

# Mobilising Private Capital for Green Energy Investments in South Africa

Lucy Corkin

## INTRODUCTION

As recently as a decade ago, investment in renewable energies in South Africa was negligible. Until 2009 South Africa's economy was highly dependent on fossil fuels, sourcing almost 70 per cent of the country's energy requirements from coal (Du Toit, 2012: 76) and responsible for 1.6% of global greenhouse gas emissions (DoE, 2015a: 14). In 2011, South Africa rated the 11th largest carbon dioxide emitter globally, responsible for 38% of all African emissions (Yuen, 2014: 12). Furthermore, a comparative study of the BASIC<sup>1</sup> group of countries noted that, of the five developing countries, South Africa, at approximately USD 125 million, had the lowest level of private sector investment in renewable energies in the

Observer Research Foundation (ORF) is a public policy think-tank that aims to influence formulation of policies for building a strong and prosperous India. ORF pursues these goals by providing informed and productive inputs, in-depth research and stimulating discussions. The Foundation is supported in its mission by a cross-section of India's leading public figures, academics and business leaders.



To know more about  
ORF scan this code

group (Carbon Disclosure Project, 2010). This was despite South Africa being considered amongst the top 1% in the world in terms of solar power generation potential<sup>2</sup> (top three countries). Besides South Africa has significant wind potential as well.

However, over the following 10 years, an enabling regulatory environment, coupled with a targeted government procurement programme for renewable energy projects has since seen South Africa orchestrate a remarkable turnaround in the renewable energy space, ranking amongst the global top 10 in terms of solar energy at utility scale (Ngobeni, 2016). South Africa is thus somewhat different from the other country case studies included in this report, as the South African government has already embarked upon large-scale programme specifically targeting private investment in renewable energy. The purpose of this paper is therefore to perform an analysis of the process undertaken in South Africa, in order to glean key insights and learnings as regards encouraging clean energy investments in other developing countries.

This paper begins by tracing South Africa's journey in soliciting private sector investment in renewable energy projects, paying particular attention to the energy industry context, regulatory environment, and policy decisions relevant to this sector. The bulk of the paper is devoted to unpacking the experience of the various stakeholders in the process as regards their participation in the South African government's renewable energy programme. The most important stakeholders have been identified as industry regulatory bodies and government departments, investors and business-owners, and debt providers. The last section of the paper lifts out key aspects of the South African experience most relevant for other developing countries.

### ***Legislative environment***

Renewable Energy first entered South Africa's policy environment in 1998, with the release of the White Paper on the Renewable Energy Policy of the Republic of South Africa (REWP). Subsequently updated in 2003/2004, this paper set the target of 10,000 GWh to be added to the country's energy mix by 2013, representing approximately four per cent of projected energy demand (Department of Minerals and Energy,<sup>3</sup> 2003). The paper, according to a member of NERSA, gave a direction to develop a policy framework for renewable energy, considered crucial to foster private sector interest (DoE, 2015a:11,26).<sup>4</sup>

In response to the energy capacity crisis experienced in 2007 and 2008, which resulted in rolling black-outs across the country, the South African Department of Energy's Integrated Resource Plan (IRP)<sup>5</sup> for Electricity (2010 – 2030)<sup>6</sup> set a target of renewable energy contributing nine per cent of South Africa's energy mix and 26.3 per cent of installed capacity by 2030. The impetus for renewable energy was supported by the National Climate Change Policy Response White Paper 2011, released by the Department of Environmental Affairs, and President Zuma's

concomitant international pledges to mitigate South African emissions levels (DoE,2015a: 22).

In 2009, the National Energy Regulator of South Africa (NERSA) introduced the Renewable Energy Feed-In Tariff programme (REFIT) (Du Toit, 2012:87). The publication of REFIT set out the guidelines for independent power producers (IPPs) to participate in energy generation in South Africa. IPPs would sign power purchase agreements (PPAs) with the country's Renewable Energy Purchasing Agency (REPA), appointed as the state utility company, Eskom. Effectively, the IPPs ultimately contracted to produce renewable energy via grid-connected generators would be compensated for the cost of power generated and a 'reasonable'<sup>17</sup> profit margin determined by fixed tariffs as per the REFIT programme (Du Toit, 2012:95). The REFIT programme generated significant interest amongst prospective IPPs. However, before any PPA could be signed, in 2011 NERSA published revised tariffs, reduced to between 10 and 42 per cent of the original tariff levels, depending on the type of renewable energy technology. This created considerable uncertainty amongst the investors, some of whom had already invested into project preparation and feasibility studies (so-called sunk funds), as the investment case for renewable energy projects in South Africa. To make matters worse, in 2011, the Department of Energy and National Treasury (Department of Finance), after legal consultation, announced that the REFIT programme was unconstitutional in that the fixed tariff system did not comply with the Government's Preferential Procurement Policy Framework.<sup>8</sup> REFIT was summarily scrapped and in its place, South Africa's Renewable Energy Independent Power Producer Procurement Program (REIPPPP)<sup>9</sup> was introduced (Du Toit,2012:75).

