The UK Green Investment Bank is considering the creation of a fund that would invest in multiple projects. The fund is designed to appeal to institutional investors that may seek exposure to assets such as offshore wind but would be unlikely to risk investing in a single project (Shankleman, 2014).

Cornerstone investment

A cornerstone investment refers to a large investment in an offering that occurs early in the investment process so as to play a demonstration role to attract other investors.⁶ A cornerstone stake could be purchased in a company or a fund. For example, the Asian Development Bank acted as a cornerstone investor in the Philippine Investment Alliance for Infrastructure (PINAI), an unlisted fund dedicated to investing in infrastructure assets in the Philippines, which subsequently attracted outside investors including APG, a Dutch pension fund asset manager.

The UK Green Investment Bank (UK GIB) and UK Department for Business, Innovation and Skills (BIS) acted as cornerstone investors and played a key role in bringing the recent GBP 260 million Greencoat Wind Fund Initial Public Offering (IPO) to fruition on the London Stock Exchange.⁷ The UK GIB and UK BIS also committed to a one year lock-up period in which they were prohibited from selling their Greencoat Shares (London Stock Exchange, 2013). Given that banks were not willing to launch the Greencoat IPO without the UK GIB and BIS as cornerstone investors, the IPO provides an excellent example of a transaction that would not have worked without the involvement of government as an investor. A combination of government (for profit) capital, and the name and reputation of these government entities helped the transaction be successfully completed. The government backing helped de-risk the IPO for institutional investors, but the deal also reflects the extent to which there is appetite for the kind of low-risk infrastructure-style investment in operational wind projects that Greencoat aims to execute.

Transaction enablers for sustainable energy investment

As shown in Chapter 3, institutional investors that would like to invest in sustainable energy infrastructure can either do so directly (in-house) or through intermediaries (outsourced). While direct infrastructure investments have a number of characteristics which can appeal to institutional investors such as allowing for asset-liability matching and helping hedge the risks for long-dated liabilities, making direct investments in projects is generally complex and resource-intensive. It can be prohibitively expensive due to the costs of developing and maintaining a direct investing team in addition to transaction costs and legal fees. Thus, many investors might consider using intermediaries because they do not have this expertise, or the scale that would justify creating an internal team. However, of these institutional investors, many have decided against investing in infrastructure or have withdrawn from contracts because they have determined that the transaction costs, in particular management fees, are prohibitive. Nevertheless, some firms have started to explore ways to reduce transaction costs for sustainable energy investment or otherwise facilitate or enable these transactions to be made more efficiently. For the purposes of this analysis, these approaches are referred to as transaction enablers.

The traditional institutional investor was almost entirely outsourced, rarely possessing the expertise and competencies to execute even the most basic financial transactions without the help of some external advisors. But, over time, the extended chain of principal-agent relationships became problematic (Kaminker et al., 2013). As alluded above, one of the key areas of tension between investors and fund managers with respect to infrastructure investments is a conflict of interest between investors and fund managers over fund fees and terms and conditions (Kaminker et al., 2013; OECD, 2014d). In addition, the global financial crisis has heightened dissatisfaction among many institutional investors with some of the existing institutions of finance and investment due to the perception of misaligned incentives, poor returns and short-termism embedded in certain third-party management agreements (Kaminker et al., 2013; OECD, 2014b).

Those institutional investors who do not have the scale to “in-source” asset management by building a dedicated team, or who may not have the technical or geographical expertise to execute a transaction, or who wish to bid on assets that are too large for them individually, have started to successfully explore the use of transaction enablers to make these direct investments possible. These transaction enablers such as securitisation and warehousing can be instrumental in reducing the cost of direct investment by pooling information and knowledge across multiple institutional investors.⁸

There are also other types of initiatives led by investors such as co-investment, which enable them to come together informally to collaborate in investment platforms or share knowledge, which serve to reduce transaction costs or otherwise facilitate investments. In addition, there have been a number of regional institutional investor initiatives that have been formed to engage with governments, as well, such as the umbrella Global Investor Coalition on Climate Change (GIC) which comprises multiple regional initiatives and is also involved in collecting data, and the Asset Owners Disclosure Project (AODP) (Kaminker et al., 2013).⁹

