

# Renewable Energy Platform for Institutional Investors (REPIN)

## Phase 2 Analysis Summary

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### GOAL □

To simultaneously stimulate renewable energy deal flow and engage institutional investors in the financing of renewable energy projects

### CURRENT STAGE □

Idea/Concept stage

### SECTOR □

Renewable energy

### PRIVATE FINANCE TARGETS □

Commercial banks and developers with outstanding loans to renewable energy projects and institutional investors with interest in stable, long-term, and inflation adjusted cash flows

### GEOGRAPHY □

For pilot phase: South Africa

In the future: Middle-income countries deemed investable for institutional investors



**The Lab** is a global initiative that supports the identification and piloting of cutting edge climate finance instruments.

It aims to drive billions of dollars of private investment in developing countries.

## Acknowledgements

Information included in this report is based on high-level preliminary analysis, subject to changes based on the more in-depth analysis that would be performed during Phase 3 of The Lab assessment, provided Lab Advisors select this instrument.

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## SUMMARY

Renewable energy investments offer long horizons, predictable cash-flows, diversification, and excess yields. These attributes can align well with the needs of most institutional investors who manage over USD 70 trillion. However, despite this apparent match, renewable energy investment vehicles are not structured in a way that can attract institutional investment. At the same time, renewable energy financing relies on commercial banks that have a preference for shorter investment horizons and struggle to find suitable exit strategies to recycle their loan books at high velocity, preferences which can make renewable energy financing more expensive than it needs to be.

REPIN aims to facilitate transactions between institutional investors and project lenders to increase the scale of available financing for renewable energy and reduce its costs. REPIN is a flexible instrument that could encompass a variety of financial structures, each tailored to the renewable energy financing market and to investors' specific preference and needs in a given country. It could range from very simple project debt pass through to a full securitisation structure.

In South Africa, for example, while commercial banks are willing to recycle their lending capacity towards new renewable energy projects, the credit quality and size of their loans are not sufficient to access the bulk of the institutional investors market. In this context, a REPIN mechanism could provide investors with securities of a higher credit quality and larger size, by supporting the aggregation of small loans into a larger pool and providing further credit enhancement if the pool's credit rating is yet inadequate. As the cost of structuring such transactions and providing credit enhancement can discourage private banks from providing such support, public institutions could fill the gap and initiate the market.

REPIN's main point of strength is the scale of private resources that could be mobilized in emerging economies in a relatively short amount of time. In the case of South Africa, if successfully implemented, REPIN could mobilize USD 1.25 billion in the next five years, and increase commercial banks' current renewable energy financing by more than 20%. However, REPIN remains a very ambitious and complex proposal that would need a strong institutional support to overcome the many implementation challenges it would face.

## INSTRUMENT DESCRIPTION

*By facilitating institutional investment in renewable energy projects, REPIN aims to increase the scale of available financing and to reduce its costs*

Institutional investors like insurance companies and pension funds, who collectively manage over USD 70 trillion in assets, have an interest in increasing their allocation to opportunities with long-term tenors, predictable and stable cash-flows, diversification and excess yields as long as they are compliant with their investment mandates and limitation while avoiding excessive single project risks. While on the surface, these investment goals map well to the risks and returns of renewable energy, institutional investors are nevertheless not very active in directly or indirectly financing renewable energy projects as opportunities are very often too small in size and only few suitable fixed income products exist that allow institutional investors to engage in these types of activities at scale.

### INSTRUMENT OVERVIEW

The concept of the Renewable Energy Platform for Institutional Investors (REPIN), proposed by the European Investment Bank (EIB), aims to engage institutional investors in the financing of renewable energy projects to free-up balance sheet of project developers and project finance banks, reduce overall cost and thereby encourage new investment in the sector.

By improving the access to long-term capital and shortening holding periods for commercial banks, REPIN would foster the financing of new projects directly by freeing capital from refinancing transactions and channeling this into new projects, and indirectly by providing liquidity to the market so to increase the willingness of project finance lenders to finance new projects at a lower cost.

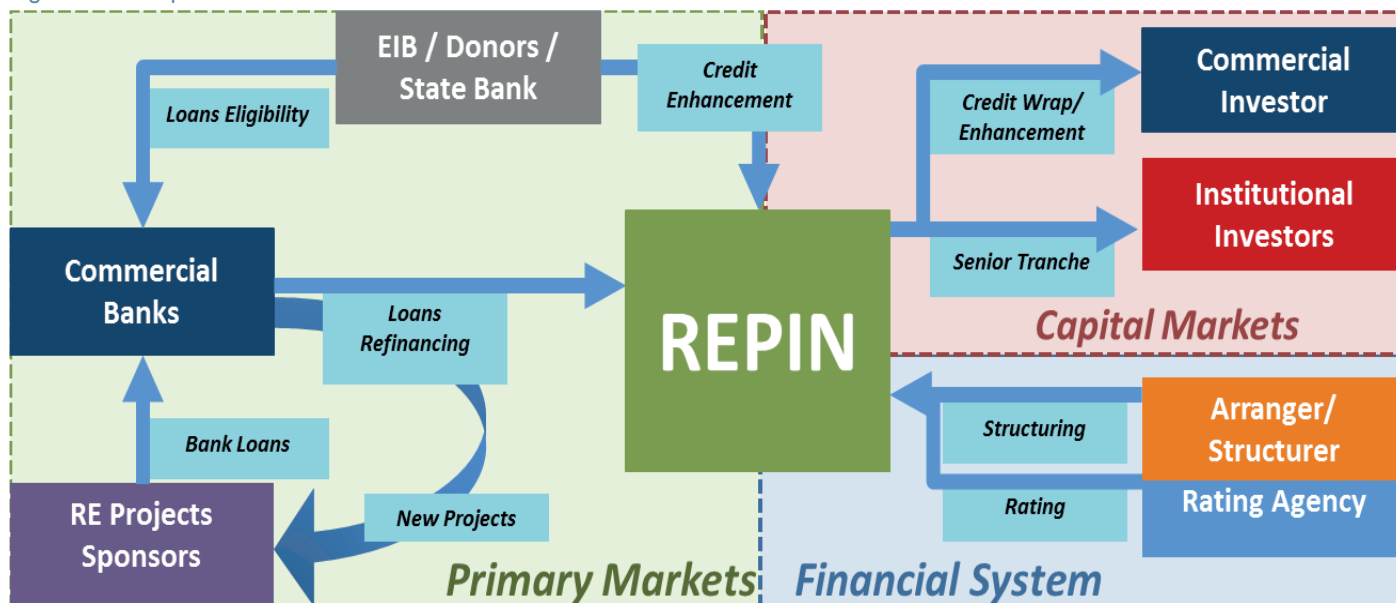
REPIN should be understood as an umbrella for multiple transaction vehicles that would be structured on a national/regional level in various ways to meet the different risk and reward appetites of a range of institutional investors. These could range from very simple project debt pass-through to a full securitization. When required, a REPIN mechanism could also include further forms of credit enhancement such as subordinated loans and guarantees.