The South African government's volte-face regarding using a feed-in tariff structure was controversial at the time. Aside from the policy disruption, which shook the investor confidence from a global perspective, feed-in tariffs were considered the most effective mechanism to promote renewables energy (Du Toit, 2012:87). The departure from what was considered to be the international best practice continues to be questioned in some quarters.<sup>10</sup>

Nonetheless, the REIPPPP programme has on balance been hailed as a success, as a critical enabler of investment in renewable energy, particularly as regards private capital flows. Of the cumulative ZAR 194.1 billion in capital flows (USD 14.5 billion<sup>11</sup>) attracted by the programme, ZAR 53.4 billion or 27.5 per cent (USD 4 billion) were foreign capital flows, i.e. equity and debt (GoSA, 2016:9). Of this, ZAR 35.2 billion (USD 2.6 billion) was foreign equity, totalling 56.8% of total foreign direct investment, attracted by South Africa in 2014 (GoSA, 2016:29).

From the completed five bid rounds<sup>12</sup> and a supplementary round known as 1S2,<sup>13</sup> 102 IPPs secured contracts with the government to provide 49 MW of power (Ngobeni, 2016) distributed across the country. Of these, more than half from rounds one through three were in the construction phase or had begun commercial operations.

Although it was important to note that the South African currency (ZAR) had depreciated substantially over the life of the bidding rounds, in local currency terms, the tariffs were still decreased appreciably over time. However, it was worth noting that in the first bidding round, all accepted prices were substantially more than the revised REFIT tariffs. In essence, this round was a market test case for many participants, and the published tariffs cap guideline for the first round effectively acted as a set price, as most bidders, benefitting from less competition, used this as a guideline as to how much the South African government was prepared to pay.

## **STAKEHOLDERS: REGULATORS**

A number of government and regulatory bodies play a role in South Africa's power generation sector and, as such, had a significant influence in the REIPPPP programme. These are detailed below.

### **NERSA**

The Electricity Regulation Act (2006)<sup>16</sup> appointed National Energy Regulator of South Africa (NERSA) as an independent body charged with the regulation of electricity and tariffs and the power to award operating licences for power generating facilities. NERSA, together with the Minister of Energy, was responsible for determining the country's optimal energy mix, and overseeing new generation capacity via a transparent and competitive tendering process. This included renewable energy. New Generation Regulations on New Generation

Capacity pertaining to renewable energy were gazetted by the Department of Energy in May 2011 (GoSA,2016:3).

### ***Eskom***

Established in 1923, Eskom is South Africa's vertically integrated power utility. Eskom has a virtual monopoly on South Africa's power generation landscape, generating 96 per cent of South Africa's electricity, owning and controlling the transmission grid, and distributing approximately 60 per cent of the electricity generated directly to end-users (Eberhard, 2014:5). The state owned enterprise was tasked with “operating at neither a profit nor a loss” until well into the 1980's and historically had significant reserve margins (DoE, 2015a:12). Until the adoption of the Integrated Energy Plan (IEP) and Integrated Resource Plan (IRP), together with the 2003 Renewable Energy White Paper, which effectively mandated the Minister of Energy to take the lead in establishing South Africa's energy mix, this had been Eskom's prerogative (DoE, 2015a:19). The shift in responsibility was to ensure that all possible sources of energy were evaluated and considered, rather than solely fossil fuels, from whence the bulk of Eskom's base load was generated.

Eskom's monopolistic positioning in the power industry had posed a number of challenges from a policy continuity perspective. A draft Independent System Market Operator Bill, first introduced in 1999 (le Cordeur, 2015) and tabled at the South Africa Parliament in 2011 (Government Gazette, 2011), proposed unbundling Eskom into several different entities with the distinct responsibilities of generation, transmission and distribution. The intention of the bill was thus to dismantle the utility's monopoly and encourage further independent power producer activity. However, the bill was withdrawn from Parliament and has lacked sufficient political support to be further pursued, despite the obvious benefits to opening up the energy market.

As acknowledged by the Department of Energy directly, the most important role that regulators and government bodies can play in attracting private investment to renewable energy is to create a facilitative policy environment (DoE,2015a:iii). Unfortunately, the somewhat obstructive role of Eskom, the state utility, as regards the REIPPPP following the successful conclusion of five bidding rounds clearly illustrates the need for policy alignment across government entities and sufficient political will as regards the smooth implementation of a renewable energy programme.

Since 2016, Eskom, despite a contractual obligation to do so has, refused in its capacity as REPA to sign a number of PPAs, citing as a reason, the country's transition to a state of surplus electricity capacity in that year.<sup>17</sup> This has threatened the viability of nearly 40 renewable energy projects, whose project bank ability was predicated on a guaranteed off-take (see below). The projects have a combined value of ZAR 58 billion (USD 4.3 billion), and will potentially

provide local 15,000 jobs. Eskom's actions have created significant uncertainty as regards the future viability of the renewable industry in South Africa, and threatened the nascent industrial development that has emerged to support the renewable energy industry.

President Jacob Zuma reiterated during his February 2017 State of the Nation address that Eskom would indeed sign the PPAs (Creamer, 2017a). However, the power utility has dragged its feet in doing so (Creamer, 2017b). In particular, Eskom had been attempting to renegotiate tariff levels to ZAR 0.62/kWh (USD 0.05/kWh) or less, even though it does not have the regulatory mandate to do so (Slabbert, 2017b).