Securitisation

Securitisation is a technique whereby illiquid or small-scale assets, such as cash flows from solar leases or power-purchase agreements, are transformed into a standardised and tradable asset. Before it can be sold, the resulting instrument (e.g. an asset-backed security

or collateralised debt obligation) generally needs to be assessed by a credit rating agency (Neil, 2014). By transforming pooled assets into securitised products on the secondary market, securitisation can serve to reduce the cost of financing for the underlying assets while aggregating small-scale and unrated investments into securities that appeal to institutional investors, therein enabling transactions to be made. This is particularly true if the resulting securities receive a high credit rating (Neil, 2013).

In addition, considering that bonds have traditionally been the dominant asset class favoured by pension fund managers in the OECD, securitisation that results in listed bonds can be particularly instrumental to better engage institutional investors. Accessing the capital markets through securitised issuances at scale can also be particularly useful to develop a market for this type of sustainable energy investment. For example, securitised solar issuances are helping to build a solar market that is more liquid and has a lower cost of capital relative to traditional funding sources such as loans (Lowder and Mendelsohn, 2013). Many securitisation efforts are aimed at aggregating small scale assets to create structures of the scale that institutional investors would find attractive, although they do have important risk diversification benefits.

While securitisation can be important to free up funds from the balance sheets of banks and corporates and reach a broader base of capital through security markets, it requires sufficient asset quality and assured cash flows to obtain and maintain a favourable credit rating. A number of issues challenge the development of securitisation and need to be addressed in order to improve access to capital markets. These challenges include limited availability of performance data, lack of standardised contracts, and insufficient volume of existing debt (Lowder and Mendelsohn, 2013). A government or other public sectors actors such as green investment banks can play roles in establish platforms that will help to bring small transactions to scale, as well as in mitigating the perceived risks, to encourage securitisation.¹⁰

Warehousing

Many potential sustainable energy investments are unattractive for institutional investors because they lack the necessary scale (Kaminker et al., 2013). Through warehousing, smaller projects (such as energy efficiency loans or solar leases) are pooled in order to reach a size where the bundled asset becomes attractive for sell-off to large investors or for securitisation through bond issuances (discussed below). Once its pool of purchased loans reaches a threshold of USD 25-100 million depending on the assets, NY Green Bank proposes securitisation (Booz & Co, 2013). Pooling techniques such as loan warehousing can be useful to reduce transaction costs and facilitate investment in small-scale projects, thereby helping to get them to a commercial scale that is attractive for institutional investors. These could also be considered as risk mitigants in that by pooling multiple loans, they reduce exposure to idiosyncratic project-specific risk. In addition to pooling and securitising commercial and industrial loans, the Connecticut Green Bank has bundled solar leases from a large number of small projects to attract private companies and new investors.¹¹ NY Green Bank is also interested in purchasing loans that conform to specific green standards.

Standardisation of contracts and reporting and data collection

By promoting standardisation of contracts and reporting templates and improving data collection, policy makers can reduce transaction costs associated with investment in sustainable energy.¹² In the United States, the National Renewable Energy Laboratory’s (NREL) Solar Access to Public Capital (SAPC) Working Group is developing standardised contracts for residential solar leases and power-purchase agreements. Their efforts are designed to improve consumer transparency, reduce transaction costs in the solar asset contracting process, and facilitate the pooling of cash flows from solar PV leases so they may be securitised and sold in the capital markets. The SAPC has also developed mock securitisation term sheets for bundled solar PV leases (i.e. legal descriptions of the securitisation structure, managing entities, and cash flow) to illustrate and clarify how solar securitisation works and potentially reduce transaction costs for new securitisations to reach the market (NREL, 2013). Some green investment banks have also shown an interest in standardisation of contracts and reporting processes. For example, NY Green Bank highlights the need for greater standardisation of contracts and the loan underwriting process and improved data collection regarding loan and project performance. Standardisation and greater data availability would then make it much easier and cheaper for securitisation to occur, for private banks to underwrite and for credit agencies to rate a securitisation (Eklin et al., 2015, forthcoming).

