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Researching Capital Markets and Financial Services

Research Report
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Financing South Africa's Just Energy Transition

Capital Market developments to scale private sector mobilisation

Commissioned by

THE AFRICAN CLIMATE FOUNDATION

About Intellidex

Intellidex is a leading research and consulting firm that specialises in financial services and capital markets. Its analysis is used by companies, investors, stockbrokers, regulators, policy makers and companies in South Africa and around the world. It has offices in Johannesburg, London and Boston.

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Abbreviations

ADB	Asian Development Bank
AFD	Agence Française de Développement
AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
ASISA	The Association for Savings and Investment South Africa
BASA	The Banking Association South Africa
Batseta	Council of Retirement Funds of SA
CBI	Climate Bonds Initiative
CEMBI	Corporate Emerging Market Bond Index
COP26	2021 United Nations Climate Change Conference
COSATU	Congress of South African Trade Unions
DBSA	Development Bank of Southern Africa
DFI	Development Finance Institution
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EMs	Emerging markets
FSCA	Financial Sector Conduct Authority
GEPF	Government Employees Pension Fund
GDP	Gross domestic product
IDB	Inter-American Development Bank
IDC	Industrial Development Corporation of SA
IsDB	Islamic Development Bank
JET	Just energy transition
JETP	Just energy transition partnership
JETP-IP	Just energy transition partnership investment plan
KfW	KfW Development Bank
NDB	New Development Bank
NT	National Treasury
PCC	Presidential Climate Commission
PCFTT	Presidential Climate Finance Task Team
REIPPP	Renewable Energy Independent Power Producer Programme
SARB	South African Reserve Bank
SAVCA	Southern African Venture Capital and Private Equity Association
TCFD	Task Force on Climate-Related Financial Disclosures
UNFCCC	United Nations Framework Convention on Climate Change

1. Executive Summary

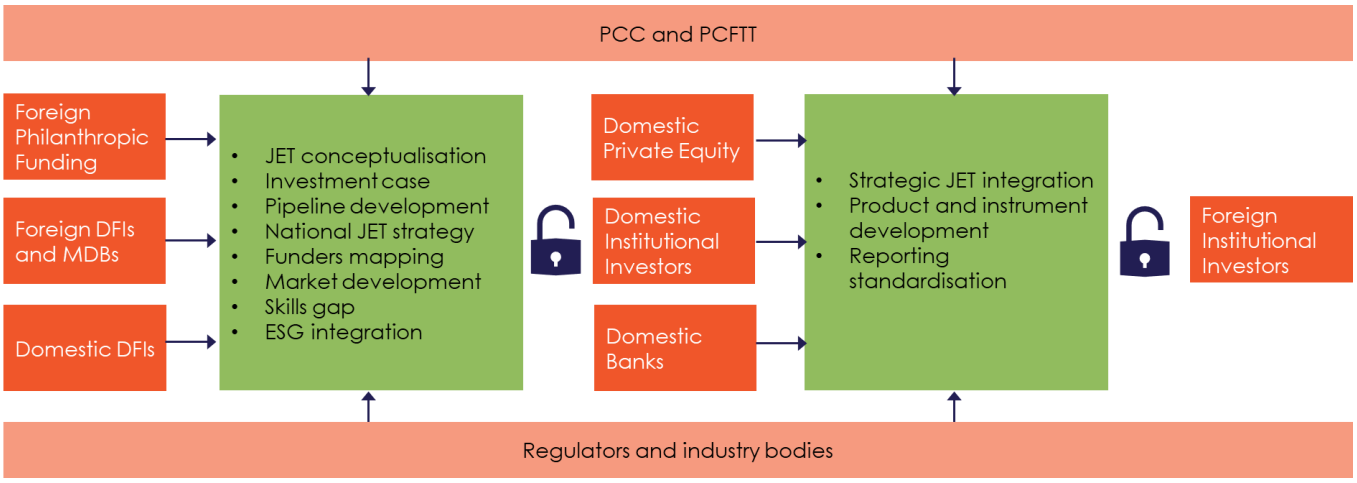
South Africa needs to unlock an enormous amount of financing from various sources of capital, both domestic and foreign, to fund its just energy transition. The highly complex process that will unfold over the next three decades will require concerted efforts from all stakeholders in the financial ecosystem to maximise the probability for South Africa to successfully transition to a net zero economy. Financing is required at scale, continually, in a way never seen before and will not be able to rely on the public sector.

While South Africa has pioneered a strong demonstration case for renewable energy development in the past decade with the various renewable energy independent power producers' procurement bid windows, the additional electricity capacity generated during this time is only a fraction of what is required in the years to come. Wider assets will need to be financed, particularly transmission assets. Moreover, to ensure that South Africa's evolution from a highly constrained yet carbon-intensive market to a flourishing low carbon economy is achieved in a just way, capital allocators must engage with innovative financing strategies to help bridge the gap between traditional philanthropic funding, development aid and public sector financing on the one end of the spectrum, to commercial investors on the other end. Mobilising between R4tn and R8.5tn for the just energy transition will be no easy feat.

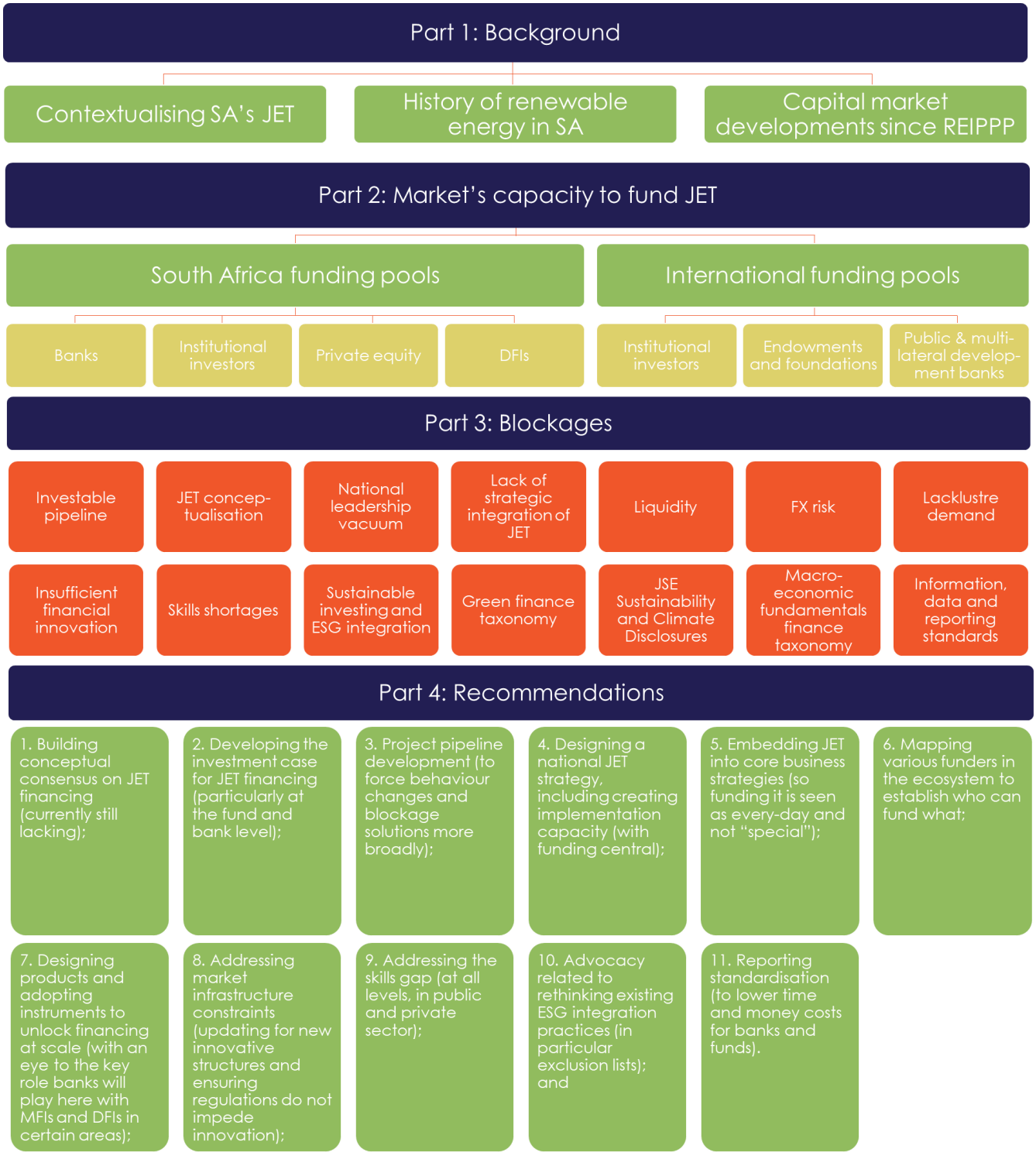
There are several blockages in the existing capital market landscape that prevent stakeholders across the financial sector from fully engaging with and participating in the just transition. These blockages include lack of investable pipeline, ambiguity around JET conceptualisation, a leadership vacuum, lack of strategic integration of JET, issues related to liquidity, FX risks and lacklustre demand, insufficient financial innovation, skills shortages, sustainable investing and ESG integration practices, the green finance taxonomy, JSE Sustainability and Climate Disclosures, poor macroeconomic fundamentals, and poor-quality data.

Policy makers and the private sector need to develop the solutions to each of these blockages. Some hurdles will be easier to overcome than others, yet with collaborative efforts between private and public sector actors, as well as partnerships between capital providers along the entire spectrum of capital – from philanthropic funders right through to commercial investors – progress can be made to ultimately mobilise funding at scale. Banks will play a particularly important role in acting as mass-intermediation machines rather than simply capital allocators on the balance sheet. Onshore fund managers will need to think carefully about allocations and needing to be "overweight" JET assets versus others while offshore fund managers (and in particular consultants, trustees and others) will need to understand that South Africa is on a pathway that involves holding carbon intensive assets to start.

Figure 1: Unlocking financing at scale for JET



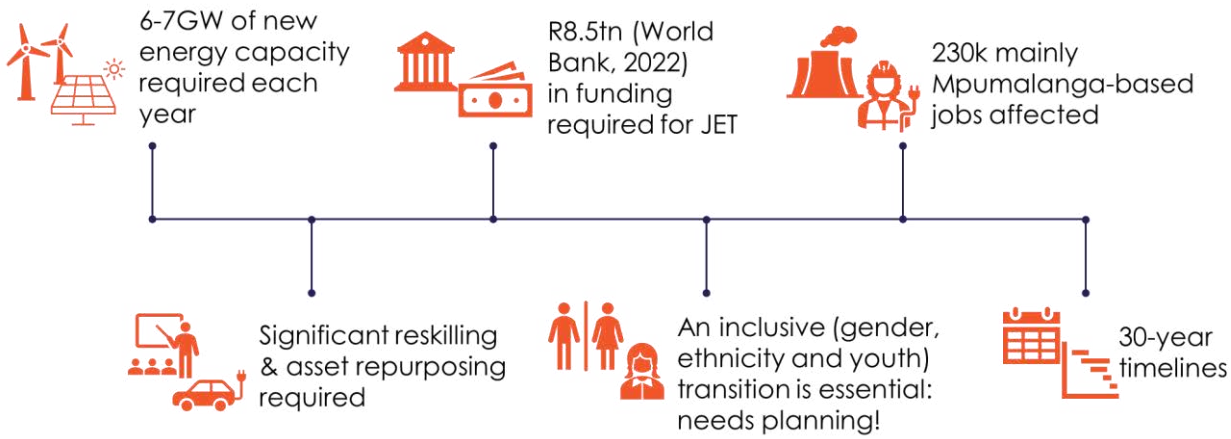
The structure of this report is as follows:



2. Introduction

The Just Energy Transition (JET) requires substantial quantities of new finance, continually, over a long period of time. Transitions could take 30 years for emerging markets (EMs) such as South Africa and estimates range on the investment needed for the country from R4tn to R8.5tn. It will be a steady pathway towards net zero over this period as easy and hard challenges are tackled. Public sector-facilitated financing is currently given most prominence in terms of funding the transition given the unique position South Africa has found itself in following the creation of the Just Energy Transition Partnership (JETP) at COP26 in Glasgow. However, the scale of capital required means that the private sector will always play the largest role in financing the JET. We therefore need to consider not only public sector financing, but also how private sector financing of JET can be catalysed and most importantly scaled in South Africa. Many of the lessons we outline and recommendations we make in this paper are applicable globally to EMs for their transitions, in particular other countries exploring JETPs or country platforms.

Figure 2: The practicalities of the JET



Source: Intellidex

Fundamentally, JET is about the development of new zero-carbon energy infrastructure and the decommissioning of old carbon-intensive infrastructure. This includes renewable energy (as the largest component) but also hydrogen, electric vehicles and liquid fuels. The "just" element of the transition highlights the need for it to be fair and equitable for the individuals and communities affected. South Africa's economic development has been driven substantially by its abundant coal resources, leaving it an outlier in the carbon intensity of its non-oil exporting economy. Disrupting that has potentially serious negative consequences, most obviously in the geographic areas of the country that mine coal and beneficiate it into electricity.

The challenge for financing the JET is not only how to deliver large scale new renewable infrastructure and associated grid and storage capacity (as well as other components of the energy ecosystem), but also how to ensure that the losers from the transition are appropriately compensated or have a fair stake in the success of it, and indeed how those social solutions are financed.

As will become clear through this report (and subsequent ones), there is considerable conceptual confusion over what a JET means. Most clearly, the market participants we interviewed understand that it involves considerable infrastructure finance. Uncertainty arose as soon as we pressed on whether "JET finance" is fundamentally different from vanilla infrastructure finance, or "green" infrastructure finance more specifically. Few of the respondents we interviewed, including bankers, private equity investors and fund managers, could provide any notion of what might make JET finance "just" let alone how to fund it.

South African capital markets do have considerable untapped funding capacity for infrastructure in general, and renewable infrastructure in particular. Banks, private equity funds, insurers and pension funds all say they are eager for more exposure to such instruments even beyond JET (including water, logistics and other forms of economic infrastructure). The market has been developed on the back of the Renewable Energy Independent Power Producer Procurement (REIPPP) Programme, which was launched in 2010 and by the end of 2021 connected 6.3GW of renewable capacity with committed investment of R210bn (DoE, 2022). The instruments related to that programme have conditioned what the financial community expects in this space. Notably, none of these instruments historically have elements that explicitly support a just transition, although the REIPPP programme did have an extensive social and economic development component affecting the areas that projects were developed in – though outcomes here have been mixed (Intellidex, 2021).

From the perspective of investors we interviewed, questions of innovation to mobilise finance are less relevant, given that they have capacity and willingness to invest through existing channels and instruments. To the question of "how should capital markets innovate to scale up funding for JET", the response came down to "why should they when there is already plenty of funding". To these respondents, the binding constraint is a lack of project pipeline rather than a lack of funding. This reflects similar concerns on non-JET infrastructure.

However, the quantum of funding required for the energy transition (just, or otherwise) clearly would exhaust this capacity. So, the need for innovation will become apparent as the demands for funding scale up anyway. The challenge addressed in this report is how we can innovate to ensure capital markets are ready for the challenge when it confronts them.

Financing JET in South Africa exposes a range of longstanding issues for the country and for EMs in general:

Figure 3: Longstanding SA (and EM) issues to unlock financing for infrastructure

Source: Intellidex

Many of these are age-old problems of scaling EM funding in general from both domestic and foreign sources for which there is extensive literature, though the JET lens adds complications.

In South Africa there has been much focus on public sector financing and the JETP funding of $8.5bn (~R147bn) announced at COP26 in Glasgow. In this report, however, we are particularly interested in how to scale private sector financing for the long term, long after the JETP is forgotten. The key concern is how to unblock, or establish new, financial sector plumbing to ensure that the scale of JET needs can be met. JETP may well play a catalytic role now, but the private sector must do the heavy lifting and equally not become reliant on handholding after it will initially be required (through guarantees, for example).

JET in the South African context is going to require (we assume for the purposes of this paper) of the order of R4tn to R8.5tn over the coming 30 years in today's prices – or about 4% of GDP per year. For a country that has long-term twin deficits (current account and fiscal) with a low savings rate, the ability to finance this at a macro level cannot rely on the fiscus and instead heavy emphasis will be required on local credit creation and portfolio investment flows, as well as inflows from abroad.

In order to assess this challenge, we have undertaken a broad range of interviews with a large sweep of different actors within the financial sector ecosystem, but particularly investors and asset managers with historic experience of infrastructure finance. We have supplemented this with our own experiences advising banks, stock exchanges, governments and asset managers on these issues, as well as desktop research.