Eskom is seen by many stakeholders<sup>18</sup> as deliberately attempting to back-pedal on the REIPPP PPA commitments. In a statement published in January 2017, the power utility claimed that the renewable energy programme had rendered a net loss to the South African economy to the tune of ZAR 9 billion (USD 675 million) (Slabbert, 2017a). The controversial decision to close four coal power stations, as the 'only option to accommodate renewables', has been claimed by some industry commentators as a transparent attempt to drum up public resentment of the renewable energy programme, especially amongst the politically influential trade unions (Slabbert, 2017c). Although the Minister of Energy declared a deadline of 11 April 2017 for Eskom to sign the PPAs following the Presidential announcement, a major Cabinet reshuffle in the preceding month, during which the incumbent Energy Minister was replaced, further delayed the process (Creamer, 2017c).

Eskom has furthermore been identified as the transmission bottleneck, the resolution of which is critical for the REIPPPP to successfully provide electricity to South African end users. (DoE, 2015a:119). REIPPPP, despite being hailed both domestically and internationally as wildly successful, has a major weakness in that it is dependent on Eskom's ability to connect generating plants to the grid to increase the country's electricity baseload. If IPPs have completed construction but are not connected to the grid due to network unavailability, the electricity is contractually deemed to have been delivered regardless. As of March 2016 ZAR 138 million (USD 10.4 million) had been spent on deemed electricity, i.e. electricity produced but not delivered due to transmission issues (GoSA, 2016: 25).

### ***Independent Power Producer (IPP) Office***

Following the government decision to procure energy from independent power producers, in November 2010, the Department of Energy and National Treasury (NT) entered into a Memorandum of Agreement (MoA) with the South Africa-based Development Bank of Southern Africa (DBSA) to establish a dedicated IPP Office to assist the Department of Energy in executing the IPP procurement mandate. The office was staffed drawing from the Department of Energy and the



National Treasury's Public Private Partnership Office and funded independently through the REIPPP bid applications fees, and a mandatory 1 per cent of total project cost (TPC) payable by all successful bids. The IPP office oversaw the bidding process (Eberhard, 2014;11). A key success factor in the IPP office was its semi-autonomy from conventional ministerial and government structures, allowing it to adapt flexibly to the requirements of the REIPPPP over the life of the various bidding rounds. In addition, the IPP office team was regarded as efficient by industry players thus facilitating a high level of trust between bid participants and the IPP office.<sup>19</sup>

## STAKEHOLDERS: DEBT PROVIDERS

South Africa is characterised by an unusually sophisticated financial services sector, relative to comparable emerging country peers. Consequently, domestic financiers were able to play a leading role in providing the requisite funding for the REIPPPP. Seventy-three per cent or ZAR 141.7 billion (USD 10.6 billion) of the REIPPPP total project cost (TPC), comprising debt and equity, was sourced locally (GoSA,2016:29). Leading the charge as regards domestic sources of finance were South Africa's private commercial institutions (largely banks), which collectively financed ZAR 90.6 billion (USD 6.8 billion) or 46.7% of the REIPPPP TPC, followed by South African development finance institutions, most notably the Industrial Development Corporate (IDC) and the Development Bank of Southern Africa (DBSA) collectively at 45.7% or ZAR 31.6 billion (USD 2.4 billion) (GoSA, 2016:30).

Project finance was the most common funding structure, followed by corporate finance arrangements and one case of finance via corporate bond issuance (Eberhard et al, 2014:1;19).

In order to attract both equity as well as debt providers to participate in a new and untested industry in South Africa, a few elements of the financing structure were essential from a risk perspective to ensure the bankability of the projects<sup>20</sup>:

- **Guaranteed off-take:** The power purchase agreement (PPA) obligated Eskom to pay for any power delivered (i.e. generated and delivered by virtue of the generation facility being linked to the state grid)
- **Sovereign Guarantee:** The South Africa government, via National Treasury, provided a sovereign guarantee for Eskom's obligations, thus mitigating political and non-payment risk from the state utility, given Eskom's deteriorating financial standing<sup>21</sup>
- **Transparency:** The bidding and procurement process was considered transparent and competitive<sup>22</sup>

- **Comprehensive legal agreements:** Part of the legal agreements included “step-in rights”<sup>23</sup> for debt providers.

Interestingly, particularly in the earlier rounds, submitted project bids were required to prove that finance had been secured upfront. This effectively outsourced the bulk of the project due diligence and viability assessment to the prospective debt provider, which bidders would be compelled to fund in the event of it being successful in the bidding round (Eberhard et al, 2014:11).

Debt providers, especially in the earlier rounds ensured the following<sup>24</sup>:

**Reputable O&M manufacturers:** Key to the assessment of debt providers was the quality of the operation and maintenance and equipment suppliers. In many cases this requirement ensured that only the larger, more well-known manufacturers succeeded in participating, effectively locking out participation by small, medium and micro-enterprises (SMMEs).

**Conservative capital structure:** circa 75% debt and 25% equity.<sup>25</sup>

**Conservative operating assumptions:** Most of the debt providers base case operating models used P90 (the power generation outcomes in the ninetieth percentile of probability). Furthermore, debt amortization profiles were modelled to be paid off long before the end of the life of the project. This effectively meant that should there be any delay or postponement, for whatever reason, in the project paying off its debt, there would still be a number of years during which time the project would generate revenue, thus allowing the leeway for the debt to still be paid off in full before the project was retired.

**Experienced technical advisors:** Eberhard (2014: 2) attributes the success of the programme to the availability of sophisticated advisory and project finance capabilities, not only to assist the sponsors in structuring their projects, but also in terms of the actual design of the REIPPPP bidding procedure itself.

