

# THE SOUTH AFRICAN RENEWABLE ENERGY IPP PROCUREMENT PROGRAMME

Review, Lessons Learned & Proposals to Reduce Transaction Costs

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## Abstract

The South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPPP) is a competitive tender process that was designed to facilitate private sector investment into grid-connected renewable energy (RE) generation in South Africa. Part A of this report serves as a comprehensive handbook of the REIPPPPP's design, implementation and outcomes to date.

As a result of this programme, South Africa has achieved more investment via Independent Power Producers (IPPs) in four years than in the rest of Sub-Saharan Africa over the past two decades. Bid tariffs have fallen sharply over the course of the programme and most recently awarded projects are now amongst the lowest priced grid-connected RE projects in the world. Now considered one of the top ten RE programmes globally, the REIPPPPP offers valuable lessons for other developing countries in terms of designing and running competitive tenders for grid-connected renewable energy IPPs. Part B of this report extracts these lessons, bearing in mind that not all are replicable in the different contexts of various African countries.

Despite the REIPPPPP's unquestionable success, a much-discussed shortcoming has been the associated high transaction costs for participating bidders, where this encompasses all costs incurred in bid development and up to commercial operation date. While RE competitive tenders are typically more complex and thus more expensive for IPPs than the common alternative, feed-in tariff programmes, the REIPPPPP imposed particularly stringent requirements on bidders.

Transaction costs contribute far less to bid tariff, and ultimately to the host government/ buyer's cost of purchasing this power, than factors such as the project's cost of equipment and the cost of capital (financing). However, they are more heavily influenced by tender design, and a competitive tender that reduces this burden to bidders is beneficial both in terms of stimulating competition (by reducing the irrecoverable loss in the event of an unsuccessful bid) and shaving bid tariffs. An improved perception of the risk-return trade-off is particularly important in African countries that have a less developed grid than South Africa and would tender much smaller projects. Part C provides design proposals for reducing these transaction costs.

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## Acronyms

|                 |                                                                   |
|-----------------|-------------------------------------------------------------------|
| <b>BEE</b>      | Black Economic Empowerment                                        |
| <b>B-BBEE</b>   | Broad-Based Black Economic Empowerment                            |
| <b>BW</b>       | Bid Window                                                        |
| <b>CA</b>       | Connection Agreement                                              |
| <b>CSL</b>      | Contributor Status Level                                          |
| <b>CSP</b>      | Concentrated Solar Power                                          |
| <b>DA</b>       | Direct Agreement                                                  |
| <b>DEA</b>      | Department of Environmental Affairs                               |
| <b>DFI</b>      | Development Finance Institution                                   |
| <b>DOE</b>      | Department of Energy                                              |
| <b>DWA</b>      | Department of Water Affairs                                       |
| <b>EPC</b>      | Engineering, Procurement & Construction                           |
| <b>FC</b>       | Financial Close                                                   |
| <b>IA</b>       | Implementation Agreement                                          |
| <b>IPP</b>      | Independent Power Producer                                        |
| <b>LFG</b>      | Landfill Gas                                                      |
| <b>MW(h)</b>    | Megawatt (hours)                                                  |
| <b>NEMA</b>     | National Environmental Management Act (of South Africa)           |
| <b>NERSA</b>    | National Energy Regulator of South Africa                         |
| <b>OM</b>       | Operations & Maintenance                                          |
| <b>PPA</b>      | Power Purchase Agreement                                          |
| <b>PPP</b>      | Public Private Partnership                                        |
| <b>PV</b>       | Photovoltaic                                                      |
| <b>RE</b>       | Renewable Energy                                                  |
| <b>REIPPPP</b>  | Renewable Energy Independent Power Producer Procurement Programme |
| <b>RFP</b>      | Request for Proposal                                              |
| <b>SA</b>       | South Africa(n)                                                   |
| <b>SP-IPPPP</b> | Small Projects Independent Power Producer Procurement Programme   |
| <b>SPV</b>      | Special Purpose Vehicle                                           |

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## **PART A: Review of the South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)**

### **Section 1: Overview of the REIPPPP**

The South African REIPPPP is a competitive tender process that has been designed to facilitate private sector investment into grid-connected renewable energy (RE) generation in South Africa. Independent power producers (IPPs) are invited to submit bids for onshore wind, solar photovoltaic (PV), concentrated solar power (CSP), small hydro, biomass, biogas or landfill gas projects. Submitted bids must first qualify for evaluation by meeting minimum compliance requirements, after which they are evaluated based on price (bid tariff) and economic development criteria.

Between 2011 and 2015 four such bidding rounds have been completed, referred to as Bid Windows, with an additional round for CSP only. Competition has been fierce, with 390 submissions resulting in just under a quarter (92)<sup>1</sup> of these being selected for procurement of 6,328 MW amounting to R193bn (USD 20.5bn)<sup>2</sup> in investment. Prices have fallen sharply and the projects of selected bidders (or “preferred bidders”) are now amongst the lowest priced grid-connected RE projects in the world. The prices of winning bids in the latest tender indicate that solar PV and wind energy are now cheaper than the national utility, Eskom’s, average cost of supply and far below the cost of its new coal power stations.

Additionally, an Expedited Bid Window (BW) was run in 2015. This was designed primarily to provide bid projects that had been unsuccessful during prior rounds with a second opportunity to bid. 1,800 MW was made available for tender under this Expedited BW, with bid submissions in November 2015<sup>3</sup>. The programme is steadily progressing towards achieving the National Development Plan’s (NDP) interim target of adding 7,000 MW of *operational* RE generation capacity by 2020 and the Integrated Resource Plan's (IRP) target of 17,800 MW from RE generation by 2030 (DOE, 2015).

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<sup>1</sup> With projects from the Small Projects IPP programme included, this total is 102

<sup>2</sup> Based on ZAR:USD FX Rate of 9.4

<sup>3</sup> Bid submission date was originally set for 6 October 2015, but was postponed to 11 November 2015.

The Department of Energy (DOE) also introduced the Small Projects IPP Procurement Programme (SP-IPPPP) in 2013, which aims to procure 200 MW from projects of only 1 - 5 MW each. This programme aims to be simpler and less expensive for bidders so as to encourage participation from small and medium enterprises (SMEs) in South Africa, which are often unable to compete effectively with larger players. In October 2013 the SP-IPPPP offered 50MW for tender. After a prequalification phase in March 2014, 29 bids totalling 139MW were received in November 2014. Of these, 10 projects totalling 49MW were awarded in October 2015. A further 10 projects have been awarded in January 2017. The appropriateness of the REIPPPP for procuring biomass, biogas and landfill gas projects is currently under consideration. Due to their technology-specific requirements and small size, amongst other factors, it is believed they may better suit the SP-IPPPP or an alternative focused procurement programme. It is therefore a possibility that they will be excluded from future REIPPPP bid windows.