Co-investment, joint-ventures and consortiums

Institutional investors may seek to reduce transaction costs by partnering with other investors through co-investment, joint-ventures or consortiums. Co-investment is a form of direct investing whereby institutional investors partner up with other investors to invest in an asset (OECD, 2014b). Institutional investors are increasingly using co-investment as a way to reduce transaction costs, gain access to more potential investment opportunities as well as build relationships with experienced investors such as infrastructure funds. In contrast, a joint-venture is a business arrangement where two or more parties agree to pool their resources and establish a new entity for a specific project or business activity in a way that is separated from the participants’ other business interests. A consortium is an association of two or more individual companies to pool their resources and participate in a common project or business activity. In addition to deal-specific co-investment, joint-ventures or consortiums, investors are increasingly organising their own initiatives to support co-investment for a wide range of deals (see Box 4.1).

Box 4.1. The rise of co-investment platforms

Co-investing platforms have emerged partly in response to dissatisfaction among institutional investors with respect to high fees associated with infrastructure fund models (OECD, 2014b). The advantages of co-investing platforms include: better alignment of interests with other institutional investors, suitable investment horizons, lower fees, better control of the investment characteristics, larger commitments, local knowledge, and risk sharing (OECD, 2014b). Bachher and Monk (2012) identify additional benefits of collaborating in co-investment platforms including higher returns, access to greater deal flow, greater diversification, improved governance rights, and reduced headline risk. A number of large pension funds and sovereign wealth funds have looked at pooling their financial and internal resources to invest

Box 4.1. The rise of co-investment platforms *(continued)*

jointly in infrastructure projects. In Australia, IFM Investors is co-investment platform owned by 30 Australian superannuation funds and collectively represents AUD 52 billion in assets under management across a variety of sectors. IFM Investors invests across a range of sub-sectors including electricity generation, transmission, and distribution, rail infrastructure, and water (IFM Investors, n.d.; Inderst and Della Croce, 2013).

Co-investment platforms also face a number of challenges. Pension funds often have widely varying strategies, diversification targets, and exposure limits. Differences in governance and compensation structures may also create difficulties. Co-investing using co-investment platforms therefore should not be considered as a “short-cut” to direct investing, as a co-investor still needs some in-house capabilities and execution skills (Bachher and Monk, 2013, 2012). In order to overcome these challenges, government support may be required to promote co-ordination between the parties or to provide access to attractive investment opportunities. The UK’s Pension Investment Platform (PIP), Canada-based Global Strategic Investment Alliance (GSIA) and the Canada Pension Plan Investment Board (CPPIB)-led syndicate model all provide examples of different co-investment structures that may help institutional investors to access infrastructure investment more efficiently than investing through unlisted equity funds by pooling their financial and internal resources (OECD 2014b). See OECD (2014b) for a detailed review of co-investment platforms.

Source : OECD, 2014b; Bachher and Monk, 2013; Inderst and Della Croce, 2013; Bachher and Monk, 2012; IFM Investors, n.d.

Co-operation and collaboration, and other informal knowledge-sharing

Co-operation and collaboration are more informal techniques that can facilitate sustainable energy infrastructure investment by institutional investors. Collaboration involves a closer working relationship than co-operation, and involves commitment to a project or projects both in terms of the specification of shared objectives and the means of realising those objectives (Monk, 2013). Institutional investors can collaborate through agreeing on expected outcomes, and setting well-defined mechanisms governing entry and exit from such agreements (Clark and Monk, 2013). While investors may come together informally in various ways to collaborate in investment platforms, there is an opportunity for governments to work with these platforms to better understand investor needs and the key barriers that are reducing or preventing investment in sustainable energy infrastructure.

Compared with collaboration, co-operation is less formal way of enhancing senior managers’ knowledge and understanding of the investment options available and formulating strategies (Clark and Monk, 2013). When investors find deeper engagement challenging, co-operation can be effective as a means of mobilising and sharing resources and capabilities (Clark and Monk, 2013). For example, institutions can establish partnerships when senior managers of smaller institutions wish to establish cost-sharing and service-sharing agreements with larger institutions with the expectation that larger institutions can claim significant discounts from external service providers due to economies of scale.