### STAKEHOLDERS

In a REPIN mechanism, several stakeholders would need to cooperate as shown in Figure 1.

- ☒ **Project developers/commercial banks** would provide the facility's assets. This assumes the availability of loans with an attractive margin for a securitization or pass-through. The project developer/bank would also need to recognize the benefits of recycling capital from

Figure 1: Example of Loan Securitization Model



refinancing into lending for new clean energy projects in the country.

- ☒ **Institutional investors** would need to be willing to invest in long-term/low yielding diversified securities and their market appetite to do so would need to be tested.
- ☒ **A credit enhancement provider** (when needed) would need to absorb the first losses in case of defaults. Its investment in the structure guarantees the alignment of interests with those of other investors. This would typically be a commercial investor (such as mezzanine or hedge fund or an investment bank) but, in their absence, it could also be a public sector entity such as a development finance institution, donor entity or state bank.
- ☒ **An arranger** such as an investment bank or professional intermediary with the resources to structure and manage the facility, perform due-diligence and monitoring services, would be required. In order to align interests and provide comfort to institutional investors, the arranger could overlap (in full or partially) with the commercial investor.
- ☒ **A rating agency** (either at local or international level) that could help with the initial structuring of the transaction by identifying the most efficient ways to achieve the necessary rating uplift institutional investors demand, and then provide investors with official ratings for the notes.

#### TARGET COUNTRIES

The initiative, in its initial phase, targets developing countries with a significant pipeline of bank loans recently issued to renewable energy projects and an active institutional investor presence. To develop and assess the potential to pilot the REPIN concept we focused our analysis on a few countries where these requirements may be met: South Africa, Latin America (Mexico,

Colombia and Peru in particular) and India.

Market scoping and stakeholders' engagement, suggest that, in the immediate future, South Africa offers the best chance to bring a pilot transaction to the market: A strong policy support program with a tangible pipeline of new projects; a substantial issuance of project loans by commercial banks which would be willing to recycle from their balance sheet in the immediate future; and a developed domestic institutional investors' community that has already shown interest in these assets (see section below on a "Proposed Pilot Transaction" for more details on the South African market).

#### ROLE OF THE LAB

The Lab could support the implementation of a pilot REPIN mechanism in South Africa (see below) by helping to identify partnering institutions and, in particular, potential lenders, investors, and arrangers who would participate in the transactions. The Lab could also provide analytical support to identify and compare the most suitable and effective structures, given the specific market and barriers, that could mobilize the largest amount of private capital with the minimum amount of public support. The results of a pilot transaction exercise would also help to more clearly delineate the eventual need for public first loss finance or credit enhancement over the long or short term depending on the market context.

#### PROPOSED PILOT TRANSACTION

To explore the REPIN concept in a suitable context for a pilot, the scoping analysis has performed a preliminary model for a vehicle that would aggregate and refinance outstanding loans from South African commercial banks into a single portfolio and

issue senior notes aimed at local institutional investors.<sup>1</sup> While the exact financial structure will depend on the local market conditions at the time of the transaction, and would be the object of analysis in the next phase; the analysis here focuses on the market opportunity, expected financial performance and potential challenges.

## BACKGROUND ON SOUTH AFRICAN RENEWABLE ENERGY MARKET

In 2011, the Department of Energy in South Africa initiated a competitive bidding program (REIPPP) to allocate renewable energy projects to private producers. To date, the program has successfully concluded three bidding rounds allocating a total of 4GW of renewable power to 64 projects. The projects from the first two rounds have reached financial closure, mobilizing total capital of USD 9.5 billion. Currently, a further 1.5GW of projects allocated in Round 3, worth approximately USD 4.5 billion, are being financed and represent a potential pipeline for recycled capital out of a REPIN transaction (Eberhard et al. 2014).

**By ensuring this refinanced capital is also channeled towards green investments, REPIN could help to make approximately USD 3 billion available for new RE projects in South Africa.**

## REFINANCING OPPORTUNITIES

So far, local commercial banks have provided the majority (60%) of financing while institutional investors have provided only 5% of the primary direct investment. Bank loans valued at approximately USD 6 billion have been issued in the last 3 years (BNEF, 2014) with potentially half of that amount having already been distributed to a few long-term investors (via syndication and secondary sales) with an appetite for single project investments.

The remainder of this loan pool could be eligible for refinancing within the next 24 months. These loans have, on average, spreads of around 400 basis points (over the local floating rate), maturities of 15 years, and an average deal size of USD 200 million (loans are denominated in local currency) (BNEF, 2014; Eberhard et al. 2014). About 50% of loans have already been allocated by banks to buy-and-hold investors through syndication and private placements; hence it is likely that the size of outstanding loan amounts for any single issuance would be too small for any single name structure (e.g. a project bond). At the current initial stage of analysis, aggregating projects seems a more feasible solution.

## INTEREST FROM BANKS

Several banks (both from the private and public side) are reported to be interested in refinancing transactions and market experts have referred of a few initiatives that are being considered and

<sup>1</sup> Information on the context and market in South Africa has been gathered through interviews with selected market participants including representatives from Standard Bank; African Development Bank; a former fund manager of an infrastructure equity fund, Eskom, Bank of America - Merrill Lynch, and the Development Bank of Southern Africa.

could be closed in the immediate future. However, at the time of writing, no transaction has been completed and disclosed to the public – hence providing a benchmark for this analysis and for further modelling. Current scoping indicates a significant appetite from several banks in recycling their outstanding loans as current lending capacity for the projects that will be closed in the next rounds of the REIPP programme might prove inadequate. At the same time, it appears that private commercial banks' appetite to provide eventual credit enhancement to the transactions is very limited and might act as a bottleneck to potential transactions.