Once IPPs are appointed as Preferred Bidders they are required to sign standardised, non-negotiable, rand (ZAR) denominated 20 year Power Purchase Agreements (PPAs) with Eskom. Prices are indexed to inflation. The PPA is supported by an Implementation Agreement (IA) between the IPP and government (DOE), which, along with a Government Framework Support Agreement,<sup>4</sup> effectively guarantees Eskom's payments. There is also a standard Direct Agreement (DA) between the IPP, Eskom, the DOE and lenders, which provides the latter with step-in rights in the event of default. Connection Agreements (CAs) are also required, although the specific Agreement depends both on whether connection is to the Transmission or Distribution System. In general IPPs are responsible for the costs of shallow connections (i.e. to the nearest substation), but not for deep connection costs (i.e. those related to strengthening Eskom transmission system).

Bidders generally regard the REIPPPP as being well designed and managed, and the process as being transparent and fair. The REIPPPP is run by a separate DOE IPP unit, which is led by a management team seconded from the Public-Private Partnership Unit of the National Treasury. The DOE IPP Unit also obtained substantial input from local and international technical, legal and financial transaction advisors.

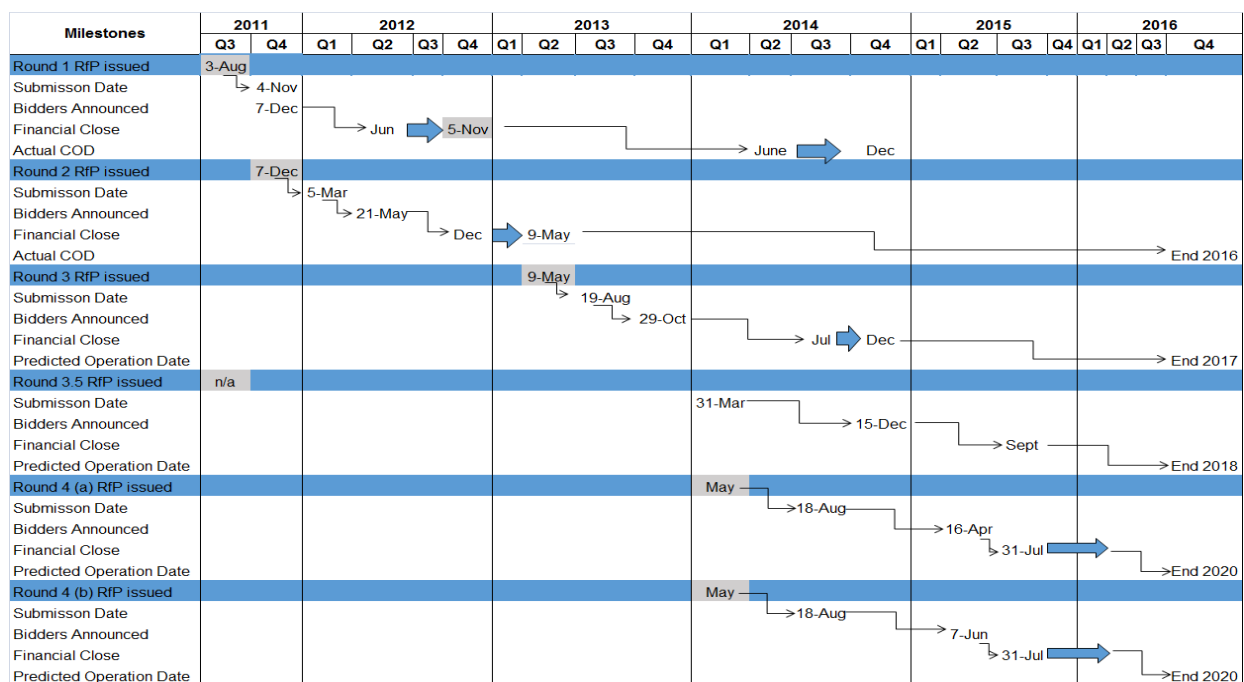
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<sup>4</sup> This is an agreement between the Department of Energy, National Treasury, Eskom and NERSA. The effect of the agreement is that the IPP payments are ring-fenced and passed through to the consumers. This also applies in the case of Eskom defaulting on the payments, which in effect prevents the sovereign guarantee contained in the Implementation Agreement from being called by protecting the revenue flow to the IPPs.

The REIPPPP has not only pioneered renewable energy in South Africa, which is currently overwhelmingly dependent on coal, but has also been the vanguard for IPPs in the country and has loosened the monopoly hold of Eskom. In less than four years, South Africa has achieved more investment in IPPs than in the rest of Sub-Saharan Africa over the past two decades. It offers valuable lessons for other developing countries in terms of designing and running competitive tenders or auctions for grid-connected renewable energy IPPs.

## Section 2: Procurement Design and Requirements

The REIPPPP has been designed as a series of single step, closed-bid auctions that are initiated by the issue of a combined Request for Qualification and Proposal (RFP). Each tender or auction makes available a total amount of megawatts (MWs) in specific technology categories. Bids are generally due within 3 months of the RFP and are screened initially for compliance with general requirements and qualification criteria. Compliant bids are then evaluated on a comparative basis and Preferred Bidder status is awarded to the highest ranked projects within the total MW allocation. Financial Close (FC) and signing of contracts is expected generally within 9 – 12 months and Commercial Operation Dates (CODs) generally within 24-30 months of FC, although the DOE sanctioned some delays in these timelines, as shown in Figure 1 below.



**Figure 1: REIPPPP Tender Process Timeline**

South Africa has a well-defined, centrally controlled electricity generation planning and procurement system. The Electricity Regulation Act of 2006 (amended in 2007), and associated Electricity Regulations on New Generation Capacity, issued in November 2010 and May 2011, assign responsibility to the Minister of Energy to develop an Integrated Resource Plan and to make “determinations” on what new generation capacity is needed, from which sources, and whether it should be from Eskom or an IPP. The regulator, in issuing generation licenses, is bound by these determinations.

To date there have been three such Determinations for the REIPPPP. The first required that a maximum of 3,725MW be generated by renewable energy sources. Following the significant positive response to the REIPPPP, the Minister of Energy permitted an additional 3,200MW in 2012 and another 6,300MW in 2015 (Table 1). Consequently 13,225MW (subject to change with further Ministerial Determinations) is available for allocation to RE projects, with just under half of this already procured or in various stages of development, with the remainder available for future bid rounds.

