

# Financing Renewables in Southern Africa

---

Oxpeckers

We address  
climate risk and  
unlock  
innovation to  
create value for  
organisations.



---

## Authors

### Anita Stadler

<https://www.linkedin.com/in/anita-stadler-a84b34b>

- Consulting: PWC, IBM
- Banking: Barclays Bank, S-Zone Consulting
- Projects and commercialisation: Carbon Reduction Institute
- Consulting: Energetics
- BEcon, Stellenbosch
- M AplSc (Env Sci), Sydney



### Mary Stewart

<https://www.linkedin.com/in/mary-stewart-88ba355>

- Mining industry: Goldfields of South Africa
- Academic: UCT and Sydney
- Consulting: Energetics
- BSc (Chem Eng), Wits
- PhD, UCT



0.1

0.2

# Contents

0.4

0.5

0.6

0.7

0.8

1.0

1.1

---

1.0	<b>Overview of the renewables project spectrum</b>
-----	--

---

2.0	<b>Financing across the project life cycle</b>
-----	--

---

3.0	<b>Financing sources and their efficacy</b>
-----	---

---

4.0	<b>SA – a case study</b>
-----	--------------------------

---

5.0	<b>Discussion</b>
-----	-------------------

---

	<b>Appendix</b>
--	-----------------

---

0.1

0.2

1.0

# Overview of the renewables project spectrum

0.4

0.5

0.6

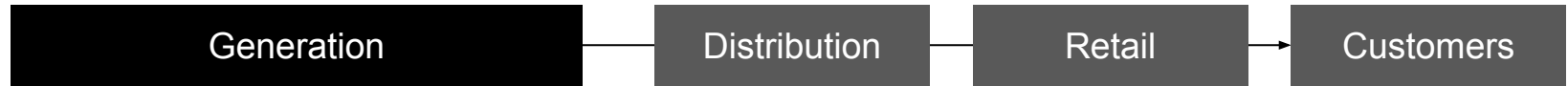
0.7

0.8

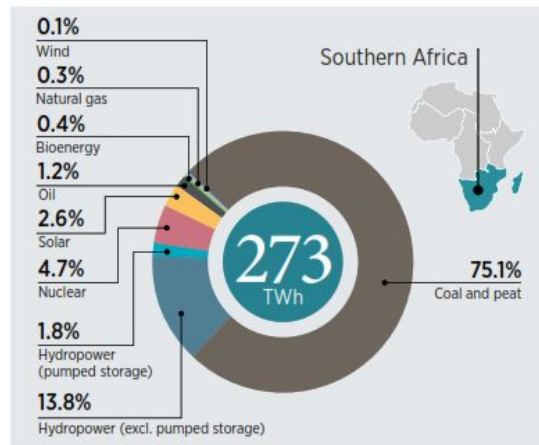
1.0

1.1

# The energy generation system



Electricity generation mix in  
Southern Africa, by source, 2019



Source: IRENA, 2021a.  
Note: TWh = terawatt hour.

There is a wide range of renewable energy projects

## Example of resources

- Wind
- Solar
- Hydro
- Biomass
- Wave
- Tidal
- Geothermal

## Other characteristics

- Grid-connected utility scale
- Large off-grid systems (private wire)
- Small behind the meter

The focus of this presentation

# Typical activities and indicative timeline

	+ STAGE 1	+ STAGE 2	+ STAGE 3	+ STAGE 4	+ STAGE 5	+ STAGE 6
	<b>Early stage development</b>	<b>Development</b>	<b>Construction</b>	<b>Commissioning</b>	<b>Operation</b>	<b>Decommissioning or repowering</b>
	<ul style="list-style-type: none"> <li>– Resource assessment</li> <li>– Land options</li> <li>– Early stage community and environmental assessments</li> </ul>	<ul style="list-style-type: none"> <li>– Development approval</li> <li>– Network connection approvals</li> <li>– <b>Secure an off-taker</b></li> <li>– Financial close</li> <li>– Appoint EPC supplier</li> </ul>	<ul style="list-style-type: none"> <li>– Civil</li> <li>– Electrical</li> <li>– Equipment procurement and installation</li> </ul>	<ul style="list-style-type: none"> <li>– Before connecting to the network, test that generation performance standards are met / not negative impact on network</li> </ul>	<ul style="list-style-type: none"> <li>– Asset management</li> <li>– Operation</li> <li>– Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>– Remove or repower</li> <li>– Recycle if removed</li> </ul>
<b>Timeframe</b>	1 - 3 years	3 – 5 years	1 to 3 years	3 months to years	20 – 30 years	<1 year