**High profit margin in the tariff<sup>26</sup>:** This was important in the early rounds to attract private investment as well as assure the debt providers that the projects being financed were viable. In the later rounds, competition increased and profit margins for both investors and debt providers were compressed.

As competition in the successive rounds increased, tariffs were lowered, the manufacturers were sometimes smaller, lesser known suppliers, (many of them Chinese still perceived in South Africa to be inferior quality), capital structures became more aggressive and projects were approved on lower operating ratios and less conservative operating assumptions.<sup>27</sup>



From the perspective of the debt providers,<sup>28</sup> Eskom had introduced a considerable instability and uncertainty into the process after refusing to adhere to its (the South African government's) commitments to power producers and reneging on signing the PPAs since early 2016. This relates both to the potential contracts at hand (in particular the currency risk can only be hedged once the PPA has been signed, and the South Africa Rand has in recent years been notoriously volatile)<sup>29</sup> and questions of the future sustainability of the industry at large. The lack of official pronouncements on the matter and the resultant lack of information and government department co-ordination has severely damaged the REIPPPP in general and Eskom's credibility in particular.

The irony of Eskom's refusal to sign the latest round of PPA's is that it is locked into the earlier more expensive tariffs, and is trying to withdraw from the cheaper tariff rounds that use more recent renewable energy technology. Furthermore, some of the largest investors in the REIPPPP are government entities, thus Eskom's intractability is damaging corollary interests of its own shareholder, the South African government. This is further evidence that Eskom's monopoly on the South Africa power sector is wholly unsustainable.

## **STAKEHOLDERS: INVESTORS AND ENTREPRENEURS**

Overall, much the same as the debt providers, the REIPPPP has been lauded as a success and according to the CEO of South African Renewable Energy Council (SAREC) is instrumental in opening up the market for private investment in renewable energies through a credible procurement process (DE, 2015a:57; Yuen,<sup>30</sup> 2014; 59). However, for the purpose of drawing key learnings from the investor experiences in the REIPPPP process, following are its perceived challenges:

### ***High Barriers to SMEs***

The nature of the REIPPPP process rendered it difficult for small and medium enterprises to participate effectively, thus excluding most entrepreneurs. This was due to the considerable administrative burden and high bid costs inherent in a process of this nature (Eberhard, 2014:2), which also served to ultimately inflate bid tariff levels<sup>31</sup> (Yuen, 2014:62). This was further compounded as small-scale generators generally cannot compete on price with scale projects (GoSA, 2016:20).

### ***Impact of Policy Instability***

Policy certainty is a key to ensuring investor confidence. Many bidders had invested significant funds into preparing for participation in the REFIT programme, only to see it scrapped. This represented significant sunk costs, which

were fortunately recouped by those who chose to participate in the REIPPPP programme, particularly if participation was in multiple rounds. The efficiency of design and transparency of the REIPPPP programme itself was highly commended, but political developments post the final bid rounds, particularly as regards Eskom, as discussed above, were illustrative of instability that a lack of policy continuity can introduce.

### ***Socio-economic Component***

The REIPPPP process incorporated a significant socio-economic component into bid requirements – bid evaluations were weighted 70 per cent and 30 per cent socio-economic contribution. According to participants, although the process in this regard was well set out and defined, it was an unfamiliar component to bidding processes of this nature. As a result, there were varying interpretations as to how such requirements should be fulfilled and concern at the lack of transparency in terms of how bids were evaluated per these criteria (Eberhard, 2014:24). As regards implementation, issues often arose when developers made promises to local communities that were not in line with the concessions that the eventual project owners were prepared to make (Eberhard, 2014:29).

Particular emphasis was placed on local procurement, but the questions remained whether it was strategically astute to force the creation of a local industry in manufacturing components, whereas in a global context, margins were being squeezed in a mature industry suffering from over-supply.

## **OPPORTUNITIES AND THE WAY FORWARD**

The REIPPPP, despite some difficulties, has been a remarkably successful programme in terms of attracting private investment to renewable energy. It has raised South Africa from relative obscurity in the context of renewable energy investment to being amongst the 10 largest markets in the world for solar installations 5MW and above; and amongst the top 10 countries in the world investing in renewable energy technologies, according to the 2014 United Nations Environment Programme (UNEP) report (DE, 2015:10). South Africa has signed up more contracts from IPPs than the rest of the African continent put together over the last 20 years (Eberhard, 2014:4).

In addition, the vast majority of the capital flows to the programme were domestic, as only 28 per cent was sourced from foreign direct investors. According to the government of South Africa, as of March 2016, 93% of IPPs were commercially operating. Given the average construction period of 1.8 years, the project is also illustrative of the speed with which renewable energy can contribute to a country's energy mix, relative to other power sources. (GoSA, 2016:9).

The following key aspects and themes came to light in unpacking the roles of the various stakeholders in the REIPPPP programme:

### ***Requirement of significant policy framework and political will***

Of critical importance was creating a facilitative environment for private sector investment in renewable energy, in particular a clear and transparent procurement framework. The Department of Energy conceded the need to avoid ambiguity and confusion by setting clear targets and goals in this respect (DE,2015a: 20). Regulations also need to be adaptable and flexible to accommodate 'learning effects' in a process that concerns a new and rapidly adapting set of technologies (DE, 2015a: 39), discussed in more detail later.