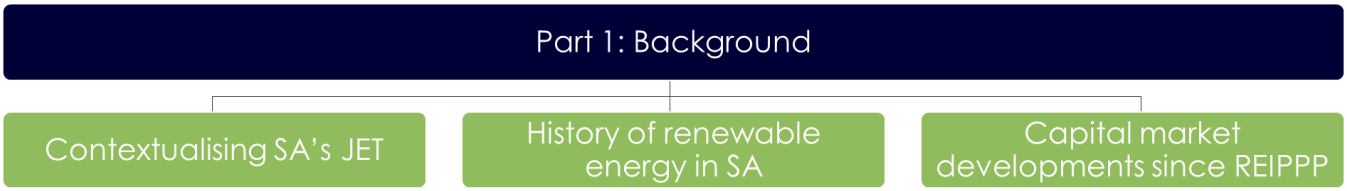
This is the first of a three-part series of reports that Intellidex is writing for the African Climate Foundation (ACF). The ACF has been at the forefront of pushing innovative thinking in South Africa but also across the continent and we are delighted to be working with them. The private sector financing problem has often been treated as a bean counting exercise or as something to which a "role" can be assigned in an academic or theoretical way. ACF and Intellidex want to bring out more "plumbing" or "in the weeds" research on the issue. Intellidex brings a history of working on capital markets and financing scaling problems at micro and macro levels – with banks, regulators, exchanges and policy makers. Equally, Intellidex works on a range of infrastructure and energy issues from a policy, project and financing perspective. This paper therefore brings together many strands of Intellidex's expertise into one place.

As such, this is the first of three papers (the next two will appear within the coming months) that will consider the broad scope of scaling private sector financing issues under the banner "Financing South Africa's Just Energy Transition" as follows:

Report 1	Report 2	Report 3
• Capital market developments to scale private sector mobilisation	• Exploring private sector funding of the social and just elements of the transition	• The role of public finance in JET to support private sector funding – a focus on Mpumalanga

We welcome all feedback and engagement from stakeholders in the JET ecosystem in South Africa and abroad on the ideas and recommendations in this paper.

3. Part 1: Background



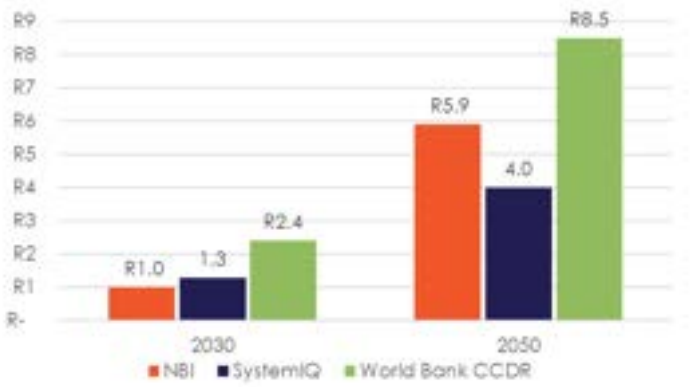
In November 2021, at the UNFCCC's COP26, the South African government entered an agreement with the governments of France, Germany, the United Kingdom, the United States of America, and the European Union that would support the decarbonisation of the South African economy in a just, inclusive and equitable way. The long-term agreement between the various partners – known as the International Partner Group (IPG) – to achieve this ambitious outcome, was coined the Just Energy Transition Partnership (JETP). JETP undertook to mobilise $8.5bn (~R147bn) in financing through a range of funding mechanisms over the next three to five years, ultimately aiming to use this funding as a catalyst for a just development path.

The Presidential Climate Finance Task Team (PCFTT), led by former SARB Deputy Governor Daniel Mminele, was established to act as the South African counterpart for the IPG. The PCFTT reports to an inter-ministerial committee chaired by President Cyril Ramaphosa. The JETP Secretariat is funded by the Climate Investment Fund and the Head of the Secretariat is Joanne Yawitch. The PCFTT is developing and implementing the Just Transition Partnership Investment Plan (JETP-IP), outlining details on how the $8.5bn (~R147bn) in JEPT financing will be unlocked, and the first draft was presented at the recent COP27 in Egypt. We will analyse the JET-IP in the third of this three-part series of papers.

In our interviews, we encountered highly optimistic expectations surrounding what the plan will deliver. Considering the multi-stakeholder negotiations required to draft the plan, the first public draft should be viewed as a starting point for the JETP and capital market stakeholders need to be aware of this in terms of the scale of financing that is required.

Estimates from various institutions regarding the cost of a JET range between R1.0tn and R2.4tn in front-loaded funding needed up to 2030, to between R4.0tn and as much as R8.5tn up to 2050. The World Bank pegs SA's overall costs for the just energy transition at R8.5tn and expects this funding to be split between mitigation (R4.2tn), adaptation (R2.2tn) and just transition (R2.0tn) funding. Eskom estimates that R1.2tn in infrastructure investment is needed by 2030 to deliver on a successful power sector JET (including R990bn for generation capacity, R130bn for transmission capacity and R56bn for distribution capacity).

Figure 4: JET financing requirements estimates (ZAR trillion)



Source: NBI, System IQ, World Bank

Considering that the cost of generating 1GW of energy is approximately $1bn (R17bn) and the renewable energy requirement for South Africa leading up to 2050 is approximately 7GW additional capacity per year (total of 190GW by 2050), funding for renewable energy infrastructure can cost as much as R3.23tn just for additional power generation capacity.

Box 1: Balancing the E & S in ESG

There is a growing narrative in the local market related to the need for local context when considering ESG integration into investment strategies. This refers to the deeply entrenched triple challenge of poverty, unemployment and inequality in South Africa. The argument often goes that in an environment where social needs are pervasive, these may need to be prioritised over climate (or broader environmental) considerations.

However, these issues – environmental and social – are not mutually exclusive. The most vulnerable and marginalised individuals are the ones that are most severely affected by the impact of climate change, which implies that climate adaptation and mitigation measures are essential to avoid a further deepening of our entrenched societal issues.

Furthermore, South Africa is a small, open economy and failure to accelerate our decarbonisation efforts risks crippling the already fragile economy's export market. Specifically, some of the country's largest export markets, such as the European Union, are taking stringent measures to combat climate change. These include the introduction of carbon tariffs and conversion to electric vehicles. Considering that South Africa's entire production value chain is carbon intensive by design given its reliance on coal-powered energy, not to mention the fossil-fuel-reliant transport system, goods produced in the local market tend to have a high carbon footprint and will be subject to significant tariffs.

Failure by industry to adapt and lower its carbon footprint could hit the export market hard through additional taxes, stifling our competitiveness in international markets. Eskom estimates suggest that as much as 46% of exports are at risk in the medium term. This will naturally have knock-on effects on the rest of the economy through a reduction in FX revenues as well as real economic ramifications for exporters (lower revenues, job losses and even business closures).

This illustrates how environmental (and indeed climate) considerations are linked to broader macro considerations. SA can ill afford to ignore these risks and should guard against using the S as a scapegoat for failures in taking decisive action on the E in a just and equitable manner. Failure to do so could result in unintended consequences for already fragile social conditions in South Africa.

However, this consideration does focus attention on the "just" element of the transition. The transition will lose political credibility if it is seen as damaging the interests of disenfranchised people, including the many thousands of workers in the coal value chain, particularly in Mpumalanga. The transition has to cope with myopic intertemporal decision making in the short-term political cycle in which the long-term benefits of minimising climate change are discounted relative to any short-term pain in the existing cycle. The "just" transition must therefore deliver on these political realities and foreground an appropriate balancing of the S and E.

The bottom line is that South Africa needs **funding at scale** to achieve a just energy transition. The private sector has a critical role to play for it to have any chance of being feasibly achieved. Yet there is significant ambiguity around what a just transition would look like and many stakeholders in the finance ecosystem are unclear on their role. A much stronger effort around creating consensus on how a just transition is defined and then building capacity across the capital market ecosystem related to how this can be achieved is required to enable South Africa to unlock financing at scale.

3.1 Contextualising just energy transition financing

Before delving into the blockages for mobilising financing at scale, we need to unpack what just energy transition financing is. We will deal with some of the issues in more detail in our second paper.

The international Labour Organisation defines a just transition as follows (our emphasis) (ILO, 2022):

> "A Just Transition means greening the economy in a way that is **as fair and inclusive as possible to everyone concerned**, creating decent work opportunities and **leaving no one behind;** and
>
> A Just Transition involves **maximising the social and economic opportunities of climate action, while minimising and carefully managing any challenges** – including through effective social dialogue among all groups impacted, and respect for fundamental labour principles and rights. Ensuring a just transition is important for all countries at all levels of development. It is also important for all economic sectors – by no means limited to energy supply – and in urban and rural areas alike."

Eskom, the dominant power utility in South Africa, provides its own definition (Rambaros, 2021):

- Just Energy Transition is about **moving towards a lower carbon, greener future while enabling the creation of new job opportunities** for those displaced by the replacement of coal by these cleaner technologies;
- Given South Africa's vulnerability to climate change, our energy future calls for a less coal intensive mix, with significant increases in cleaner technologies;
- By following a Just Energy Transition pathway it will make it possible to **simultaneously spur economic growth, create sustainable jobs and put emissions into structural decline** – thereby ensuring an electricity supply that does not compromise economic growth; and
- Eskom plays a pivotal role in shifting South Africa towards cleaner energy over time in a just manner, and a **social compact with communities and employees is a key component of this pathway.**

The official public sector interpretation of a just energy transition is defined in the Presidential Climate Commission's (PCC) Just Energy Transition framework (PCC, 2022). This framework is centred on three principles:

1) **Distributive justice,** which will see an **equitable distribution of risks and responsibilities** that addresses the direct impacts resulting from the transition;
2) **Restorative justice** which will aim to **redress the historical damages against individuals**; and
3) **Procedural justice** which is aimed at **empowering workers and communities** to achieve a just transition.

Restorative justice is one of the core principles of the PCC framework and is aimed at rectifying the wrongs of the past. A core historical injustice from the Apartheid-era was the confiscation of land from black people to be sold to whites or developed as whites-only areas. In its means of achievement, the PCC does not mention anything about land redistribution which is seen as a major contribution to inequality to date.

The Congress of South African Trade Unions (Cosatu) states that the lack of access to land undermines the people's ability to take up the opportunities presented by the just transition (Cosatu, 2022). The land issue has been lingering since South Africa became a democratic state and many, particularly the Economic Freedom Fighters political party, have been calling for the expropriation of land without compensation.

Since democracy in 1994 the ANC governing party has failed to address the land redistribution process in a any significant way and the majority of the land remains in the hands of the few. However, legislation enabling the state to appropriate land without compensation was recently passed in Parliament's House of Assembly and is now before the National Council of Provinces.

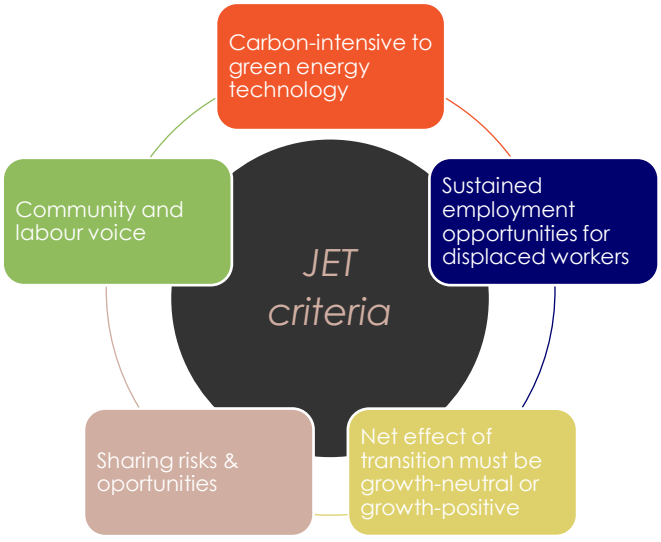
The land issue is a complex and emotive problem in South African and complicates the process of ensuring a "just" transition, given that land for green electricity generation may face claims by the previously dispossessed.

The other principle of distributive justice means that opportunities will be distributed fairly, cognisant of gender, race, and class inequalities. However, the framework fails to speak about access. In most cases, South African policies overlook the issue of lack of access to capital and although opportunities may be fairly distributed this does not necessarily mean that people, especially the marginalised and the uneducated, will be included.

The definitions considered above have a common thread regarding the specific criteria that must be met for a just energy transition:

1) A move away from carbon-intensive to green energy technologies;
2) Sustained employment opportunities for displaced workers;
3) Net effect of transition must be growth neutral or positive;
4) Sharing both risks and opportunities; and
5) Community and labour voice.

Figure 5: Criteria for just energy transition

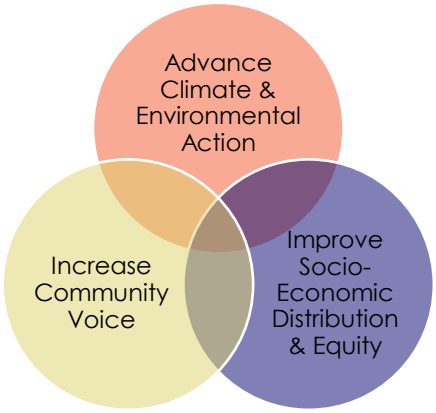


Source: Intellidex

On the issue of climate finance, the PCC states that historical climate finance flows have mostly been allocated to clean energy and the majority of finance was taken up by the REIPPP Programme, which amounts to three-quarters of the country's climate finance. None of this finance explicitly compensated or transitioned those affected by coal decommissioning.

International context must be considered as well to ensure that there is alignment on what a just energy transition constitutes. The global JET narrative is being driven by the G7 and the UK-based Impact Taskforce has identified three critical elements of a just transition. The UK's Impact Investing Institute is leading the charge on operationalising these elements and is developing criteria to underpin a new just transition label for investment products. These definitions and criteria must inform the development of any innovation, strategies and product development by South Africa's capital markets stakeholders because failure to abide by these standards risks rendering just transition vehicles in the local market uninvestable for offshore investors.

Figure 6: The Impact Taskforce's three Just Transition Elements



Source: Impact Taskforce (Sprengler et al., 2021)

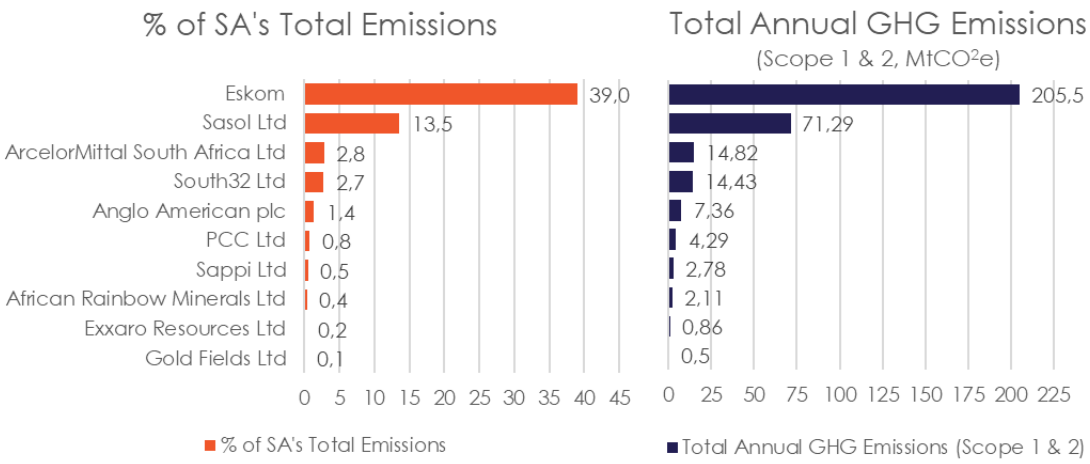
The three Just Transition Elements have a focus on ensuring that the transition is achieved in a just way. This topic will be explored in more depth in the second paper of this three-part series.

These definitions for JET and the Impact Task Force's Just Transition Elements offer guiding principles for the criteria to consider for JET financing. It is crucial to distinguish between the various roles that finance can play alongside other stakeholders to achieve a just transition as different instruments that are used to mobilise capital for JET will likely satisfy the criteria outlined above in different ways and to different degrees.

The financing requirements for an energy transition (with an intentional exclusion of the *just* component) are twofold. First, large emitters, hard to abate, and imminently redundant (such as internal combustion engine powered vehicles) organisations need to transition from carbon-intensive operations and technologies to low-carbon and ultimately net-zero emission profiles. This includes primarily Eskom, but also extends to the private sector including companies like Sasol, ArcelorMittal and other mining companies in particular.

In addition to the carbon-intensive companies, there is a critical role that the South African banking sector must play given its exposure to carbon-intensive sectors. Disclosures related to carbon asset concentration is the first step towards managing these risks as it is required to develop and implement mitigation strategies that will promote the long-term sustainability of the financial services sector.

Figure 7: South Africa's largest carbon emitters



Source: Centre for Environmental Rights, Full Disclosure 5 report

Second, energy transition financing requires **rapid and large-scale new infrastructure development** in renewable energy, grid and distribution capacity, as well as development of new industries such as electric vehicles and green hydrogen manufacturing.

> *The funding for the **just element** of the just energy transition refers to the need to unlock financial resources that can be deployed to offset the negative consequences of the energy transition elements outlined above. These projects, programmes and initiatives are unlikely to have any commercial value and therefore the essence of JET financing lies in leveraging a proportion of the commercially viable elements of the transition to fund the interventions that will qualify the overall transition as being just.*

As outlined above, there are various areas for financing that must be considered for South Africa's just transition. These include (but are not limited to) transitioning heavy GHG emitters to low carbon technologies, developing large-scale renewable energy generation capacity, building new infrastructure for energy transmission and distribution, transforming the automotive manufacturing industry, developing new industries (such as green hydrogen), and at the same time funding all the interventions required to ensure that no one gets left behind.

To understand South Africa's capacity to finance these various elements, there is a need first to consider what has been done in the past.