Key takeaways for policy makers

Risk mitigants

- In the sustainable energy sector, many risks such as policy risk are not well covered by traditional financial or insurance offerings or are simply too expensive to insure against to attract investor demand. Due to this gap in offerings and the need to scale up investment in sustainable energy infrastructure, there is a clear role for government and other policy actors to develop risk mitigants to promote sustainable energy investments or to pre-commit to reduce these risks.
- In order to attract investors, multiple risk mitigants may be necessary given that sustainable energy infrastructure may not be perceived to be able to provide high enough returns to attract commensurate risk-capital. Risk mitigants can be tailored to the needs and conditions of an individual sustainable energy project if the scale permits.
- Risk mitigants play an important role to enhance the creditworthiness of projects by mitigating perceived investment risk. Reducing, re-assigning or re-apportioning different investment risks, enhance the creditworthiness of projects, de-risks potential investments and increases the attractiveness of investments while stabilising project cash flows. This broadens investment opportunities for institutional investors with long-term investment horizons and relatively limited appetite for risks.
- The importance of risk mitigants is magnified within the context of reduced government financing capacity. As risk mitigants mobilise private capital using limited public finance, they are part of a trend where government has less ability to act as a project financier but rather works as a facilitator by reducing risk to encourage private investment. When considering deploying risk mitigants, governments should also examine and carefully evaluate the contingent liabilities that these responsibilities create for taxpayers.
- The public sector is increasingly aware of the need to reduce risk and many countries are already using and developing risk mitigants to promote increased sustainable energy investment. Some governments have been particularly active in developing and using these risk mitigants to mobilise greater sustainable energy investment and these examples can potentially be applied to other national contexts. The Danish export credit agency EKF is a particular example of an institution that is using their guarantees to encourage institutional investor participation in sustainable energy finance. Green investment banks and other public financial institutions are also actively working to reduce risk by providing guarantees, loan loss reserves, seeding funds and acting as cornerstone investors.

Transaction enablers

- As most institutional investors have limited experience with direct investment in sustainable energy infrastructure projects, the cost associated identifying, executing and managing investments in-house is often prohibitively expensive, partly due to the costs of developing and maintaining the human resources of a direct investing team as well as transaction costs and legal fees.
- Although many techniques have emerged from the private sector as investors work together to reduce transaction costs, there remains a key role for policy action to reduce costs. For example, while investors may come together informally to

collaborate in investment platforms, there is an opportunity for governments to work with these platforms to better understand investor needs and the key barriers that are reducing or preventing investment in sustainable energy infrastructure.

- Government should make sure that regulatory frameworks do not prevent techniques such as securitisation from functioning as intended. For example, financial regulations such as Basel III and Solvency II should be carefully considered to avoid unintended consequences of discouraging long-term investment by institutional investors.
- The relatively small size of many potential sustainable energy investments is often an investment barrier for large institutional investors, who are looking to invest larger sums of capital (partly to justify the due diligence required and also to have a meaningful impact on their portfolios). Governments can play a key role in reducing these transaction costs through promoting contract standardisation, warehousing and securitisation to facilitate institutional investment in sustainable energy projects. As a recent example of securitisation of commercial energy efficiency loan led by the Connecticut Clean Energy Finance and Investment Authority (CEFIA).
- Establishing warehousing and encouraging securitisation creates opportunities for the public sector to play an important co-ordinating role in establishing platforms that will help to bring small transactions to scale, as well as in mitigating the perceived risks. By pooling small transactions, a collection of projects can then be securitised and sold to institutional investors through financial intermediaries.

Notes

1. It is worth noting that much many of the lessons discussed herein are also applicable to other types of infrastructure investment beyond sustainable energy which creates opportunities potentially for knowledge transfer between sectors.
2. See EIB (2013) for additional details on how the EIB provides the credit-enhancing subordinated tranche, and positive impacts for Senior Bondholders.
3. See Boyd and Hervé-Mignucci (2013) for a detailed case study on the development of the onshore Jädraås wind farm in Sweden which included a guarantee from EKF that helped to mobilise institutional investor financing. The report also provides additional examples of export credit guarantees used in financing sustainable energy projects.
4. For example, performance guarantee could include a guaranteed electrical production for 10 years at 90% of rated power output and 25 years at 80% (Energy Informative, 2013).
5. Parametric insurance products are a type of insurance product that pays out when the coverage is triggered by a particular variable, such as the number of inches of rain over a designated time period.
6. The term cornerstone investor is most commonly used in the context of initial public offerings (IPOs) in which an investor agrees to purchase a prominent share of the offering. Cornerstone investors may also commit to holding their shares for a specific time period. By purchasing a large stake of an offering and doing so early in the IPO process, cornerstone investors provide confidence for other investors (West and Piramal, 2013). In this report, the term cornerstone investor can also refer to a prominent investment in an investment fund, debt offering, or equity investment.

