



Renewable energy in South Africa

Valuation insights
2019



The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) created the platform through which the private sector would develop renewable energy projects in South Africa.

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Renewable energy in South Africa

The REIPPPP was implemented by South Africa's Department of Energy (DOE) in 2011. REIPPPP created the platform through which the private sector would develop renewable energy projects in South Africa and enter into Power Purchase Agreements (PPAs) with the state owned utility, Eskom.

The programme has largely been lauded as a resounding success stimulating both local and foreign investment into South Africa's energy sector. As at June 2018, the Independent Power Producer Office reported that the total investment (project costs) in REIPPPP assets was R 201.8 billion, of which R 48.7 billion was from foreign investors and financiers.

Across the 5 competitive bid windows for large scale REIPPPP projects, completed between 2011 and 2015, 92 bids were selected for procurement and reached financial close.

These projects account for 6 323 MW of electricity generating capacity and the renewable technology included wind, solar PV, concentrating solar power (CSP), small hydro, biomass and landfill gas.

A further 20 bids relating to small scale REIPPPP projects (the Smalls programme) account for 99 MW, bringing the total procured supply to 6 422 MW, from 112 projects, across 7 bid windows. As at June 2018, 3 801 MW of the total procured capacity of 6 422 MW was operational. This represents 54% of the 2020 target for renewable energy capacity in South Africa and 21% of the 2030 target, as per the 2010 Integrated Resource Plan.

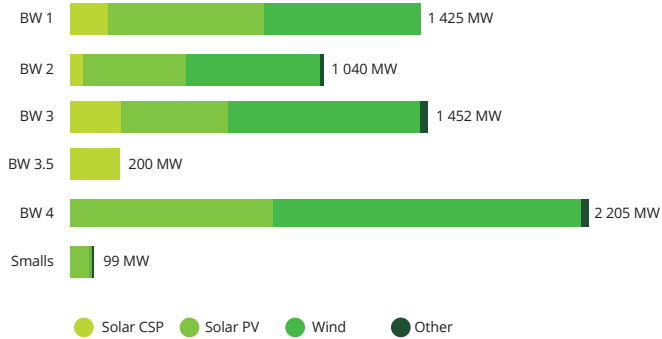
It has not all been smooth sailing for the programme. Political instability and financial challenges at Eskom led to lengthy delays during the last two bid windows resulting in the expiration of a number of bids over that time.

The remaining 27 projects that were part of the last bid window were eventually concluded in April 2018, over two years later than initially expected.

