

Deepening Renewable Energy Markets in South Africa

Lessons for and from
the Indian renewable
energy market

Report | July 2019

Manu Aggarwal and
Kanika Chawla





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The **CEEW Centre for Energy Finance** (CEF) is an initiative of the Council on Energy, Environment and Water (CEEW), one of South Asia's leading think tanks. CEF acts as a non-partisan market observer and driver that monitors, develops, tests, and deploys financial solutions to advance the energy transition. It aims to help deepen markets, increase transparency, and attract capital in clean energy sectors in emerging economies. It achieves this by comprehensively tracking, interpreting, and responding to developments in the energy markets while also bridging gaps between governments, industry, and financiers.

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CEEW Centre for Energy Finance

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The need for enabling an efficient and timely energy transition is growing in emerging economies. In response, CEF focuses on developing fit-for-purpose market-responsive financial products. A robust energy transition requires deep markets, which need continuous monitoring, support, and course correction. By designing financial solutions and providing near-real-time analysis of current and emerging clean energy markets, CEF builds confidence and coherence among key actors, reduces information asymmetry, and bridges the financial gap.

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The clean energy transition is gaining momentum across the world with cumulative renewable energy installation crossing 1000 GW in 2018. Several emerging markets see renewable energy markets of significant scale. However, these markets are young and prone to challenges that could inhibit or reverse the recent advances. Emerging economies lack well-functioning markets. That makes investment in clean technologies risky and prevents capital from flowing from where it is in surplus to regions where it is most needed. CEF addresses the urgent need for increasing the flow and affordability of private capital into clean energy markets in emerging economies.

CEF's focus: analysis and solutions

CEF has a twin focus on markets and solutions. CEF's market analysis covers energy transition-related sectors on both the supply side (solar, wind, energy storage) and demand side (electric vehicles, distributed renewable energy applications). It creates open source data sets, salient and timely analysis, and market trend studies.

CEF's solution-focused work will enable the flow of new and more affordable capital into clean energy sectors. These solutions will be designed to address specific market risks that block capital flows. These will include designing, implementation support, and evaluation of policy instruments, insurance products, and incubation funds.

About the authors



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Manu is a climate and energy expert and works on the efficient allocation of risks to minimise resource wastage. His current research interests lie at the intersection of development policy, finance, technology, and institutions. He designs market-transformative insurance products, and restructures commercial contracts to de-risk renewables. In his previous avatars, he worked in business analytics, energy commodities trading, and international development. Manu is a graduate in Mechanical Engineering from Thapar University and is waiting for his CFA charter from the CFA Institute, USA.

“Without learning from the successes and failures of each other, national energy transitions including that of South Africa and India would not lead to the outcomes envisioned in the Paris Agreement. I hope that this report would facilitate these learnings between South Africa and India.”



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Kanika Chawla is a policy specialist working at the intersection of renewable energy and financial markets. She is the Director of the CEEW Centre on Energy Finance and also manages the Council’s research and outreach in renewable energy policy, regulation, markets, and socio-economic value. She is actively engaged with private and public enterprises within and outside India in designing and developing financial de-risking instruments. Kanika has an MSc in Economics and Development Economics from the University of Nottingham, and an undergraduate honours degree in Economics from Miranda House, University of Delhi.

“While the energy transition of every economy will be unique, the risks that hinder the pace of that transition may be common, even as they vary in intensity. This analysis of the state of the renewable energy sector in South Africa poses an opportunity to identify and implement the catalytic interventions that could address some of the systemic challenges, and unlock the next phase of renewable energy deployment at scale.”