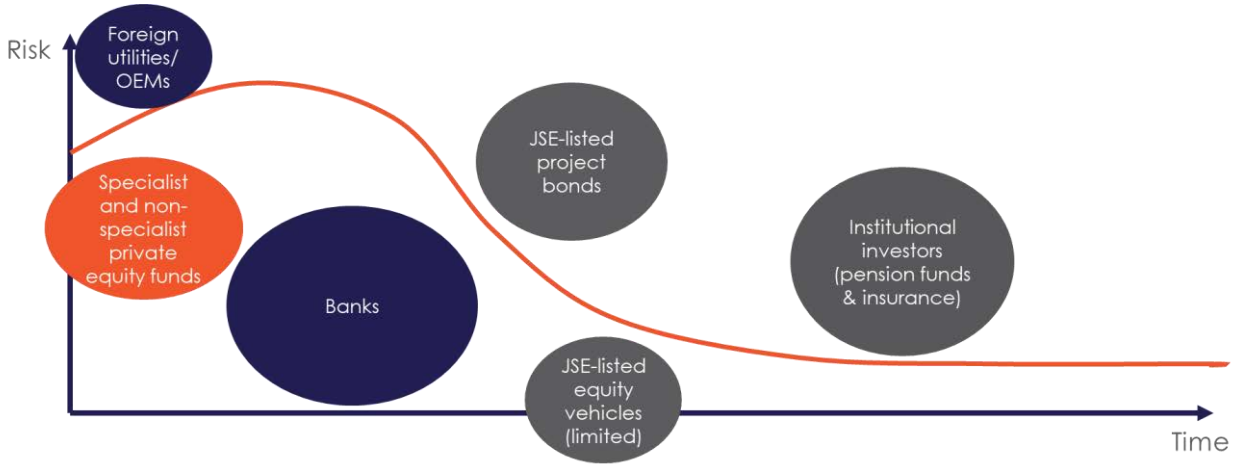
3.2 History of renewable energy financing

The REIPPP programme, which was launched in 2010, has been lauded internationally as one of the best renewable energy development projects. Key features include the transparent procurement framework involving competitive financing bids, the effective structuring of the agreements (including government guarantees on power purchase agreements), the sharing of risk (operational risk on private partners), and the strong legal, technical, financial expertise and robust contractual framework that underpinned the programme. The REIPPPP also had a strong social and economic development component including community ownership and minimum spending levels on community development.

The first four rounds were a great success (although round 4 suffered serious delays before financial close for political reasons) and yielded attractive returns for investors. Intellidex research has found that internal rates of return have trended downwards, with round 1 projects often showing IRRs of over 20%, with round 4 projects at 13%.

Having never financed renewable projects before, the REIPPP programme has been a key driver of capacity development in the South African financing ecosystem. Through the rounds, a funding lifecycle has developed which aligns the investor risk appetite with the project risk. This is shown below, with the early high-risk phase during construction funded largely by private equity, developers and banks, and longer term institutional investors acquiring exposure after initial operation when cashflows are stable and predictable.

Figure 8: SA market specialist capabilities developed in response to REIPPPP



Source: Intellidex

Traditionally, pension funds have taken exposure through their debt portfolios or private equity tranches. Infrastructure assets have historically been offered to funds in the form of debt instruments as some banks have shifted debt off balance sheet into green bonds and similar instruments.

Banks, meanwhile, have developed comfort with infrastructure investment over the last decade, particularly during the REIPPP process which saw improved capacity and comfort with risk modelling. As a result, the cost of debt has somewhat reduced, although our market investigations generally indicate that the project debt is priced in line with higher-risk assets such as standard corporate exposures. It seems likely that domestic debt spreads will reduce as the performance history of assets evolves and debt competition

increases. Further development of a green bond market will provide a way for banks to move lending off balance sheet, creating capacity for increased funding of early-stage projects.

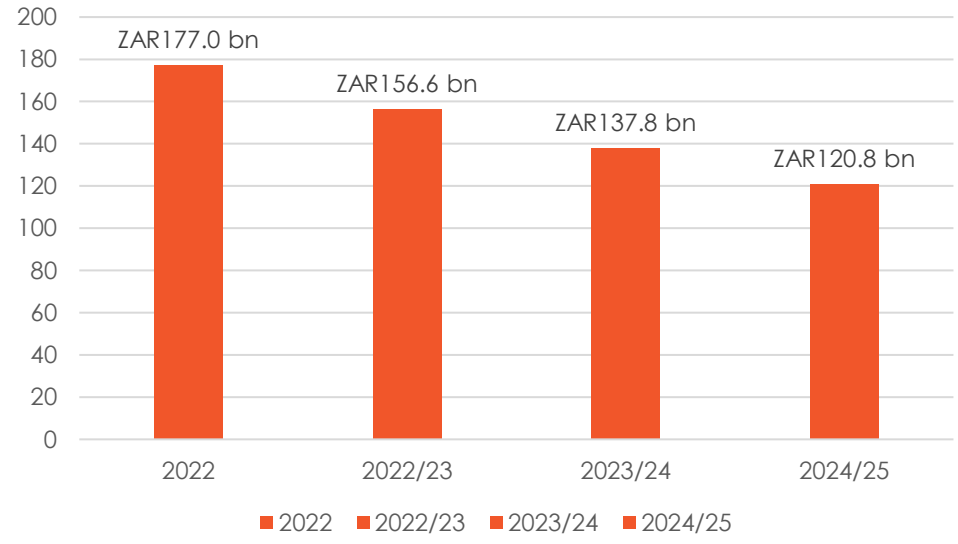
Insurers have more flexibility in investing their own non-linked capital with limitations only on asset liability management frameworks and exchange control parameters. As a result, several infrastructure funds structured as private equity vehicles have been developed within insurance groups to deploy insurance company capital, such as African Infrastructure Investment Managers (Old Mutual). Insurance company risk appetite has traditionally supported greenfield infrastructure.

Yields on the more recent round 5 REIPPP projects have been compromised by delays in financial close during which global inflation and commodity prices changes have rendered several projects sub economic. IRRs are not clear yet but will be low – some at below the weighted average cost of capital. Round 6 projects, which were being adjudicated at the time of writing, are expected to result in higher tariffs in order to address the subeconomic returns. This downward trend in yields has fallen below the hurdle rates of some sources of capital. Indeed, domestic bank debt was relatively scarce in round 5 with several banks opting not to participate at the yields on offer. It has also meant that black economic empowerment participation, which requires higher yields, is difficult at current rates. This yield pressure is obviously good for tariffs and therefore Eskom and consumers, but some care must be taken not to price out the domestic financing market through concessional lending.

In the past bid windows (BW1-5), the Department of Mineral Resources and Energy (DMRE) required the preferred bidders to guarantee the number of megawatts contracted. The bid guarantees were intended to discourage unrealistic proposals by inexperienced bidders which would then struggle to fund and deliver on their project as proposed.

Eskom is committed to procuring renewable energy and government incurred peak contingent liability of R208.5bn representing the present value of future cash flows from Eskom in terms of its guarantees to the programme. By the end of March 2022, the contingent liability exposure for government was anticipated to reach R177bn. This exposure is expected to decline as Eskom settled payments (as graphed below), to ZAR120.8 bn by 2024/25.

Figure 9: Government contingent liability

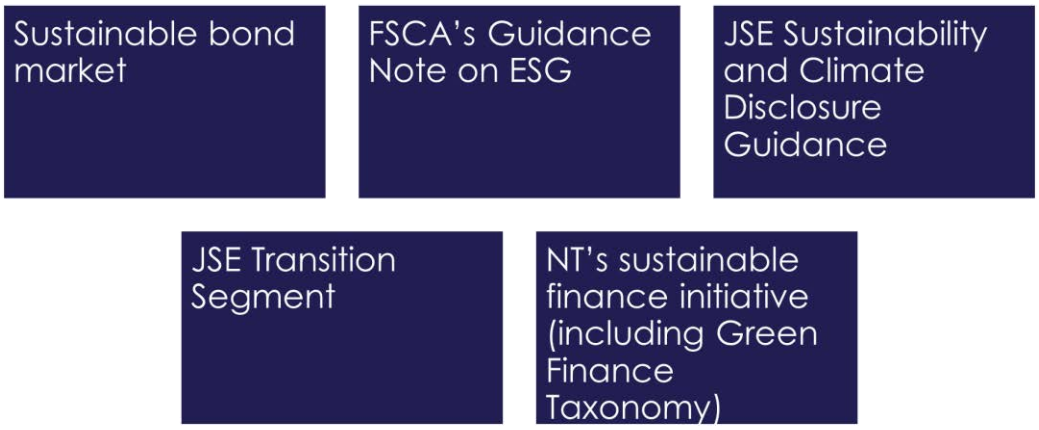


Source: Intellidex

3.3 Capital market developments since REIPPP

Since REIPPP was first launched back in 2011, several developments in domestic capital markets have materialised, primarily as a function of the market's growing awareness of the need to become more intentional about embedding sustainability. The following key developments are discussed in detail as these are considered the most pertinent to help answer the question on how we unlock financing at scale.

Figure 10: Capital market developments since REIPPP



Source: Intellidex

3.3.1 Sustainable bond market

Sustainable bond markets have exploded globally in recent years. Issuers raised $1.74tn in 2021, more than double the 2020 issuance of $821.2bn (Goko, 2022). In H1 2022, issuers raised $442bn (Linklaters, 2022) in the first half of 2022, including $245bn in green bonds (from 835 issuers) and $42bn in sustainability-linked bonds. China continued leading the charge in H1 2022 with green bond issuance ($59bn) followed by Germany ($29bn), France ($18bn) and the Netherlands ($11bn). The early adopters of these instruments include governments, utilities and financial services sectors, but there has been growing appetite for sustainability linked loans from a more diverse range of sectors.

While green, social and sustainability bonds (GSS bonds) function as use of proceeds mechanisms that are linked to specific key performance indicators (KPIs), sustainability linked bonds (SLBs) are linked to specific sustainability performance targets (SPTs) based on a set of KPIs. If the SPTs are not achieved, the bond is subject to a step-up clause (Eggerstedt, 2021).

Although the global market is booming, South Africa has been a slow adopter of these new instruments. In 2020, the JSE expanded its green bond segment to debut the Sustainability Segment, allowing issuers to list green, social and sustainability bonds. To comply with the JSE's Sustainability Bond Standard, issuers must comply with the following principles:

1. Disclosure of proceeds and differentiating between the proportion of the issuance that will be used for new financing or refinancing.
2. Verification, certification or a second party opinion from an external reviewer with respect to the use of proceeds, selection process and management of proceeds.
3. Post-issuance reporting on use of proceeds and impact relative to the selected KPIs.

While these disclosure requirements clearly intend to ensure compliance with international standards as well as to avoid any form of greenwashing, market practitioners have criticised disclosure requirements for being excessively cumbersome. The domestic sustainable bond segment resultantly remains underdeveloped, partially due to the stringent disclosure requirements, but also as a result of an insufficient pipeline of investible projects which has meant that there has been no need for banks to issue higher volumes of sustainable bonds.

As of August 2022, the JSE's sustainability segment had listed 47 instruments with a market capitalisation of R26.2bn (Moodly, 2022). For context, National Treasury issued R19.5bn in vanilla bonds in August 2022 alone and the total bond market had R6.7tn in outstanding issuance as of October 2022. The issuance to date is obviously not remotely near the scale required to finance the JET.

Some examples of the instruments issued to date are detailed in the accompanying table.

Table 1: South Africa sustainable bond issuance

Date	Issuer	Instrument	Project	Value (ZAR)
2012	Industrial Development Corporation	Green bond	Clean energy infrastructure	5.00bn
2014	City of Johannesburg	Green bond	Biogas to Energy Project and the Solar Geyser Initiative	1.46bn
2017	City of Cape Town	Green bond	Various green projects, electric buses; energy efficiency in buildings; water resilience initiatives; sanitation treatment; and the coastal structure protection and rehabilitation	1.00bn
2017	Growthpoint	Green bond	Green buildings and green initiatives	1.10bn
2019	Nedbank	Green bond	Renewable energy	1.70bn
2022	Barloworld	Social (gender-linked) bond	Women empowerment goals, including reaching or exceeding 15% procurement spend on black women suppliers and reaching or exceeding 50% female representation in leadership by 2025	1.10bn
2022	Redefine Properties	Green bond	Improve environmental sustainability of eligible buildings in its portfolio	1.50bn
2022	Investec	Green bond	Renewable projects (477MW solar & wind)	1.00bn

The instruments have attracted robust demand and the bonds (especially recent issues) were all oversubscribed. For example, Investec's R1bn maiden green bond in February 2022, which was issued against renewable energy projects, was 3.8 times oversubscribed (Slater, 2022). This signals that there is at least some appetite for these instruments from institutional investors and supports the view that the blockage for scaling up is at the issuer level.

Some of the key hurdles to structuring these instruments include a lack of expertise and skill in this area in the local market, as well as the relatively higher costs associated with issuing these instruments due to the need for third party assurance. Another potential constraint to broader market adoption of these instruments is the absence of a green government bond curve against which these instruments can be priced.

Box 2: Sustainable bond market

There is an urgent need for the government, development finance institutions (DFIs) and banks to ramp up efforts to develop South Africa's sustainable bond market. Our research indicates there is strong appetite from the R4.7tn pension fund industry to increase exposure to these instruments, but there is limited supply. Different issuers have varying roles to play and some issuers may need guarantees (such as municipalities) to enable issuance. These instruments are well suited for institutional investors and are a key mechanism through which to achieve funding at scale for the just transition due to the KPIs linked to the proceeds (this applies for social, sustainable and green bonds). Sustainability linked bonds, meanwhile, offer issuers preferential interest rates for achieving predetermined KPIs.

These instruments are both transparent and can be traded on capital markets, which significantly widens the pool of potential investors.

While the sustainability aspect of these instruments adds to the appeal for investors, underlying fundamentals remain the primary consideration in investment decisions and therefore underlying credit risk still matters. Issues related to this will be discussed in more detail in the third paper of this three-part series.

Without some form of risk mitigation from either government or development financiers, demand for these instruments in the local market (especially if issued by municipalities, for example), will struggle to achieve the necessary scale for a just transition.

3.3.2 FSCA's Guidance Note on ESG

In June 2019, the Financial Sector Conduct Authority (FSCA) published Guidance Notice 1 of 2019 (FSCA, 2019), "Sustainability of investments and assets in the context of a retirement fund's investment policy statement". This marked the first regulator-level intervention with institutional investors to promote thinking about ESG objectives (Intellidex, 2020). The note provided guidance on the disclosure regarding sustainability of investments and assets related specifically to a retirement fund's investment policy statement, as well as expectations regarding disclosure and reporting on issues of sustainability. While this was a guidance note rather than a binding directive, we anticipate further disclosure requirements from an ESG perspective are likely forthcoming for pension funds. This will drive the integration of sustainability considerations and metrics into the investment decision-making process. That said, disclosures in and of themselves are not deemed sufficient to materially shift the needle on institutional investors' participation in financing the just energy transition.

Box 3: Fiduciary duty

Fiduciary duty refers to an asset manager's responsibility to honour the position of trust in relation to the beneficiary on whose behalf it has decision-making authority. The issue of fiduciary duty often arises when engaging with stakeholders on sustainable investment practices. However, UNEPFI and PRI published research that argued that failure to integrate ESG considerations as long-term investment value drivers would constitute a failure of fiduciary duty (Sullivan et al., 2019). The report, titled Fiduciary Duty in the 21st Century, argues that investors must fulfil the following criteria meet their fiduciary duty:

- Incorporate ESG issues into investment analysis and decision-making processes, consistent with their investment time horizons.
- Encourage high standards of ESG performance in the companies or other entities in which they invest.
- Understand and incorporate beneficiaries' and savers' sustainability related preferences, regardless of whether these preferences are financially material.
- Support the stability and resilience of the financial system.
- Report on how they have implemented these commitments.

The 2019 PRI annual reporting and assessment framework questioned signatories about their interpretation of fiduciary duty and more than 70% of respondents in Africa considered the analysis of ESG as enabling better risk management. This captures the need to include considerations of E, S & G in the investment decision-making process as part of an investor's fiduciary responsibility.

Tying this back to the local market, Regulation 28 of the Pension Funds Act provides the regulatory framework within which pension funds operate. The act explicitly outlines requirements related to sustainability, both in the preamble as well as paragraph (2)(c)(ix) which requires the following as one of the principles that a fund's board must apply (own emphasis):

> *Before making an investment in and while invested in an asset, consider any factor which may materially affect the **sustainable long-term performance** of the asset including, but not limited to, those of an **environmental, social and governance** character.*

This requires a pension fund to manage members' funds such that the investments generate sustainable market-related returns in the long term in context of environmental, social and governance considerations.

The notion linking ESG investment practices to fiduciary duty is reinforced in the UNPRI's Statement of Investor Commitment to Support a Just Transition on Climate Change, which stipulates that the Just Transition is aligned with the fiduciary duty to capture the social and environmental drivers of value creation and serve beneficiary interest (UN PRI, 2020). The statement further emphasises that just transition considerations allow investors to manage systemic risks of climate change as well as the materiality of responsible management of workforce and community elements of climate change as drivers for value creation.

In the South African context, fiduciary duty can support ESG-related investments. JET instruments can to some extent fit this category but the fundamental principle of returns maximisation remains at the heart of the "sustainability" notion, rather than justness or otherwise of the transition.