## CREDIT QUALITY RATING

The vast majority of these loans are not rated. However, they should be able to reach a BBB rating<sup>2</sup> as all the projects have a power purchase agreement (PPA) with the state-owned utility Eskom (rated Baa3 negative by Moody's; BBB- by S&P's), with a backstop support by the South African government (Baa1 negative by Moody's; BBB+ by S&P's).<sup>3</sup> Market participants indicate that only a few domestic institutional investors currently invest at the single projects level with a BBB risk appetite. The bulk of these investors' assets might need a minimum rating of "A" – hence indicating that with some form of credit enhancement towards the needed rating uplift, these loans could access a significantly larger investors' pool.

**Consequently, a REPIN mechanism, aggregating these loans and enhancing their overall credit rating, could facilitate re-financing transactions and make approximately up to USD 3 billion available for new RE projects in the country.**

## INTEREST FROM INSTITUTIONAL INVESTORS

The South African base of institutional investors remains the largest in Africa, with total assets of USD 700 billion under management, equaling 184% of GDP in 2012 (BAML 2014). Pension funds and insurers hold the lion's share, managing about 40% of assets, respectively. South African capital export regulation requires institutional investors to keep the majority of assets invested domestically. Insurers and pension funds may only invest 25% of their assets offshore and an additional 5% within Africa.<sup>4</sup> This implies that around USD 400 billion have to be invested in the country by pension funds and insurers alone – further underscoring the potential for RE investments in South Africa and a significant buyer's pool for the notes issued by a REPIN mechanism – however, their appetite for long-term diversified securities will need to be tested in the next phase.

<sup>2</sup> A BBB rating or above denotes an investment-grade rating required for most institutional investor in investment mandates.

<sup>3</sup> As a benchmark, a Concentrated Photovoltaic (CPV) project within the REIPPP (Soitec) was able to issue project bonds in 2013 that were rated Baa2.za by Moody's (investment grade) (Moody's, 2014).

<sup>4</sup> <https://www.resbank.co.za/RegulationAndSupervision/FinancialSurveillanceAndExchangeControl/FAQs/Pages/Portfolio%20investments.aspx>



## UNSUBSIDIZED FINANCIAL PERFORMANCE

**Data collected from capital market sources show margins are tight** – at roughly 400 basis points (over the floating rate) – given the competition between issuing banks. At the same time, any issuance out of a REPIN mechanism would need to compete with sovereign and corporate bonds and, as it would be considered structured credit, offer a premium, according to market participants, of at least 50bps above “A-rated” corporates and financials (currently at 150-200 over for 10yrs tenor).

**Preliminary modelling of potential transactions indicates that tight margins, market competition and transaction costs necessary to design the first transactions could compress returns available for the provider of the credit enhancement, making the venture unappealing for commercial private actors (investment banks, asset managers, hedge funds).**

Were this to happen, a public entity (regional or national development institution) could fill the gap and provide the necessary capital to facilitate transactions in the initial phase. In the medium-long term, the knowledge and liquidity created by the first transactions could help lower the returns required by the investors, while at the same time demonstrate the viability of the model and prompt more commercial players to consider the provision of credit enhancement.

## CONTEXT

*REPIN would need to meet investor risk/return expectations for emerging market infrastructure debt and work in countries with sufficient pipelines of suitable debt to re-finance.*

**REPIN’s basic assumption is the existence of a significant amount of RE debt that commercial banks would be willing to offload in order to finance new projects.** The debt would need to be suitable for re-structuring at long-term risk/return profiles amenable to local and international active institutional investors. Risk/reward expectations for the different investors groups may differ and may require different type of transactions.

Until now, infrastructure financing has been mostly provided by project sponsors’ equity and commercial banks through project loans, with project bonds playing a marginal role (van der Toorn B, 2014). In most markets the combined effect of the financial crisis and deleveraging that ensued (with the resulting increase in banks’ cost of capital and need for liquidity), together with the impact of current and emerging financial regulation, has induced commercial banks to limit their exposure to project finance by reducing volume and tenor of new financings or selling existing loans to external investors (Spencer & Stevenson, 2013). Conversely, even in the markets where commercial banks continue to play a leading role in project financing, their lending capacity available to new investments might be getting scarcer. In this context institutional investors have been hailed as the

actors most able to fill the financing gap with long-term and cheaper capital (OECD. 2013a).

As of 2011, this broad universe of different institutional investors held over USD 70 trillion in assets, whose allocation to infrastructure investments made up an estimated 1% (approx.) of total infrastructure investments (USD 72 billion). The majority was allocated to unlisted equity (USD 64billion) and the balance (USD 8billion) to infrastructure debt (OECD. 2013b). Not all institutional investors have a preference for long-term assets or appetite for REPIN’s long maturity assets: Nelson and Pierpont (2013) estimate that only two thirds of that total (USD 45.5trillion) could be considered as assets managed by investors with an appetite for long term infrastructure. For emerging markets, only 19 investors of 240 indicated a preference for private debt in 2014 (Preqin 2014).

**The key hurdle has been a lack of suitable investment vehicles at the scale and volume needed** to satisfy investor risk/return profiles, particularly in emerging markets. Individual deals are often too small and illiquid to attract institutional participation (Nelson and Pierpoint 2013, OECD 2014).<sup>5</sup>

**Finally, reliable and consistent policy commitments to support green infrastructure, and clear green infrastructure roadmaps that prompt the necessary deal flow are also necessary** (OECD 2012). This narrows the number of eligible emerging economies where a REPIN mechanism could be implemented to those that feature both an ambitious green infrastructure agenda and interest from domestic and/or institutional investors. Beyond the pilot phase, we have selected approximately 30 emerging countries based on the existence of a renewable energy policy framework (either a Feed-in Tariff or a tender policy) and a moderate level of political risk (e.g. the OECD export credit rating indicator lower than five on a scale zero to eight (OECD, 2014)).<sup>6</sup>

5 OECD 2014 Pooling of Institutional Investor Capital – Selected Case Studies in Unlisted Equity Infrastructure

6 These countries include lower middle-income: El Salvador, Ghana, Guatemala, India, Indonesia, Lesotho, Morocco, Nigeria, Philippines, Vietnam; Upper middle-income: Algeria, Azerbaijan, Botswana, Brazil, Bulgaria, China, Colombia, Costa Rica, Dominican Republic, Jordan, Kazakhstan, Macedonia, Malaysia, Mauritius, Mexico, Panama, Peru, Romania, South Africa, Thailand, Tunisia, Turkey. We have also included Chile although classified as a high-income country.