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Abbreviations

CEEW	Council on Energy, Environment and Water
CEF	Centre for Energy Finance
CUF	capacity utilisation factor
DRE	distributed renewable energy
EBITDA	earnings before income tax, depreciation, and amortisation
EPC	engineering procurement construction
FOREX	foreign exchange
GW	gigawatt
IA	Implementation Agreement
IPP	independent power producer
IRP	Integrated Resource Plan
IRR	internal rate of return
M&A	merger and acquisition
MW	megawatt
O&M	operations and maintenance
OEM	original equipment manufacturer
PLF	plant load factor
PPA	power purchase agreement
PV	photovoltaic
RE	renewable energy
REIPPPP	Renewable Energy Independent Power Procurement Programme
SECI	Solar Energy Corporation of India

Executive summary

Worldwide, most countries are witnessing, and advancing, their energy transition. This transition is not homogenous. It presents countries the opportunity to learn, collaborate, and share experiences of their domestic energy transitions with each other, but it is also deeply dependent on their domestic priorities and challenges. To identify ways to enable this energy transition, it is critical to analyse the risks and opportunities in each economy. This report is part of a series which assesses the impediments to the flow of capital into renewable energy (RE) markets in emerging economies and identifies opportunities for collaboration and learning.

Both India and South Africa are cognisant of the central role of affordable, reliable, and adequate energy in advancing economic growth. Both nations have taken several reforms and initiatives in the past two decades to reform their energy systems. Renewable energy has become an important part of that reform strategy.

In March 2011, shortly after India's announcement of the National Solar Mission, South Africa announced a modern public procurement programme to buy renewable electricity. The programme signals South Africa's political will to shift to a modern energy system and create a market for international energy investment. Since then, however, the South African energy system, especially its RE market, has seen phases of optimism and despair.

After three successful rounds of renewable electricity auctions, the power purchase agreements (PPAs) to procure renewables, supposed to be signed in 2015, were signed three years later in 2018. The official electricity planning document, supposed to be updated every two years, was never updated after its first release in 2010. Rampant load shedding continues to plague South Africa. Other significant challenges are the mismanagement of its vertically integrated utility, Eskom, and potential credit rating downgrades.

But South Africa continues to have a small but vibrant RE industry. Highly bankable PPAs offered by the government, latent demand, and the planned retirement

of 10 gigawatt (GW) of thermal capacity are driving the next wave of enthusiasm in the RE market in South Africa. And its tide turned in 2018: pending PPAs were signed, a new draft energy planning document was floated, and the decentralised rooftop sector was liberalised. New bidding rounds for RE are likely to be announced soon.

India has become one of the largest RE markets in the world. Continued economic growth, record electrification rates, and a favourable policy environment drive the Indian RE market forward. But to realise the full potential of RE, India must overcome challenges such as the financial health of offtakers, land acquisition, regulatory and administrative frictions, curtailment, and the availability and cost of debt capital.

Both countries have lessons to learn from each other and opportunities to tackle common challenges together.

What India could learn from the South African experience?

- Develop local-currency, low-cost debt markets
- Increase the bankability of RE PPAs by insuring against payment delays, curtailment, and change in law
- Manage land acquisition risks

What South Africa could learn from the Indian experience?

- Provide a clear pipeline of projects and follow a predetermined tendering schedule
- Take a strategic view on the trade-off between domestic manufacturing and low-cost deployment
- Abolish the requirement of regulatory approval for refinancing and change in ownership
- Provide counterparty diversification opportunities
- Develop local and competitive engineering procurement construction (EPC) companies
- Provide support in pre-project development

1. Introduction

South Africa was the poster child of a modern renewable energy policy and auction framework based on market design at the outset of this decade. However, sustained policy uncertainty, execution paralysis, and political upheaval from 2015 to mid-2018 resulted in a significant slowdown in the renewable energy sector, with investors looking away from investing in renewable energy capacity in South Africa.¹ In mid-2018, government agencies tried to revive investor sentiment by signing 2.3 gigawatt (GW) of power purchase agreements (PPAs) that had been outstanding for three years (Betz 2018). The subsequent change in presidency and the elections concluded in May 2019 are expected to boost the South African RE market.

The CEEW Centre for Energy Finance (CEF) set out to investigate the risks considered important by stakeholders in South Africa. The preliminary phase involved secondary research and remote consultations for input from important stakeholders in the South African RE market. The interim report was published in June 2018 (CEEW 2018).

This final study builds on the interim report. It aims to analyse, assess, and aid the deepening of the South African RE market and facilitate cross-country learnings among South Africa, India, and Indonesia (CEEW 2019).