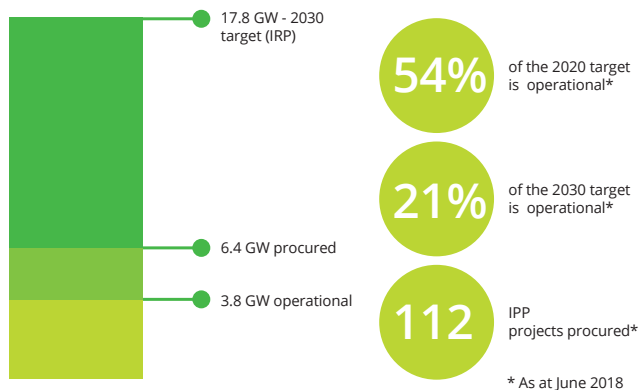
Capacity at a glance



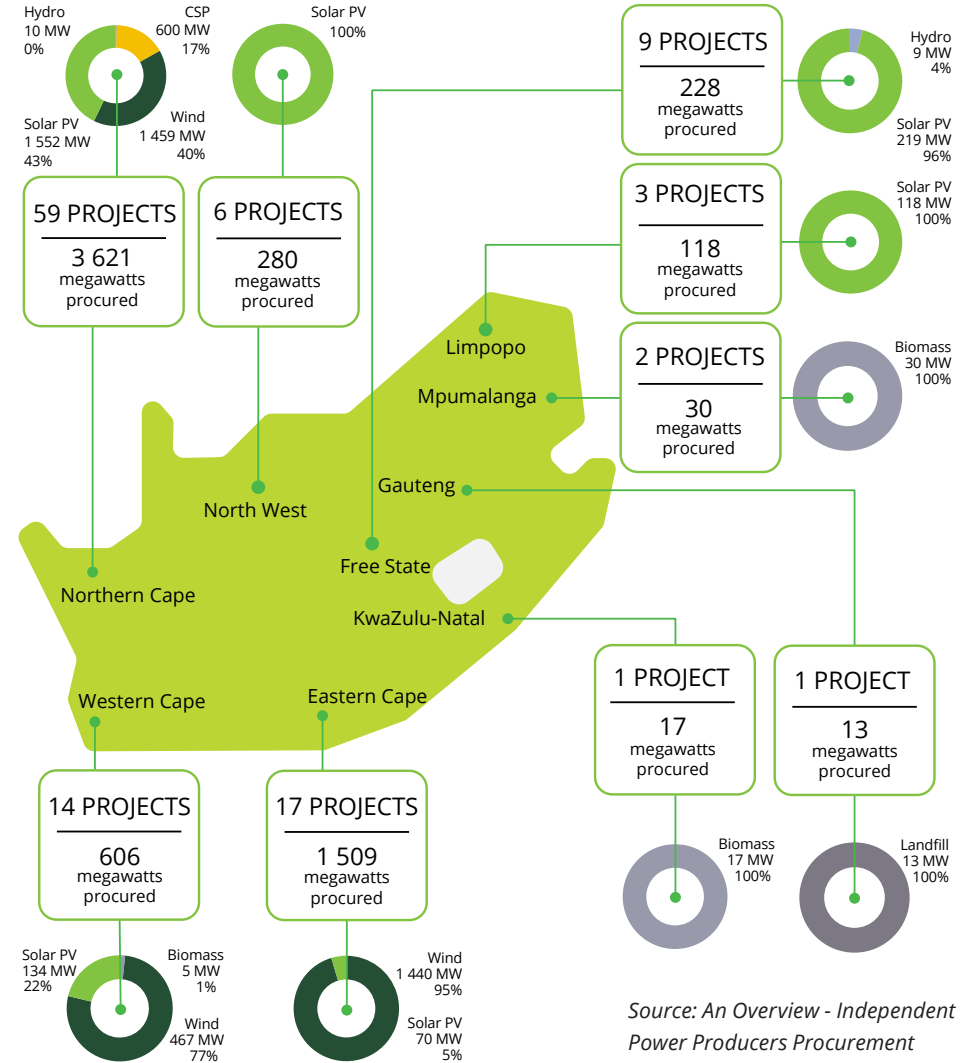
Procured capacity breakdown per bid window



REIPPPP Capacity



Source: An Overview - Independent Power Producers Procurement Programme (IPPPP)
- As at 30 June 2018



Source: An Overview - Independent Power Producers Procurement Programme (IPPPP)
- As at 30 June 2018

Secondary market

In the current climate and given the uncertainty in the programme due to the delays experienced, there is an observed level of increased secondary market activity on REIPPPP projects. This is in part due to:

- Projects being fully operational with developers seeking an exit in order to recycle equity to a larger number of projects and realise increased returns for the construction risk undertaken
- Uncertainty around future bid windows - while it was announced in June 2018 that bid window 5 will be launched before the year end, the publication of the Draft 2018 Integrated Resource Plan appears to limit the potential for further bid windows as there is no provision for solar PV capacity in 2023 and 2024 or for wind during 2022 to 2024
- The lapse of the three year shareholder lock-in period on the earlier bid window projects (although Department of Energy consent on change of shareholding is still required)
- Consolidation in the sector and the entry of infrastructure funds which operate in the secondary market. REIPPPP assets are seen as 'yield vehicles' which provide a steady and predictable revenue stream.

As with any transaction, one needs to be cognisant of the factors that drive a successful deal in the secondary market.

REIPPPP projects are niche in nature and a robust valuation of the asset is a critical factor in executing a successful transaction for an acquirer, and to mitigate key project finance risk for a potential lender.

Nuances of REIPPPP

The Programme has been a game-changer in South Africa and the significant growth in the Renewable Energy market in the country is clearly evident. In a valuation context, the following nuances of REIPPPP projects should be considered when estimating the 'market value' of the asset:

- PPAs with Eskom are based on a 'take or pay' agreement which results in Eskom paying for all the electricity generated by the REIPPPP project, regardless of whether it utilises it. This results in significantly reduced revenue and demand risk. Further, the achieved 'load factor' (amount of electricity produced over a year) might be higher or lower than the 'load factor' on which the PPA price or tariff had been set. Given the 'take-or-pay' nature of the contracts, a higher 'load factor' would represent a direct increase in revenue, with limited increase in operating costs
- The programme is based on a 20-year PPA duration across all technologies and this may not allow for projects to fully capitalise on the expected useful life of the plants for certain technologies such as solar PV and CSP. While the PPA price or tariff is set such that the initial capital investment and return on capital is fully amortised and recovered over the 20-year PPA duration, it might well be that the potential operational life of the assets would exceed 20 years
- The South African Government, through the National Treasury, guarantees Eskom's