3.3.3 JSE Sustainability and Climate Disclosure Guidance

On 14 June 2022, the JSE released a guidance note on sustainability and climate disclosures. This note provides a general framework for how listed entities should report their sustainability information. Its intention is to serve as a mechanism that supports companies to report more useful, consistent and comparable data to inform better decision-making (JSE, 2022). The content of the guidance is drawn from frameworks such as the Global Reporting Initiative, the Task Force on Climate-Related Financial Disclosures, and the International Sustainability Standards Board (ISSB) and the JSE sees the guidance benefiting listed companies in the following ways:

- Helps issuers to navigate the rapidly evolving landscape of sustainability reporting;
- Links sustainability disclosures to the fundamental drivers of value creation;
- Outlines the business case for disclosing sustainability data;
- Stimulates interest in the innovation opportunities in sustainability challenges;
- Supports the convergence of global reporting standards; and
- Assists in contributing to the achievement of national and international sustainable development commitments and priorities, such as the United Nations Sustainable Development Goals.

ESG integration has become a critical theme for businesses and investors alike and this guidance should support companies with reporting on sustainability issues. This, in turn, can offer a level of comfort for investors regarding their investments' ESG performance across all sectors.

Considering that one of the key constraints for international investors to allocate capital to emerging markets is a lack of data quality and transparency, engaging with these guidelines could support local practitioners in attracting funding more generally, and also specifically to finance their JET ambitions.

3.3.4 JSE Transition Segment

The JSE's Transition Segment is a listing platform for transition debt securities on the JSE's Main Board, where issuers can raise funding for climate or transition-related purposes. They key differentiator for the transition segment is that issuers must comply with the International Capital Market Association (ICMA) Climate Transition Finance Standards, which apply to both use of proceeds instruments, as well as general corporate purpose instruments aligned to the sustainability linked loan principles. The ICMA handbook outlines the need for disclosures on the following key elements (ICMA, 2020):

1) **Issuer's climate transition strategy and governance**: The objective of issuing the transition bond should be to support the issuer to execute its climate ambitions and strategic pursual of achieving alignment with the goals of the Paris agreement. The relevant information and indicators could include, for example, long-term Paris-aligned targets as well as interim targets to achieve that goal and reporting frameworks such as the Task Force on Climate-Related Financial Disclosures (TCFD).
2) **Business model environmental materiality**: The transition trajectory must consider and be relevant to the environmentally material parts of the issuer's core business activities, ie, transition financing should be utilised to facilitate a strategic change in the business.
3) **Climate transition strategy to be "science-based" including targets and pathways:** To meet the ICMA criteria, the science-based transition trajectory must be a) quantitatively measurable; b) aligned with, benchmarked or otherwise referenced to recognised, science-based trajectories where such trajectories exist; c) publicly disclosed; and d) supported by independent assurance or verification. The information and indicators that could be disclosed include GHG reduction targets (short, medium and long-term for Scope 1, 2 and 3) aligned with the Paris Agreement.
4) **Implementation transparency**: This refers to the accompanying market communication detailing the issuer's climate transition strategy and the underlying investment programme (including a split for

capital expenditure and operating expenditure) for the financing instrument. Disclosure could include details of the proportion of assets/revenues/expenditures/divestments aligned to the transition levers outlined in element one.

The disclosures on the various elements are all subject to independent review, assurance and verification to ensure that the issuer meets the necessary standards. This is a more rigorous process than listing a green instrument and the intention when developing this segment is to enhance how transparency can prevent greenwashing. Transition finance is expected to play a significant role in enabling a just transition and is especially relevant to a carbon-intensive economy like South Africa, to meet its national contribution commitment to the Paris Agreement, as well as the associated goal of being net zero by 2050 within the context of its nationally determined contributions (NDCs).

The Transition Finance segment therefore has an important role to play in the climate transition. Although it does not explicitly consider the just element of the transition, it can indirectly help facilitate a just transition by ensuring that heavy emitters and hard to abate sectors are not cut off from capital markets entirely, and thereby not forced to shut down abruptly. This, in turn, can enable businesses to transition their core business activities over time, which is likely to include a gradual reskilling of the workforce where necessary. Such instruments may appeal to offshore investors who have a mandate to invest in the energy transition.

However, the institutional investors we interviewed do not have much knowledge of the transition segment. It's therefore unsurprising that there has not been any issuance of debt instruments labelled as transition instruments to date.

Box 4: Transition Bonds

The key difference between a transition bond and a green bond is that neither the project nor the issuer needs to be classified as green. The instrument affords issuers an opportunity to raise funding for which the proceeds will be used to transition the organisation to lower carbon emissions or to reduce negative environmental impact. Proceeds can be used for climate-related transition activities such as (Riordan, 2022):

- Carbon capture and storage;
- Switching coal plants to natural gas which produces less greenhouse gas emissions;
- Waste-to-energy;
- Switching diesel powered ships to natural gas; and
- Use of recycled raw materials and/or higher levels of recycling.

Transition instruments offer an alternative to green labels for financing transition pathways that currently lack consensus on whether the pathways are appropriate and viable. It is a flexible, more cautionary approach that can be used in the short term

One example of a transition bond issued in 2022 is in the international aviation industry. Japan Airlines Co Ltd raised ¥10bn with a use of proceeds instrument for upgrading to fuel-efficient aircraft (Japan Airlines, 2022). The expected effect on CO_2 from the more fuel-efficient carrier would be a 15-25% reduction in emissions. Since decarbonisation technology that qualifies as green has not been developed yet, the airline could not issue a green bond. Furthermore, a sustainability linked bond was not fit for purpose either given uncertainties in decarbonisation technology and infrastructure for making the technology widely available, therefore making it difficult to set ambitious targets (METI, 2022). However, since the company has a credible long-term strategy to transition to net zero, it was able to raise the required funding from a transition bond issue.

Apart from a handful of transition bond issuances, the market remains small for these instruments. A key constraint to the adoption of transition bonds globally is the lack of evidence around accepted criteria for eligible transition bond projects as well as reporting requirements.

We will delve into this in more detail in our second and third reports.

3.3.5 NT's sustainable finance initiative (including Green Finance Taxonomy)

On 1 April 2022, National Treasury (NT) released the final draft of the Green Finance Taxonomy, a living document intended to help investors, issuers, lenders and other financial sector participants measure, monitor and demonstrate the sustainability of their operations. The taxonomy is an official classification of a baseline set of assets, projects and industries that are qualified to be labelled "green" or environmentally friendly. A consistent classification of green investments aids in the battle against greenwashing and offers investors enough information to make informed judgments about increasing their investments in sustainable activities where suitable.

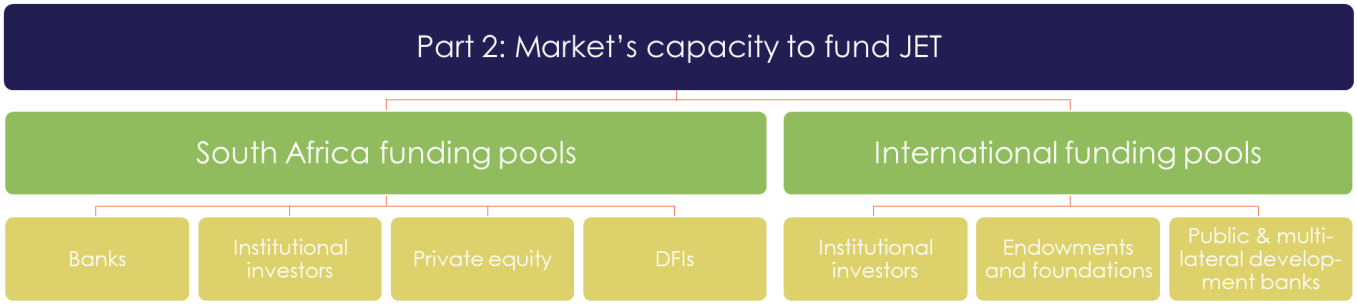
The green taxonomy is intended to:

- Increase the legitimacy and transparency of green initiatives by encouraging disclosures, especially concerning the impact of initiatives. This helps to unlock large-scale finance for climate-friendly and green investment in South Africa and reduce the potential of greenwashing activities;
- Provide clarity and assurance in green investment selection in line with worldwide best practices as well as national priorities and standards;
- Reduce financial risks by improving environmental and social performance management;
- Lower the expenses of labelling and issuing green financial products;
- Support the financial industry's regulation and supervisory control; and
- Raise finance for "green" projects and attract investments while promoting sustainable investment from the financial sector.

In addition to the green taxonomy, the NT is working with the National Planning Commission (NPC) to ascertain what is required and to stimulate the creation of new jobs and new green industries. Treasury aims to facilitate the movement of green infrastructure investment off the government balance sheet and into the private sector by mobilising private sector funding for new and more sustainable projects, such as through the REIPPP programme.

Furthermore, as confirmed by Finance Minister Godongwana in NT's Medium-Term Budget Policy Statement, NT has started a process of reforming the Public Finance Management Act (PFMA) s16 Public Private Partnership (PPP). PPP reform is expected to enable PPPs to be developed more easily and with a risk-adjusted approach to approval processes, allowing smaller or standardised projects to be streamlined through the bureaucracy. Such reform is key to unlocking bigger flows of private investment into public infrastructure projects.

4. Part 2: Market's capacity to fund the just transition

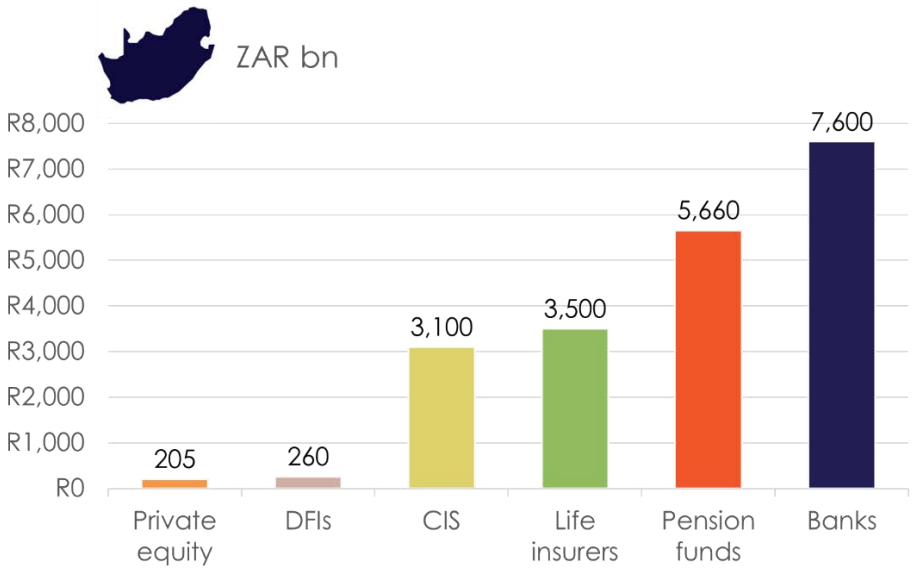


South Africa has a robust financial sector, including deep, well-developed and liquid capital markets. The market infrastructure is sophisticated and well regulated, which appeals to international investors. This should be leveraged to mobilise financing at scale for the just energy transition. To solve for how the various pools of funding can be mobilised for JET, we first need to understand how much funding is available in both the local and international markets.

4.1 South Africa funding pools

There are various pools of capital that can be leveraged for just transition investments. Figure 11 depicts the value of each of the main capital pools, yet there is significant overlap between these funds as many pension funds hold life insurance and collective investment scheme (CIS) instruments, for example. We interrogate each funding pool to understand what a realistic estimate is for how much funding can be mobilised from each of these pools.

Figure 11: South Africa funding pools



Source: SAVCA, National Treasury, ASISA
Note: Cannot be summed as significant duplication, e.g. pension funds holding insurance policies and CIS.

4.1.1 Banks

South Africa's banking sector has total assets of R7.6bn, and R548bn of tier 1 capital. Banks are well capitalised and as of August 2022, the aggregate bank capital adequacy ratio was 17.55% while the tier 1 capital adequacy ratio was 14.85% (SARB, 2022c). Banks' investment horizon is typically short term with low-risk appetite, and the investment objective is to generate net interest margin and arranging fees.

The South African banking sector is well developed and various banks have developed specialist expertise in financing independent power producers and infrastructure projects more broadly over the past decade, mainly in response to the REIPPP. Banks have a very specific role to play from a funding perspective for greenfield projects, firstly in the provision of initial project finance (ie, direct loans) for the development and construction phase. Later, banks can shift these instruments off balance sheet into green bonds and similar listed instruments, which allows banks to both free up their balance sheets for new projects and crowd in financing from institutional investors. In addition, banks can consider playing a financing role in brownfields projects, providing direct bank loans to hard-to-abate sectors and potentially later shift these loans off balance sheet into transition bonds.

Banks' ability to fund renewable energy projects at scale is affected by Basel III requirements, with which South Africa is largely compliant. Basel liquidity requirements set ratios for maximum allowed maturity mismatches. This discourages banks from long-term financing given that funding tends to be short term.

South African supervisors are in the process of implementing a Basel large exposures framework (LEX). The framework specifies that "the sum of all the exposure values of a bank to a single counterparty or to a group of connected counterparties must not be higher than 25% of the bank's qualifying tier 1 capital". This will effectively limit banks to any single entity exposure great than 25% of their capital. To date this has not been an issue for REIPPPP, given that project developers or separately structured project companies have been relatively small in total bank exposures. It has, though, been a constraint for the funding of embedded generation where large mining and other industrial companies are seen in terms of total exposure by the banks when it comes to any additional funding for new energy projects.

Outside of Basel, bank boards and ratings agencies set concentration risk limits for industry and economic sector exposures. The limits imposed by ratings agencies are perhaps the more material binding constraints on South African banks. One bank interviewee reported that agencies will routinely review the bank's top 10 exposures, and exposure to different industry segments. Excessive exposure is a red flag that leads to more negative ratings outcomes. As a result, the 25% of capital Basel rule is often used as a limit for industry exposures too. Applying that rule-of-thumb means a sector exposure limit of R137bn.

There are several mitigating factors that will affect bank exposure appetite. Banks will consider a triumvirate of recourse in projects: guarantees from parent companies (often these will be global utilities with sizeable balance sheets), guarantees from the off takers (usually Eskom backed by a sovereign guarantee), and any political risk mitigation guarantees available. Interestingly, given recent events in Europe following the energy crisis triggered by Russia's invasion of Ukraine, our interviewees have been more concerned about political risks around renewables projects, with energy price spikes a potential threat to projects that can be substituted by fossil fuel production.

The REIPPPP included an offtake guarantee by government, therefore the sovereign is the ultimate balance sheet risk on operating cashflows. Banks though faced credit risk primarily to the developers.

The function of guarantees is therefore well understood in the South African renewables context and could effectively increase bank capacity for exposure. While the LEX limit is the clearly binding limit for single balance sheet exposures, bank risk appetite can be effectively shifted using guarantees. Guarantees can apply at any of the three key risks: counterparty balance sheet, off taker and political risk (which may include expropriation risk, risk of unrest and in some cases exchange rate risk).

More creative thinking is required going forwards on how banks can provide more lending capacity in one particular area like JET. Some central banks are starting to consider reviewing capital adequacy ratios for

JET financing – a topic being addressed at COP27 and in the BIS. This is a complex issue given the inherent risks (relative to sovereign bonds and other safe assets) of JET which is ultimately infrastructure finance. Lower capital requirements would mean that the same amount of capital would be required for a larger pool of JET financing.

Whilst we see a key role in this report for Banks to play in intermediation with the broader market, underwriting (holding some on their balance sheet) either for some time, or temporarily to create markets and liquidity, would all be served still with lower capital requirements. Central banks may well prefer some kind of first loss of similar from others (say MDBs etc) to reduce risk, and again this is why structuring deals and the role of multiple players becomes important.

Box 5: Project Pipeline

Conflicting views exist in the market regarding the single largest blockage to JET. Many maintain that the funding is there but there are insufficient bankable projects to deploy capital to. At the same time, some argue that the projects exist, yet there is insufficient capacity in the local market from both a technical expertise and funding capability perspective to achieve the scale of projects we need over the next decade.

For context, for South Africa to decarbonise by 2050, it needs an additional 190GW of renewable capacity against the existing renewable capacity of around 6.3GW. This means that the rate at which renewable energy is developed annually (approximately 7GW additional capacity per year) needs to exceed the total capacity developed in the past decade.

While there may be sufficient projects in the market for the existing supply of renewable energy funding, this will not be the case for the scale of renewable energy projects and funding required in the next three decades.

To reach the scale required, banks will need to move assets off balance sheet to the institutional market. This has occurred to some extent in the REIPPP experience. The volumes have not been large, driven in some instances by banks' unwillingness to move these assets off balance sheet because the interest margins compensate for the capital and liquidity costs of holding the exposures over the longer term. However, as the pipeline of projects grows, banks will be compelled to move more projects off balance sheet to create exposure capacity. The examples to date of green bond issuance by Nedbank and Standard Bank show this mechanism can function effectively.