1.1 What did the interim report conclude?

This final study builds on the work done in the preliminary phase. The interim report (preliminary phase) involved secondary research and remote consultations to get inputs from important stakeholders in the South African renewable energy market. It was successfully completed and in June 2018. The interim report found five major types of risk: demand, transmission and evacuation, macro, offtaker, and political.

The interim report found five major types of risk: demand, transmission and evacuation, macro, offtaker, and political.

Demand risk is the risk that actual electricity demand will fall short of the demand projected by the electrical utility (offtaker), or the forecast electricity demand curve will be very different from the actual demand curve in shape

(demand shifts across time) and magnitude (demand decreases/increases). Surprisingly, most stakeholders do not report it as a major risk; independent power producers (IPPs) and investors consider this solely the offtaker's responsibility. It is thought implicitly or explicitly to be borne by the sovereign in contracted markets such as South Africa and India.

Transmission and evacuation risk is of two types, pre- and post-connectivity risk. Pre-connectivity risk means that RE generators cannot connect their plants to the designated substation within a predictable period and at predictable prices. Post-connectivity risk means that RE generators cannot inject all the electricity that their plants could have produced. This phenomenon is called "curtailment" (CEEW 2018). The post- and pre- connectivity risks seem to be lower in South Africa because of the robust provisions in their RE PPAs.

Macro risks affect most of the economy; these risks are not specific to the RE and power sectors. Macro risks in the case of South Africa could be a credit rating downgrade, sharp movements in the local currency, and sudden changes in the economic landscape (CEEW 2018).

Offtaker risk originates primarily from the financial health of electrical utilities (offtakers). It could take the form of delays in payment or the lack of diversification opportunities in selecting counterparties for IPPs. Offtaker risk is the gateway risk to the RE sector in South Africa.

Political risks include currency inconvertibility, post-hoc changes to tariffs, and governmental controls over capital or asset nationalisation (CEEW 2018). Political risk in South Africa is low but it could increase significantly if the economy continues to contract or grow slowly.

1.2 The political economy of the South African renewable energy market

In the elections concluded in May 2019 the South African electorate reposed their faith in the African National Congress once again. This election results established Cyril Ramaphosa as the tallest leader in South Africa and signalled political continuity to investors.

Before the elections, under the Ramaphosa leadership, the South African government signed the pending PPAs for the utility-scale RE projects and floated the much-awaited draft Integrated Resource Plan (IRP) for public comments. The plan is yet to be finalised but power sector reforms, critical for South Africa's macroeconomic

1 CEEW CEF finding

stability, are high on Ramaphosa's agenda. The IRP will likely be one of the many measures that will be adopted in the next few months.

The election results established Cyril Ramaphosa as the tallest leader in South Africa and signalled political continuity to investors.

After the elections, the South African government initiated the process to liberalise regulations around on-site generation (DRE) for projects larger than 1 megawatt (MW) (Creamer 2019). The next rounds of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) are expected to be out soon. The unbundling of Eskom is also on the anvil. While these reforms and measures are expected to revive the South African RE market, some fault lines remain.

The total outstanding debt of Eskom ballooned to around USD 35 billion in May 2019 (Burkhardt 2019). The ratio of interest payments to EBITDA is 2:1 (Eskom 2018); if the government does not bail Eskom out, it will default (Moody's Investors Service 2019). Eskom's credit rating would have been declared junk a long time back if the South African government had not stepped in. Despite government support, its rating has been downgraded twice in the last two years (Moody's investors service 2018) and another downgrade is on the horizon (Head 2019).