7. BIS invested GBP 50 million as a cornerstone investor which enabled the IPO to occur and provided the necessary confidence to utility SSE and major institutional investors to join the offering. Greencoat's plan is to invest in proven operating UK wind farms greater than 10 MW in size on an unlevered basis. It expects to provide investors with an initial dividend yield of 6% on investment, which is evidently a sufficient incentive to attract institutional public investors. The fund closed its first acquisitions alongside the IPO, purchasing stakes in four wind farms from SSE in a deal worth about GBP 140 million. The UK GIB matched Greencoat's investment in the Rhys Flats wind farm, buying a 24.95% stake in the project for GBP 57.5 million in the first time it has contributed direct equity to an offshore wind farm.
8. It is worth noting that many of the lessons discussed herein are also applicable to other types of infrastructure investment beyond sustainable energy which creates opportunities potentially for knowledge transfer between sectors.
9. For instance, at the United Nations Climate Summit in 2014, nearly 350 global institutional investors representing over USD 24 trillion in assets called on government leaders to provide stable, reliable and economically meaningful carbon pricing that help redirect investment commensurate with the scale of the climate change challenge, as well as develop plans to phase out subsidies for fossil fuels (IIGCC, et al., 2014). The statement was co-ordinated by the four investor groups on climate change – Ceres' Investor Network on Climate Risk (INCR) in the U.S., the European Institutional Investors Group on Climate Change (IIGCC), the Investors Group on Climate Change (IGCC) in Australia and New Zealand, and the Asia Investor Group on Climate (AIGCC) along with the United Nations Environment Programme Finance Initiative (UNEP FI) and Principles for Responsible Investment (PRI).
10. The Clean Energy Finance and Investment Authority (CEFIA), Connecticut's green bank, played in a key role in a recent case of securitisation of commercial energy efficiency loan (CEFIA, 2014). The project bond initiative led by EIB is also designed to enable eligible infrastructure projects promoters to attract additional private finance from institutional investors. (See http://srmnetwork.com/wp-content/uploads/Press_Release_C-PACE_Sell-Down_Final_05-19-14.pdf, www.eib.org/products/project-bonds/).
11. Through the Solar Lease II programme, Connecticut's green investment bank aggregated solar leases. A private insurance company was attracted by the scale provided by the programme and has created a new product to provide insurance and warranties for solar leases. In addition, new sources of non-bank investment have been attracted by the aggregated pool of residential solar loans. Mosaic, a solar finance "crowdsourcing" company will provide USD 5 million in "crowdsourced" loans (Business Wire, 2014).
12. Standardisation and co-operation could, on the other hand, erode the first mover premium which may be reaped by investors building expertise in new areas.

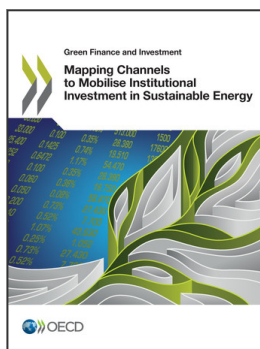
References

- Bachher, J.S. and A.H.B. Monk (2013), "Platforms and Vehicles for Institutional Co-Investing", *Presentation*, Stanford University Global Projects Center, www.rijpm.com/pre_reading_files/Ashby_Monk_JagdeepRotman_Sacramento.pdf.
- Bachher, J.S. and A.H.B. Monk (2012), "Platforms and Vehicles for Institutional Co-Investing", *SSRN Electronic Journal*, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2174696.