## INNOVATION AND BARRIER REMOVAL

*REPIN responds to institutional investors' need for higher yielding investment-grade assets, which could be met through an increase in both the scale and number of investable securities in the renewable energy markets. By creating liquidity in the secondary market, REPIN could also enable project lenders to provide more and cheaper financing to projects.*

### INSTRUMENT INNOVATION

REPIN's most innovative element is the implementation of an ambitious, albeit complex, financial structure (comprising aggregation, credit enhancement, credit structuring) on renewable energy assets in emerging markets for the first time.

To date, ongoing initiatives and transactions occurring in emerging markets have mostly focused on single projects or asset pools of limited size, facilitating financing for only a handful of projects. If successful, REPIN facilities could provide risk capacity and liquidity to several different project lenders at once, bridging the interests of institutional investors and financial lenders within a coherent framework and mobilizing a significant amount of financing to a large number of projects.

### BARRIERS ADDRESSED

Barriers directly addressed by the REPIN instrument include:

**Lack of investable infrastructure securities:** REPIN's main goal is to support or, when absent, introduce securities to the market that would allow the majority of institutional investors to commit long term resources to green infrastructure projects. Direct infrastructure investments are currently available only to a small number of investors with dedicated infrastructure investment teams and at least USD 50bl of assets under management. Other investors seem poorly served by existing instruments such as infrastructure funds (Nelson and Pierpont, 2013). In emerging markets, a REPIN mechanism's aggregation or bundling of projects would overcome the situation where not many projects are able to issue debt securities large enough (USD 50-100 million) to justify institutional investors' due diligence costs and meet their minimum allocation size (BNEF 2014c; Pension Denmark, 2014).

**High perception of single project risks (demand/technology/construction):** REPIN would either implicitly or explicitly improve the risk/return profile of infrastructure investments. Assets pooling and securitization provide structural credit enhancement even in the absence of explicit credit enhancement offered by public or private investors (by virtue of single-issuer diversification, and assets' transfer). If deemed necessary, REPIN could also feature specific credit enhancement provisions (e.g. investing in mezzanine notes or issuing guarantees). Developed at scale, REPIN would also improve the perception of liquidity risk by investors.

**Commercial banks liquidity constrains for long-term financing:** a REPIN mechanism would provide risk capacity and liquidity to commercial banks directly by offering them more options to sell their outstanding project finance loans in order to free-up capacity for new (and potentially more remunerative) project finance deals when they need to. REPIN's success in addressing this challenge will however depend on how credible banks perceive the facility's implied "take-out guarantee"<sup>7</sup> at the moment of the project financial closing.

**Lack of sufficient RE deal flow:** By providing an exit strategy for commercial lenders, REPIN would free up capacity for new infrastructure lending and reduce the refinancing premium that banks may charge. The effectiveness of REPIN in addressing this barrier would depend on the banks' willingness to channel proceedings from REPIN's support towards new renewable energy projects and their perception on the availability of a reliable exit strategy. Successful examples of such arrangements are available, however more work will be needed to assess how to structure the exact arrangements in each transaction, given mandates and expectations of each counterparty.

In addition the barriers REPIN's intended design already addresses, it could also directly address two others by adding supplementary features:

**Institutional mandates and internal organizations:** Many institutional investors' internal organization makes them very reluctant to venture into markets beyond their usual investment mandate (such as emerging markets, infrastructure, and clean energy). This is particularly true for pension funds in developed markets that use consultants and trustees to make their investment decisions. REPIN's success in addressing this barrier will depend on whether the level of comfort provided by EIB's, and eventually other partner institutions, involvement will be sufficient.

**Lack of standardization in infrastructure debt investments:** Heterogeneity of terms, asset quality and rating, performance estimations and benchmarks, make the assessment of each investment opportunity a cumbersome, time consuming, and expensive activity. This often discourages investors from considering debt infrastructure investments. REPIN could address this barrier by making sure the structures originated and the securities offered to investors remained simple and easy for investors to analyse.

### BARRIERS NOT ADDRESSED

Barriers not or only partially addressed by the REPIN instrument:

**Emerging markets perceived political risks:** A country's overall stability and level of political risk is one of the most important eligibility criteria that international investors consider

<sup>7</sup> Interviews and market outreach suggest that commercial banks will continue to price loans as long term commitments unless they strongly believe there is a guaranteed take-out in the market once the project enters its operation phase (Low Carbon Finance, 2014).

even before deciding whether to analyse the financial merit of an investment, and is probably the main reason for the exclusion of many emerging markets from institutional investors' current areas of activity (PensionDenmark, 2014). OECD data shows that more than half of "middle income" countries have a very high political risk indicator (six or above in a scale from zero to eight - OECD, 2014).

**Lack of stable clean infrastructure policy:** A REPIN mechanism could work only in countries where the government's commitment to support green infrastructure is clear, reliable and sufficient to cover incremental costs. A clear and reliable policy roadmap is essential to assure investors there will be a sufficient infrastructure pipeline whose projected financial profile will be consistent over the horizon of the investment. It is also essential in keeping perception of regulatory risk as low as possible, hence reducing the return required (BNEF 2014c; Frisari et al. 2013).

**Unfavorable financial regulation towards infrastructure holdings:** Financial regulation for both commercial lenders and institutional investors tends to penalize long-term, illiquid investments such as infrastructure. As most of this regulation is structured to ensure stability and solvency of markets and investors, there is little potential for improvement on this front (BNEF 2014c; Nelson and Pierpont 2013).