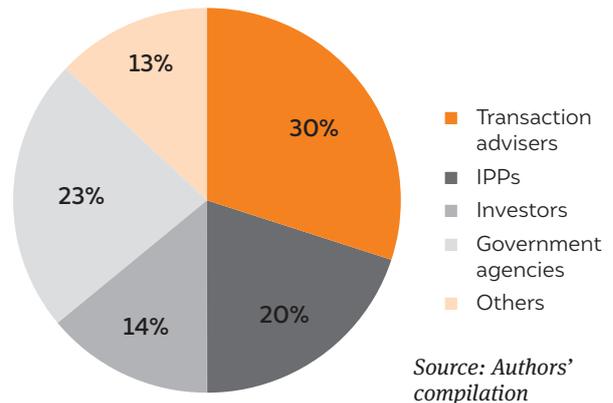
Load shedding is expected to continue to affect the South African economy (Eskom 2019). The municipalities are in poor financial health and they struggle to recover dues from consumers. Empowering municipalities to distribute electricity could exacerbate their financial woes.²

The economy contracted 3.2 per cent in the first quarter of 2019. That underlines the most important challenge for South Africa. Its economy has to grow to maintain the political and administrative continuity required to attract investors to its RE market. A contracting economy implies uncertainty over overall power demand and bodes poorly for the power projects in the pipeline or being planned. To reverse the slowdown of the economy, on the other hand, South Africa will need a lot more affordable and reliable power to encourage domestic industry and fuel its growth.

2. Methodology

CEEW CEF interviewed 30 stakeholders in the South African RE market. The stakeholders included IPPs, investors, manufacturers, banks, lawyers, consultants, electrical utilities (Eskom), and other associated government agencies (Figure 1).

Figure 1: Composition of stakeholders interviewed



CEF interviewed 30 stakeholders such as IPPs, investors, manufacturers, banks, lawyers, consultants, ESKOM, etc. in the South African RE market.

For simplicity, stakeholders were divided into five buckets – transaction advisers, IPPs, investors, government agencies, and others include manufacturers, etc. Only four of the thirty interviews were with investors. This group of stakeholders included one equity investor and three debt investors. Government agencies included city-level energy planners and electrical utilities (Eskom). Others included solar module manufacturers, industry associations, EPC companies, and incubators, etc. Interview questions centred around three broad themes

- What are the major risks to the long-term deployment of renewables in South Africa?
- What are the major risks at the project level in the South African renewable energy market?
- What are the primary drivers of renewables in South Africa?

The consultations in Cape Town and Johannesburg and the interactions with transaction advisers and investors nuanced our understanding of project-level and long-term risks. The consultations with government advisers helped us understand the political economy of the power sector in South Africa.

² From discussions with select stakeholders

Table 1: Points of deviation between the interim study and final analysis – South African stakeholders do not consider demand or evacuation risk to be as severe as suggested in the interim study

	Identified in the interim report	Identified in the final analysis (basis stakeholder feedback)	Deviations between interim report and this report
POLITICAL AND POLICY RISK	Ambition/pipeline of projects dependent on election outcome	Y	Y
	No clarity on trade-offs between deployment and manufacturing	N	Y (in future)
	Not honouring obligations such as delayed signing PPAs	Y	Y
	Restriction on ownership	N	Y
	Restrictive policies on refinancing and mergers and acquisitions (M&A)	N	Y
	Obtaining timely clearances, etc.	N	Y (manageable but further easing out would lower tariffs)
	Land acquisition risk	N	N
	Absence of specific solar rooftop targets	N	Y
	No third-party resource assessments	N	Y (mostly IPPs do it)
	Cancellation of bids	N	N
OFFTAKER RISK (FINANCIAL HEALTH OF UTILITIES)	Affordability concerns	N	Y
	Payment delays	N	N
	Absence of bankable PPAs with important clauses such as change in law, etc.	N	N
	Absence of diversification opportunities (no multiple offtakers)	Y	Y
	Governance concerns (no accountability of different business verticals)	N	Y
DEMAND RISK	Demand not growing as per projections	Y	N
TRANSMISSION AND EVACUATION RISK	Pre-connectivity risks such as unavailability of transmission line at predictable prices in a timely manner	Y	Y (manageable)
	Coverage for post-connectivity risks such as curtailment	N	N (PPA has a take-or-pay arrangement)
FOREX RISK	Currency of financing of project is different from currency of revenue stream	N	N (but evolving as European utilities bring their own financing)
	Currency of payments to EPC players and operations and maintenance (O&M) vendors is different from the currency of revenue stream	N	Y (inability of domestic EPC players to execute projects is facilitating European players)

3. How do the findings of the on-ground consultations differ from the interim study?

CEEW CEF tested the hypotheses emerged from the preliminary research and analysed the scope, size, and severity of the risks identified. The preliminary report mentioned offtaker risk only in the context of Eskom's financial health. This report examines why Eskom's financial health is deteriorating and the risks it poses (such as delays in Eskom's payment to IPPs).