Important to consider, however, is the fact that a clear policy environment from a legislative perspective is a necessary but not sufficient criteria to attract private investment. Supportive political will and the alignment of the relevant government stakeholders is also critical. This refers to vertical alignment between provincial and national government objectives, as well as horizontal collaboration between government bodies, SOEs and regulators. The damage that Eskom, as the state utility and official REPA, has effected on the outcomes of the REIPPPP in later years is demonstrative of what can happen should this not be the case. The IPP office issued a request for proposals for an 'expedited procurement process' of an additional 1.8 GW of power on June 2015 and was planning a fifth bidding round window for late 2016/2017. However, Eskom's spoiler tactics have halted this. Eskom's monopolistic market positioning ensured that structurally the utility had no incentive to facilitate the entry of IPPs into market and this has proven to be a significant obstacle to continued REIPPPP success.

### ***Feed-in tariffs (REFIT) versus competitive bidding system (REIPPPP)***

There is a significant body of literature that attests to feed-in tariffs (REFIT) rather than a competitive bidding process (such as REIPPPP) being the most successful method of attracting private investment in a government procurement programme of this nature because of the transparent nature of the tariff levels in a feed-in tariff procedure – they are published for all to see. Observers have argued that REIPPPP was in fact not transparent to those external to the actual bidding process.<sup>32</sup> Whereas the bid participants considered the REIPPPP process transparent, this must be determined by external parties and civil society at large having access to the eventual tariff levels, which may not necessarily be made available by the government (albeit that in the South African case they were).

From an investor perspective, REFIT is largely preferred to a competitive bidding process, as it removes some of the uncertainty inherent in participation (Yuen, 2014:41). Even in Brazil, where a competitive bidding process was pursued, it was done on the basis of a dynamic rather than a single price offering, potentially allowing competition to further drive down the end price of the electricity generated (Eberhard, 2014: 2).

There are also questions around the abrupt volte-face as regards changing from REFIT to REIPPPP, especially as there is a legal basis under which National Treasury could have granted an exception for a REFIT programme to take place under the Preferential Procurement Policy Framework Act, 2000 (PPPFA), instead of declaring it unconstitutional as was done in 2011. An exemption of a similar nature was granted to REIPPPP to allow for higher tariffs to accommodate socio-economic objectives (GoSA, 2016:13). Instead, the policy change from REFIT to REIPPPP was abrupt and secretive, albeit that the SA government appears to justify this policy change retrospectively by arguing that the average prices across the REIPPPP rounds are well below that of the REFIT tariffs (GoSA, 2016:20).

### ***Rolling bid structure***

Another key element of the REIPPPP was the multiple rolling bid rounds. This feature was advantageous for South Africa in terms of progressively lowering the tariff levels bid in successive rounds for a number of reasons:

- The first round (also the most expensive in terms of tariffs levels) absorbed a fair amount of the investors' sunk costs, in terms of research, technical surveys etc. and thus allowed the sponsors to successively lower their bid tariff levels in future rounds given reduced transaction costs
- The rolling bids allowed the administrative procedure and the IPP Office responsible to dynamically adapt and refine the bidding protocols and procedures in successive rounds from the learnings accrued. The IPP office in this way also developed a demonstrable track record in terms of successfully administering the process. The rolling bids thus improved policy efficiency and reduced political uncertainty, which enhanced investor confidence (DE, 2015b: 92)
- The rolling bids also allowed project sponsors and debt providers alike to become more familiar with the process and develop a level of comfort around bidding in successive rounds – this encouraged participation of increasingly more bidders, thus raising the competitive nature of the bid and driving down tariff levels
- Sponsors with operating generators during the later rounds could show a proven track record to debt providers which lowered the cost of their debt and fed into lower tariff levels bid
- The multiple bid rounds allowed the amount of power generation capacity to be rationed for each bid round, further increasing competition and thus driving down tariff levels

- The rolling bid rounds also served to stagger the impact of increased renewable energy capacity, thus facilitating more sustainable market absorption of the impact
- The staggered investment rounds theoretically encouraged a sustainable demand over time for input components through the creation of a project pipeline, thus encouraging local industrial development.

In parallel to this, the impact of the rolling bid windows in prolonging the time over which the bids occurred, allowed the process to benefit from the significant cost reduction undergone by many of the renewable energy technologies internationally, further reducing bid price levels.

In addition, in the later bid rounds (from round 3) European utility companies began to take an interest in bidding in programmes such as REIPPPP in order to effectively find markets for their excess capacity, given the downturn in economic growth in Europe. This was recognized by debt providers and investors alike as a game-changer as regards bid price levels, given the access to cheap debt (balance-sheet funding) and economies of scale open to these market players<sup>33</sup> (Yuen, 2014:61).

### ***International community support***

Strong support from international NGOs and donor organisations with regard to preparatory and supportive research was cited as critical for creating an enabling environment for the eventual success of the REIPPPP in attracting private investment (Eberhard, 2014: 35). Indeed, according to members from industry organisations, a CEO of South African Photovoltaic Association (SAPVIA) and the South African Wind Energy Association (SAWEA), a number of pioneering renewable energy projects, largely funded by overseas organisations, paved the way for the policy environment that led to REIPPPP (DE, 2015 :57).