***Table 1: Ministerial Determinations in respect of Renewable Energy Technologies (under the REIPPPP and SP-IPPPP)***

| Technology                  | MW allocated by Minister of Energy to date |                                 |                                |               | Percentage of total |
|-----------------------------|--------------------------------------------|---------------------------------|--------------------------------|---------------|---------------------|
|                             | First Determination (Aug-2011)             | Second Determination (Oct-2012) | Third Determination (Aug-2015) | Total         |                     |
| Onshore wind                | 1,850                                      | 1,470                           | 3,040                          | 6,360         | 48%                 |
| CSP                         | 200                                        | 400                             | 600                            | 1,200         | 9%                  |
| Solar PV                    | 1,450                                      | 1,075                           | 2,200                          | 4,725         | 36%                 |
| Biomass                     | 13                                         | 48                              | 150                            | 210           | 2%                  |
| Biogas                      | 13                                         | 48                              | 50                             | 110           | 1%                  |
| Landfill Gas                | 25                                         | 0                               | 0                              | 25            | 0%                  |
| Small hydro ( $\leq 40$ MW) | 75                                         | 60                              | 60                             | 195           | 1%                  |
| Small projects (1 - 5 MW)   | 100                                        | 100                             | 200                            | 400           | 3%                  |
| <b>Total</b>                | <b>3,725</b>                               | <b>3,200</b>                    | <b>6,300</b>                   | <b>13,225</b> | <b>100%</b>         |

Source: Ministerial Determination 1 August 2011 and Government Gazettes No 36005, 19 December, No 39111, 18 August 2015

There are two distinct sets of criteria in the bid evaluation process. These are the compliance requirements, outlined in the General Requirements and Qualification Criteria; and the scoring criteria, outlined in the Evaluation Criteria. In the first stage, bid submissions are assessed to determine whether they are “Compliant Bids”. A Compliant Bid is one that meets both general requirements (Part A of the RFP) and meets or exceeds numerous prescribed thresholds (Part B of the RFP) to qualify for the second stage. The latter stage involves the comparative evaluation (Part C of the RFP) of all Compliant Bids based on price (70%) and a basket of Economic Development criteria (30%).

## **2.1. General requirements (Part A of the RFP)**

Part A provides an overview of the REIPPPP, its key players and governing laws. It also provides information for the relevant bid submission phase, such as the maximum capacity (MW) available for tender per technology, price caps per technology to ensure bid tariffs are within acceptable limits and a timetable with deadlines for each stage of the bid window (BW). Lastly it lists general requirements for participation, in many cases introducing criteria which are then detailed in Part B. Except where changes in the RFP documentation from BW 1 to 4 are explicitly raised, the key requirements discussed below are based on the most recent BW 4 RFP.

### ***2.1.1. Eligible Bidders, Documentation Fee and Registration***

The RFP is not restricted to South African citizens and entities only. It is available internationally, provided that each entity wishing to obtain a copy of the RFP pays a non-refundable documentation fee of R15, 000. In order to be eligible for participation in a particular bid submission phase, the bidder must pay the above documentation fee and complete the REIPPPP Registration Form on or before the prescribed Bid Registration Date.

In addition, each eligible bidder intending to submit a bid response must notify the DOE in writing of the following information by the Bid Registration Date: the project technology, contracted capacity, site name and co-ordinates, co-ordinates of the substation for the intended connection, whether it will connect to the transmission or distribution system, whether the project was submitted under a prior bid round or in the SP-IPPPP and lastly, information on the

identity of all project participants and their advisors, to enable a conflict of interest check to be undertaken. Upon providing the above information by the requisite deadline, the bidder is assigned an IPPID number, which must be attached to the final bid response. The DOE considers only bid responses with an IPPID number.

### *2.1.2. Price caps*

Initially the DOE set price caps for each technology. Table 9 in Section 4 below compares these to the average tariffs bid by Preferred Bidders. With the exception of Landfill Gas, price caps remained unchanged from BW 1 to 2, after which they were adjusted per technology depending on local and global influencing factors. In BW 4, price caps were removed for onshore wind and solar PV, the two technologies that had attracted the most bids in previous rounds.

### *2.1.3. Capacity restrictions*

The DOE placed maximum limits on the total capacity available for tender *per technology* (which differed across bid rounds). From BW 1 to 3 the DOE reserved the right to reallocate the total MW available amongst the various technologies at any stage. In BW 4 this was extended to permit the DOE to increase or decrease the total MW available per technology and/ or for the bid round in total, with the latter increase being capped at double the total initial allocation. Any such changes were permitted after bid submission, but before preferred bidder announcement.

Due to the success of the bids received under BW 4 in terms of price and economic development objectives, this enabling provision was utilised to increase the total MWs available. A second batch (referred to as BW 4(b)) of preferred bidders was announced, with the total capacity procured almost doubling to 2,205 MW from the initial 1,105MW initially made available. Part B further restricted the bid capacity *per project* to allow a greater number of project awards within each technology's available allocation and thereby stimulate competition (Table 2).

**Table 2: Contracted capacity permitted per project**

| Technology          | Minimum | Maximum          |
|---------------------|---------|------------------|
| <b>Onshore wind</b> | 1       | 140              |
| <b>Solar PV</b>     | 1       | 75               |
| <b>CSP</b>          | 1       | 100 <sup>5</sup> |
| <b>Biomass</b>      | 1       | 25               |
| <b>Biogas</b>       | 1       | 10               |
| <b>Landfill Gas</b> | 1       | 20               |
| <b>Small Hydro</b>  | 1       | 40 <sup>6</sup>  |

#### **2.1.4. Contractual Agreements**

A requirement of the REIPPPP competitive tenders is that IPPs must accept standardized, non-negotiable contracts (Project Agreements), which includes the Implementation Agreement (IA), Power Purchase Agreement (PPA), Transmission/Distribution Agreement and Direct Agreement (DA). Bidders are not permitted to mark up the draft PPA, IA, DA or Connection Agreements provided with the RFP.

While Preferred Bidders are not entitled to negotiate the provisions of the PPA, IA, DA or CA, they are provided a period in which to negotiate and finalise other contracts and project documents (such as those with contractors, equipment suppliers and lenders). In addition, bidders are required to obtain the required generation license from the National Energy Regulator of South Africa (NERSA), as well as a budget quotation from the Grid Provider in respect of connection works in the same period. These are all prerequisites for concluding the IA and other aforementioned Agreements.

#### **2.1.5. Grid Provider Requirements and Interface**

Bidders are expected to approach the relevant Grid Provider to obtain information on grid capacity and potential constraints when selecting project sites. The DOE then confirms grid capacity with the Eskom Grid Access Unit or the relevant Grid Provider during its evaluation of the bidders' bid responses.

The RFP outlines different ways in which “shallow connection works” – i.e. those required for the dedicated IPP connection to the grid - may be undertaken. Bidders are required to provide statements clarifying the parts of the connection works that they will undertake, own and operate and must clearly define the interface with the Grid Provider.

<sup>5</sup> A revised max capacity of 150MW was made for CSP in the expedited round of BW4.

<sup>6</sup> Max capacity for small hydro projects was revised upward from BW3 onwards: from 10MW to 40MW.