## Who can renewable energy projects sell their output to?

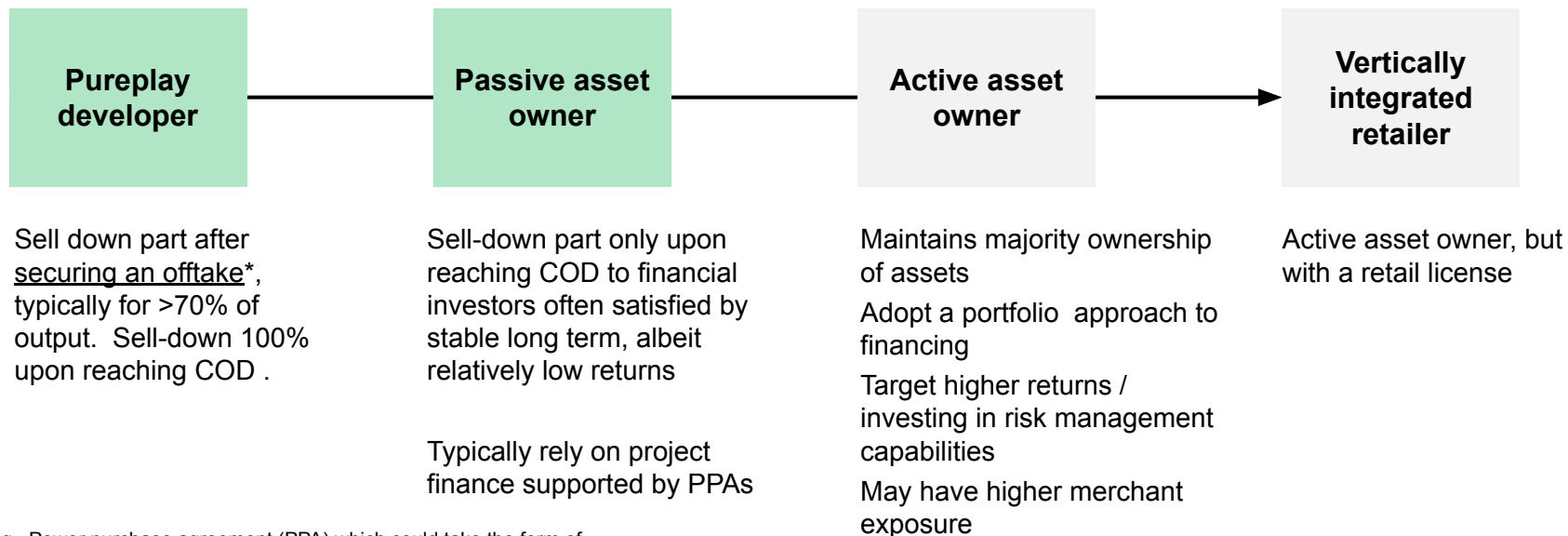
**Revenue options / strategies are heavily influenced by the market design and prevailing regulations in each country**

- Government auctions (or selling to a single state-owned utility buyer)
- Corporate offtakers (physical or financial arrangement?)\*
- Electricity retailers (if they exist)

\* Direct “wheeling” of power though open grid access is often not permitted



## Spectrum of business models common amongst global renewable energy project proponents



\* e.g. Power purchase agreement (PPA) which could take the form of a government reverse auction or corporate buyer