4.1.2 Life insurers

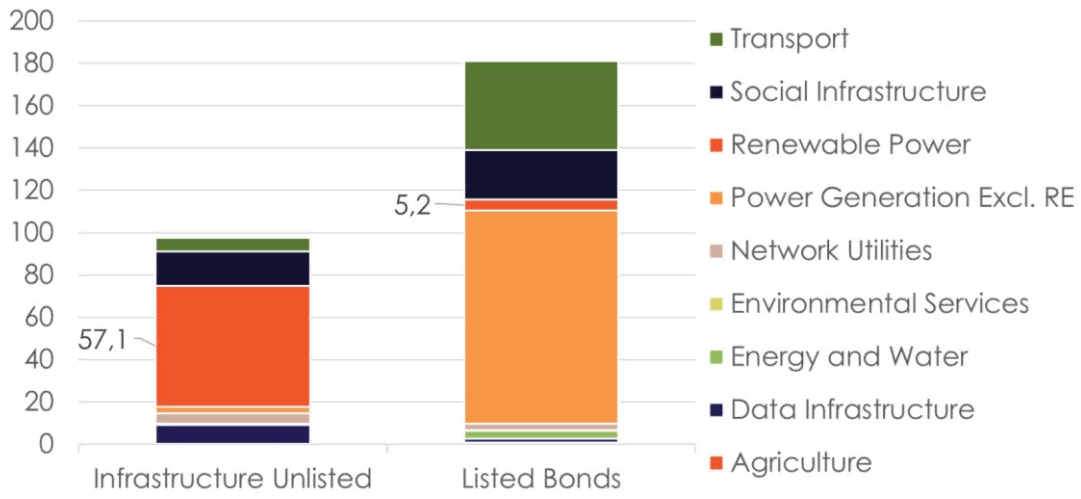
South Africa's insurance sector is large and competitive, with high penetration rates. The industry is the second-largest in the financial sector with life insurers managing ZAR3.5tn in assets. Life insurers have a long-term investment horizon and medium risk appetite in respect of their unlinked investment funds, including their own capital. Investment objectives vary according to the nature of the investments – for on balance sheet investing, insurers target returns within regulated risk parameters, while for client funds, the investment mandates are generally long term and target risk-adjusted market returns. The main risk for insurers is asset-liability management (ALM) mismatch risks while the key investment constraint is the regulatory environment.

This sector is critically aware of the threats related to environmental/climate change risks, ranking this as the largest threat to growth in a 2021 survey (Vosloo et al., 2021). Furthermore, 71% of respondents indicated that they are seeing demand from stakeholders for increased reporting and transparency on ESG issues to a

significant extent. Finally, 30% of life insurance CEOs indicated that they intend to invest more than 10% of revenue to become more sustainable.

Insurers raise capital from funds, which includes infrastructure specialist private debt and private equity funds. The Association for Savings and Investment South Africa (ASISA) reports that the sum of all its members' exposure to renewable energy infrastructure in the unlisted market was R57.1bn as of end-2021, while the value of investment in RE infrastructure-listed bonds was only R5.2bn (ASISA, 2021). The value of these investments include investment by insurers and collective investment schemes (CIS), though insurers hold almost all the exposures. While RE infrastructure investments in the unlisted space make up a significant proportion of overall infrastructure investment (58.4%) by these capital allocators, listed bonds comprise only 2.9% of the total infrastructure investments in the listed bonds markets, largely because these include significant issuance by Eskom and Transnet.

Figure 12: ASISA membership exposure to infrastructure investments as of 31 December 2021



Source: ASISA (ASISA, 2021)

Current exposure to infrastructure assets, renewable energy in particularly, only make up a fraction of investments.

4.1.3 Collective investment schemes

This segment of the market has R3.1tn in assets under management (AUM) with funds classified into several categories based on asset class and geographic exposures. Fund strategies vary widely from different industry exposures, asset class exposures and risk appetites. South African regulation requires funds to provide daily dealing which imposes a high liquidity requirement on the assets held by CISs. Therefore, these schemes will invest primarily in listed debt and equity and their participation in financing the JET will be subject to the availability of highly liquid listed instruments that offer competitive risk-adjusted returns. Although this segment of the market has a regulatory limit on exposure to unlisted equity of 10% (as governed by the CIS Control Act 45 of 2002), this limit is unlikely to restrict participation in transition investments due to the nature of the investment objectives of these funds. To date there have not been any specialist green or other themed CISs in the SA market but it is conceivable that such funds could be created and find market demand, were there sufficient appropriate listed instruments available.

4.1.4 Pension funds

With a combined R5.66tn (SARB, 2022b) in AUM as of May 2022, South Africa's pension fund industry remains one of the largest 15 in the world when measuring assets as a % of GDP (OECD, 2020). Assets can be broken down into a pool of private pension funds (R3.34tn) and public pension and provident funds (R2.32tn). Some of South Africa's largest pension funds, including the Government Employees Pension Fund (GEPF) which manages approximately R2.1tn in assets, are defined benefit rather than defined contribution funds.

Defined benefit funds offer members a specified payment amount at retirement and these benefits are guaranteed by the sponsor rather than being dependent on investment returns, meaning the risks are carried by the scheme sponsor rather than the contributing member. Defined contribution funds are primarily funded by member contributions which are entrusted to asset managers to invest on behalf of the contributing members and therefore have full market exposure by the member.

Pension funds have a long-term investment horizon and medium-risk appetite, and the primary investment objective of defined benefit funds is to meet the expected liabilities of the fund, assessed by actuarial consultants. The key risk for pension funds with exposure to infrastructure assets is asset liability mismatch risks, while the regulatory environment may also present some constraints.

Retirement fund portfolio allocations are governed by Regulation 28 of the Pension Funds Act. The primary objective of the regulation is to protect fund member savings through asset allocation limits. To this end, pension funds are subject to the limits detailed in the table below. For illustrative purposes, we have calculated the maximum possible allocation for the entire pension fund industry AUM (R5.66tn) to specific asset classes to quantify the value of funding that can be mobilised within the existing market framework and with existing products.

Table 2: Regulation 28 asset allocation limits

Asset allocation limits	Reg 28 limits	Max possible allocation (R'bn)	Instruments
Infrastructure	45%	R2,547	Specialist infrastructure funds
Private equity	15%	R849	Private equity
Debt: Government	100%	R5,660	Sovereign bonds
Debt: SOEs, municipalities & provinces	25%	R1,415	SOEs, municipal and provincial govt bonds
Debt: Bank-issued or guaranteed, listed	75%	R4,245	Corporate debt, green bonds, transition bonds
Debt: Bank-issued or guaranteed, unlisted	25%	R1,415	Corporate debt, green bonds, transition bonds
Debt: issued or guaranteed by a listed entity	50%	R2,830	Corporate debt, green bonds, transition bonds

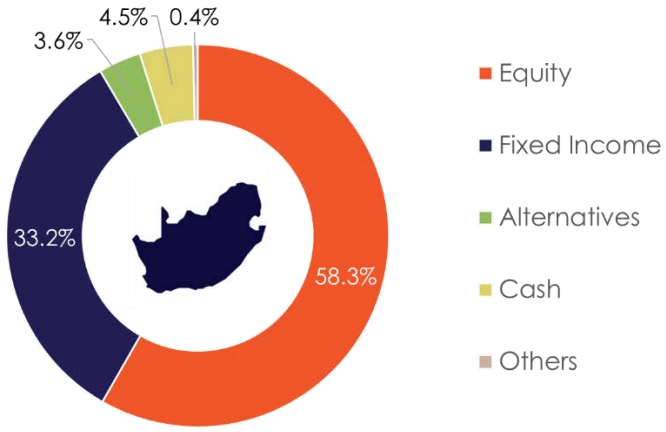
Source: National Treasury

The market regulator has already taken steps to enhance pension funds' ability to invest in infrastructure and, effective 1 January 2023, pension funds now have a ceiling of 45% exposure to infrastructure. Infrastructure is defined as a physical asset or technology that is constructed, developed or maintained with the purpose of providing service or facilities for the benefits of civil society. However, note that the infrastructure ceiling applies *in addition to* the other asset class ceilings. While the imposition of a ceiling technically *reduces* the notional maximum exposure funds could have held, the inclusion of infrastructure in Regulation 28 creates a reporting obligation on funds to specifically calculate their infrastructure exposures. This has the unexpected incentive of driving funds to specify infrastructure exposure as part of their asset allocation strategies, which should in fact lead to increases in infrastructure exposure though this will likely be very far from the 45% limit. To help drive pension funds' investment in infrastructure, pension funds trustees would have to be upskilled to enable them to navigate this new asset class.

It is important to note that pension funds' foreign exposure limits have also been increased to 45% (from 30%), which potentially reduces the value of investments that can and will be deployed in the local market. Ultimately, risk-adjusted returns that can match liability funding costs are what matters most for pension fund investors.

Asset allocation limits are not necessarily the key constraint to pension funds investing in infrastructure. This is clear from the small proportion of pension fund capital allocated to private equity. In 2021, the local PE market raised only R6.6bn from local pension funds, which was down from the previous year's R8.9bn. In terms of the pension fund industry's total exposure to PE, the exact value is difficult to determine but it was less than 3.6% in 2021, which was the total proportion of assets allocated to alternatives (Dunsire et al., 2022). South Africa's pension industry remains heavily overweight equities, both in absolute terms (58.3% equity allocation) as well as relative to other markets in Latin America, the Middle East and Asia.

Figure 13: South African Pension Funds Weighted Average Asset Allocation (2021)



Source: Mercer (Dunsire et al., 2022)

Regulatory limits are clearly not a constraint for pension fund investors. Instead, the absence of an investable pipeline of projects is the main issue that emerged from our research (this is discussed in more detail below). To mobilise large-scale financing from the pension fund industry, South Africa needs listed investment products that deliver appropriate risk-adjusted returns over a long-term investment horizon.

4.1.5 Private equity

South Africa's private equity industry remains relatively small with R206bn in funds under management as of 2021. Investors have medium- to high-risk appetite and an investment horizon of five to seven years. While most funds' primary investment objective is to maximise investor returns, some funds have specific mandates on ESG or impact themes. While private equity can lock up capital for longer periods than banks and collective investment schemes, these investments require an exit mechanism in the medium term. The nature of this capital is ideal for greenfield investing in JET projects or portfolio companies, and this is done mostly through the provision of equity and occasionally mezzanine capital (subordinated debt or preferred equity).

Despite its scale, private equity has an important role to play in the just energy transition. PE firms tend to provide risk capital in the form of equity, whereas banks and other institutional investment is focused on debt. Typically, South African projects are leveraged four to five times, so equity can play an important catalytic role.

Private equity has been leading the charge in ESG integration and the latest SAVCA PE survey found that it remains a strategic priority for firms to pursue ESG initiatives, with 94% of PE firms indicating that they consider ESG factors when making investment decisions (SAVCA, 2022). Furthermore, 45% of funds have an impact investing mandate and 68% of those who do not have such a mandate will consider one in the next five years.

From a practical perspective, deploying capital into just energy transition projects remains a complex process. PE firms can primarily participate in this process through investment in renewable energy projects. The just element of the transition can be layered into deals via ESG mandates.

PE firms' investment decisions are governed by their mandates. Varying investment mandates from investors that commit capital to PE funds add a layer of complexity in finding suitable portfolio companies. Investors often also have specific requirements in terms of how ESG strategies are integrated. For example, DFI funding might only focus on climate aspects, which limits the PE firm from integrating the social aspect. Moreover, the ESG integration process typically involves screening potential investments against exclusion criteria and in many instances prevents capital from flowing to portfolio companies whose core operations include fossil fuels. This can prevent PE firms from providing transition capital aimed specifically at enabling hard-to-abate organisations to lower their carbon emissions.

There is also the risk of foreign investors crowding out local PE firms from an IPP financing perspective.

Box 6: DFI funding

The South African PE market received the bulk (69%) of the R16.2bn in new funds raised in 2021 from the local market. The remaining funds were raised from various offshore funders, mainly DFIs, aid agencies and governments. While DFIs have traditionally been key investors in the private equity space, South Africa is now classified as a middle-income market and therefore will attract relatively less funding from offshore DFIs than some less developed, lower-income markets on the continent. Nevertheless, the DFI influence on the local market remains strong and the strong historical role that DFIs have played in the private equity space has been a key driver of ESG integration in investment strategies in both South Africa and the rest of the continent. Major DFI's approach to ESG integration, therefore, requires closer scrutiny to ensure that investment decision-making processes subject to, for example, exclusion criteria, do not hinder African markets from attracting transition funding for hard to abate sectors. It is interesting this regard that with the importance that South African JET has globally (political and diplomatic as well as a needs-based view) that some international DFI's are reconsidering their allocations and classification of South Africa. BII (British International Investment – former CDC) is perhaps the most obvious and sharp about turn example of this in recent years.

PE firms' inability to attract larger scale capital is also a key hurdle for the local PE market. Although pension funds' private equity exposure limit has recently been increased to 15% (from a 10% bucket for alternative investments that mingled private equity, hedge funds and others), the allocation to PE remains well below this threshold on average. This is, among other factors, a function of the perceived lack of transparency and higher risks associated with PE compared with listed investments. Relatively low local pension fund asset allocation to PE in turn disincentivises offshore investors from deploying capital to local PE managers. To achieve greater scale in the local PE market, we need larger capital allocations from institutional investors, which in turn should entice offshore investors to follow suit.

Another factor that could be hindering higher asset allocation proportions to private equity is investment consultants. These intermediaries play a critical role in advising capital owners on how best to invest their funds and unless there is an intentional effort from investment consultants to encourage asset owners to invest a larger proportion of their funds in just energy transition assets, it will be very difficult to achieve funding at scale.

4.1.6 DFIs

As of the 2020/21 fiscal year, DFIs in South Africa, including the Development Bank of Southern Africa (DBSA) and the Industrial Development Corporation (IDC), had total assets of R243.8bn. The Land Bank, which provides loans to the agricultural sector, remains in financial distress after defaulting on its debt in 2020/21.

The DBSA, with R100bn in assets, mainly funds large-scale infrastructure projects. The DBSA is involved in various energy infrastructure programmes, including REIPPPP, the Climate Finance Facility (CFF) and the Embedded Generation Investment Programme. It provides finance to high-impact projects through various mechanisms, including arranging and underwriting, on-balance sheet debt (vanilla loans), cashflow-backed project finance, BEE and B-BBEE funding, subordinated (mezzanine) debt instruments, tenor extension aimed at catalysing the private sector (commercial banks and asset managers), sculpted and structured loans that match project cash flows, blended finance (tenor and interest rates), guarantees and first loss instruments. One of its strategic objectives is to accelerate development impact and smart partnerships and key performance indicators for this objective which includes project preparation. However, the DBSA failed to disburse the targeted funding of R2.5bn in 2021, only managing to deploy R0.9bn for project development. This is likely one of the factors contributing to the insufficient pipeline issue.

In REIPPP BW1-4, the DBSA provided approximately R15bn in senior debt and ZAR3bn to BEE parties and local community trusts (DBSA, 2022). In the 2021 financial year, the DBSA had exposure to R1.3bn in development bonds in the energy sector, while gross development loans to the energy sector totalled R49.2bn (or 52% of the gross development loan book).

The IDC, meanwhile, finances industrial development with the goal of contributing to economic integration across the continent. Since 2012, the IDC's exposure to the RE space has grown to R15.6bn (IDC, 2022). Equity exposure to renewable energy projects totalled R3.9bn in the 2021 financial year (12.2% of total exposure through equity investments). The IDC also partnered with Agence Française de Développement (AFD) to launch a R1bn AFD Green Energy Fund that provides finance to smaller scale renewable energy and energy efficiency projects.

DFIs have long-term investment horizons and mandates to address market failures for infrastructure funding. The objective of South Africa's DFIs is to promote the development of infrastructure and apart from the need for prudent management of finances, DFIs have few constraints regarding their ability to invest in JET instruments and projects. DFIs can invest throughout the entire lifespan of an infrastructure project and have various tools through which this can be done (as listed above). Investment mandates are determined by shareholder agreements.

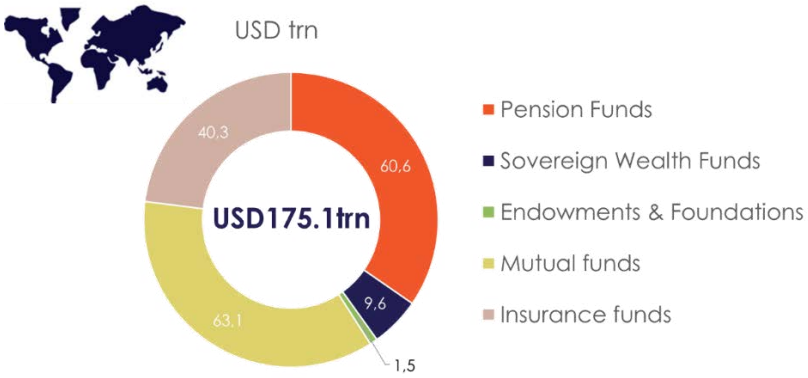
DFIs by their very nature are intended to address market failures and in the context of JET, this means bridging the gap between the role of government (developmental objectives) and the private sector

(commercial return objective). This can be achieved by getting projects investment ready, investing in new instruments to prove viability for private commercial investors (for example debt instruments on the JSE's transition segment), etc.

4.2 International funding pool

The global investment universe consists of $175.1tn in assets. The key question is what proportion of this can conceivably be directed to investment in South Africa's JET.