## IMPLEMENTATION AND RELATED CHALLENGES

*REPIN's ambitious scale and its need to engage several market institutions increase the complexity of the execution. The backing of national or international public institutions could help facilitate a prompt implementation.*

**Given the number of stakeholders that need to be identified and engaged and the complexity of the structure to be set up, a conservative estimate of the time needed to execute the pilot in South Africa is between six and 18 months from the time of writing.** As a reference, the European Union Project Bond Initiative (PBI) was officially announced in September 2010, the pilot phase launched in July 2012, and the first deal closed in June 2013 (EY, 2014). In India, the Partial Credit Guarantee Scheme (PCG) between the Asian Development Bank and the government-owned India Infrastructure Finance Company Limited to facilitate the issuance of RE project bonds will close the first deal in the last quarter of 2014, nearly three years after being launched (ADB, 2012). Both examples experienced delays due to difficulties in sourcing initial deals, in part due to challenging macro-environment conditions at the time of launch. The Lab development process may expedite this timeframe for REPIN, provided that the proponent (EIB) and REPIN's stakeholders can find and engage target countries and operational partners.

**The proponent (EIB) is already an active lender in South Africa and has begun the process of engaging with potential emerging market counterparties, in particular commercial banks and partner DFIs (both regional and national).** However to date, most discussions with investors and fund managers with regard to pilot transactions and/or a platform have focused on Western Europe. In emerging economies, more detailed discussions have begun within the context of The Lab's work but, in the case of the candidate for the pilot, have already identified key potential transaction partners such as leading commercial banks in the country (e.g. Standard Bank) and regional and national development financial institutions (e.g. African Development Bank and the Development Bank of Southern Africa). Each country and regional market will require detailed needs assessments and tailored solutions for their specific contexts. Further, REPIN will require additional feedback from partners before a more detailed implementation plan may be formulated.

**REPIN is a platform of multiple parties implementing a secondary market solution and so it will be important that there is a review of each part of the facility that assesses the strength of the implementing organization.** As a primary lending institution, the proponent has less experience in operating in secondary re-financing markets although there has been a concerted effort in recent years to become more active in this area through, for example, the PBI and other credit enhancement initiatives. For pass-through notes, the EIB would be able to leverage its significant experience and brand recognition for conducting due diligence that should offer comfort to potential investors, particularly those unfamiliar with emerging markets. Potential partner credit enhancement institutions in the target regions (e.g. AfDB and DBSA in South Africa, ADB and IDB in India and Mexico in a subsequent phase) have strong track records and relations with commercial banks and investors that would strengthen implementation. Identified commercial banks and potential fund managers also have strong credentials with it comes to structuring loans and their willingness to lend to more RE projects.

### IMPLEMENTATION CHALLENGES

- **Sourcing securities at adequate rate and tenor:** Justifying start-up and maintenance costs in a REPIN mechanism requires a predictable and timely pipeline of deal flow to attract mainstream institutional investors. The significant growth potential and project financing for RE in India was a key factor in supporting the set-up of the ADB PCG scheme. Beyond the limitations of potential deal flow, there is the need for adequate margins and tenors. The cost of debt on the primary loans needs sufficient margin to justify rates of return commensurate with project operational risks and country risks, while paying for the cost of the structure and the eventual credit enhancement.

For a REPIN mechanism in South Africa, up to 18GW of RE capacity additions are expected from 2010 out to 2030 under the Ministry of Energy Integrated Resource



Plan (IRP). Initial scoping and simulations show that the current expected margin of 150 basis points,<sup>8</sup> between the average yield of projects' bank loans in South Africa and the senior notes, could prove quite tight to ensure the appeal of the facility for private actors at commercial terms.

□ **Finding key transaction parties including servicers, managers, and providers of credit enhancement:**

Management and underwriting of the assets in the portfolio requires experienced (and possibly rated) asset managers that may manage both origination and potential credit enhancement. An investment bank or an asset manager with structuring capacity and an appetite for mezzanine/sub-investment grade risk (so as provide a credit wrap if required) could serve well – in the initial phase, absent such appetite from the private sector, the role could be filled (or facilitated) by a public sector entity aiming to deliver demonstrative transactions. Whether private or public, this entity would need to understand project finance and the decision making drivers for the commercial banks whose assets are envisaged for offloading as well as the domestic institutional investor market and their risk-reward appetites. Absent these skills in house, it would need to know how to procure them externally and integrate them into the structuring process.

In a next phase of analysis, the REPIN mechanism would need to identify commercial arrangers and structurers who recognise the value in underwriting a portfolio and cooperate in comparing the alternative options that could deliver the expected mobilization of institutional investors in the more cost-effective way.

□ **Channelling of proceeds towards new lending to RE projects:** REPIN's ambition is to enable additional lending to RE projects to be carried out by the commercial bank through an inverse flow from the re-financing of existing loans. If REPIN were to make this a contractual condition of utilizing the re-financing platform, it may place too onerous a burden on the part of commercial banks to commit to greater deal-flow, given policy risks and development risks. Such an arrangement would require agreement on future lending provisions between the project finance and treasury departments of banks that may be difficult to implement when the freed up capital will be fungible on the bank's balance sheet.

REPIN could arrange a commitment with less legal standing than a contractual condition, such as a memorandum of understanding, that would be tied to

pre-committed environmental lending programmes such as those associated with green bonds issued by the EIB, World Bank/IFC and some commercial banks such as BAML and Lloyds. However, a hallmark of these programmes is their breadth across environmental asset classes and a pure focus on renewable energy may be difficult to achieve.

□ **Availability of credit enhancement tools:** credit enhancement will be necessary whenever aggregation and/or securitization of assets are not enough to provide the necessary rating uplift. Given the tight margins, though, its cost, if excessive, might compromise the financial viability of the structures and make them unattractive for the private sector. In such instances, these provisions may need to be below private market rates in the initial phase in order to kick-start the refinancing of capital among banks. In the longer-term the cost would depend on the need to achieve target returns or credit ratings for the issuance.

If commercial private actors are not willing to provide the needed credit enhancement, or their required compensation makes the transactions unable to attract investors, public agencies such as national development banks and international institutions could support initial transactions by providing credit enhancement.

□ **Finding markets with stable political and macroeconomic environments and enforceable legal structures for securitizations:** A key aspect of securitization in emerging markets is the ability of credit ratings on the notes to be several notches above the sovereign credit rating due to the recourse to the assets and how they may perform on a stand-alone basis in times of economic stress (Fitch Ratings 2013). Macroeconomic risks such as increased inflation, interest rates rises, devaluation, deflation, unemployment etc. all have greater variability in emerging markets and drive stress and/or loss scenarios that are applied by credit rating agencies. In addition, the transfer of assets to an individual entity for notes issuance, and adequate access to these assets in the case of insolvency of counterparties, needs to be enforceable and timely. A 2010 review found weaknesses in the regulatory framework for securitization markets in many emerging market jurisdictions, especially with regard to the quality of disclosure, a comprehensive framework for key participants in the securitization process and business conduct obligations (IOSCO 2010).