0.1

0.2

2.0

# Financing across the project life cycle

0.4

0.5

0.6

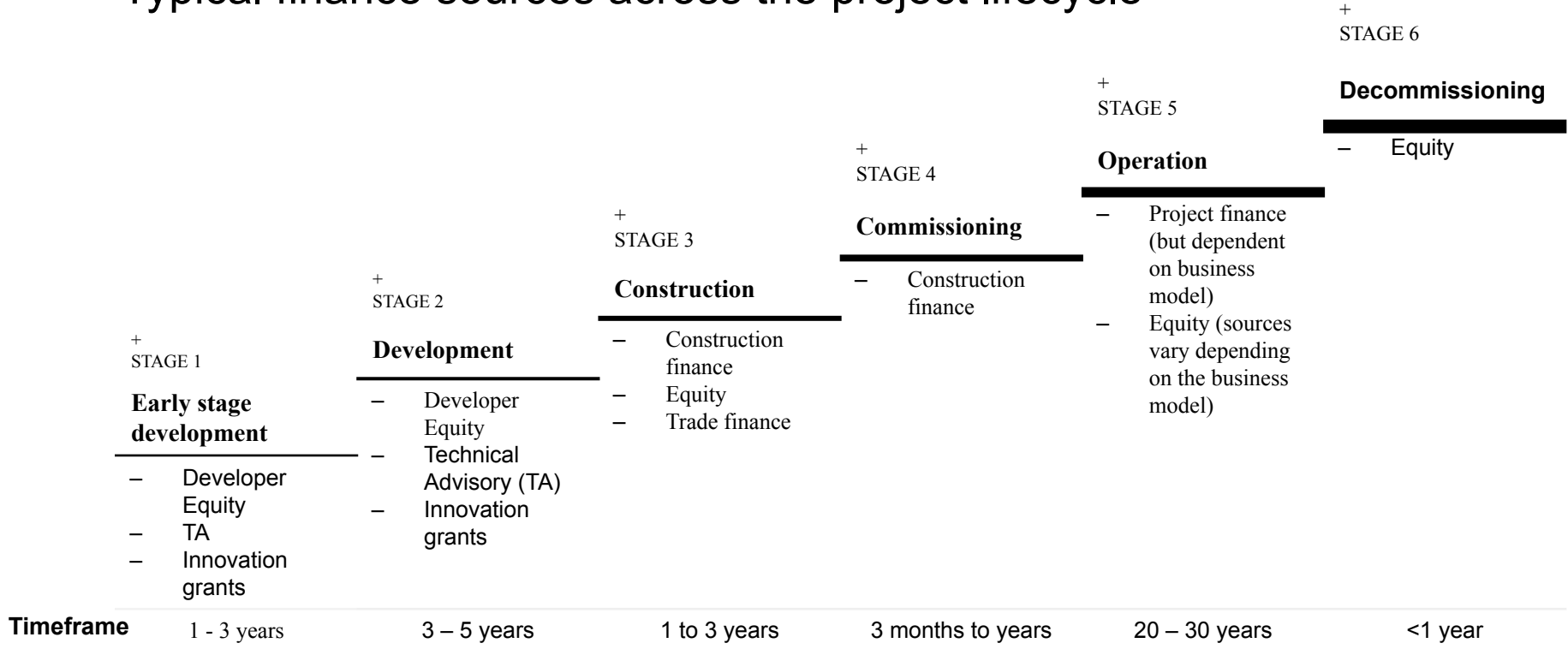
0.7

0.8

1.0

1.1

# Typical finance sources across the project lifecycle



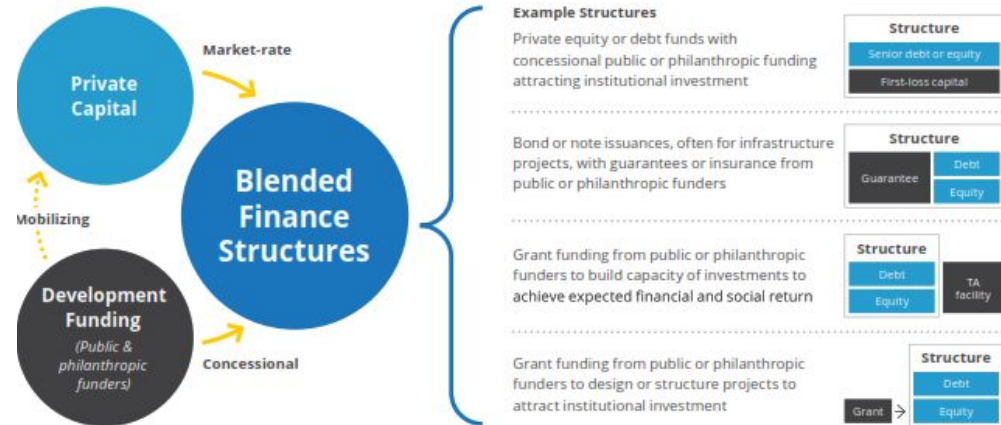
---

# Given the risk profile of investment in infrastructure in developing countries, blended finance is prominent

Blended finance consist of two or more sources of finance from:

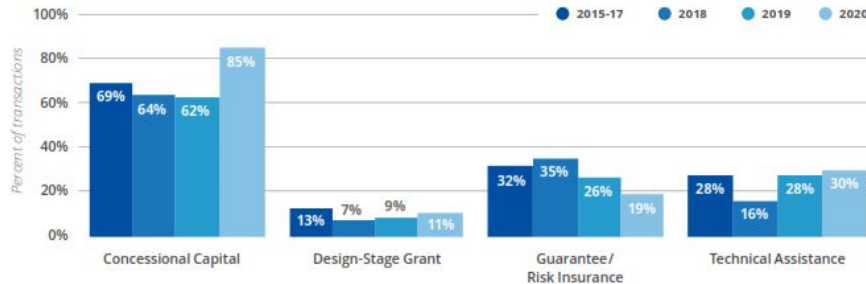
- Development agencies and multi-donor funds
- Multilateral development banks (MDBs) and development finance institutions (DFIs)
- Impact investors
- Commercial investors
- Philanthropic organisations

## Typical blended finance mechanisms and structures

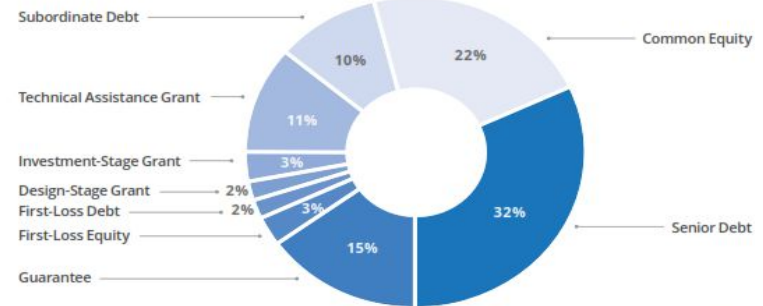


Given the risk profile of investment in infrastructure in developing countries, blended finance is prominent

### Proportion of closed transactions by blending approach



### Proportion of financial commitments across spectrum of investment instruments (illustrative for MDBS & DFIs over period 2015-2020)



0.1

0.2

3.0

# Financing sources and their efficacy

0.4

0.5

0.6

0.7

0.8

1.0

1.1



---

## Bankability of projects and the cost of debt

The cost of debt in Africa is generally high due to a range of real and perceived risk factors, including:

- Credit rating of countries
- Political, policy and regulatory risk
- Currency risk
- Relatively small scale of projects

To unlock capital, projects must be sufficiently de-risked. Thus the needs for:

- collaboration by private and public finance (i.e. spreading the risk) – also referred to as blended finance. This may also include strategies to source finance in local currency, to reduce currency risk.
- the provision of debt guarantees by governments or DFIs at reduced rates
- insurance cover



## What other factors may impact bankability?

Confidence of investors/financiers may also be impacted by concerns pertaining to:

- whether, with a change in administration, contractual obligations such as power-purchase agreements will be honoured?
- financial standing of monopolistic grid infrastructure owner-operators?
- market access – how supportive is the regulatory market to support e.g. corporate PPAs?
- corruption, especially for philanthropic sources (i.e. will the intended beneficiaries receive the value?)