### ***2.1.6. Advisors***

The DOE required extensive support from external transaction advisers in implementing and carrying out the REIPPPP, with well over 100 representatives from 13 professional firms offering legal, financial, technical or socio-economic and environmental advisory services over the course of the programme. This placed significant strain on already limited local advisory capacity, meaning that the DOE could not entirely prohibit bidders from using these professional firms as well.

As a result the DOE published a list of the programme's advisory firms and individuals on the IPP website, which bidders were required to consult before appointing advisers. Bidders were permitted to use a professional firm listed without the prior written consent of the DOE, provided that the bidder and firm put proper ring fencing mechanisms in place to manage any conflicts of interest. However the specific individuals that were listed were prohibited from advising bidders or serving as a bidder member, lender or any other participant in a bid response while their name remained on the list. Furthermore, bidders were required to obtain assurance from each advisor firm that no individual on its advisory team to the bidder had also acted for or advised the DOE on any IPP procurement programme.

### ***2.1.7. Generation Licence***

Upon being selected as a preferred bidder, the project company must obtain a generation licence from NERSA as required by the Electricity Regulation Act. As proof of submission of the generation licence application to NERSA, a copy of the submitted application must be provided to the DOE within 14 days of being awarded preferred bidder status.

### ***2.1.8. Bid Guarantee and Preferred Bidder Guarantee***

Upon bid submission, bidders are required to provide the DOE with an unconditional, irrevocable Preferred Bidder Guarantee of R100,000 per MW of contracted capacity for the proposed project. Once provisionally informed of its Preferred Bidder status, each IPP has 15 days to lodge a new guarantee (the “Preferred Bidder Guarantee”) with the DOE for an even greater R200,000 per MW of contracted capacity. Only thereafter will it officially be appointed as a Preferred Bidder.

The purpose of bid guarantees is to dis-incentivise bidders from submitting unrealistic proposals by inexperienced bidders who subsequently struggle to finance and deliver on their project as it was proposed. For example, the Preferred Bidder Guarantee may be forfeited to the DOE if the preferred bidder fails to: comply with any conditions contained in the letter of appointment as preferred bidder; sign any of the required contracts within the time period specified under the RFP; or pay the development fee when prescribed (although this is not an exhaustive list). The inclusion of high penalty costs helps to ensure that bids are as fail-safe as possible (Papapetrou, 2014).

#### *2.1.9. Bid Validity Period*

The RFP requires that bid submissions constitute valid and irrevocably binding offers for 365 calendar days from the submission date. The DOE is entitled to request an extension of this period and the bidder must respond within the time-period specified, should they agree to extend.

#### *2.1.10. Development Fee*

Preferred bidders are required to pay a development fee equal to 1% of their total project cost<sup>7</sup> to the DOE's Project Development Fund within 10 business days of the IA signature date. This assists with programme sustainability, as funding is made available for transaction advisors and running future tenders.

#### *2.1.11. Bid Currency*

All monetary amounts in the bid response must be presented in the local currency (the Rand)<sup>8</sup>. As a result there is foreign exchange (forex) exposure in respect of certain upfront capital expenditures and operating costs to be incurred after COD. The RFP permits adjustments to the prescribed spot rate used at bid submission (and corresponding adjustments to bid tariff) at FC in respect of capital expenditures, but DOE does not allow for similar adjustments on operating costs.

From BW 3, the DOE placed a limit on the level of forex exposure it would accept between bid submission and FC. This was capped at the lower of the actual forex exposure on capital

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<sup>7</sup> Total project cost included financing costs, reserves (e.g. maintenance reserves) & the development fee itself.

<sup>8</sup>The foreign exchange rate assumptions to be used for each round are communicated by the DOE in a briefing note.

expenditure or at 60% of the project's capital expenditure (in line with the 40% local content requirement, to be discussed later).

#### ***2.1.12. Briefing Notes***

Briefing Notes are issued by the DOE on an ad hoc basis, either to supplement or amend information in the RFP or in response to a bidder-requested clarification. They are thereafter deemed to be part of the RFP and require equal compliance upon bid submission. The DOE strives to release the last Briefing Note no later than 10 days before the relevant bid submission date.

#### ***2.1.13. Dual participation in REIPPPP and SP-IPPPP***

Bidders wishing to submit a bid for the same project under the SP-IPPPP and REIPPPP simultaneously will be subject to certain rules and restrictions. These are set out in the RFP of the SP-IPPPP.

### ***2.2. Qualification Criteria (Part B of the RFP)***

Part B of the RFP elaborates on several requirements introduced in Part A (General Requirements) and introduces new criteria with which the bidder must comply to qualify for the final evaluation. As at BW 4 these Qualification Criteria are divided into eight categories, detailed below. In broad terms projects that “qualify” for comparative evaluation are those that are technically, financially and legally qualified, as well as having sufficient experience, commitment and resources, to execute the project as submitted. Each submission must therefore meet or exceed all prescribed thresholds (per criterion) to be considered a Compliant Bid.

#### ***2.2.1. Structure of the Project***

Bidders must provide a diagram of the project’s structure as well as identify and explain the Project Company (even if it was not yet established at the bid submission date), equity participants, funders, contractors and the shareholdings of Black Enterprise members and Local Community members, respectively. In order to pass this threshold requirement the bidder must

provide sufficient information to satisfy the DOE that the structure has been accurately represented, and that the project complies with Part A requirements or restrictions relating to the structure or bidder membership.

### 2.2.2. Legal Criteria and Evaluation

Table 3 illustrates the evolution of the categories of legal criteria from BW 1 to 4. Changes from one BW to another are indicated by red highlighted text. As at BW 4 there were only 2 (sub) criteria, both of which needed to be passed to fulfil the legal criterion. The first criterion requires that the Project Company's Constitutional Documents reflect that it is a special purpose vehicle (SPV), whose sole purpose is to undertake the bidder's project and that it is "ring-fenced" in terms of the South African Companies Act. It is not necessary for this SPV to be established by bid submission; however in order to meet this criterion an undertaking is required that the company will be established as such.

**Table 3: Major categories of Legal Criteria**

| BW 1                                                                 | BW 2                                            | BW 3                                                                                                                                       | BW 4                |
|----------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| - <sup>1</sup>                                                       | Constitutional Documents of the Project Company | Legal status of the Project Company                                                                                                        | Same as previous BW |
| Shareholders Agreement <sup>2</sup>                                  | Same as previous BW                             | Same as previous BW                                                                                                                        | Removed             |
| Confirmation of the PPA, IA, DA & Connection Agreements <sup>3</sup> | Same as previous BW                             | Confirmation of the PPA, the Implementation Agreement, Direct Agreement & the Connection Agreements and submission of Returnable Schedules | Same as previous BW |
| Statement by the Members <sup>4</sup>                                | Same as previous BW                             | Removed                                                                                                                                    | Same as previous BW |
| Key Subcontracts <sup>5</sup>                                        | Same as previous BW                             | Same as previous BW                                                                                                                        | Removed             |

1: From BW 1, Part A has required that sellers under the PPA must be Project Companies that have the sole purpose of undertaking the project. However in BW 2 Part B added that if such a company was already established at bid submission then its Constitutional Documents must be submitted. The BW 3&4 requirement is explained below.