Figure 14: International funding pool



Source: Thinking Ahead Institute (2022). Global Pension Assets Study | 2021

There are various factors that influence the flow of international capital, including prudential regulations, trustee interpretation of fiduciary duty, asset consultants and asset management strategies. At the same time, global capital also manages various risks (perceived and real) when investing into emerging markets, including FX risk, country risk, liquidity risk etc.

A recent study by Intellidex on drivers of investment flows to emerging and frontier markets (Theobald, 2022) found that:

- Pension funds are the single largest source of institutional capital. Interviewees differed in their liquidity requirements and in addition to scale and informational constraints, respondents consistently articulated that reputational and ESG risks **prevented larger allocations to emerging and frontier markets;**
- Sovereign wealth funds account for more than $10tn, with a further $21.4tn held in prefunded public pension funds. The research finds **sovereign wealth funds to have diverse allocation strategies**, with some focused on domestic development priorities while others followed regional or global strategies;
- Philanthropic foundations, predominantly in North America and Europe, manage some of **the most impact-oriented mandates amongst institutional investors**; however, this orientation was largely constrained to operating budgets, and did not generally translate into an impact-orientation to foundations' endowments; and
- **Retail investors constitute up to 23% of investment volumes in some markets**, and in others hold more as a group than mutual funds. Retail investors can hold smaller interests with fewer liquidity constraints but tend to show a home-country bias, limiting emerging market allocations.

4.2.1 Institutional Investors

The bulk of the offshore funding for the just transition will flow from institutional investors, including pension funds, mutual funds, insurance funds and sovereign wealth funds.

The Global Investor Coalition on Climate Change (GIC) is the coordinating body for institutional investors that are investing for a net zero future. They have four partner investor networks globally, including the European-based Institutional Investors Group on Climate Change (IIGCC), the Asia Investor Group on Climate Change (AIGCC), Ceres Investor Network on Climate Risk and Sustainability (North America) and the Investor Group on Climate Change (Australia and New Zealand). The table below details the membership and total AUM for each of the partner organisations.

Table 3: Global Investor Coalition on Climate Change Networks

International Institutional Investors	No. of members	AUM* (USD trillion)
AIGC	66	$35.80
Ceres	220	$60.00
IIGCC	350	$50.64
IGCC	102	$2.00

** Data for each partner organisation obtained from its website. Evidently, there is double counting across the four organisations.*
Source: Paris Aligned Investment Initiative

In addition, the UK's Impact Investing Institute earlier this year launched the Just Transition Finance Challenger, a project that aims to support investors in adopting appropriate responses to the growing demand for sustainable finance products. The project has 19 public and private asset owners and managers and is in the process of developing criteria to underpin a just transition label for investment products. These products would need to comply with all three Just Transition Elements:

- Advancing climate and environmental action;
- Improving socioeconomic distribution and equity; and
- Increasing community voice.

Sovereign wealth funds, meanwhile, typically have long-term investment horizons and have a meaningful role to play in financing the JET. This group of capital allocators has already signalled willingness to support financing the transition to a low emissions global economy through the establishment of the One Planet SWF Network following the 2015 Paris Agreement. Some of the world's most influential SWFs are founding members of the One Planet SFW Network, including ADIA (United Arab Emirates), Kuwait Investment Authority, Public Investment Fund (Saudi Arabia), Qatar Investment Authority, New Zealand Superannuation Fund, and Norges Bank Investment Management (Norway).

These examples illustrate the growing interest from global investors to participate in the just transition. However, in order to participate in funding the transition, investors require fit-for-purpose products and instruments. Considering the nature of the capital that needs to be unlocked, the bulk of financing will have to be done in the public market fixed income domain in conjunction with a considerable volume of investment in private asset classes, including equity, private debt, infrastructure and real estate. The suitability of these private market assets for achieving just transition objectives are underpinned by their flexibility in design and market readiness. Publicly listed fixed-income assets, meanwhile, are appealing due to their familiarity and ability to produce reliable yield and liquidity.

4.2.2 Endowments and Foundations

International endowments and foundations have a critical role to play from a market preparedness perspective, particularly research and technical assistance to ensure that South Africa lays a solid foundation that will set the country up for success in achieving a just energy transition. In addition to the traditional function of philanthropic capital, these financiers should also think outside the box to find innovative ways in which their funding can be deployed. There is a growing global movement among distinguished philanthropies to encourage the application of grant funding as catalytic capital to crowd in commercial investors for impact investing. Specifically, the John D and Catherine T MacArthur Foundation, the Rockefeller Foundation and the Omidyar Network have established the Catalytic Capital Consortium which in its initial phase is awarding $10m over a three-year period to fund learning and market development for development funding practitioners. Furthermore, it is allocating more than $100m in investments across various sectors and geographies to demonstrate the use of catalytic capital.

Although philanthropic funders have historically allocated a very small portion of total funding to climate change – only $320m of the $64bn in US-based grants disbursed in 2020 was allocated directly towards climate change interventions (McKinsey & Company, 2021) – the climate agenda has taken centre stage and the funding available for climate interventions is bound to increase in years to come. Given the systemically important nature of JET, there is an opportunity for philanthropists to deploy capital such that it has a significant and outsized impact over the medium to longer term through acting as catalyst to crowd in institutional investors. JET requires cross-sector and co-funding collaboration given the lack of capital from development financiers on their own to fill the transition funding gap.

4.2.3 Public development banks (PDBs) and multilateral development banks (MDBs)

As of 2020, there were 522 PDBs globally across 154 countries with $23tn in AUM, representing 10% of the total value of investments made annually (Peking University Institute of New Structural Economics, 2022). As a collective, these institutions have signalled their commitment to a just transition. Initially, a core group of MDBs (detailed below) solidified their support for a just transition via setting out five MDB Just Transition High-Level Principles at the UN Secretary General's Climate Action Summit in September 2019, and more recently, at the 2022 Finance in Common Summit.

Figure 15: MBD Just Transition High-Level Principles

Source: Asian Infrastructure Development Bank (AIIB)

There are examples of how these organisations are utilising their funds for climate ambitions, such as the International Bank for Reconstruction and Development (IBRD), the African Development Bank (AfDB), and the International Finance Corporation (IFC) who have partnered with the Climate Investment Fund (CIF) to provide concessional financing for renewable energy projects in South Africa.

We view these entities' role as crucial in derisking larger projects and also funding the harder to structure deals, such as on the social side, which can have more indirect derisking impacts through entire value chains.

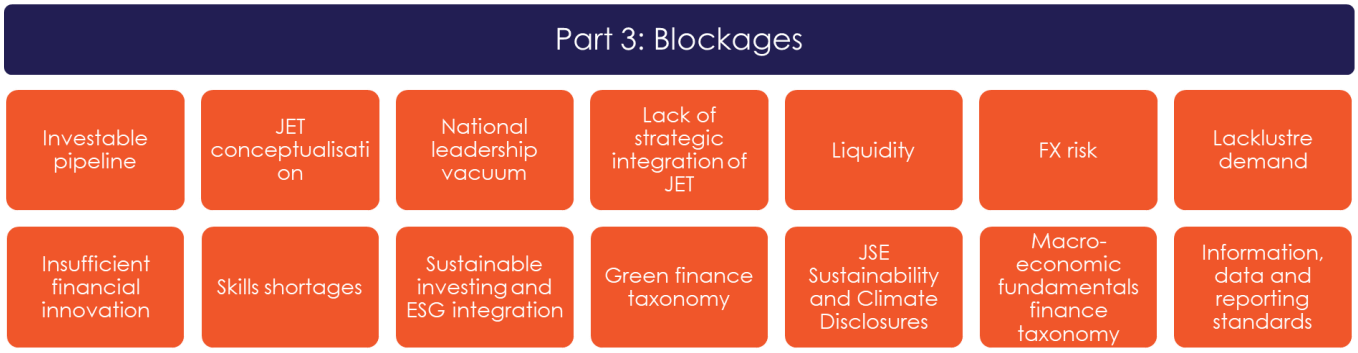
Box 7: Concessional MDB finance

The CIF co-invested $233m alongside $370m in funding from the IBRD, AfDB and IFC for renewable energy projects in South Africa, including in the Sere Wind Farm and the Xina Solar One CSP plant. A CIF case study found that the concessional financing for these projects was critical in demonstrating the projects' technical and economic viability, which in turn supported future private sector investments (AfDB & CIF, 2020).

More specifically for South Africa's just transition, the JETP IPGs are funnelling a significant proportion of the funding earmarked for the just transition via their respective MDBs, including among others, France's Agence Française de Développement (AFD), Germany's KfW Development Bank and the European Union's European Investment Bank (EIB). The UK is meanwhile channelling some funds via the AfDB, while numerous MBDs are providing funding via the CIF's Accelerating Coal Transition (ACT) programme.

South Africa needs to unlock only a small fraction of the total global funding pool. It also requires different types of funding from the different types of financiers. The country is in a good position to unlock institutional investment capital once the foundations for a successful JET have been set, given the depth of its capital markets and a strong track record in attracting offshore investments since its post-Apartheid return to international markets in the 1990s. These fundamentals should be used to South Africa's advantage and with the right upfront support from philanthropic funders, multilateral development agencies, as well as product innovation and packaging of transition financing instruments, offshore institutional investors are likely to be keen to get exposure to these instruments, especially if they deliver on both financial and social or environmental investment objectives.

5. Part 3: Blockages



Several key themes emerged as blockages to unlocking private funding from our interviews. Some of these were surprising, and linked to specific pools of capital, while others were not. Many cross-cutting issues emerged, many of which are complex to resolve.

Figure 16: Summary of major blockages

Source: Intellidex

5.1 Investable pipeline

The most significant theme to emerge was the lack of an investable pipeline. Investors want to get their teeth stuck into actual deals to test internal structures and processes as well as enable discussions with end investors. Many practitioners highlighted that they have not been presented with any deals for serious consideration despite an abundance of rhetoric on energy finance and infrastructure in general.

Most green projects are not bankable without some measure of derisking of projects. This perspective reflects historic practice, with a sovereign guarantee having played a key part in the REIPPP programme. There is debate as to how essential this form of derisking is. As the SA national balance sheet lost its investment credit rating in 2020, the function of a sovereign guarantee is less material. Other forms of risk mitigation such as revenue ring fencing may be more effective in the context.

A related issue is that the conceptualisation of JET investing is far too theoretical in nature. This is seen as a wider problem given the poor performance of the broader government infrastructure pipeline. Specifically, the public sector has a poor track record of developing viable funding opportunities and projects that can be taken to the private sector with appropriate instruments. Capacity shortages often contribute to the public sector's inability to conduct appropriate procurement processes and then manage project pipeline and implementation.

Public sector projects delivered through public entities' own procurement frameworks must comply with the Framework for Infrastructure Delivery and Procurement Management (FIDPM), which was introduced in 2019 and replaced the Standard for Infrastructure Procurement and Delivery Management (SIPDM) framework. Intellidex research found that the key constraint for the public sector to deliver infrastructure through this framework is skills and capacity to work within the framework, rather than funding availability. Exceptionally high tender failure rates, as revealed in a National Planning Commission study in 2018 (only 5,255 out of 17,599 tenders were awarded), are a key constraint for the private sector as failed tenders create extensive costs and these costs are then factored into future bids, which increases the cost of procurement and compromises trust between the private sector and government. Public private partnerships (PPPs) can operate outside the FIDPM, yet PPPs are subject to even more onerous requirements, including an extensive value assessment.

Overall, this stalls financial innovation. At the same time, it is worth noting that some consider the notion of a lack of investable pipeline as an excuse by investors not to participate in the funding of JET. What was clear from the discussions during this research is that a demonstration case is required for what a JET transaction might look like. This would likely have to involve multiple stakeholders, including the government, Eskom, local DFIs and international development financiers. Since JET requires elements beyond just the infrastructure aspect, JET financing mechanisms will need some form of concessional financing for the just element of the transactions as these elements are unlikely to have any commercial aspects.

5.2 JET conceptualisation

Although there is much hype in the media around the JETP, it is quite alarming how vague and ambiguous market stakeholders' conceptual understanding of the JET is. It is generally considered as a transition to clean energy that leaves no one behind, yet there is a lack of strategic vision on what this entails, the pathway towards a transitioned economy, the speed at which this needs to materialise and the specific role that each of the stakeholders in the ecosystem needs to fulfil. With regards to the financing aspect, the conceptual departure point is primarily (and in some instances, exclusively) underpinned by the $8.5bn (~R147bn) JETP-IP funding earmarked for South Africa, with little consideration of the total financing (of at least ~$235 bn, which is the dollar equivalent of the R4tn minimum financing estimate) required for the overall JET over the next three decades. There is little appreciation for the fact that the $8.5bn (~R147bn) is merely a starting point and by no means a silver bullet that will solve South Africa's broader just transition financing needs.

The lack of understanding and indeed consensus around what a JET is, the scale of funding required and the role that various stakeholders in the market can and should play are major blockages to capital markets' ability to participate. Unless there is consensus on what needs to be financed and how this can be done, the just energy transition will remain an elusive and unachievable ambition.

5.3 National leadership vacuum

Some stakeholders attributed the conceptual muddle to a national leadership vacuum. This hints at looming implementation issues regardless of the various governance structures that have been established to champion the JET, including the PMO of the Office of the Presidency, the Presidential Climate Commission and Presidential Climate Finance Task Team. As is the case with private sector organisations and industry bodies, the government itself needs to consider how JET will become strategically embedded in both the fiscus and broader development agenda. While various dedicated structures have been established, capacity is a key constraint and these structures cannot operate in a silo. JET considerations will have to be embedded across all spheres of government to ensure that there is coherency in the departure points to achieving JET. This requires a massive and coordinated effort from a fragmented and politically distracted governing party, which will be no easy feat. Finally, there is a need for stronger collaboration between government, business and labour to obtain alignment on both the pathway and the market channels through which JET financing at scale can be mobilised.

5.4 Lack of strategic integration of JET

An issue related to the incoherent conceptualisation of the just energy transition is the absence of the urgent need to include intentional and tactical factors in embedding JET into organisations' core business strategies. The status quo thinking about JET is that it is an issue separate from organisations, whereas the reality is that it is one of the single largest macro themes that will dominate the local market in the next three decades. Failure to proactively integrate JET strategies risk having far-reaching economic ramifications for South Africa as the climate agenda takes centre stage. Decisive action from executive leadership is required across all organisations and industry bodies in the financial services sector to mobilise financing at scale.

5.5 Liquidity and deal size

Liquidity is a major issue that emerged across all engagements with market stakeholders. To mobilise private capital at scale, JET instruments must be liquid. So far, liquidity in REIPPP investments is poor (given lack of supply), generally consisting of unlisted secondary market deals between banks and investors. A lack of pooled risk green bond markets and uptake of the JSE transition segments are seen as problematic. Moreover, other sustainable finance instruments (including social bonds and sustainability linked loans) will have to be adopted on a much larger scale to enable the funding of the just element of the transition. There is a strong call for more liquid instruments which are standardised to fit into more portfolios (especially passive and index tracking).

Liquidity emerges when there are enough similar pieces of funding floating around a market for people to buy and sell at any one time. This is not the case at the moment. Banks in the future will play a key role in providing liquidity and will do so better with more standardised instruments.

Interviewees raised local DFI liquidity constraints as a hurdle to investing in RE projects. Investments into illiquid instruments (ie, that investors are required to hold to maturity) require much more extensive due diligence before an investment decision is reached, which in turn increases the time horizon to investment and more notably the associated cost.

Another dimension of the liquidity relates to the change in global macroeconomic conditions as major central banks are aggressively hiking interest rates to curb rapidly rising inflation. The tightening global financial conditions risk further draining of liquidity from riskier emerging market economies that will require JET funding from major developed market economies to achieve the scale needed for JET.

From a deal size perspective, structuring of RE assets becomes an essential element that can either accelerate or stifle the rate at which scale can be achieved. The extensive due diligence process for offshore investors in particular requires large deal sizes (at least $250m), which means projects need to be aggregated into portfolios to bolster the appeal of investing. This will also help diversify risks.

5.6 FX risk

FX risk was concerning to all investment practitioners given the volatility of the rand, the hefty component of imported capital goods likely required given limited onshore production capacity and the way that this could sway quite tight margins seen in many projects – especially when adding other risks like capital goods inflation on top. At the same time, foreign investors are reluctant to take on exposure to the rand given the currency volatility and underlying macro risks and therefore any funding from foreign financiers will likely be in hard currency. This leaves the local market exposed to currency risks, which is problematic.

One way in which FX risks can be mitigated to attract foreign funding is to leverage multilateral development financing. For example, if a multilateral lends to several different projects and issues a green bond against this pooled fund, they can potentially do this issuance in rands. The multilateral's involvement de-risks the overall portfolio's credit risk and invariably reduces the need for additional yield. This also helps solve the liquidity issue outlined above given the credibility of the underlying issuer of the instrument.

5.7 Lacklustre demand

Lacklustre demand was raised by many investors and banks reflecting that the changes to Regulation 28 regarding infrastructure and general appetite for project risk were low among end-capital allocators. Pension funds and asset managers remain bound by their investment mandates and ultimately need instruments that will enable them to operate within those. The newness of the space and higher levels of due diligence required was also raised. Institutional investors are not experienced in investing in infrastructure assets at a large scale and the costs associated with making good investment decisions disincentivise participation in investment in real assets.