PPA obligations which considerably reduces financial counterparty risk

- Foreign Engineering, Procurement, and Construction (EPC) contractors and Operations and Maintenance (O&M) providers have, in some instances, taken a large share of project equity. As such, the terms of EPC and O&M costs at a project level may not be 'market related' thereby potentially skewing construction costs, forecast profitability and equity Internal Rate of Return (IRR) of the project
- Delays in the programme have in some instances had a positive benefit on the implied returns of the projects. Due to the advancement of renewable technology, EPC costs have decreased in the time since bid submission date and financial close, but the tariff prices are fixed as per the bid resulting in a higher level of return for shareholders. As these projects have not commenced operations yet, Eskom may consider seeking a reduction in the tariffs to align the projected returns to the initial bid model
- Low competition among bidders for wind and solar PV projects in bid window 1 resulted in the submitted and awarded prices or tariffs being significantly higher than those in later bid windows. Based on international examples of a retroactive tariff setting in some European countries, earlier round projects may face greater policy and government risks than projects in subsequent rounds.

Valuation of REIPPPP projects

Approach

The typical valuation approaches for renewable assets may not fully capture the unique characteristics of a REIPPPP project and in some instances, overestimate the financial and operational risk of the project. The REIPPPP secondary market is in its infancy and there is limited precedent transaction data available against which to benchmark valuations. Furthermore, the nuances of REIPPPP projects make it difficult to apply international transaction multiples in the valuation of a REIPPPP asset. Therefore, the Income approach is applied as the primary, and often only, valuation method.

The Discounted Cash Flow (DCF) method based on the Free Cash Flow to Equity (FCFE) model is most commonly applied in practice. REIPPPP projects are expected to have varying capital structures over the term of the project and the FCFE model takes this into account in the cash flow estimation. However, the varying capital structure implicitly implies that the required rate of return or cost of capital should not be fixed over the life of the project and therefore, applying a constant discount rate may lead to inaccurate results.

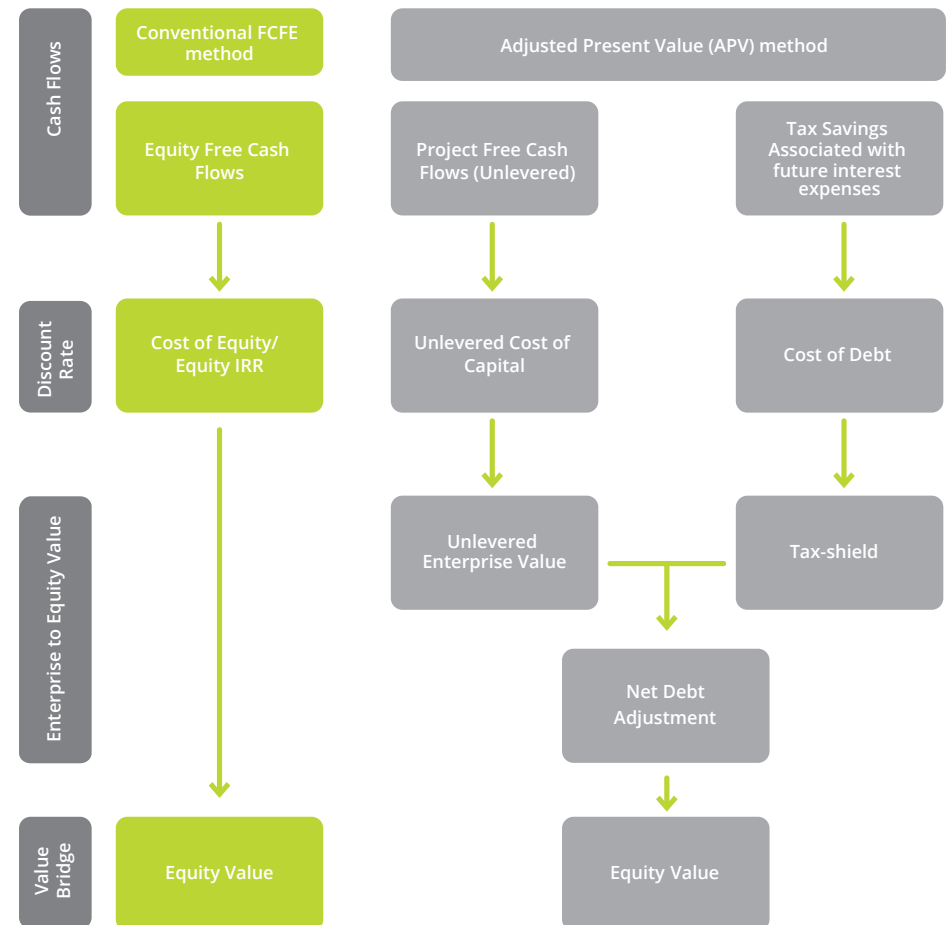
Due to varying capital structures we recommend using the Adjusted Present Value (APV) method which can take this dynamic into account. The APV method effectively splits the present value of unlevered free cash flows, assuming the company is wholly equity funded, and discounts the respective project free cash flows using an unlevered cost of capital to obtain an unlevered Enterprise Value. The tax shield is then valued separately, where tax savings related to future interest costs are discounted at the cost of debt.