2: The bidder was required to submit a fully developed Shareholders Agreement, between the Project Company and its shareholders, with written proof of acceptance of this agreement by all equity participants.

3: Explained below.

4: Each member of the bidder had to provide a statement discussing any investigations, complaint proceedings or material legal proceedings, amongst others, against them in the past 5 years.

5: The bidder had to submit detailed heads of terms of the contracts it would enter into with its key Contractors, Equipment Suppliers and any other Contractors.

Secondly, various written confirmations of undertakings are required. Amongst others, all bidder companies, their members and lenders must confirm that they accept the terms of the PPA, IA, DA and Connection Agreements and adhere to the requirement that no mark-ups or amendments are permitted. In cases where local communities are set to receive shareholdings through a Local

Community Trust that has not yet been established at bid submission, or where any other shareholder entities have not yet been incorporated by this time, then the appointed Lead Member of the Project Company must confirm that these will be established and registered as indicated in the bid response. Furthermore confirmation is required that, once they are incorporated, they agree to be bound by the bid response to the same extent that they would have been if they had been in existence upon bid submission.

These are the key requirements under this criterion but in order to be compliant, bidders must provide every document or confirmation listed in the related RFP clause.

### ***2.2.3. Land Acquisition and Land Use Criteria and Evaluation***

This criterion requires bidders to submit documents that provide sufficient proof of land acquisition. Acceptable agreements include copies of the title deeds for the project site or a copy of a notarial lease, together with evidence that it has been registered or is capable of registration by the IA effective date against the title deed for the site (with copies of this deed) for the duration of the PPA. Alternatively bidders may submit (together with the relevant site title deeds) an unconditional land option, lease or sale of land agreement exercisable at the bidder's choice and which allows them to secure the same real rights obtained via the aforementioned title deed or lease agreement. Lastly, in a situation where the project site title deeds are unavailable at bid submission, the RFP permits a Conveyancer's Certificate in their place. This is conditional upon the Conveyancer providing a full explanation for the title deed unavailability and bidders assuming the risk of ensuring it will be obtained without delaying FC.

From BW 3, this section no longer required bidders intending to complete their shallow connection works on an own-build and -ownership basis to provide evidence at bid submission they had obtained real rights over the land to be traversed by the facility's connection line, where this was land other than the project site. A key change in the BW 4 RFP documentation was that bidders were no longer required to submit proof in the bid response that all necessary applications (including those relating to land use change, subdivision and zoning applications, respectively) had been made to secure the right to lawfully use the project site for their intended purposes. They are now only required to provide this proof after being appointed as a Preferred Bidder, which means that unsuccessful bidders are able to avoid incurring this cost (and time) burden.

#### *2.2.4. Environmental Consent Criteria and Evaluation*

Bidders must pass both general and technology-specific sub-criteria under this Qualification criterion, and provide evidence that all requisite environmental consents listed in the RFP have been obtained by bid submission.

South Africa is a water scarce country and it is crucial that each bidder identifies whether their project (including construction activities) will require an Integrated Water Use Licence under the National Water Act. This includes providing copies in the bid response of all studies done to determine the project's water needs and activities. For this purpose "water use" is not limited to water extraction but also includes numerous water-related activities, such as diverting or polluting a watercourse, disposing of waste water (for example, when cleaning the mirrors or panels depending on the technology) and storing water to serve the facility.

To reduce the burden on the Department of Water Affairs (DWA), the licence itself is only required to be in place before signature of the PPA<sup>9</sup>. However upon bid submission any bidder requiring a water allocation must provide a written confirmation of this approved allocation from the local Water Services Provider (usually the municipality) or, where this is insufficient and a Water Use Licence will be required, provide a non-binding confirmation of water availability from the DWA.

The primary requirement across all technologies is an Environmental Authorization per project, in the name of the Project Company, as required by the South African National Environmental Management Act. To achieve this the Project Company must prepare an Environmental Impact Assessment Report (EIAR) or Basic Assessment Report (BAR). The former is required when a project's capacity exceeds 20MW or it covers an area greater than 1 hectare, while a BAR is typically for projects with a capacity of 10 - 20MW.

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<sup>9</sup> Along with evidence that there are no pending appeals, review proceedings or legal challenges against it at this time.

This Environmental Authorisation is a significant cost item for bidders (R2 - R6m) and has the longest lead-time of all the permissions required, taking up to 24 months (Mulcahy, 2014). Bidders must submit hard copies of the EIAR or BAR, and include details of any objections to the facility's development raised during any public participation process as well as appeals to any Environmental Consent required by the project. The DOE may deem the bid insufficient to pass this criterion where the relevant appeal or review period has not expired by bid submission.

Other technology-specific consents required are greatly varied. For example, as at BW 4 only wind and CSP projects must include proof of consent from the Civil Aviation Commissioner to erect potential obstacles to aviation. CSP projects have a tendency to be situated in water scarce areas and therefore require specific water consents by bid submission. This includes written confirmation of the water availability for their projects by the Department of Water Affairs, as well as proof that an application for an integrated water use licence has been made (or legal opinion that it is not necessary). Lastly, biomass, biogas and landfill gas projects require a waste management licence or legal opinion that it is not necessary.

Schedule 9 under Volume 1, Part 1 to the RFP provides more detail on the primary environmental and land use consents that are likely to be required for each technology. For each technology the bidder would only pass the threshold requirement for this criterion where all the requirements set out in Table 4 below were satisfied in the bid response. Changes from one bid round to another are indicated by red text.