A related issue, particularly for foreign investors, is project size. Once again, the costs related to research and due diligence of investment opportunities require a sizeable project to justify the effort and resources required throughout the investment decision-making process.

There is a strong focus on mobilising financing for the commercially viable projects and instruments that are needed for JET, yet there is a large proportion of funding that will have to be ringfenced to achieve the transition in a just way. Return-seeking investors understandably do not have any appetite to finance projects that are not commercially viable and the pursual of a transition in a just way will have to be embedded in the underlying investments. This will be discussed extensively in the second paper of this three-part series.

5.8 Insufficient financial innovation

The local market has been slow to adopt new instruments that can ramp up funding for JET. As mentioned earlier, this may be a function of the market still playing catch up with regulatory changes (ie, the increase in the ceiling for self-generation under Electricity Regulation Act Schedule 2 as well as the imminent change

in the infrastructure investment ceiling for pension funds). Furthermore, there is very little evidence to suggest that practitioners are proactively thinking about **designing new and innovative instruments and mechanisms** that could accelerate the mobilisation of private sector funding for JET. Institutional investors with long-term investment horizons allocate the vast majority of portfolios to listed instruments that can yield risk-adjusted returns.

There is a need for packaging transition financing instruments in a way that is accessible for institutional investors. This is applicable for both domestic and offshore investors. For example, portfolios of renewable energy IPPs that are in the operations phase could be more attractive than investing in a single RE project as this diversifies investors' exposures. Scale can also be achieved by pooling projects – offshore investors in particular need options to invest in hard currency portfolios and projects that have a minimum value of $250m. Bundling transmission, distribution and generation can help increase the size of investments.

The lack of innovation in the local market seems to be primarily a function of insufficient pipeline, lacklustre demand and little (or no) appreciation for the conceptual approach to participating in the just energy transition. There is an opportunity for practitioners to accelerate their thinking on transition financing as mechanisms that support clients in transitioning to net zero as well as structuring instruments that crowd in institutional investors which could provide a strong competitive advantage.

5.9 Skills shortages

Many of the blockages highlighted by interviewees refer to a **lack of specialist skills and expertise** in the local market to drive the advocacy required for building a pipeline of low-carbon or green projects. This is not only a South African problem but a global problem; many green or climate-smart deals get stuck due to a lack of skills. Simply put, there aren't enough scientists, engineers, ESG experts and change-management professionals to go around. The revival of the REIPPPP rounds and the liberation of the embedded generation market greatly exposed this reality in South Africa. Engineering procurement and construction (EPC) capacity in South Africa is becoming stretched as a result of a significant increase in activity in corporate and private power purchase agreements (PPAs) as a result of the ERA s2 reform.

If nations lack the capabilities to achieve a low-carbon economy, green treaties around the world will remain in amber. Key energy transition targets will not be attained if government and corporate leaders do not address the skills gap. To date, South Africa does not seem to have a concrete plan to resolve the skills gap. For instance, there is no tangible coordination or plan between the critical departments on green skills identification or in analysing scarce skills.

A successful transition will require commercial investment capital, blended structures in the form of public-private partnerships and concessional capital and development funding from a combination of philanthropists and multilateral development financiers.

5.10 Sustainable investing and ESG integration

There is significant hype around sustainable finance and ESG integration and regulators across the globe are taking steps to implement legislative parameters on how this should be done, albeit at varying degrees of stringency and at different paces. Some of the most progressive markets (Europe) have already introduced prescriptive reporting requirements as well as limits on exposure to carbon-intensive jurisdictions, both at the corporate and sovereign levels. This imposes limitations on institutional investors' ability to allocate capital to emerging and frontier markets. These markets are not only competing based on macroeconomic fundamentals, but also on carbon intensity. With limited portfolio allocation available for carbon intensive investments, only the best-in-class products will be able to attract much-needed institutional financing.

Another way in which the wider adoption of ESG integration is having negative implications for emerging and frontier markets is through the utilisation of **exclusion criteria** in the investment selection process.

Ratings and scores produced by various ESG agencies and disclosure bodies are used to screen out JET counterparties like Eskom and Sasol given their high carbon footprints. Yet the transition that needs to occur is precisely at firms like these that need to shift their infrastructure into sustainable business models.

In addition to the exclusions related to climate aspects (ie, inability to allocate capital to carbon intensive corporations and sovereigns), institutional investors' ESG allocation strategies risk diverting capital flows away from emerging and frontier markets; as these jurisdictions often do not have robust data and tend to score poorly on ESG metrics as currently constructed. This tends to materialise through screening criteria that exclude regions based on their performance on criteria such as corruption, policy uncertainty and energy security. For South Africa specifically, the REIPPP programme has suffered a lot from policy uncertainty.

5.11 Green finance taxonomy

Although this is related to broader ESG integration, this is a specific issue that was raised by local practitioners.

NT, the National Business Initiative (NBI), and the Carbon Trust, have developed South Africa's **Green Finance Taxonomy**. This taxonomy is designed based on the EU taxonomy with the intent to provide a toolkit for South Africa's financial services industry stakeholders that want to engage with green, social and sustainable finance initiatives. It should act as a toolkit for stakeholders to define "substantial contribution" and "do no significant harm" provisions (Boulle, 2021).

The risk with the green finance taxonomy is that it results in unintended consequences. Financiers are frustrated by the taxonomy's use of a blanket approach to the green projects, and it is based on an international context that does not take South African conditions into account. Issuers are wary of the reputational risks involved with labelling instruments as green or taxonomy aligned due to the complexity associated with the taxonomy, as well as issues related to the do no significant harm requirements. The asset managers we spoke to describe the disclosure process as a cumbersome exercise that is not necessarily important, and that the taxonomy is too theoretical and falls short in terms of being practically implementable. Certification requirements add a layer of complexity and cost to green finance instruments and, as one interviewee noted, layering standard upon standard risk preventing the country from achieving the desired outcomes.

The European green finance taxonomy is considered a blockage as well for the same reasons and several pools of capital will be unable to participate in funding transition projects due to the taxonomy reporting requirements.

5.12 JSE Sustainability Bonds Disclosure

The local sustainable debt market started gaining traction in 2021 but appetite from issuers to list these instruments has since stalled. The JSE's climate disclosure requirements are disincentivising more widespread adoption of these instruments as they are expensive to structure and the pre-issuance assurance requirements – which includes second party opinions (SPOs) for both use of proceeds and sustainability linked debt instruments – further increase costs. As is the case with the green finance taxonomy, practitioners criticise the JSE sustainability and disclosure requirements as being excessively cumbersome and they therefore run the risk of having counter-intended consequences as issuers opt to transact in the unlisted space instead. This poses a significant threat to the scaling up of finance for the just transition.

There are only a small handful of service providers in the local market that do SPOs and therefore issuers often need to obtain SPOs from (more expensive) international service providers. Prospective issuers' hesitance to use these instruments could be a function of there simply not being appetite to make use of a relatively more complex instrument when a vanilla corporate debt instrument can be used instead. There are also risks associated with greenwashing, yet the more rigorous disclosure requirements on the JSE's Sustainability segment aims to mitigate those risks.

5.13 Macroeconomic fundamentals

Fundamentals matter. One interviewee explicitly said that general macroeconomic considerations still dominate the investment decision making process (as opposed to climate considerations) and the bulk of the offshore institutional funding that is available merely seeks attractive risk-adjusted returns rather than prioritising the development objective. This is the crux of achieving JET funding at scale.

South Africa is not the only emerging market that is transitioning to net zero and both domestic and offshore investors must factor in underlying macroeconomic fundamentals in their investment decision making process to adhere to mandates. For offshore investors, countries with high carbon footprints are competing against each other in the sustainable investing funding pools given the limitations on their portfolio exposure to GHG emissions. Countries where macro fundamentals are strong have a competitive advantage, especially when considering credit risk for listed debt investments. In the local market, investors are comparing local investment opportunities vs offshore opportunities given the significant (45%) offshore allocation threshold in Regulation 28. South Africa needs to get the basics right to boost its appeal as an investment destination from a macro perspective.

To illustrate the negative impact that poor macro fundamentals have on capital markets, consider how the proportion of non-resident holdings of South African government bonds has shrunk from a peak of 42.7% in April 2018 to levels around 26.8% in September 2022 (NT, 2022). In absolute terms, foreigners still hold more bonds now (R864.1bn) than they did back in April 2018 (R 757.5bn), yet the rampant increase in issuance has not resulted in a commensurate increase in demand for these instruments. The negative sentiment towards the South African market is also reflected in the trends in overall foreign portfolio flows, with non-resident investors disposing of R415.8bn in assets in 2021, up from net disposal of R159.3bn in 2020 (SARB, 2022a). At the same time, South African residents purchased foreign portfolio assets to the value of R393.4bn in 2021 following disposals of R46.6bn in 2020 (SARB, 2022a). Foreigners are reducing their exposure to South African capital markets while domestic investors are increasing exposure to foreign markets, both of which are diminishing the pool of capital in the local market.

5.14 Information, data and reporting standards

A recent study by Intellidex on drivers of investment flows to emerging and frontier markets (Theobald, 2022) found that data demands of ESG are a key factor that could deter investment into emerging and frontier markets. Collecting, collating and packaging ESG data is resource intensive and requires technical expertise to ensure that the data is of good quality. Many companies simply do not have the capacity or capabilities to do this. The lack of good quality data on ESG metrics in particular exposes investors to reputational risk. While some investors indicated that the ESG data quality can be priced into the investment, others opt to avoid investments that do not meet ESG requirements entirely.

Box 8: Financing social justice issues in JET

The focus of this report was on the capital market infrastructure and blockages that exist to achieve funding at scale. The second report in this three-part series will focus on the financing of social justice issues in the energy transition, with a specific focus on how the banking sector markets, regulators and others need to think about aspects of sustainable community ownership, meaningful economic and social development spending, and how these should be financed in the future through JET.

The report will firstly focus on the types of activities that can be funded and then consider the instruments to finance these activities. The research includes case studies on what is currently being used for transition financing and then investigates whether these are scalable.

6. Part 4: Recommendations

Table 4: Recommendations summary table

Recommendation	Who	How	Timeline
1. JET conceptualisation	PCC, PCFTT	Market engagement	2023
2. Investment case	PCC, PCFTT and philanthropies	Research and advocacy	2023-2024
3. Pipeline development	PCC, DFIs and MDBs	Project mapping Technical support	2023 2023-2050
4. National JET strategy	PCC and PCFTT	Design, develop and implement strategy	2023, periodic strategy reviews
5. Strategic JET intergration	Market practitioners	Industry body advocacy	2023-2028
6. Map JET financiers	PCC, PCFTT and philanthropies	Research and market engagement	2023
7. Product development	DFIs and MDBs	Develop commercially scalable JET products	2023-2030
8. Market development	Regulators and industry bodies	Market engagement	2023-2030
9. Close skills gap	PCC, PCFTT and philanthropies	Map skills Design interventions	2023-2024 2024-2050
10. ESG integration	Philanthropies and banks	Research and advocacy	2023
11. Reporting standardisation	Regulators and industry bodies	Market engagement	Ongoing

Source: Intellidex

6.1 Build conceptual consensus on JET financing

The first issue that needs to be addressed is in some sense basic but very important – the lack of conceptual consensus on what a just transition consists of. Without a clear vision of what a just transition looks like, there is little understanding of what roles different parts of the financial ecosystem need to play. There is a lack of appreciation in the market of the scale of funding needed as well as the roles that various participants in the financial sector ecosystem can fulfil to deliver it. Existing reports from a variety of sources, while welcomed by climate experts and ESG practitioners, have not cut through in our view to change behaviours yet. The various pools of capital considered in this report each have a unique function to fulfil and both market segment-specific and cross-cutting collaborative efforts from practitioners are needed to unlock the enormous scale of financing for the JET over the next three decades. While there is a sense of urgency, the funding of the just energy transition requires pragmatism to ensure that the financing solutions are sustainable in the medium to long term.

It is important to differentiate between the various components of the JET to ensure alignment with different sources of capital. The PCC and PCFTT (acting as one – to avoid confusion which is a risk) needs to ramp up advocacy efforts in the wider South African financial ecosystem to support capacity building for the various elements of JET financing as well as encouraging stakeholders to ensure that their respective organisations have the right capabilities. This must be channelled both indirectly through industry bodies (ASISA, Batseta, BASA) and market regulators (FSCA, PA) as well as directly through engagement with systemically important banks, pension funds and insurers. Banks need to recognise that the pace of financing rollup will be faster than they have ever experienced before and not stop (this is not the usual credit waves that come and go) and so will play as much a role intermediating as deploying capital; pension funds need to recognise that the pipeline of long-term yield paper is suddenly going to expand; private equity firms need to recognise that a great deal of risk capital is going to be needed for projects. All these need to be supported and catalysed by domestic and foreign DFIs, which the JETP will hopefully deliver.

A more concerted effort to engage with international capital allocators beyond the JETP-IP is also essential. Advocacy related to scaling up financing for JET must be done successfully in the local market to demonstrate to offshore investors that there is buy-in from local investors (which encourages a sense of derisking and information sharing). It is also critical to ensure that the case for investing in the just transition as well as how such investment will support the pathway to net zero are clearly articulated. Existing ESG investment practices often result in flows being directed away from emerging markets and South Africa needs to ramp up efforts to demonstrate to offshore investors how their capital can be utilised to achieve long-term sustainable outcomes.

6.2 Developing the investment case for JET financing

The only way that South Africa will ever attract funding at scale is if the country can offer liquid investments to capital allocators that yield competitive, risk-adjusted returns over the medium to long term. Transition investment instruments need to be packaged such that it is simple for institutional investors to invest. GSS bonds listed on exchanges that are indexed offer one example of instruments that can be foundational in building familiarity and appetite.

The robust demand for renewable energy backed green bonds (as illustrated by the Investec green bond example discussed above) suggests that institutional investors have appetite, at least at some scale. This demonstrates that at least one mechanism to crowd in institutional investors already exists and can be utilised. However, these transactions in the local market have historically been very small given the size of deals in the RE space to date. These instruments must be issued at much larger scale to enable commercial investors to increase their exposure to transition investments.

We should be clear however that central plans are not the same as developing an investment case. We are sceptical of the JET-IP in this regard. It is a point of departure for a conversation that asset managers and banks can have with projects which is the coalface of where an investment case is really going to start to happen. Ultimately an investment case is going to be generated on a bank-by-bank and asset-by-asset manager basis internally in discussions in "usual" forums like balance sheet allocation and investment committees rather than centrally directed through a process like JET-IP. This fact is lost on many, we fear.

We could argue that banks need to increase the rate at which RE assets (and other JET assets over time) are removed from their balance sheets to free up capacity for investment in new infrastructure projects, but the incentive to do this will only be prompted by a ramp up in demand for financing from new developers – we are therefore in something of a chicken and egg situation. In the absence of a significant increase in demand from developers, banks are unlikely to accelerate the pace at which loans are repackaged to be listed on an exchange. In particular, we think banks need to view their role as being as much about intermediation as it is about capital deployment. Banks have the networks and relationships to build much of the required momentum into the asset management side, bringing in partnerships with DFIs and others and will become crucial cogs in our view. This is not to say this not occurring already. It is that the scale required is not being achieved and is not on the horizon yet.

This trend is underpinned by another critical issue, which brings us to the next recommendation.

6.3 Project pipeline development

While the first two recommendations are critical in unlocking both the financing and scale elements, neither can be achieved in the absence of the pipeline of projects.

South Africa needs a strategy that will proactively address the lack of scale in the investable pipeline as well as the visibility of that pipeline. We've discussed the enormous size of investment required, yet from an investor perspective the pipeline is currently empty with a lack of closure of many projects and the embedded generation market funded to a large degree so far on corporate balance sheets. There is an opportunity for development funders, including philanthropists and multilateral development agencies, to develop projects that are close to being investment ready to get to a point of bankability. Alternatively, projects that are deemed excessively risky for commercial funders can be de-risked by development funders. The volume of renewable energy projects that need to come online is substantial in scale, yet the pipeline cannot arrive as a tidal wave. There must be a gradual ramp up starting with a steady stream of smaller projects that are close to the models established by REIPPP.

Banks can again play a key role as information disseminators into the market for pipeline development. We believe many of them are ready to do so but this hasn't occurred yet given the lack of projects.

Insufficient pipeline is a longstanding issue in the local market for broader general infrastructure and ramping up the availability of investment-ready projects for investors to fund is a key priority. A project pipeline that is credible will in many way force developments in other areas and be catalytic.

6.4 Design of a national JET strategy, including creating implementation capacity

The Presidency needs to develop and implement a macro-level strategy to ensure that there is alignment across all spheres of government on what a successful just energy transition will look like as well as understand its own role in ensuring that the necessary funding is raised from the private sector. Moreover, the Presidency needs to ensure that there is a coherent capacity building and knowledge sharing campaign that can capacitate government departments to engage with the private sector to mobilise funding for JET.

The Presidency can only determine policy direction. Government departments need to be appropriately aligned and capacitated including NT, the Department of Mineral Resources and Energy, state owned enterprises and the Department of Forestry, Fisheries and the Environment, which all need capacity and technical support.

The various governance structures that have been established by the Presidency must be sufficiently resourced to engage the numerous market stakeholders that will need to collaborate to achieve JET financing at scale.