4. What could South Africa and India learn from each other?

Each country has a unique socio-political environment and development trajectory. Many western countries such as Germany and Denmark stand at the regulatory, policy, and technological frontiers of RE. To catch up, countries such as South Africa and India will need country-relevant interventions; they cannot attempt to replicate the advances made in more developed economies, though they can collaborate with and learn from each other. Scaling up RE depends on variables

South Africa could learn providing predictable pipeline of projects from India, whereas India could learn increasing the due-diligence before bid submission from South Africa.

such as domestic renewable targets, topography, resource endowment, and the political system. CEEW CEF is cognisant of these different drivers and playing fields, and it wants to facilitate cross-country learnings (best practices) implementable in each country's domestic context.

Who bears the demand risk?

None of the stakeholders interviewed consider it a major risk; they hold the offtaker (Eskom) responsible. In India, too, IPPs do not consider demand risk in developing a project. Stakeholders in both countries argue that clauses such as take-or-pay and the minimum offtake guarantee mitigates it.

CEEW CEF views demand risk as a real risk to not just renewable markets but also power markets overall. In the age of electrical efficiency and decentralised generation sources, it is critical to build capacity to effectively assess electricity demand in offtakers in emerging economies. In emerging economies all the demand risk is assumed by offtakers and, thus, the sovereign.

Most stakeholders do not report demand risk as a major risk; IPPs and investors consider this solely as the responsibility of the Offtaker and thus sovereign in contracted markets such as South Africa and India.

See overleaf

Table 2: Comparison of risks between South Africa and India.

Table 2: Comparison of risks between South Africa and India: South Africa faces high political risk; India faces high forex and evacuation risk

 South Africa could learn from India
 India could learn from South Africa
 Risks either present or absent in both South Africa and India

		South Africa faces	India faces
POLITICAL AND POLICY RISK	Ambition/pipeline of projects dependent on election outcome	Y	N
	No clarity on trade-offs between deployment and manufacturing	N (but could worsen in future)	Y
	Not honouring obligations such as delayed signing PPAs	Y	Y (but less severe than in South Africa)
	Restriction on ownership	Y	N
	Restrictive refinancing and M&A policy	Y	N
	Absence of obtaining timely clearances, etc.	Y (manageable but further easing out would lower tariffs)	Y (manageable but further easing out would lower tariffs)
	Land acquisition risk	N	Y (but manageable)
	Absence of specific solar rooftop targets	Y	N (but the associated regulations are either absent or uncertain or not implemented in spirit)
	No third-party resource assessments	Y (mostly IPPs do it)	N (OEMs and third parties do it)
	Cancellation of bids	N	Y (in India a bid costs less to submit and requires far less due diligence)
OFFTAKER RISK (FINANCIAL HEALTH OF UTILITIES)	Affordability concerns	Y	Y
	Payment delays	N	Y
	Absence of bankable PPAs with important clauses such as change in law, etc.	N	Y
	Absence of diversification opportunities (no multiple offtakers)	Y	N
	Governance concerns (no accountability of different business verticals)	Y	N (but Indian states grapple with this issue)
DEMAND RISK	Demand not growing as per projections	N (IPPs do not consider it a risk because old generators need to be decommissioned)	N (IPPs do not consider it a risk)
TRANSMISSION AND EVACUATION RISK	Pre-connectivity risks such as unavailability of transmission line at predictable prices in a timely manner	Y (manageable)	Y (manageable today but could worsen in the future)
	Coverage for post-connectivity risks such as curtailment	N (PPA has a take-or-pay arrangement)	Y
FOREX RISK	Currency of financing of project is different from currency of revenue stream	N (but evolving as European utilities bring their own financing)	Y
	Currency of payments to EPC players and O&M vendors is different from currency of revenue stream	Y (inability of domestic EPC players to execute projects is facilitating European players)	N

5. Which risks plague both South African and Indian renewable energy (RE) markets?

While enough opportunities exist for South Africa and India to learn from each other, some risks plague the domestic RE markets in both South Africa and India (Table 3).