**Table 4: Changes in technology-specific environmental consent criteria from BW 1 to 4**

|                 | BW 1                                                                                                 | BW 2                | BW 3                               | BW 4                |
|-----------------|------------------------------------------------------------------------------------------------------|---------------------|------------------------------------|---------------------|
| <b>Wind</b>     | EIA or Basic Assessment Report                                                                       | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Water use application <sup>1</sup>                                                                   | Same as previous BW | Same as previous BW                | Removed             |
|                 | Civil Aviation Commissioner Consent                                                                  | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Consent from the Heritage Authority in terms of the National Heritage Act                            | Removed             | Same as previous BW                | Same as previous BW |
| <b>Solar PV</b> | EIA or Basic Assessment Report                                                                       | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Water use application <sup>1</sup>                                                                   | Same as previous BW | Same as previous BW                | Removed             |
|                 | Civil Aviation Commissioner Consent                                                                  | Same as previous BW | Same as previous BW                | Removed             |
|                 | Consent from the Heritage Authority in terms of the National Heritage Act.                           | Removed             | Same as previous BW                | Same as previous BW |
| <b>CSP</b>      | EIA or Basic Assessment Report                                                                       | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Water use application <sup>1</sup>                                                                   | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Proof that an integrated water use licence application for all anticipated water uses has been made. | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Civil Aviation Commissioner Consent                                                                  | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Consent from the Heritage Authority in terms of the National Heritage Act.                           | Removed             | Same as previous BW                | Same as previous BW |
| <b>Biomass</b>  | EIA or Basic Assessment Report                                                                       | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Water use application <sup>1</sup>                                                                   | Same as previous BW | Same as previous BW                | Removed             |
|                 | A waste management licence                                                                           | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | An atmospheric emission licence                                                                      | Same as previous BW | Same as previous BW                | Removed             |
|                 | Consent from the Heritage Authority in terms of the National Heritage Act.                           | Removed             | Same as previous BW                | Same as previous BW |
| <b>Biogas</b>   | EIA or Basic Assessment Report                                                                       | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | No water use consent requirement.                                                                    | Same as previous BW | Water use application <sup>1</sup> | Removed             |
|                 | A waste management licence                                                                           | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | An atmospheric emission licence                                                                      | Same as previous BW | Same as previous BW                | Same as previous BW |
|                 | Consent from the Heritage Authority in terms of the National Heritage Act.                           | Removed             | Same as previous BW                | Same as previous BW |

|                     |                                                                                                   |                     |                                                                                                    |                                                                                                                                                     |
|---------------------|---------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Landfill Gas</b> | EIA or Basic Assessment Report                                                                    | Same as previous BW | Same as previous BW                                                                                | Same as previous BW                                                                                                                                 |
|                     | A waste management licence                                                                        | Same as previous BW | A waste management licence for the whole project or a combination of licences for different parts. | Same as previous BW                                                                                                                                 |
|                     | Consent from the Heritage Authority in terms of the National Heritage Act.                        | Removed             | Same as previous BW                                                                                | Same as previous BW                                                                                                                                 |
| <b>Small Hydro</b>  | EIA or Basic Assessment Report                                                                    | Same as previous BW | Same as previous BW                                                                                | Same as previous BW                                                                                                                                 |
|                     | Written non-binding confirmation of water availability for all the needs of the project from DWA. | Same as previous BW | Same as previous BW                                                                                | Separated water availability confirmation requirements in terms of construction & operation phases.                                                 |
|                     | Proof that an integrated water use licence application has been made.                             | Same as previous BW | Same as previous BW                                                                                | Proof that an integrated water use licence application has been made and a copy of the complete application, or proof that the licence is in place. |
|                     | Consent from the Heritage Authority in terms of the National Heritage Act.                        | Removed             | Same as previous BW                                                                                | Same as previous BW                                                                                                                                 |

1: Written confirmation of a water allocation for the project's consumption needs from a Water Services Provider or a written non-binding confirmation of water availability from the DWA or a combination of these.

If any of the requisite authorisation or documentation submitted is subject to conditions, the DOE reserves the right to consider these conditions and determine whether the bidder is in a position to comply. If not, the bidder will not pass this criterion. From BW 4 onwards, bidders were no longer required to provide proof in their bid response of all other Environmental Consents (besides those listed above) in respect of the proposed facility being lawfully developed, constructed, connected to a Distribution/ Transmission System and operated in accordance with the PPA. However upon being selected as Preferred Bidders they are required to demonstrate that these other applications have been made and are progressing adequately so as not to delay FC.

### *2.2.5. Financial Criteria and Evaluation*

The financial qualification criteria broadly relate to the bid price and related financial proposal. Four key criteria are assessed under this category.

#### *2.2.5.1. Price*

Bidders are required to submit fully indexed prices (based on CPI inflation) and partially indexed prices<sup>10</sup> per MWh, using the partial indexing method proposed in the RFP<sup>11</sup>. The fully indexed prices in the bid response must be equal to or lower than the aforementioned price caps set by the DOE in order to pass this criterion.

From BW 3 onwards, CSP was recognised as a technology with storage capabilities, and the RFP was amended to price these projects differently to other technologies. While other RE projects earn a flat tariff (as bid) at all times, CSP bidders must submit a “base price” which is then adjusted upwards or downwards according to the time of day that the project’s energy is delivered. During the standard time of day<sup>12</sup> a CSP facility will simply earn its submitted base price for energy output, while at peak times (daily from 4:30pm to 9:30pm) it will earn an attractive 270%<sup>13</sup> of the base price in BW 3 and 270% in BW 4, respectively, and at night (from 10:00pm to 5:00am) it will earn 0%. The premium payments on the base price are designed to incentivize CSP bidders to deliver energy to the national grid during peak times (which is possible due to their storage capabilities), thereby helping to meet peak demand on the grid.

#### *2.2.5.2. Financial standing*

This sub-category requires disclosures in respect of the funding that a bidder proposes to use for its project. Where projects will be wholly or partially funded by corporate/ equity finance, bidders must provide the identity of all providers/ members<sup>14</sup>, respectively, as well as the value of the contribution from each and the source of finance (for example, reserves, parent company,

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<sup>10</sup> Bids submitted under the Expedited Round (BW 4b) only needed to submit fully indexed prices. It is not yet clear whether this is a change introduced only for the purposes of this special BW, or whether it will be taken forward into further BW’s.

<sup>11</sup> To determine the partially-indexed price, the RFP required that 20% to 50% of the price proposed was indexed at the CPI (inflation) rate, while the remainder was held constant.

<sup>12</sup> Standard time: every day from 5:00am to 4:30pm and again from 9:30pm to 10pm

<sup>13</sup> This was originally set at 240% in a briefing note, but was adjusted to 270% prior to BW3.

<sup>14</sup> A member is a legal entity or natural person that will become a shareholder (either directly or through an intermediary entity) once the Project Company is incorporated or is a shareholder of an incorporated SPV.

external sources, DBSA or similar institution). Where corporate financing will be used, the bidder is required to provide the audited financial statements for the latest 3 financial years<sup>15</sup> of the entity that is the ultimate provider of finance and providing the guarantee on which the corporate finance is based. In the case of equity finance, the audited financial statements for the latest 3 financial years must be provided for each ultimate provider<sup>16</sup>.

Additionally, the bidder must demonstrate in the bid response that the net assets of each ultimate corporate and/ or equity finance provider(s) over the past 3 years have been at least 100% of the finance it is proposing to put towards the bid project (“net asset test”), or that the provider has a proven track record in the past 5 years of raising corporate/ equity finance (as applicable) to the equivalent of at least 100% of its proposed finance (“track record test”). There is no specification as to how many finance raisings (of similar size) within the past 5 years constitutes a “proven track record”, other than that it must be to the satisfaction of the DOE. In BW 4 it was added that a corporate finance guarantor must provide evidence of having raised corporate finance for its own account or for one of its subsidiaries in order to pass the above track record test. No reliance may be placed on the track record or third party entities or advisors to the guarantor.