In its initial phase REPIN mechanisms could focus on stable emerging markets (e.g. South Africa, Mexico) to test the concept and structures - implementing refinancing transactions in sub-investment grade country would require significant additional structuring (such as offshore escrow accounts and most likely a

<sup>8</sup> Initial market assessment indicates the cost of capital for project finance is around 400 basis points (over local money market rates) while the required yield from senior investors in structured credit transactions should be closer to 250 basis points (over floating rate).

transfer & convertibility political risk insurance).

- **Manage prepayment risk and default scenarios on senior tranche expected returns:** expected prepayment and default risk can have a significant impact on institutional investors' required returns and therefore on the cost of the facility senior tranche.

First implementation of a REPIN mechanism would need a careful assessment of context-specific prepayment and default scenarios while, at the same time, procedures to manage such scenarios need to be in place in order to mitigate investors' risk perception.

- **Hedging currency risks:** The long maturity of infrastructure debt significantly complicates the management of this risk as risk mitigation instruments such as derivatives (currency swaps and forwards) do not typically cover such long horizons or can be extremely expensive.

In its pilot phase, a REPIN mechanism might side-step this issue by focusing onto markets with a strong domestic investor base or with projects' financing and contracts denominated in hard currencies. In a second stage, the currency issue will need to be addressed by evaluating investors' appetite for local currency fixed income securities on one side, and available currency hedging instruments on the other.

## PRIVATE FINANCE MOBILIZATION POTENTIAL AND OTHER POSSIBLE IMPACTS

*If successfully implemented REPIN could increase current volumes of renewable energy financing provided by commercial banks by more than 20% in its pilot phase and significantly more in the medium-long term.*

### UNSUBSIDIZED FINANCIAL PERFORMANCE

An initial assessment based on existing suitable debt securities shows that if credit enhancement is provided at market terms (e.g. at banks' cost of capital), it might be very difficult to match required returns from the senior investors and/or providers of the first-loss capital. In the short term, initial transactions might need support by international or regional public finance that would demonstrate the viability of large – scale refinancing, that may facilitate a more amiable project finance and monoline/private guarantee market to emerge.

### CATALYTIC POTENTIAL

We have assessed the **potential of a pilot REPIN facility to re-finance RE project debt in South Africa out to 2020**. USD 6 billion of loans have been issued in the last 3 years with potentially half of that total eligible for refinancing in the next 24 months.

Expert feedback from local commercial banks has pointed to the potential of a re-financing facility offering a buy-out for below optimal projects at a potential issuance rate of USD 250 million per annum out to 2020, and USD1.25 billion in total for a pilot facility (approximately equal to 20% of the overall primary market issuance). In the absence of in-depth modelling of the viability of aggregating and packaging these assets to sell at rates attractive to investors, we have adopted the public finance contribution proportion similar to the EIB PBCE. Against a typical subordinated debt or guarantee position of 15-20% of the project capital structure would need to have a capacity for approximately USD 250 million.

### TRANSFORMATIVE POTENTIAL

Country level projections on 2030 gross capacity additions are not available. Taking emerging market share of regional projections by BNEF provides a total RE investment market of USD 2.5 trillion between 2013 and 2026. Taking a typical 70:30 debt/equity split for project finance, if REPIN-like transactions were to refinance half this debt, this would provide a market potential of USD 891 billion. Removing more developed emerging countries such as China and Brazil from this equation provides a market potential of USD 292 billion.

This USD 292 billion of re-financing identified as market potential for REPIN type facilities, could free up capital for 259 GW of new projects, that would theoretically reduce emissions by 508MT CO<sub>2</sub> overall and 36MT on an annualized basis.

### OTHER IMPACTS

Indirect impacts will significantly depend on the exact structuring of the initiative and the single transactions. Specific eligibility requirements and conditions imposed could ensure that the commercial banks' financial capacity freed up through the REPIN **refinancing is channeled towards more clean energy investments** in the local market, hence increasing financing available for project sponsors active in the country and reducing the cost of capital they face.

With credit enhancement and de-risking offered by public providers, the main potential negative indirect impact is **□moral hazard□** – the risk that investors and lenders will bring forward low quality or higher-risk investments only because the excessive risk can be transferred to the public actor. Moral hazard can be prevented or mitigated by ensuring the interests of both public and private actors are aligned (Hervè-Mignucci et al. 2013). REPIN's design already requires that, when credit enhancement from public investors is considered, the engineer of the transaction or another commercial investor would have to participate in the transaction and take, at least, the same amount of risk as the public actor.

## CONCLUSIONS AND NEXT STEPS

REPIN's main point of strength is the scale of private resources that could be mobilized towards renewable energy investments in emerging economies in a relatively short amount of time, by facilitating transactions between willing institutional investors looking for long term/low risk assets, and commercial banks eager to recycle their lending capacity towards new projects.

- ☒ In several emerging economies, policy frameworks for renewable energy investments are already in place and transactions are occurring – however at a pace and scale that could be greatly increased.
- ☒ There is a significant interest from commercial banks that would need to recycle the resources they have committed to existing projects towards new renewable energy opportunities.
- ☒ There is appetite from both domestic and international institutional investors in increasing the allocation to these assets in a way that is compliant with their investments' mandates and limitation; while avoiding excessive single project risks.
- ☒ There is support from development banks and donors as such facilities could provide a very efficient way to mobilize capital given their high leverage potential.

However, REPIN remains a very ambitious and complex proposal that would need a strong institutional support from several institutions to overcome the many implementation challenges it would face.