The Department of Energy (DE,2015a:15) acknowledges the pivotal role played by the international donor community in terms of technical assistance, such as the Solar Data and Resource Mapping Study, which facilitated an initial assessment of South Africa's renewable energy potential, and established the basis for private sector investment interest. Similarly, GTZ funding the establishment of the South African Renewable Energy Council (SAREC),<sup>34</sup> considered the industry custodian for renewable energy, created a facilitative environment for the renewable energy sector to grow (DE, 2015a:2). In addition, funding to assist with corollary support to the REIPPPP process such as websites and databases, facilitated largely through a memorandum of agreement (MoA) with DBSA, and funding from other International donors was critical to the programme's overall success by increasing transparency and access to information for bid participants (Eberhard, 2014:16).



### ***Advisory and Monitoring Role***

Several academics have been prominent in an advisory capacity throughout the REIPP process. Their experience has in turn enriched the academic community and body of specialised research organisations. This is particularly important given that whereas private sector players will generally conduct short-term impact research, an enabling academic environment is required for sustainable research and development of an industry sector and the requisite skills development (DE, 2015a:14; 129). Local research organisations such as the University of Cape Town Energy and Development Research Centre (EDRC) have been described as 'trailblazing' in terms of their research contribution (DE, 2015a:13).

Academic organisations have played an important role in documenting the REIPPPP process, critically evaluating the key role players and quantifying the success (or failure) of the REIPPPP.<sup>35</sup> For instance, the Council for Scientific and Industrial Research (CSIR) calculated that the additive power generation from the REIPPPP contributed up to ZAR 4 billion in the first six months of 2015 alone, based on the savings from alternative fuel sources<sup>36</sup> and the productive economic benefit of reducing power back-outs across the country (Calitz et al, 2015:24).

### ***Socio-economic potential***

Investment in renewable energy has the potential of widespread benefits from a socio-economic impact perspective. This is evident in a large-scale government procurement project, as REIPPPP showed. As previously mentioned, 30 per cent of the bid assessment was weighted in terms of socio-economic considerations. Requirements included 40 per cent local ownership and 2.5 per cent of the project equity placed in trusts community beneficiation. In most of the bid rounds, these targets were well exceeded, resulting for instance in average local equity of 47% across all concluded bid rounds (DE, 2015:95).

### ***Local Content Procurement***

Local content procurement requirements are also important socio-economic contributors. Local procurement requirements were set at a minimum of 45 per cent. As a result, spend on local construction and operations procurement (over the 20 years' life of the projects) totaled 73.6 per cent (ZAR 142.9 billion or USD 10.7 billion) of the REIPPPP total project cost (GoSA, 2016:34).


### ***The marginalization of smaller players and need to diversify***

Investments in renewable energy via government procurement, should the process be considered successful, is unlikely to foster small and medium enterprises unless this is the stated policy objective made with due cost



considerations. This is due to a number of structural reasons, related largely to issues of scale which are not stacked in favour of smaller participants. Small-scale projects are simply not able to compete on price point with larger facilities (GoSA, 2016:20).

The bidders appreciated the high administrative and transaction costs as inherent in the bidding process to ensure the competition among the serious contenders, but the process largely excluded SMEs and entrepreneurs (DE, 2015: 39).

However, on a smaller scale private (versus government-owned or sponsored) basis, renewable energy holds significant potential as a means of empowering communities that may not have access to centralized utility service networks, such as the state grid. The most applicable technology in South Africa, due to solar energy potential as well as the falling costs of installation units, is solar photovoltaic cells (solar PV). As of May 2015, a voluntary database of rooftop installations in the country registered 43.8 MW of capacity installed since 2011 (DoE,2015a:83), predominantly (57%) in commercial facilities, followed by industrial (13%) and agricultural (12%) contexts. A Solar PV baseline study predicts installed Solar PV capacity in South Africa to reach between 3.5 and 11.6 GWh by 2035 (Maphelele, 2013). 

## **ABOUT THE AUTHOR**

**Lucy Corkin**

## REFERENCES

- African New Agency (2017) “Revised IRP to go back to Cabinet by early spring – energy department”, Engineering News, 14 February 2017:  
<http://www.engineeringnews.co.za/article/revised-irp-to-go-back-to-cabinet-by-early-spring-energy-department-2017-02-14>
- Calitz, Joanne, et al (2015) “Quantifying the financial benefits of wind and solar energy projects in South Africa”, CSIR Science Scope, 8(2): 24-25.
- Carbon Disclosure Project (2010) Corporate Clean Energy Investment Trends in Brazil, China, India and South Africa, London: Renewable Energy & Energy Efficiency Partnership
- Creamer, Terence (2017a) “Zuma says Eskom will sign renewables contracts amid disrupted, economy-focused Sona”, Engineering News, 9 February:  
<http://www.engineeringnews.co.za/article/zuma-says-eskom-will-sign-renewables-contracts-amid-disrupted-economy-focused-sona-2017-02-09>
- Creamer, Terence (2017b) “Sarec says Eskom dragging its feet in honouring Zuma's renewables 'injunction'”, Engineering News, 17 February:  
<http://www.engineeringnews.co.za/article/sarec-alleges-eskom-dragging-its-feet-in-honouring-zumas-renewables-injunction-2017-02-17>
- Creamer, Terence (2017c) “Renewables contracts will not be signed on April 11”, Engineering News, 10 April:  
<http://www.engineeringnews.co.za/article/renewables-contracts-will-not-be-signed-on-april-11-2017-04-10> (10 April 2017).
- Department of Minerals and Energy (DME) (2004) “White Paper on the Renewable Energy Policy of the Republic of South Africa, November 2003”, Government Gazette, no. 26169, May 2004, pp. i – 45.
- Department of Energy (DoE) (2015a) The State of Renewable Energy in South Africa. Pretoria: DoE. pp. 1-166.
- Department of Energy (DoE) (2015b) “Renewable Energy IPP Procurement Programme (REIPPPP) for South Africa” [presentation], June 2015.
- Du Toit, Louise (2012) “Promoting Renewable Energy in South Africa, an overview of recent legal and policy developments”, South African Journal of Environment Law and Policy 19(75): 75-106.
- Eberhard, Anton et al (2014) South Africa's Renewable Energy IPP Procurement Program: Success Factors and Lessons. Washington: Public-Private Infrastructure Advisory Facility (PPIAF), pp. 1-56.
- Government of South Africa (GoSA) (2016) “Independent Power Producers Procurement Programme (IPPPP): An Overview”, Pretoria: Government of South Africa.
- Government [of South Africa] Gazette (2011) “Independent System and Market Operator Establishment Bill, 13 May, 290 (2011): 3-25.