From BW 2, equity members with “free carry” or “sweat equity” i.e. no equity investment in the project, such as Black Enterprises and Local Community Trust entities that are clearly identified as such, are exempt from the net asset and track record tests. If this were not the case this criterion may adversely affect the achievement of some of the economic development objectives associated with Black and Local Community Ownership (discussed in detail in Section 3.3).

#### *2.2.5.3. Robustness and deliverability of funding proposal*

Bidders must provide a clear breakdown of the sources of funds (equity, corporate finance and external debt) and their uses (capital expenditure, grid connection costs, contingency elements etc.). The bid response must also provide a plan, including a financial due diligence plan, setting out key activities and proposed dates for the achievement of FC within prescribed timeframes.

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<sup>15</sup>Or since incorporation if it has not been in existence for 3 years.

<sup>16</sup>Financial accounts are not required when equity/ corporate finance is being provided by the DBSA/ IDC.

Another requirement common to all sources of finance is that letters of support must be provided by the ultimate finance providers, substantially in the form set out in Appendix R of Volume 4, with slight variations depending on the source. This is a critical part of the REIPPPP, as the letters of support require each financier to make a firm commitment and pledge that it has conducted a due diligence on the proposed project and can confirm accuracy of the bidder's documentation. This essentially outsourced the due diligence to the banks and other funders, thereby reducing the DOE's load as they could perform a lighter due diligence. Funders also have to acknowledge that they accept risk allocation as embedded in the PPA, IA and DA. Term sheets have to be provided as well.

There are also several sub-criteria unique to the source of funding obtained, which will not be discussed in this document. However as an example of these unique criteria, where a project will use external debt the bidder must demonstrate that any of its members have a proven track record, in the last 5 years, of raising external debt of a similar nature to that proposed by the bidder. In the case of multiple lenders, the bidder should clearly distinguish between Tier 1 and Tier 2 lender(s), where the former is responsible for the due diligence and the latter relies on this.

In addition to the above requirements, bidders only pass this threshold if they demonstrate a “robust mitigation strategy” i.e. a clear alternative plan to obtain funds in the event that their proposed finance provider becomes unable to do so on the terms stated. This demonstration also requires the provision of a letter of indicative support from the alternative funders, which states that they have held discussions with the bidder on this matter. Ultimately these financial qualification criteria aim to ensure that projects bid are as fail-safe as possible.

#### *2.2.5.4. Robustness of the financial models*

Bidders must submit two financial models, namely the “Sponsor Case” (reviewed and agreed upon by equity/ corporate finance providers, as applicable) and the “Banking Case” (reviewed and agreed upon by external debt providers). Alternatively one model capable of running both scenarios is permitted. Although the project bid price is the same under both, the RFP requires that the “Sponsor Case” model be adopted for the purposes of the IA.

This criterion also requires, amongst others, that sensitivity analyses be performed to indicate the impact of foreign currency movements on the bid tariff<sup>17</sup>; disclosures on tax and accounting treatments and assumptions applied in the financial model; as well as an audit review opinion (with several minimum requirements) of the financial models by a suitably qualified professional firm.

Lastly, bidders must submit a Declaration in respect of Success Payments, which are broadly defined as the reimbursements of costs incurred in the development of the bid project which will be payable only on achievement of FC. Possible examples include payments to site developers, free carry for equity members and success payments for equity and non-equity members. The quantum, rationale and timing of all success payments must also be disclosed and all such payments must be clearly identifiable in the submitted financial model.

#### *2.2.6. Technical Criteria and Evaluation*

Bidders must complete a standardized technical evaluation matrix as part of their bid response. This section also contains numerous requirements around grid connection. Firstly, all bidders must provide a signed letter stating that the project is able to comply with the applicable Grid Codes prior to Scheduled COD<sup>18</sup>. The bid response must also clearly identify which parts of the connection works will be implemented by the bidder (dependent on whether they choose an own- or self-build basis), and the interface with works to be performed by the Grid Provider. Similar clarifications must be provided for which part of these works will later be owned and operated by the bidder versus Grid Provider.

Lastly, bidders are required to include a cost estimate letter (CEL), which provides an indicative timeline and cost of the required connection works from the relevant Grid Provider. The onus is on bidders to apply in sufficient time to receive this CEL by submission date, and they assume all risk in relation to achieving grid connection by the Scheduled COD as per the PPA. Where

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<sup>17</sup>Only foreign currency denominated capital expenditure (and not operating expenditure) should be linked to the spot rate in the Financial Model. The spot rate used should be that supplied in the RFP or Briefing Note.

<sup>18</sup>This letter may be signed by the bidder, EPC contractor or key electrical contractor. Any deviations must be stated and, where the bidder has obtained exemptions, signed confirmation of this from the relevant authority e.g. NERSA must be provided.

the bidder intends to perform shallow connection works on an own- or self-build basis, they must also supply an itemised cost estimate for their part. Upon being appointed Preferred Bidders, bidders must replace this CEL by obtaining a more up-to-date and accurate budget quote from the Grid Provider (in relation to connection works) before signature date.

There are also many technology-specific criteria, all of which cannot be documented in this report. In broad categories, technology-specific technical specifications cover:

- Eligible capacity per bid project.
- Eligible technology requirements (e.g. European and International Standards with which they must comply; certificates of proof that certain component models adhere to prescribed certification programme designs; components meet the “proven technology” requirements and demonstrate a minimum prescribed Technical Availability).
- Energy Resource Certainty (in respect of biomass and biogas projects. Bidders must provide documentary evidence, by way of a fuel supply agreement or market study, which confirms the availability of fuel to meet the facility’s demand for at least the first 2 years of operation and independent confirmation that supports this conclusion).
- Forecast Energy Sales Report (this must have been conducted by a suitable energy resource assessor, and been independently reviewed by another assessor; both of whom are subject to minimum requirements and disclosures in terms of experience).
- Contracting Company capability requirements.
- Project schedule disclosures required and a deadline by which COD must be achieved.

The Forecast Energy Sales Report is an essential part of the technical criteria, as it involves the collection of resource data so as to estimate future energy sales. The requirements differ per technology. For example, in respect of wind projects this report must supply at least 365 consecutive days of wind data (subject to additional criteria where there have been gaps in data collection) measured on the project site at specific heights and in accordance with international standards for wind testing. CSP projects also require 12 months of site-specific data. Solar PV projects, on the other hand, require the use of at least 10 years of solar data taken from a prescribed acceptable technology source.