Both India and South Africa have enough policy and regulatory tools to de-risk their domestic RE markets and learn from each other. If these policy and market designs and solutions are used in the right combination, RE projects could become truly bankable in both countries.

Affordability issues plague both South African and Indian renewable energy markets.

6.1 Domestic currency financing

In South Africa RE assets are funded predominantly through domestic sources of capital and in the domestic currency even if through foreign capital. This is particularly advantageous for IPPs as they do not have to bear any currency risk. Some power producers have EPC contracts denominated in US dollars or Euro, but these are accompanied with upfront foreign exchange (forex) swaps which streamline the burden of currency fluctuations. There is a large appetite in the domestic debt market, predominantly from banks, for financing RE projects. The IPP Office poses some limitations on refinancing; these will need to be resolved to create market depth.

In the Indian RE market, unlike in South Africa, there is a significant share of international currency capital, which requires power producers to purchase currency hedges and swaps. This raises the effective cost of debt for Indian

Table 3: South Africa and India both grapple with affordability concerns and policy risks

POLITICAL AND POLICY RISK	Absence of obtaining timely clearances, etc.	→ (manageable but further easing out would lower the tariffs)
OFFTAKER RISK	Affordability concerns	
TRANSMISSION AND EVACUATION RISK	Pre-connectivity risks such as unavailability of transmission line at predictable prices in a timely manner	→ (manageable today but could worsen in future)

Source: Authors' analysis

6. What drives investment in the renewable energy market in South Africa?

The renewable energy market in South Africa faces many risks, but stakeholders still maintain a big presence. There are at least four major drivers: domestic currency financing, highly bankable PPAs, retirement of coal capacities, and supply deficit.

companies. However, given the large volume of capital required to realise India's RE ambitions it is essential to tap capital from multiple sources, domestic and foreign.

6.2 Highly bankable power purchase agreements (PPAs)

South African RE PPAs are one of the most bankable PPAs in the emerging world.³ The Implementation Agreement (IA) signed between the government and IPPs guarantees any sum due from Eskom to an IPP

3 From discussions with select stakeholders

within 40 business days (CEEW 2018). The take-or-pay clauses around technical curtailment provide RE investors adequate comfort. Commissioning timelines for RE projects are usually three years. Such a long commissioning timeline lets IPPs procure their input materials strategically and take advantage of any price movements over the course of the construction period.

The PPAs offered by states in India are not as robust as the South African ones, but intermediation by the SECI in most Indian RE PPAs provides investors adequate comfort.

6.3 Supply deficit

Load shedding has been a norm in South Africa since 2008. It has gotten worse in early 2019, and it shows no sign of respite. Around 9,500 MW of unplanned outages are planned in the winter of 2019 (Eskom 2019). Newly built thermal plants such as Medupi⁴ and established ones perform poorly on operations because coal supplies are unreliable and of poor quality (Eskom 2019). Renewable energy plants do not face these supply chain risks and these RE plants could be constructed in less time (Anjali Viswamohanam 2017). In South Africa, citizens and policymakers see renewables as a reliable alternative to mitigate load shedding. In India, falling tariffs are driving the adoption of renewables in various states.

6.4 Retirement of coal capacities

More than 10 GW of thermal capacity is set to retire in South Africa by 2030 (Bryce Mccall 2019). On a grid parity basis, electricity from nuclear and thermal sources will be more expensive than from renewables; that implies RE IPPs have a 36 GW market.⁵ This emerged as the strongest driver for the deployment of RE in South Africa. In India, renewables deployment will only complement the already installed thermal capacity.

Highly bankable PPAs offered by the government, latent demand, and the planned retirement of 10 GW of thermal capacity are driving the next wave of enthusiasm in the RE market in South Africa.

⁴ From discussions with select stakeholders

⁵ Assuming a capacity-weighted average capacity utilisation factor (CUF) for wind and solar plants at 25 per cent and plant load factor (PLF) for thermal plants at 90 per cent.