# Types and sources of financial\* investment

## Type

- Debt
  - Project finance
  - Corporate finance and (green) bond market
  - Trade finance
- Grants
- Equity
  - Independent power producer
  - Pension and private equity funds
  - Government agencies

## Sources of debt

- Private banks
- Domestic governments / development banks
- Foreign governments
- Bi- and multi-lateral development agencies / development banks

## Other financial instruments (often underused)

- Credit guarantee
- Insurance

\* Non-financial instruments include Technical Advisory (TA) packages that may reduce the risk to investors in high risk sectors



# What are the differences in the outcomes sought by difference sources?

## **Commercial / private finance**

- Higher return on investment expected by equity
- Debt financiers has a shorter investment horizon
- Lower risk tolerance by both debt and equity
- ESG priorities influenced by off-taker

## **Development / public finance**

Strong focus on economic development:

- local content
- job creation
- private capital invested
- new capabilities that may improve productivity

Other ESG considerations may also be central in many (not all) bi- and multilateral development finance packages





---

# What does a good project look like?

## **Finances**

- Evidence of how money has been spent

## **Project delivery**

- Time and outcomes

## **Social licence to operate**

- Is the project well liked and well regarded?

## **Co-benefits**

- What was promised and what was delivered?



0.1

0.2

0.4

0.5

0.6

0.7

0.8

1.0

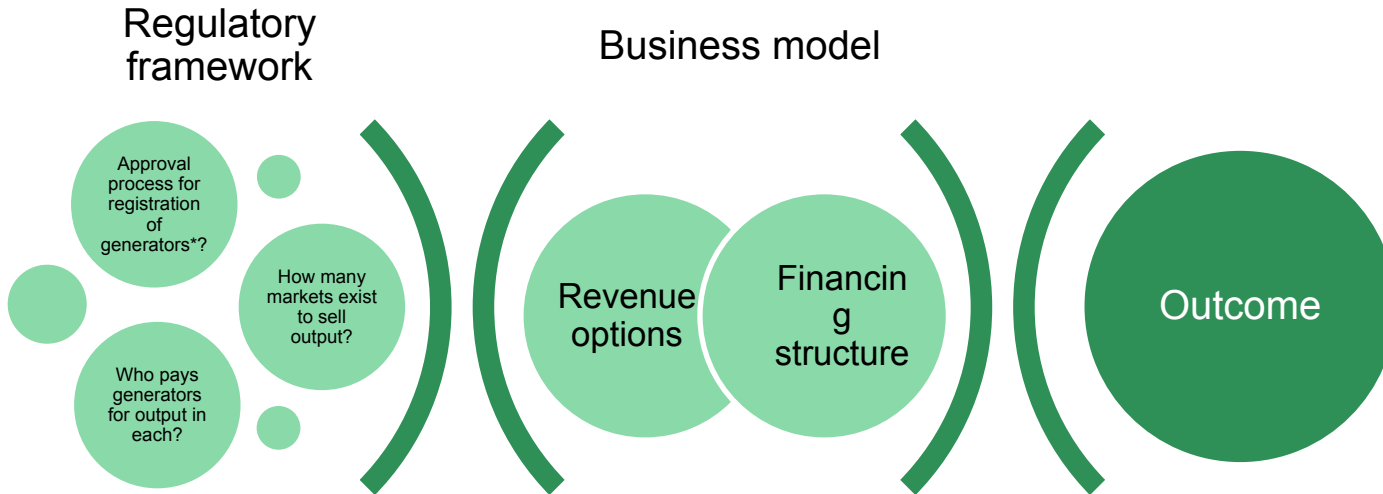
1.1

4.0

South Africa – a case study



## Framework applied to the case study



Government policy / procurement process / incentives

\* And other electricity market participants if applicable and the relevant size categories and exceptions as may apply)