- Le Cordeur, Matthew (2015) “ANC's decision to bury electricity bill disturbing – expert” Fin24, 2 February: <http://www.fin24.com/Economy/ANCs-decision-to-bury-electricity-bill-disturbing-expert-20150202> (accessed 26 April 2017).
- Maphelele, Tumi et al. (2013) “South Africa Solar Energy Technology Road Map”, Pretoria: SAPVIA, pp 1-14: [http://www.sapvia.co.za/wp-content/uploads/2013/03/Solar-PV-Baseline-for-South-Africa\\_Draft-2\\_2013-06-26.pdf](http://www.sapvia.co.za/wp-content/uploads/2013/03/Solar-PV-Baseline-for-South-Africa_Draft-2_2013-06-26.pdf) (accessed 1 May 2017).
- Ngobeni, Maduna (2016) “Stakeholder Consultation Workshop: Preparation of the Second Edition of the State of Renewable Energy in South Africa Report Market Overview and Current Levels of Renewable Energy Deployment”, 25 November: <http://www.energy.gov.za/files/renewable-energy-status-report/Market-Overview-and-Current-Levels-of-Renewable-Energy-Deployment-NERSA.pdf>
- Odendaal, Natasha (2017) “Outa calls for judicial enquiry into Eskom's affairs”, Engineering News, 17 February: <http://www.engineeringnews.co.za/article/outa-calls-for-judicial-enquiry-into-eskoms-affairs-2017-02-17>
- Ryecroft, Mike (2013) “Summary of REIPPP round three projects” Energize, December: 7-9.
- Slabbert, Antoinette (2017a) “Eskom committed to renewables 'at affordable cost, pace’”, Moneyweb, 11 January: <https://www.moneyweb.co.za/news/south-africa/eskom-committed-to-renewables-at-affordable-cost-pace/>
- Slabbert, Antoinette (2017b) “Eskom will sign renewable IPPs – Zuma”, Moneyweb, 10 February: <http://today.moneyweb.co.za/article?id=650531&acid=FfzIzSuTUoIeZeuwhd4cWQ%3D%3D&adid=F7CD59LvtAo8WkHj2%2BXORA%3D%3D&date=2017-02-10#.WOKpKG-GOpp>
- Slabbert, Antoinette, (2017c) “Eskom to close four power stations”, 10 March: [https://www.moneyweb.co.za/news/south-africa/eskom-to-close-four-power-stations/?utm\\_source=Moneyweb&utm\\_campaign=b9eea3a3fa-EMAIL\\_CAMPAIGN\\_2017\\_03\\_08&utm\\_medium=email&utm\\_term=0\\_b106a40770-b9eea3a3fa-141247425](https://www.moneyweb.co.za/news/south-africa/eskom-to-close-four-power-stations/?utm_source=Moneyweb&utm_campaign=b9eea3a3fa-EMAIL_CAMPAIGN_2017_03_08&utm_medium=email&utm_term=0_b106a40770-b9eea3a3fa-141247425)