7. How could the renewables market in South Africa grow faster?

Political and policy certainty seems to be emerging in South Africa. The government has signed pending PPAs and liberalised on-site generation (DRE). Favourable policymaking signals investors to invest in the RE market in South Africa, which is poised to scale greater heights. CEEW CEF has eight recommendations for the South African government.

7.1 Provide policy certainty and a clear pipeline of projects

The government needs to finalise the pending draft IRP soon to provide investors, IPPs, and manufacturers a certain pipeline of RE projects. The IRP is the main policy document that governs additions to the electricity capacity in South Africa. The cost assumptions for various technologies in the current draft IRP need to be revised to level the playing field for all the generation technologies currently available (Department of Energy, 2018). The numbers in the IRP for solar and wind technologies, taken from earlier bid rounds, do not reflect the current cost-competitiveness of solar and wind technologies. The South African RE market needs the IRP to realise its potential.

7.2 Start building transmission infrastructure in the Northern Cape

Generation potential and evacuation capacity are significantly mismatched in South Africa (CEEW 2018), but none of the stakeholders consider transmission and evacuation risk a major risk; they hold that the current evacuation infrastructure could support the next 6–7 GW of RE installations⁶ and that the provisions in the PPA protect investors and IPPs from asymmetric evacuation risks. However, most stakeholders agree that more transmission infrastructure needs to be built, especially in Northern Cape, to sustain renewables deployment in the long term.

7.3 Provide support to IPPs in pre-project development

In India, original equipment manufacturers (OEMs) and third parties assess project-level resource endowments but in South Africa most IPPs assess resource endowments on their own. The South African government needs to democratise such information by mandating a government agency to undertake this exercise. Alternatively, it could

⁶ From discussions with select stakeholders

also nudge third-party specialists to undertake these resource assessments. In South Africa, projects need to be relatively more developed at the time of bidding. If third parties and government agencies undertake resource assessments, IPPs would have more capital and resources to focus on their core expertise i.e. developing RE plants. They would bear lower risk before the bidding; lower entry barriers would, in turn, encourage competition.

7.4 Liberalise restrictions on refinancing and acquisitions

Treatment of unknowns (greater risk premium) and low competition in South Africa in 2011 and 2012 led to a very high financial return (internal rate of return (IRR) to the tune of 30 per cent) in the first two bidding rounds of the REIPPPP.⁷ This abnormal rate of return stoked scepticism in many quarters of the government, and it mandated IPPs to provide all financial information and due diligence documents to its IPP Office in cases of change in ownership and financial investors. This mandate ensured that Black Economic Empowerment ownership rules were enforced, but it also completely froze the secondary sales market.

The newer projects to be bid out would have very competitive tariffs and would not face as much scrutiny as the older projects. The government might as well abolish the peculiar requirement of sending all the documents to the IPP Office in the case of change in ownership. That would accelerate the capital recycling process and lower tariffs in future auctions.

7.5 Government, not independent power producers (IPPs), should provide for social support

The REIPPPP emphasises socio-economic and enterprise development in all its tenders. The IA, signed between the IPPs and the government, requires IPPs to focus on job creation, local content, and ownership. This adds a layer of compliance risk to projects. The stakeholders interviewed did not see this a major risk, but all agreed that abolishing this component would accelerate the commissioning of RE projects in South Africa. The stakeholders favoured a one-time or recurring tax on RE plants to enable the government to provide social support. The government could use the tax to hold IPPs accountable and bundle and deploy the tax proceeds through a holistic development strategy.

7.6 Support the development of domestic engineering procurement construction (EPC) companies

In South Africa sluggish economic growth has affected the construction sector and EPC companies, including in renewables, are struggling to remain financially solvent. Project developers such as Engie have roped in foreign EPC companies to construct RE plants at competitive rates. That exposes IPPs to some foreign exchange risk, especially if the same players handle O&M. The stakeholders suggested that the South African government support the local EPC players so that the economic benefits of RE project development trickle down the RE value chain and are not restricted to IPPs and banks.