The key benefit of the APV Method is that it eliminates the disconnect between applying a static discount rate to cash flows that are generated from an asset that is funded with a varying capital structure.

One could recalculate the discount rate on an annual basis, capturing the impact of the declining debt to equity ratio.

However, this is rarely seen in practice and a limitation of this approach is the use of equity book values (as opposed to market values) in estimating the capital structure on an annual basis.

Illustration of constant discount rate and varying capital structure and the difference between FCFE and APV



Discount rate

The discount rate or cost of capital used to present value cash flows in an income approach valuation is one of the key determinants of value. The common approaches adopted to estimate the discount rate include:




- Capital Asset Pricing Model (CAPM)
- Implied Equity Internal Rate of Return (IRR) of existing projects
- Company specific hurdle rate.

The latter two approaches may not represent a market participant perspective. Implied Equity IRRs may be distorted where EPC or O&M contractors hold equity stakes in projects, or in some of the earlier round projects where, due to limited competition, the pricing of the bid resulted in significantly higher returns than those achieved in the latter rounds.

The CAPM approach is widely accepted as an appropriate method to estimate a discount rate or required rate of return. However, given the nuances of a REIPPPP project, the implied risk may be materially misstated.

The South African National Treasury guarantees Eskom's PPA obligations which in the context of a South African valuation, implies a 'risk-free return' from a financial risk perspective. Therefore, the typical CAPM approach to the discount rate may not account for this reduced financial risk.

Key inputs to the CAPM and challenges in applying these to a REIPPPP project include:

Input	Key consideration
Beta coefficient 	<ul style="list-style-type: none"> • In estimating an appropriate beta to include in the CAPM, reference will be made to 'comparable companies' • This will include peers with a portfolio of renewable energy assets which benefit from diversification of their asset bases compared to a single REIPPPP asset with a long-term PPA.
Size risk premium 	<ul style="list-style-type: none"> • Small companies tend to be more exposed to risk than large companies, which typically means that an adjustment needs to be made to reflect the inherent risk of smaller companies • However, the typical risks that are applicable to 'smaller companies' may not be applicable to a REIPPPP project due to the long-term nature of the PPA, the 'take or pay' arrangements with Eskom, and the National Treasury guarantee and performance guarantees from EPC and O&M contractors.
Cost of debt 	<ul style="list-style-type: none"> • Once the project transitions from the construction to the operational phase, reduction in the applied cost of funding may be warranted due to reduced risk. Further, the potential for refinancing should be considered in estimating an appropriate cost of debt.

Conclusion

While the agreed purchase price in any transaction will be negotiated between a willing buyer and a willing seller, a robust valuation considering the unique characteristics of REIPPPP assets provides an important benchmark in negotiations and will also provide lenders with an added level of comfort on the 'fair value' of the asset based on its fundamentals.

Traditional valuation methods such as the FCFE model may lead to inaccurate results as it does not fully account for the changing capital structure of the project over its term.

Our preferred approach, the APV method, together with an appropriate discount rate considering the nuances of REIPPPP projects, overcomes the challenges in the valuation, and in our view, results in a more credible conclusion.

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