---

# South African Renewable Energy IPP Procurement Programme (REIPPPP)

Regulatory context	IPP Revenue strategies	Financing structures	Process
<ul style="list-style-type: none"><li>• State controlled monopoly – distribution and generation</li><li>• Retailing regulated through municipalities (local government)</li><li>• Sub-100MW plants can operate without a licence</li><li>• Eskom / government the only buyer of power</li></ul>	<ul style="list-style-type: none"><li>• Participation in tenders run by the state the only options</li><li>• Direct access to the corporate market not supported</li></ul>	<ul style="list-style-type: none"><li>• No subsidies</li><li>• Initial approach of providing feed-in tariffs replaces.</li><li>• Program participants underwritten by private and development finance institutions</li></ul>	<p>Initial 3 rounds:</p> <ul style="list-style-type: none"><li>• Signalled momentum with each new round announced around the time of the previous rounds winners were announced</li></ul> <p>A further 3 rounds were launched:</p> <ul style="list-style-type: none"><li>• Some loss of momentum during round 4 as round 3 projects faced grid constraints</li><li>• Has it / can it be regained?</li></ul>

## Outcomes of the first 3 rounds (August 2011 to July 2014)

**64**  
projects awarded  
to the private  
sector

**3922**

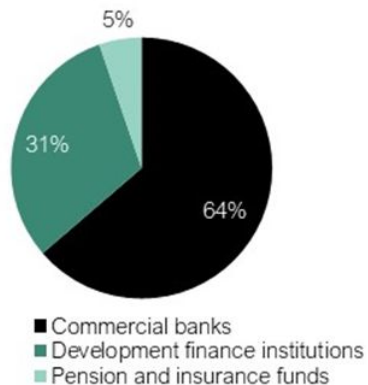
**MW**

capacity  
committed

**US\$14bn**

private capital  
committed to the  
projects

Debt financing sources



**68%**

drop\* in average solar PV  
tariffs across the three  
bidding stages

**42%**

drop\* in average wind tariffs  
across the three bidding  
stages

**How does this compare to the subsequent rounds and progress towards 2030 target?**

\* In nominal dollar terms

As at 2018, 6.3GW of wind and solar capacity had been installed or committed / contracted against a 2030 target of 20 GW

	Coal	Nuclear	Hydro	Storage (Pumped Storage)	PV	Wind	CSP	Gas / Diesel	Other (CoGen, Biomass, Landfill)	Embedded Generation
2018	39 126	1 860	2 196	2 912	1 474	1 980	300	3 830	499	Unknown
2019	2 155					244	300			200
2020	1 433				114	300				200
2021	1 433				300	818				200
2022	711				400					200
2023	500									200
2024	500									200
2025					670	200				200
2026					1 000	1 500		2 250		200
2027					1 000	1 600		1 200		200
2028					1 000	1 600		1 800		200
2029					1 000	1 600		2 850		200
2030			2 500		1 000	1 600				200
TOTAL INSTALLED	33 847	1 860	4 696	2 912	7 958	11 442	600	11 930	499	2600
Installed Capacity Mix (%)	44.6	2.5	6.2	3.8	10.5	15.1	0.9	15.7	0.7	

Installed Capacity  
 Committed / Already Contracted Capacity  
 New Additional Capacity (IRP Update)

Since 2018 the 5<sup>th</sup> round has been completed and the 6<sup>th</sup> is underway

Round	Launch date	Total (GW)
5	March 2021	2.6
6	April 2022	2.6
Total (incl installed or contacted as at 2018)		11.5

After more than 10 years, this would deliver approximately 57% of the 2030 target. Thus requiring a further 3 rounds of approximately 2.6 GW each. However, it takes approximately 1 year to award contracts from the date of tender close, whereafter at least 18 months to complete solar project and 2 to 3 years for wind

# Current innovations to overcome hurdles

## “Packaged” land parcels

**Dec 2021** – 20 year leases of Eskom land to private investors for renewable energy generation

- Trial in Mpumalanga to IPPs to create renewable energy projects (bid window from 8 – 29 April 2022).
- land on site or near existing coal-fired power stations for the development of renewable energy projects. This entails proximity to transmission lines and allows Eskom to provide connection up to the nearest network connection point.
- favour generators for size and speed of delivery, in other words the fastest delivery of additional generation capacity to the grid.
- a maximum generation capacity of 100 MW for each project. The capped generation capacity means that plants can operate without a licence, and it allows generators to wheel electricity through the transmission grid as provided by the latest Amendment to the Electricity Regulation Act in 2021.