## NEXT STEPS

In particular, in the next few months, the preparation of a pilot transaction for REPIN would need the following actions:

- ☒ Identify commercial partners for sourcing of loans, structuring and management of the facility, placing of the securities with suitable investors;
- ☒ Identify potential investors and test market appetite;
- ☒ Identify suitable providers of the eventual credit enhancement and its cost;
- ☒ Prepare demonstration transactions: model economic and financial feasibility of alternative solutions (given the available credit enhancement) and what a prospective credit rating may be;
- ☒ Define contractual arrangements and legal issues, including eventual provisions for the support towards new renewable energy projects;
- ☒ Test whether pilot scheme should be primarily targeted at local or international institutional investors; also evaluate whether the instrument that is to be offered to investors should be a private instrument or a listed security.

## INDICATOR ASSESSMENT SUMMARY

CRITERIA	INDICATOR	ASSESSMENT	COMMENTS/RATIONALE
Innovative	Addresses: Lack of investable securities	High	REPIN will support issuance of diversified, low-risk and investment grade securities
	Addresses: High single project risks	High	Assets pooling and direct credit enhancement significantly reduce single project risks
	Addresses: Increasing banks' liquidity	High	Direct refinancing frees-up banks' capacity
	Addresses: Lack of RE deal flow	High	Currently institutional investors have limited mandates to invest in low carbon products, however, interest is growing and REPIN mechanism could change investors' behavior and organizational inertia.
	Addresses: Overcoming institutional mandates inertia	Moderate	Currently institutional investors have limited mandates to invest in low carbon products, however, interest is growing and REPIN mechanism could change investors' behavior and organizational inertia.
	Addresses: Lack of standardization	Moderate	Project heterogeneity could be tolerated in a pooled vehicle but increases complexity
	Addresses: Mitigating emerging markets political risks	Low	REPIN could have little impact in countries deemed as non-investable for high political risks or policy uncertainty
	Addresses: Supporting clean infrastructure policy	Low	
	Addresses: Unfavorable financial regulation	Low	REPIN could have little impact on how financial regulation treats infrastructure investments
	Instrument Innovation	Moderate to High	Instrument nature and structure not new, but if successful it would be the first instrument working at this scale in emerging markets.
Actionable	Time to implementation	6-18 months	Complexity of structure and large number of stakeholders to be engaged. Consideration based on similar initiatives (PBI in Europe; ADB/IIFCL in India)
	Strength of implementation plan	Moderate	Given the early stage, the pilot phase will rely on commercial banks providing data and commitments for a realistic reference scenario and arrangers to assist in detailed modelling of all options.
	Strength of implementing organization	Moderate to High	Proponent has significant experience with the instrument but working in emerging markets will also require scouting for several partner institutions with a significant experience in the countries listed for the pilot.
	Fit to national policy environment	High	Countries identified (SA) for pilot phase have ambitious targets for renewable energy capacity and favorable conditions for institutional investors engagement.
Catalytic	Private finance mobilized	\$1.25 billion	This assumes a potential issuance of refinanced debt of USD 250 million per year in SA.
	Public finance needed	\$ 200 million	If an initial credit enhancement were needed by public entities on 15% of assets, achieving this target for the pilot would require public money commitment of approximately USD 200ml.

CRITERIA	INDICATOR	ASSESSMENT	COMMENTS/RATIONALE
Transformative	Market potential in 2030	\$300 billion	Market potential that REPIN type facilities could be mobilized through refinancing given the projected investments in RE projects in middle income emerging economies (excluding Brazil and China).
	Mitigation impact (potential)	508MT CO2 saved	USD 292 billion of re-financing identified in the market potential for REPIN type facilities, frees up capital for 259 GW of new projects, that would theoretically reduce emissions by 508MT CO2 overall and 36MT annualized
	Local development impact	Green jobs, technology cost reductions, liquidity in local financial market	Local impacts assume refinancing facilitate by REPIN type facilities is channeled towards more clean energy investments in the local market
	Unsubsidized financial performance	NA as no commercial transactions have been closed yet.	However, initial assessment shows that if credit enhancement is provided at market terms, it might not be possible to match required returns from the senior investors and/or providers of the first-loss capital