- Booz & Co. New York State Green Bank, Business Plan Development Final Report, 3 September, 2013, www.naseo.org/Data/Sites/1/documents/committees/financing/notes/2013-11-13-Green-Bank-Final-Report.pdf.
- Boyd, R. and M. Hervé-Mignucci (2013), *San Giorgio Group Case Study: Jadraas Onshore Windfarm*, Climate Policy Initiative.
- Business Wire (2014), “Sungage Financial, CEFIA and Mosaic Announce \$5 Million Deal for New Crowdsourced Residential Solar Loans”, 14 February.
- Clean Energy Finance and Investment Authority (CEFIA) (2014), “CEFIA Announces Sale of Commercial Property Assessed Clean Energy Benefit Assessment Liens”, http://srmnetwork.com/wp-content/uploads/Press_Release_C-PACE_Sell-Down_Final_05-19-14.pdf.
- Clark, G.L. and A.H.B Monk (2013), “Transcending Home Bias: Institutional Innovation through Cooperation and Collaboration in the Context of Financial Instability”, *SSRN Electronic Journal*, <http://ssrn.com/abstract=2353364>.
- EIB (2013), “Institutional Investor Support for Greater Gabbard Offshore Transmission Link Encouraged by First Use of Project Bond Credit Enhancement Scheme in UK”, Press Release, European Investment Bank, 2 December.
- EIB (2012), An outline guide to Project Bonds Credit Enhancement and the Project Bond Initiative, European Investment Bank.
- Eklin, K., C. Kaminker, R. Youngman and O. Kawanishi (2015, forthcoming), *OECD Green Investment Financing Forum: Lessons from established and emerging green investment bank models, Background Note*, OECD Publishing, Paris.
- Energize Connecticut (2013), “About Smart-E Loans”, Lender Fact Sheet, www.ctcleanenergy.com/Portals/0/board-materials/6a_Smart-E%20Loan_Lender%20Fact%20Sheet.pdf.
- Energy Informative (2013), “Solar Panel Warranty Comparison”, 7 June, <http://energyinformative.org>.
- Frisari, G., M. Hervé-Mignucci, V. Micale and F. Mazza (2013), *Risk Gaps: A Map of Risk Mitigation Instruments for Clean Investments*, Climate Policy Initiative.
- Gaukrodger, D. and K. Gordon (2012), “Investor-State Dispute Settlement: A Scoping Paper for the Investment Policy Community”, *OECD Working Papers on International Investment*, 2012/03, OECD Publishing. <http://dx.doi.org/10.1787/5k46b1r85j6f-en>.
- Gilbert, K. (2013), “Green Energy Sector Benefits from Growing Insurance Market”, Institutional Investor, 26 September, www.institutionalinvestor.com.
- G20/OECD (2012), G20/OECD Policy Note on Pension Fund Financing for Green Infrastructure and Initiatives. OECD Publishing, Paris, www.oecd.org/finance/private-pensions/S3%20G20%20OECD%20Pension%20funds%20for%20green%20infrastructure%20-%20June%202012.pdf.
- IFC (n.d.) “Partial Credit Guarantees”, Product Description, Structured and Securitised Products, International Finance Corporation, Washington, DC., www.ifc.org.
- IFM Investors (n.d.), www.ifminvestors.com/us/home (accessed 16 July 2014).
- IIGCC et al. (2014), World’s leading institutional investors managing \$24 trillion call for carbon pricing, ambitious global climate deal, <http://investorsonclimatechange.org/>.