## Green bonds

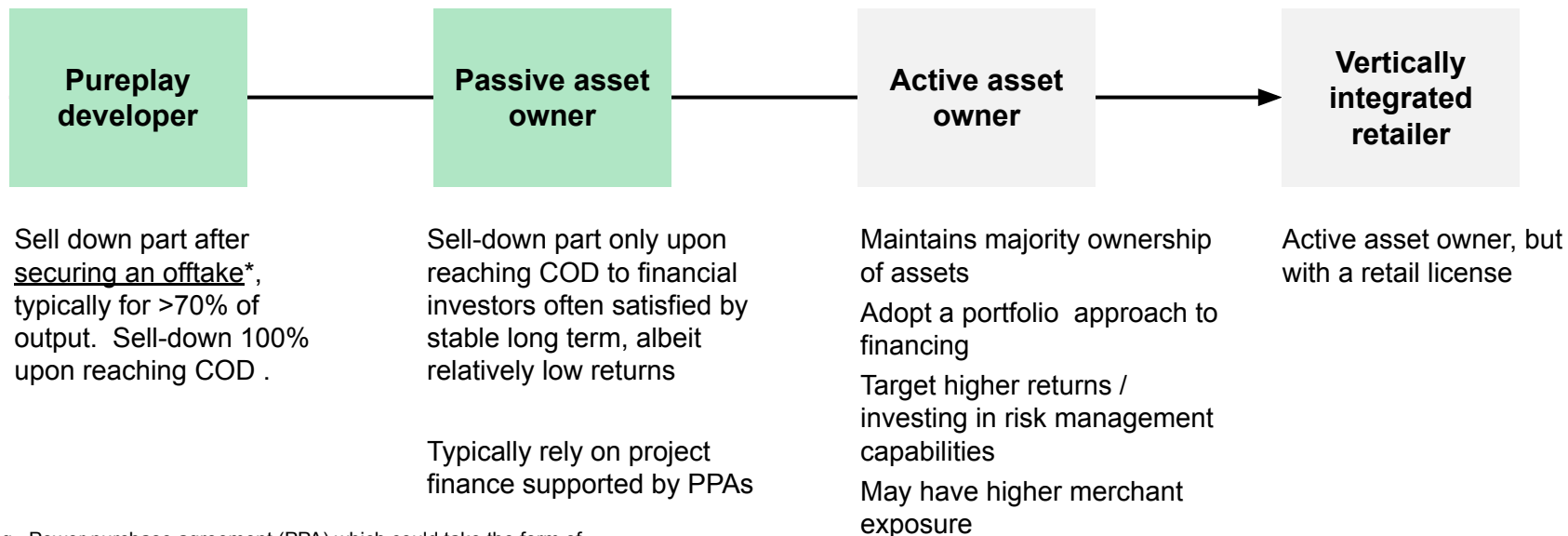
South African Development Bank's (**DBSA's**) **Climate Finance Facility** is an example of development finance institution issuing a green bond targeting the Southern African market

Facility size	Maturity date	Partnerships
€200.15m  €200m Subscription to green bond issued by DBSA + €0.15m Grants to support technical assistance	7 years	Agence Française de Développement

Interest rate yet to be declared

[World Economic Forum Regional Action Group for Africa Financing the Future of Energy | World Economic Forum \(weforum.org\)](#)

## Spectrum of business models common amongst global renewable energy project proponents



\* e.g. Power purchase agreement (PPA) which could take the form of a government reverse auction or corporate buyer



0.1

0.2

0.4

0.5

0.6

0.7

0.8

1.0

1.1

6.0

Discussion

---

## Key questions

On a per capita basis South Africans has good access to electricity when compared to Nigeria's 10GW vs South Africa's 46GW. However, has the focus on distribution vs generation delivered is a system that meets the requirements of is 56 million people?

- Per capita?
- Residential vs Private Sector?

How can residual questions (slide 14 be addressed)?

How do we ensure maximising environmental and socio-economic benefits of renewable electricity investments, whilst mobilising capital to increase the pace of renewable electricity investment?