## REFERENCES

- ADB. 2014. Personal communication on August 4th 2014, Asian Development Bank.
- ADB. 2012. India: India Infrastructure Project Financing Facility. Project Number: 40655. Completion Report. Asian Development Bank: Manila. November 2012. <http://www.adb.org/sites/default/files/projdocs/2012/40655-013-ind-pcr.pdf>
- AfDB. Personal communication on July 21st and September 2nd 2014, African Development Bank.
- BAML. 2014. Personal communication on September 22nd 2014, Bank of America-Merrill Lynch.
- BlackRock. 2014. Personal communication on September 11th 2014, BlackRock Infrastructure Investment Group.
- Bloomberg New Energy Finance (BNEF). 2014a. Blueprint for a Big Green Bucket: Refinancing Clean Energy Debt to Free Development Finance Balance Sheets for Climate-Related Lending. Bloomberg Finance, March 2014.
- Bloomberg New Energy Finance (BNEF). 2014b. Green Bonds Market Outlook 2014. Bloomberg Finance, June 2014. Available from: <http://about.bnef.com/white-papers/green-bonds-market-outlook-2014/content/uploads/sites/4/2014/06/2014-06-02-Green-bonds-market-outlook-2014.pdf>
- Bloomberg New Energy Finance (BNEF). 2014c. Trends in Institutional Investment in Clean Energy. Bloomberg Finance, July 2014.
- Clean Infra Partners. 2014. Personal communication on September 26th 2014, Clean Infra Partners.
- DBSA. 2014. Personal communication on October 2nd 2014. Development Bank of Southern Africa.
- Eberhard A., Kolker J., Leigland J. 2014. South Africa's Renewable Energy IPP Procurement Program: Success Factors and Lessons. World Bank Group: Washington DC. May 2014. Available from: <http://www.gsb.uct.ac.za/files/PPIAFReport.pdf>
- Energy Transition Advisors. 2014. Personal communication on August 19th 2014, Energy Transition Advisors.
- EY. 2014. Ad-hoc audit of the pilot phase of the Europe 2020 Project Bond Initiative. Final Report. EY: London. 17 June 2014. [http://ec.europa.eu/dgs/economy\\_finance/evaluation/pdf/mid-term\\_eval\\_pbi\\_pilot\\_phase\\_en.pdf](http://ec.europa.eu/dgs/economy_finance/evaluation/pdf/mid-term_eval_pbi_pilot_phase_en.pdf)
- Fitch Ratings 2013. Criteria for Rating Securitizations in Emerging Markets. Fitch Ratings: Global. June 2013. Available from <https://www.fitchratings.com/jsp/general/Research>.
- Frisari G., Hervé-Mignucci M., Micale V., Mazza F. 2013. Risk Gaps: A Map of Risk Mitigation Instruments for Clean Investments. Climate Policy Initiative: Venice. January 2013. Available from <http://climatepolicyinitiative.org/wp-content/uploads/2013/01/Risk-Gaps-A-Map-of-Risk-Mitigation-Instruments-for-Clean-Investments.pdf>
- Hervé-Mignucci M., Frisari G., Micale V., Mazza F. 2013. Risk Gaps: First-Loss Protection Mechanisms. Climate Policy Initiative: Venice. January 2013. Available from <http://www.climatepolicyinitiative.org/wp-content/uploads/2013/01/Risk-Gaps-First-Loss-Protection-Mechanisms.pdf>
- Hg Capital. 2014. Personal communication on September 11th 2014, Hg Capital.
- Kaminker, C. and Stewart, F. 2012. The Role of Institutional Investors in Financing Clean Energy. OECD Working Papers on Finance, Insurance and Private Pensions, No.23, OECD Publishing. Available from [http://www.oecd.org/environment/WP\\_23-TheRoleOfInstitutionalInvestorsInFinancingCleanEnergy.pdf](http://www.oecd.org/environment/WP_23-TheRoleOfInstitutionalInvestorsInFinancingCleanEnergy.pdf)
- 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. Available from <http://dx.doi.org/10.1787/5k3xr8k6jb0n->
- IADB. 2014. Personal communication on July 21st and September 8th 2014, InterAmerican Development Bank.
- IOSCO 2010. Emerging Markets Committee of the International Organization of Securities Commissions. International Organization of Securities Commissions: Madrid. October 2010.
- Low Carbon Finance. 2014. Workshop EIB & Low Carbon Finance REPIN. Summary Report. June 5th 2014. London.
- Lowder, T., Mendelsohn, M. 2013. The Potential of Securitization in Solar PV Finance. NREL Colorado. December 2013. Available from [www.nrel.gov/publications](http://www.nrel.gov/publications)
- Mallo, D. 2012. New Sources of Capital For Project Finance: Oaxaca II and IV Case Study. Societe Generale, Paris. Available from: [http://www.platts.com/im.platts.content/products/services/conferenceandevents/2012/pc229/presentations/daniel\\_mallo.pdf](http://www.platts.com/im.platts.content/products/services/conferenceandevents/2012/pc229/presentations/daniel_mallo.pdf)
- McKinsey. 2014. Risk in Emerging Markets. The way forward for leading banks. McKinsey Working Papers on Risk, nr 46. McKinsey, New York.
- Moody's. 2013. Rating Action: Moody's assigns Baa2.za rating to ZAR1.0 billion notes for Touwsrivier solar project in South Africa. Moody's. April 2013.

- Nelson D, Pierpont B. 2013. The Challenge of Institutional Investment in Renewable Energy. Climate Policy Initiative: San Francisco. March 2013.
- OECD. 2012. G20/OECD Policy Note on Pension Fund Financing for Green Infrastructure and Initiatives. OECD: Paris. June 2012. Available from: <http://www.oecd.org/pensions/private-pensions/S3%20G20%20OECD%20Pension%20funds%20for%20green%20infrastructure%20-%20June%202012.pdf>
- OECD. 2013a. The Role of Banks, Equity Markets and Institutional Investors in Long-term Financing for Growth and Development. Report for G20 Leaders. OECD: Paris. February 2013. Available from: <http://www.oecd.org/finance/private-pensions/G20reportLTFinancingForGrowthRussianPresidency2013.pdf>
- OECD. 2013b. Annual Survey of Large Pension Funds and Public Pension Reserve Funds. OECD: Paris. October 2013. Available from: <http://www.oecd.org/daf/fin/private-pensions/LargestPensionFunds2012Survey.pdf>
- OECD, 2014. Prevailing Country Risk Classification. OECD Export Credit Data. OECD: Paris. July 2014. <http://www.oecd.org/tad/xcred/cre-crc-current-english.pdf>
- PensionDenmark. 2014. Personal communication on September 10th 2014, PensionDenmark.
- Reuters. 2012. Fitch affirmed Breeze Finance S.A.'s bonds; Outlook Negative. Available from <http://www.reuters.com/article/2012/11/16/idUSWLA651420121116>
- Reuters. 2013. Fitch affirms CRC Breeze Finance S.A.; Outlook Stable. Available from: <http://www.reuters.com/article/2013/11/07/fitch-affirms-crc-breeze-finance-sa-outl-idUSFit67581520131107>
- Spencer T., Stevenson J. 2013. EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response? IDDRI- Science PO: Paris. April 2013. Available from: [http://www.iddri.org/Publications/Collections/Idées-pour-le-debat/WP0513\\_TS%20JS\\_financial%20regulation.pdf](http://www.iddri.org/Publications/Collections/Idées-pour-le-debat/WP0513_TS%20JS_financial%20regulation.pdf)
- Standard Bank. 2014. Personal communication on September 8th and 18th 2014, Standard Bank.
- Standard & Pooors. 2012. How Europe's New Credit Enhancements For Project Finance Bonds Could Affect Ratings. Credit FAQs. November 2012. Standard & Pooors. [http://www.eib.europa.eu/attachments/standardpooors\\_new\\_credit\\_enhancements\\_for\\_projects\\_20121113.pdf](http://www.eib.europa.eu/attachments/standardpooors_new_credit_enhancements_for_projects_20121113.pdf)
- Standard & Pooors. 2013. SolarCity LMC Series I LLC (Series 2013-1). Available from [www.standardandpooors.com/ratingsdirect](http://www.standardandpooors.com/ratingsdirect)
- UK DECC. 2012. Intervention Summary: UK-ADB Private Sector Guarantee Partnership. UK DECC. <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/international-climate-change/4781-business-case-for-india-solar-power-generation-gua.pdf>
- Van der Toorn B. 2014. Taking advantage of debt financing and other investment options. ING: Amesterdam. January 2014. Available from: <http://www.platts.com/IM.Platts.Content/ProductsServices/ConferenceandEvents/2014/pc479/presentations/Bert-van-der-Toorn.pdf>