- IISD (2012), “Trends in Investor Claims over Feed-in Tariffs for Renewable Energy”, www.iisd.org/itn/2012/07/19/trends-in-investor-claims-over-feed-in-tariffs-for-renewable-energy/.
- Inderst G. and R. Della Croce (2013), “Pension Fund Investment in Infrastructure: A Comparison Between Australia and Canada”, *OECD Working Papers on Finance, Insurance and Private Pensions*, No.32, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5k43f5dv3mhf-en>.
- Inderst, G. and F. Stewart (2014), “Institutional Investment in Infrastructure in Developing Countries: Introduction to Potential Models”, *Policy Research Working Paper* 6780, World Bank.
- Kaminker, C. and F. Stewart (2012), “The Role of Institutional Investors in Financing Clean Energy”, *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 23, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5k9312v2116f-en>.
- Kaminker, C. et al. (2013), “Institutional Investors and Green Infrastructure Investments: Selected Case Studies”, *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 35, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5k3xr8k6jb0n-en>.
- London Stock Exchange (2013), “Greencoat UK Wind Plc: Announcement of Intention to Raise a Minimum GBP 205 million and List on the Main Market of the London Stock Exchange”, Regulatory Announcement, 6 February, www.londonstockexchange.com.
- Lowder, T. and M. Mendelsohn (2013), *The Potential of Securitization in Solar PV Finance*, National Renewable Energy Laboratory (NREL).
- Micale, V., G. Frisari, M. Hervé-Mignucci and F. Mazza (2013), *Risk Gaps: Policy Risk Instruments*, Climate Policy Initiative.
- MIGA (2012), *Investment Guarantee Guide*, Multilateral Investment Guarantee Agency, World Bank Group.
- MIGA (n.d.), “Types of Coverage”, Investment Guarantees, Multilateral Investment Guarantee Agency Website, www.miga.org/investmentguarantees/index.cfm?stid=1797 (accessed 25 July 2014).
- Monk, A.H.B. (2013), “The Innovation Alliance”, Institutional Investor, 21 October, www.institutionalinvestor.com.
- Munich RE (2010), “First Performance Warranty Insurance Provided in the U.S. for Photovoltaic Panels”, Press Release, 7 October, www.munichre.com.
- Neil, R. (2014), “How to Untangle Yourself from Clean Energy Finance Jargon”, GreenBiz.com, 24 June, www.greenbiz.com/blog/2014/06/24/how-untangle-yourself-clean-energy-finance-jargon (accessed 16 July 2014).
- NREL (2013), “Update: SAPC Standard Contracts Now Available”, Solar Securitisation and Public Capital Finance, National Renewable Energy Laboratory, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy.
- OECD (2015, forthcoming), *Overcoming Barriers to International Investment in Clean Energy*, OECD Publishing, Paris.
- OECD (2014a), *Institutional Investors and Long-term Investment*, Project Report, OECD, Paris. www.oecd.org/finance/private-pensions/OECD-LTI-project.pdf.

- OECD (2014b), *Pooling of Institutional Investors Capital – Selected Case Studies in Unlisted Equity Infrastructure*, Report for the G20, April 2014, www.oecd.org/finance/OECD-Pooling-Institutional-Investors-Capital-Unlisted-Equity-Infrastructure.pdf.
- OPIC (n.d), “Regulatory Risk”, OPIC Website, www.opic.gov/what-we-offer/political-risk-insurance/types-of-coverage/regulatory-risk (accessed 16 July 2014).
- Parhelion (2012), *The Role of Insurance in Climate Policy*, Parhelion Underwriting, London.
- Parkinson, G. (2014), “CEFC Sponsors \$580m Clean Energy Fund, Australia’s First”, *RenewEconomy*, <http://reneweconomy.com.au>.
- Paton, J. (2014), “Australia’s Clean-Energy Bank Starts Fund with Manager”, *Bloomberg*, 21 July, www.bloomberg.com.
- SBA (n.d.), *Surety Bonds: The Basics*, The U.S. Small Business Administration, www.sba.gov/content/surety-bonds-basics.
- Shankleman, J. (2014), “Green Investment Bank mulls pension fund boost for offshore wind industry”, *Business Green*, 1 April, www.businessgreen.com.
- Streeter, W. (2014), “Credit Enhancement: The Missing Link in Infrastructure Finance”, Working Paper, Stanford Global Projects Center.
- Taylor, M. and D. Williams (2011), “PV Performance Guarantees: Managing Risks & Expectations”, *SOLARPRO*, June/July, 56-72.
- UNEP (n.d.), “Policy Risk Insurance Mechanism for Clean Energy Technologies”, Information Sheet, United Nations Environment Programme.
- Venugopal, S. and A. Srivastava (2012), “Moving the Fulcrum: A Primer on Public Climate Financing Instruments Used to Leverage Private Capital”, Working Paper, World Resources Institute.
- West, J. and A. Piramal (2013), “Cornerstone IPO Structure may be Asia’s Latest Export”, *Financial Times*, 15 March, 2013.



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