While government might say there is growing certainty – and indeed the PCC has played a revolutionary role in the South African political economy to draw together a consensus at some level on JET – policy uncertainty and the sense that different elements are pulling in different directions is simply too great for many investors who are jaded. As such, while this recommendation seems generic, we think it is exceptionally important.

6.5 Embedding JET into core business strategies

Not a single business will be immune to the macro risks associated with the unsuccessful pursual of a just energy transition and private sector organisations need to become more proactive in their thinking regarding how JET considerations can be integrated into their core business strategies. For financial services organisations, failure to do so present risks from an access to capital markets perspective, as well as a potential opportunity cost by failing to engage with clients to support them in achieving their own transition ambitions. South Africa needs private sector capital to finance JET at scale and all practitioners in the financial ecosystem have a role to play (and a potential business opportunity to pursue) to participate in the transition.

Equally, industries beyond the financial services sector needs to consider integrating JET to ensure that they maintain access to capital and safeguard long-term business sustainability. Executive leadership in these organisations need to assume responsibility for this.

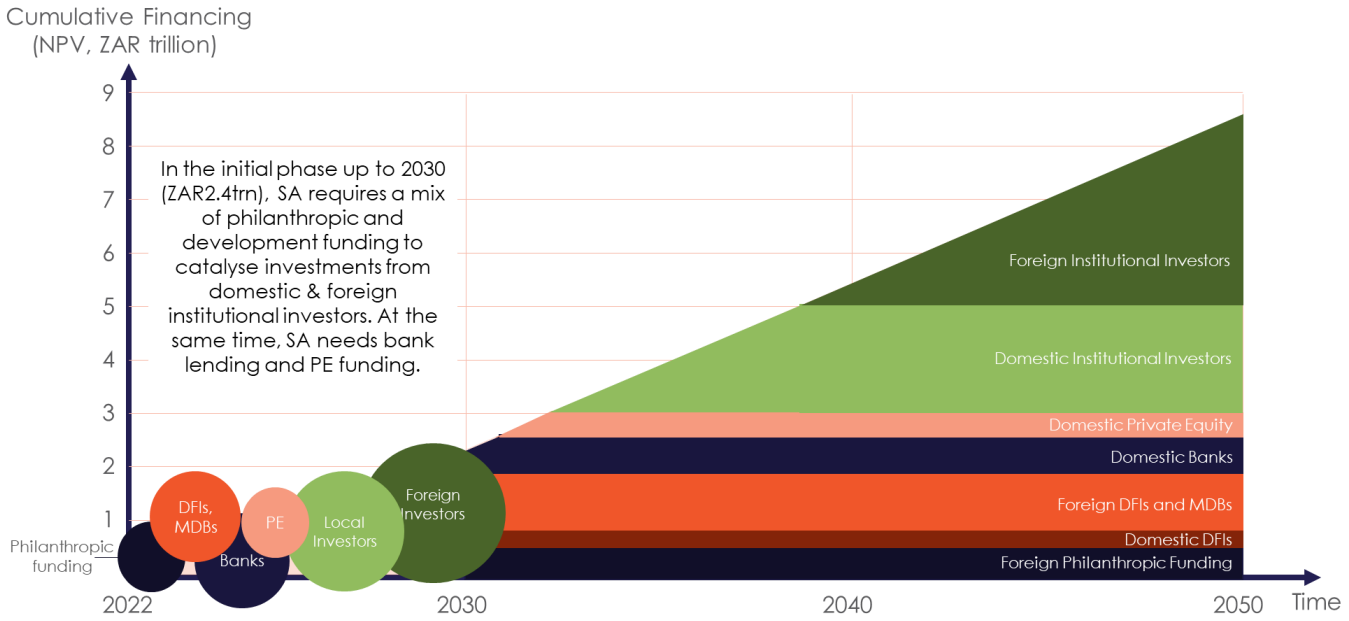
6.6 Mapping various funders in the ecosystem to establish who can fund what

This research paper provides an overview of the various pools of capital that can be tapped for financing the just energy transition.

Further research is needed to map out the various funders in the financing ecosystem to obtain clarity on who is best suited to fund specific elements of the just transition, as well as the specific mix of local vs foreign commercial capital, public sector financing, development funding and philanthropic funding that needs to be mobilised along the 30-year time horizon. This is especially essential to obtain clarity on how financing can be raised for the elements that are not commercially viable (this will be discussed in more detail in the second paper), as well as how these elements need to be funded.

Figure 17 provides a snapshot of what this might look like, yet this is a preliminary view based on initial research and requires further interrogation.

Figure 17: JET financing mix (based on World Bank NPV estimate for JET financing need of ZAR8.5tn)



Source: Intellidex

There will be a distinct role to play for the various pools of capital throughout the JET transition phase (and indeed beyond the 30-year time frame) and the initial phase outlined in the graphic above should be used to establish the fundamental building blocks that South Africa needs to unlock capital at scale over a sustained period in the 2030 to 2050 period.

6.7 Designing investment instruments that can unlock financing at scale

Blank constraints related to **liquidity, concentration risk, FX risks and lacklustre demand** can all be eliminated through product development. Stronger adoption of sustainable finance instruments listed on exchanges is needed to grow the market and increase liquidity. To achieve this, the local capital markets need more robust engagement with transactors to obtain clarity on what is crippling appetite for faster adoption and widespread utilisation of these instruments. At the same time, banks need to think about how these instruments can be pooled into funds to improve the risk profile for institutional investors, including liquidity and credit risks. Again, we stress the central role that banks will play.

Development funders have a role to play from a **liquidity and FX risk** perspective. For example, multilaterals can create fund structures that will help overcome the issues related to deal size and investment due diligence costs. Developing a renewable energy fund, for example, will de-risk the investment from a portfolio diversification perspective. To further enhance the appeal for commercial capital, development funders can provide first loss capital, guarantees, or FX hedges.

While this function has traditionally been fulfilled by multilateral development funders, philanthropists can also act in a similar capacity for funds developed by commercial asset managers. For example, grant funding can be applied as catalytic capital through the provision of guarantees, FX hedging or first loss capital. Utilising these tools will bolster the appeal of the fund for commercial investors and help blend in these additional sources of capital.

Domestic DFIs can meanwhile help **bridge the demand gap** for infrastructure investments by being first movers in investing in new infrastructure investment instruments to help build the demonstration case for institutional investors. Pension funds are typically slow adopters and demand for investing into JET can be accelerated if development funders step in to create the demonstration cases required to obtain buy-in from institutional funders. This, in turn, will help crowd in foreign investments as offshore funders are unlikely to be first movers – they will first require buy-in from local investors before taking on exposure to instruments. This will likely require a more proactive and aggressive JET financing market development drive from local DFIs (and potentially in collaboration with MDBs as well given local DFIs' balance sheet constraints).

The government also has a role to play in market development, at the very least from a signalling perspective. The absence of a green sovereign yield curve does not bode well for South Africa's ambitions to mobilise transition finance at scale. A sovereign green curve will provide both issuers and investors with a reference price point and help clarify to the market whether there is a greenium of which to take advantage.

One mechanism through which corporate issuers can raise funding from offshore institutional investors is through raising debt in hard currency. Ideally, JET financing instruments need to meet criteria for inclusion in either the core or broad diversified JP Morgan Corporate Emerging Market Bond Indices (CEMBI CORE and CEMBI Broad Diversified). Some of the key inclusion criteria into these indices are highlighted below.

Table 5: JP Morgan CEMBI Inclusion Criteria Comparison

Index Criteria	CEMBI CORE	CEMBI Broad Diversified
Currency	USD	USD
Coupon Reinvestment	All coupons received are immediately	All coupons received are immediately
Hedging Startegy	Assume a 1-month currency forward position	Assume a 1-month currency forward position
Country	Africa, Asia ex Japan, Latin America, Eastern	Africa, Asia ex Japan, Latin America, Eastern
Instrument type	All fixed, floaters, amortizers, and capitalizers;	All fixed, floaters, amortizers, and capitalizers;
Min Face Amount	USD500mn (approx. ZAR9bn)	USD300mn (Approx. ZAR5.5bn)
Maturity required for initial inclusion	At least 2.5 years till maturity	At least 2.5 years till maturity
Matruity reqiured to maintain	At least 1 year till maturity	At least 6 months till maturity
Issuer Criteria	• Headquartered in an EM country or • 100% of the issuer's asset are within EM economies or • 100% secured by assets within EM economies	• Headquartered in an EM country or • 100% of the issuer's asset are within EM economies or • 100% secured by assets within EM economies

Source: JP Morgan (JP Morgan Chase & Co, 2021)

The highly volatile nature of the rand naturally dampens the appeal locally of raising funding in hard currency and also increases the cost through the need for FX hedging. As highlighted in other examples, there is an opportunity for development funding to support issuers though either hedging FX risks or providing some guarantees against such issuances. While these approaches are unconventional and not typical for development funders, the magnitude of the JET funding need requires outside the box thinking regarding the way in which development funding is deployed to ensure that it is used as catalytic capital to crowd in institutional investors. Corporations may also encounter some challenges from a balance sheet perspective to raise such large dollar funding tranches, which amplifies the need for alternative solutions that involve some form of development funding.

Eskom, meanwhile, as the single largest carbon emitter on the continent, can potentially be a first mover on listing an instrument on the JSE's Transition Segment to test whether this is a viable mechanism for the utility to raise funding in the open market for its transition ambitions. Underlying credit dynamics remain a key consideration for investors when purchasing sustainability instruments and therefore an Eskom issuance might need to be de-risked by government through the provision of guarantees. Alternatively, multilaterals or philanthropic funders that have a transition mandate can collaborate with Eskom to explore opportunities around how their capital can de-risk the instrument to make it more appealing for commercial investors. Transition instruments ringfence proceeds by design and this should bring some level of confidence to investors that the funding will be disbursed to help accelerate the transition.

6.8 Supporting bank financing capacity

Banks currently have balance sheet capacity for more funding of renewable energy projects. However, this is constrained by risk parameters set by boards, rating agencies and regulators. While in our view there is a good mechanism in place for banks to move exposures off balance sheet to institutional investors, the pace of this transformation may not match the need for greater bank financing. Banks are well positioned to manage project development and construction with institutional investors suited to mature operating phases of projects. Typically, it will take five years from project start to stable operating phase at which institutional investors will comfortably step in to take investments off bank balance sheets. At the scale of JET financing needed, banks will not be able to create balance sheet capacity fast enough to meet new project requirements.

MFIs can alleviate this gap to some extent by diversifying the balance sheets that banks face in renewables finance. IFIs can bring AAA rated balance sheets to guarantee credit risks to developers, helping to relieve concentration risks to local industry conditions. While there is varied practice among South African banks in how exposure risks are managed and thresholds set, the IFIs can bring credit enhancements that will improve balance sheet capacity for transition financing.

The SARB Prudential Authority (PA) should investigate if capital charges for JET financing backed by MFIs is appropriately set.

6.9 Building capital market infrastructure

There is a balancing act to be achieved in terms of managing the sense of urgency about JET and ensuring that the market infrastructure mechanisms that are introduced do not have unintentional ramifications. These mechanisms include the JSE's Sustainability, Climate, and Transition Segments, as well as the green finance taxonomy. To ensure that these frameworks function as intended and achieve what they set out to, they should be sufficiently stringent to ensure that they provide the necessary guidance on minimum requirements, while at the same time not being excessively cumbersome to the extent that they dissuade the market from engaging with or adopting these instruments.

Considering the relative newness of sustainable finance for the mainstream market, an iterative process is required to ensure that a balance is found between making instruments accessible to the institutional market and achieving sustainability objectives.

NT needs to engage with both transactors and issuers on the **green finance taxonomy** to explore ways in which the guidance can be updated to encourage (rather than disincentivise) adoption of the framework, especially if alignment with the taxonomy becomes a regulatory requirement for green financing instruments.

Similarly, the JSE needs to engage with transactors to test whether updates to the existing guidance on **climate, sustainability and transition instruments** needs to be considered to encourage uptake.

An alternative (and perhaps controversial) option is for development funders (local DFIs, MDBs or philanthropists) to engage with transactors to encourage issuers to adopt these instruments. Given the costs associated with listing a transition bond, including compliance with all the listing criteria as well as obtaining third party assurance, there is an opportunity for development funders and philanthropists with a climate mandate to provide technical assistance to help develop this market. The Eskom example given above is one way of achieving this, but there might also be an opportunity to collaborate with heavy emitters and hard-to-abate organisations in the private sector to help advance the transition agenda. Some actors of size in the system (like Eskom) will have to grab the bull by the horns in terms of market development even if the first mover may have questionable financial incentives to do to (where philanthropies etc can support).

6.10 Addressing the skills gap

South Africa will need to develop highly specialised skills across various industry areas to create the capabilities needed to achieve the just energy transition over the next three decades. To understand exactly what skills are needed in which areas, the government needs to do a skills gap analysis and develop a strategy on how this gap will be closed. This is another area where development funders can provide technical assistance funding. To get to the end-goal of achieving net zero, South Africa will need to have a number of fundamental building blocks in place. Skills availability is one of those building blocks and will enable the design, development and implementation of the strategies needed for a just transition.

We particularly think skills are needed in the realm of fund trustees, bank credit committees and the Prudential Authority to ensure there is a broad enough bench of people thinking about these issues who are at or influencing the decision-making points.

6.11 Advocacy related to rethinking existing ESG integration practices

Capital flows are being affected by the way in which investors are integrating ESG practices in their investment decision-making processes and this is affecting the ability of emerging and frontier markets to attract funding. The very markets and organisations that most need financing to enable transition pathways are being cut off from capital markets.

One example is the utilisation of **exclusion lists** to screen investment opportunities. Amid the growing global focus on climate, blanket exclusion of the provision of funding for companies whose core operations relate to fossil fuels, for example, risks stifling transition ambitions. It also risks excluding capital allocators with sustainability objectives from proactively pursuing better outcomes in the long term. Carbon intensive industries might end up accessing capital from private market investors who do not have any sustainability objectives and put aside any transition ambitions.

This is a systemic risk to the global transition and developed market funders, especially development finance institutions and multilaterals. Well-intentioned regulatory frameworks (like the EU Finance Taxonomy) as well as ESG integration practices are having unintended consequences.

Once more, philanthropic funders with a climate mandate need to provide evidence-based research to regulators and industry bodies in developed markets to demonstrate the adverse implications of some of the existing ESG practices and advocate for changes to these practices to enable emerging and frontier markets to access capital more easily from developed market capital allocators.

It will be hard for any one country to undertake this type of advocacy and further work is required to map the full ecosystem of causal factors, but we think this is a crucial unblocking point for not just JET financing but all EM financing from Developed Markets.

6.12 Reporting standardisation

The complexities related to ESG and broader sustainability reporting are well known and practitioners across the financial sector ecosystem all grapple with this challenge. The IFRS Foundation has established the International Sustainability Standards Board (ISSB) to develop global baseline of sustainability disclosures to help improve the quality, transparency, reliability and comparability of ESG reporting by companies. These disclosure standards are still under development, however, and in the interim, companies need to ensure that they develop the capabilities (either internally or by contracting third party service providers) to align their reporting with an internationally acknowledged reporting framework. Existing reporting frameworks include (but are not limited to) the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards), Sustainability Accounting Standards Board (SASB), CDP (environmental disclosures), Task Force on Climate-related Financial Disclosures (TCFD), and the EU Corporate Sustainability Reporting Directive (CSRD).

There needs to be an advocacy effort to ensure these disclosure frameworks appropriately support the transition. Much disclosure is focused on existing practices and outcomes rather than interventions to support changes. South Africa's JET is a dramatic change management process that reporting standards are largely blind to. Reporting needs to indicate where context is shifting and provide dynamic views on progress. This information will be important to guide investors towards opportunities to allocate capital to drive the just energy transition.

7. Next steps

We believe this focus on blockages and the catalytic factors required to promote private sector financing at scale is far more important than the plethora of studies looking at trying to attach numbers from the private sector to JET and climate investment plans. While we think those are useful points of departure for conversation, they have little use in and of themselves. This is why we have chosen to undertake this study. Similarly, we are deeply sceptical of trying to match projects to funding – such an exercise can create valuable case studies but does not achieve scale or longevity.

Intellidex has throughout this report identified numerous areas where further research is required to support advocacy and market development efforts that intend to help mobilise private sector financing at scale. Research on the private sector side is still in its infancy versus the much better documented role of the public sector.

Some of these areas are systemically important and prioritising these areas is essential to accelerate the just energy transition, both in the domestic market and other developing economies that need to transition. This includes three important processes: identifying the gaps in the local ecosystem that need to be closed to crowd in commercial funders; identifying the key aspects from a technical ESG application perspective that need to be addressed to ensure that commercial investors as well as development financiers can allocate capital to the markets most urgently in need of funding to achieve the SDGs; and identifying the key areas for philanthropic funders to provide catalytic capital to achieve measurable, scalable and replicable impact on the just energy transition.

We will take forward some of these themes in our next two reports related to South Africa. There is of course ample opportunity for individual studies of other emerging markets and comparative studies of the blockages and lessons, from which all emerging markets can learn.

In this regard, studies not just of those that need the money but also "supplier countries" (Germany etc) and their regulatory systems and how they help or hinder climate finance in emerging markets will be crucially important too.

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