7.7 Take a strategic view on manufacturing-deployment trade-off now

India is grappling with the classic manufacturing–deployment trade-off, but South Africa has not faced this dilemma yet. Its annual RE market is less than 1 GW; this lack of scale is why South Africa is not enjoying manufacturing capacity deployment yet. No PPA was signed between 2015 and mid-2018; even its 1 GW of annual market was not being utilised. If South Africa decides to ramp up its RE ambitions significantly, it would be well-advised to learn from the Indian example and take a strategic view on the manufacturing–deployment trade-off now instead of postponing the decision.

7.8 Make distributed renewable energy (DRE) a central piece of the renewable energy mix in South Africa

The South African renewables story has been of utility-scale RE plants. Until May 2019, permission was required from the South African electricity regulator for DRE installations larger than 1 MW (Creamer 2019). The new administration in South Africa removed this requirement and accelerated the development of on-site generation. The current DRE targets are capped at 400 MW. To give a fillip to the DRE sector, existing DRE targets need to be ramped up in the upcoming review of the IRP after consultations with the industry, relevant government agencies, and civil society organisations.

⁷ From discussions with select stakeholders

8. Annexure

Stakeholders interviewed for this study

S. No.	Name	Designation	Affiliation	Type of stakeholder
1	Claire Barclay	Partner, Public Law and Infrastructure	Pinsent Masons	Law firm
2	Roberto Berardo	Senior Business and Project Developer	Scatec Solar	IPP
3	Reuben Cronje	Senior Associate	Pinsent Masons	Law firm
4	Stephen Davey	Head of Sales, Sub-Saharan Africa	Jinko Solar	Manufacturer
5	Ryan Dearlove	Implementation Manager	SAREBI	Incubator
6	Wynand Dreyer	Director	Project Dynamics	EPC
7	Lambert Du Plessis	Manager: Generation Development and Municipal Efficiency	Govt. of City of Cape Town	City Government
8	Callie Fabricius	GM, Eskom Single Buyer Office	Eskom	Utility
9	Niveshen Govender	Programme Manager	SAPVIA	Industry association
10	Mary Haw	Manager: Energy Efficiency & Renewable Facilitation	Govt. of City of Cape Town	City government
11	Mitchell Hodgson	Senior Project Developer, Sub Saharan Africa	Scatec Solar	IPP
12	Zaahid Ismaiel	Investments and Finance	Genesis Eco-Energy	IPP
13	Meagan Jooste	Principal Green Economist, Enterprise and Investments	Govt. of City of Cape Town	City government
14	Lizelle van der Merwe	Power and Infrastructure	Standard Bank	Bank- Debt investor
15	Alastair Morphet	Power and Infrastructure	Investec	Bank- Debt investor
16	Rob Morson	Partner, Construction	Pinsent Masons	Law firm
17	Julian Naidoo	Senior Researcher, Energy	Govt. of City of Cape Town	City government
18	Kadri Nassiep	Executive Director, Energy	Govt. of City of Cape Town	City government
19	Apicksha Patel	Partner, Project Finance	Pinsent Masons	Law firm
20	Malcolm Pautz	Principal	Genesis Analytics	Consulting firm
21	Shravya K Reddy	Managing Principal	Pegasys Group	Consulting firm
22	Hein Reyneke	GM	Mainstream Renewables	IPP
23	George Sibanda	Partner, M&A	Pinsent Masons	Law firm
24	Akash Singh	Manager, Eskom Single Buyer Office	Eskom	Utility
25	Munier Sydow	Business Development	Genesis Eco-Energy	IPP
26	Rentia van Tonder	Head, Power Client Coverage	Standard Bank	Bank- Debt investor
27	Peter Venn	Managing Director	Windlab	IPP
28	Michael Watson	Partner, Global Projects Group	Pinsent Masons	Law firm
29	John Woolley	Partner, Energy and Infrastructure	Pinsent Masons	Law firm
30	Mark van Wyk	Head, Unlisted Investments	Mergence Investment Managers	Investor

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The Mall of Africa in Pretoria has the largest rooftop solar photovoltaic (PV) system of its kind in the southern hemisphere and tenth worldwide.



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