## ENDNOTES

1. The BASIC grouping includes Brazil, India, China and South Africa.
2. South Africa has more than 2,500 hours of sunshine per year and average direct solar radiation levels of between 4.5 – 6.5 kWh/m<sup>2</sup> (DE, 2015,1)
3. In 2009, the Department of Minerals and Energy was split into two separate Departments, namely the Department of Energy and the Department of Mineral Resources. This was considered a position move as far as the promotion of renewable energy as it effectively decoupled energy policy from mining.
4. The legislative impulse is also supported by the National Climate Change Response White Paper Policy published in 2011 (DoE, 2016:3)
5. The IRP, concerned mainly with electricity generation is sub-ordinate to the National Integrated Energy Plan (IEP), a policy document that is the South African Government's strategic, coordinated master plan for the entire energy system of the country, with the aim of aligning and optimising across the respective energy providers, thus providing a coherent and holistic energy plan for the country. The latest version of the IEP is due for publication in the second half of 2017.
6. The IRP is, at the time of writing, being updated. On 2 November 2016, the South African Cabinet approved the publication of the revised Integrated Energy Plan and the Integrated Resource Plan for public comment and engagement, which was conducted until February 2017. The revised plan is expected to be presented to Cabinet in August or September 2017 (African News Agency, 2017).
7. The original tariff levels allowed for generation costs and a 17% return on equity, fully indexed for inflation (DoE, 2015a:4)
8. Du Toit (2012) argues that a policy inconsistency exists here, as there is a legal provision for important projects such as the renewable energy programme, to be exempted from the government's constitutional procurement framework.
9. By way of context, at the time that the REIPPPP was instituted, South Africa was suffering from a severe power deficit, not having constructed a new power station in more than 20 years. This hiatus meant that the country lacked the project management and technical skills to do so and the government needed to stimulate the sector. However, the REIPPPP in its entirety still provides less capacity than one of the since newly constructed coal facilities – Medupi or Kusile.
10. Interview, academic subject matter expert, 16 March 2017.
11. Per 2017 terms, the South African Rand has experienced a 45 percent depreciation against the USD since 2011.
12. A smaller bid round, known as bidding window 3.5 which only comprised 2 preferred bidders and a contracted capacity of 200 MW, is included as a fifth bidding window.
13. This bid round specifically targeted smaller projects which had suffered pricing disadvantages due to economies of scale.
14. In rounds 3 and 3.5 there was an allowance of a 270% peak time tariff for CSP, effectively (USD 0.46 and USD 0.41 for round 3 and 3.5 respectively) which encouraged the construction of storage capacity and negates the argument that Renewable energy is intermittent and inappropriate for baseload energy supply

- according to Professor Wikus van Niekerk, director for the Centre for Renewable and Sustainable Energy Studies (CRSES) at Stellenbosch University (DE, 2015: 141)
15. USD/ZAR =7.89 (BW1); 7.51 (BW2); 10.07 (BW3); 10.50 (BW3.5); 10.67 (BW4). By way of comparison, the tariffs from the concurrently constructed the coal power stations Medupi I, Kusile and Medupi E are USD 0.09; USD 0.07 and USD 0.05 respectively (DE, 2015b:8).
  16. See <http://www.energy.gov.za/files/policies/ELECTRICITY%20REGULATION%20ACT%204%20OF%202006.pdf>
  17. The energy surplus was as a result of reduced demand given slower than expected economic growth over a number of years, and a number of newly commissioned (albeit delayed) coal plants, Medupi and Kusile, coming on stream (Creamer, 2017a).
  18. Interview, senior credit analyst of participating financial institution, 27 February 2017; academic subject matter expert, 16 March 2017.
  19. Interview, senior credit analyst of participating financial institution, 27 February 2017. Debt providers particularly appreciated the IPP's Office efforts in meeting set program deadlines.
  20. Interview, participating financial institution debt transactor, 27 February 2017
  21. See (DoE, 2015a: 26). Civil society movement Organisation Undoing Tax Abuse (OUTA) has called for a full judicial inquiry, citing allegations of corruption and gross maladministration (Odendaal, 2017).
  22. Note that this is from the perspective of a potential participant in the process. One of the key complaints from the academic community and certain elements of civil society was that the process was not transparent, as the tender documentation was only accessible to sponsors and debt providers.
  23. “step-in rights” are rights afforded to a party in a legal contract to take over the provision of services (or management of an asset/project) in certain circumstances. These are usually favourably viewed by debt providers in particular, as it gives them assurance that in the event that something goes wrong with the project being financed, they have the power to intervene.
  24. Interview, senior credit analyst of participating financial institution, 27 February 2017
  25. Capital structures have since increased their gearing, with a number of projects in later rounds being signed off will debt ratios of 80% and higher.
  26. To reiterate for clarity, although the process followed was a competitive bidding round, the government issued “tariff guidelines” which were effectively an indication of the highest tariffs that the government would be prepared to accept as off-taker.
  27. Interview, participating financial institution credit analyst, 27 February 2017.
  28. Interview, participating financial institution credit analyst, 27 February 2017.
  29. Interview, participating financial institution credit analyst, 27 February 2017.
  30. A very comprehensive survey of investors in the South African REIPPPP was conducted by Yuen (2014).

31. It is however worth noting that some bidders felt that the onerous nature of bid participation discouraged less serious or financially insolvent contenders from the process (Yuen, 2014:6).
32. Interview, academic subject matter expert, 16 March 2017.
33. Interview, senior credit analyst, participating debt provider, 27 February 2017
34. South Africa has a number of other industrial bodies associated with the renewable energy industry, including the South African Photovoltaic Industry Association (SAPVIA) and the South African Wind Energy Association (SAWEA).
35. Interview, academic industry specialist, 16 March 2017.
36. Eskom is typically forced to power an energy shortfall with diesel generators, the fuel of which is usually procured at a premium, due to the short-term emergency nature of the requirement.



---

Deutsche Gesellschaft für Internationale  
Zusammenarbeit (GIZ) GmbH  
Köthener Straße 2, D-10963  
Berlin, Germany  
Ph: +49 30 338424-352

E-mail: [secretariat@economic-policy-forum.org](mailto:secretariat@economic-policy-forum.org)



**Ideas • Forums • Leadership • Impact**

---

20, Rouse Avenue Institutional Area,  
New Delhi-110002, INDIA  
Ph. : +91-11-35332000  
Fax : +91-11-35332005  
E-mail: [contactus@orfonline.org](mailto:contactus@orfonline.org)  
Website: [www.orfonline.org](http://www.orfonline.org)