### 2.2.7. Economic Development Criteria and Evaluation

These ED Qualification Criteria must not be confused with the ED Evaluation Criteria (which are scored) in Part C to the RFP. There are two primary ED thresholds that must be passed in order for a bid to be considered compliant. Firstly, there must be a minimum of 40% "South African Entity Participation" in the Project Company. This was initially defined as participation by those entities "based and registered in the Republic of South Africa, which have legal and beneficial participation in the Project Company" (DOE RFP, 2011). However from BW 3 the definition was narrowed to participation by South African Citizens<sup>19</sup>, established by looking through the Bidder and Member structure to the *ultimate natural citizens* to whom the shareholding benefits will accrue (DOE RFP, 2013). Proof of compliance is required, through the submission of shareholder certificates or authorized letters indicating the respective shareholdings, Constitutional Documents and Shareholders' Agreements. In addition bidders must supply the identity numbers and ID copies of these ultimate South African shareholders.

Secondly, the bidder must have a Contributor Status Level (CSL) of at least 5, although this is only in respect of bidders based in South Africa. The CSL is determined according to the BBEE Codes<sup>20</sup> and proof is required in the form of a valid verification certificate issued by an 'eligible' entity<sup>21</sup>.

Lastly, bidders are required to meet or exceed any minimum thresholds indicated in the Economic Development Scorecard in Appendix JB9 to the RFP, and must provide supporting documentation as proof. These thresholds are provided in Table 2 (Section 2.3.2) below.

### 2.2.8. Value for Money

This concept was introduced from BW 2 in accordance with Regulation 9 of South Africa's New Generation Regulations, which states that the buyer cannot enter into a PPA unless it represents

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<sup>19</sup>As direct or indirect shareholders in the Project Company

<sup>20</sup>As per the Government Gazette No. 36928 General Notice 1019 to the Broad-Based Black Economic Empowerment Act (53/2003) on the issue of Codes of Good Practice.

<sup>21</sup>An eligible entity is a South African National Accreditation System (SANAS)-accredited verification agency, a Chartered Accountant registered with the SA Institute of Chartered Accountants or an Auditor registered with the Independent Regulatory Board for Auditors. If the verification certificate does not specify (in addition to the B-BBEE status & Recognition Level) the actual qualification score, a verified letter indicating this score must be provided.

"value for money"<sup>22</sup>. The latter means that the project is in the best interests of and delivers an acceptable outcome to both Eskom and the government (on behalf of electricity users in South Africa). Numerous factors must be taken into account in this assessment, some of which include the bidder's price proposal, economic development commitments, the project's calculated IRR and foreign exchange risk borne by the government. If the success payments to developers are considered to be disproportionately large or unjustifiable by the DOE, or excessive relative to the total project cost, then the bidder may fail this Value for Money assessment.

#### ***2.2.9. Returning Compliant Bidders***

While various amendments to the RFP documentation have been made as the bidding rounds progress, the BW 4 RFP introduced some noteworthy concessions (some of which have already been highlighted) in an attempt to reduce the time and cost required for bid preparation (Papapetrou, 2014). Key to this was the introduction of the "Returning Compliant Bidder" concept, which refers to those bidders who are re-submitting bids that were compliant in earlier bid rounds, but unsuccessful in the second stage evaluation. From BW 4 these Returning Compliant Bidders will be exempt from adhering to certain qualification criteria (relating to land acquisition/ use and environmental consents), provided that the new bid project is located on the same site as the previously compliant bid.

### **2.3. Evaluation Criteria (Part C of the RFP)**

All Compliant Bids proceed to the second stage in which they are subject to a comparative evaluation. The scoring of bid submissions is split between price (70%) and ED criteria (30%). The latter is based on the Economic Development Policy of March 2011, which regulates empowerment outputs in the REIPPPP.

#### ***2.3.1. Price Scoring***

For each Compliant Bid received, an Equivalent Annual Tariff (EAT) is calculated in respect of the bid price provided (both fully- and partially-indexed). The EAT is calculated in a two-step

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<sup>22</sup>It was added as the 9th criterion in BW 2, at which time "Submission of original Bid Guarantee" was the 8th criterion under Part B. It then replaced the latter criterion to become the 8th criterion from BW 3.

process as laid out in Part C and is then used to determine the compliant bidder's price score out of a maximum of 70 points. The bidder's EAT is compared to the lowest EAT offered for the same technology in the relevant bid window, meaning that this price score is a relative metric.

As illustrated in the RFP, if Bidder A is calculated as having the lowest EAT bid for a particular technology at R1100 per MWh, while Bidder B offers R1,400 and Bidder C offers R2,200 per MWh, respectively, their scorings are calculated as follows:

Score of Bid Price A =  $70 * [1 - ((1,100 - 1,100) / 1,100)] = 70$  out of 70

Score of Bid Price B =  $70 * [1 - ((1,400 - 1,100) / 1,100)] = 50.91$  out of 70

Score of Bid Price C =  $70 * [1 - ((2,200 - 1,100) / 1,100)] = 0$  out of 70

### *2.3.2. Economic Development Criteria and Scoring*

The ED criteria carry a maximum of 30 points. This 70:30 split between price and ED objectives represented a significant shift from government's usual 90:10 split (towards price) as stipulated by the Preferential Procurement Policy Framework Act (2000), and was only made possible through an exemption. This heavy weighting of non-price objectives in a competitive tender was also unique globally and set the REIPPPP apart. There has been controversy over perceived trade-offs between lowering bid prices and meeting ED criteria, with some arguing that the latter adds complexity and therefore cost. However the underlying objectives of ED criteria are to facilitate and expedite local job creation, community development and Black commercial interests, as well as growth in emerging and smaller enterprises for inclusive growth within the energy sector, in line with the government's objectives as articulated in the National Development Plan etc. Therefore this component was a key factor behind government support of the REIPPPP and crucial to the success of the programme.

The ED criteria are categorised into 7 non-price categories: job creation, local content, ownership, management control, preferential procurement, enterprise and socio-economic development. Each category and its weighted contribution to the total ED score is shown in Table 5 below. From a policy perspective the government has attached higher weightings to priority objectives, such as job creation and local content (which stimulates job creation). Together these account for 50% of the ED score, with all 7 element-weightings remaining unchanged over the programme to date. The table also lists the sub-elements per category as at

BW 4, comprising 18 individual measurements compared to 17 in earlier rounds (with the addition being “Jobs for RSA based citizens per MW of contracted capacity”).

The RFP indicates ‘thresholds’ and ‘targets’ per element and technology. Target outcomes are provided for all categories to encourage bidder commitment; however minimum threshold requirements are only provided for sub-elements in 4 of these 7 categories (namely job creation, local content, ownership and socio-economic development). These minimum thresholds must be met in order for the bid to pass the above-discussed Qualification criteria (Part B of the RFP) so it may be considered a Compliant Bid and evaluated in Part C. No thresholds are prescribed for management control, preferential procurement and enterprise development and they are therefore voluntary commitments. Bidders who choose not to pursue them are still able to ‘qualify’ as a Compliant Bid (in contrast to the above), but will not score any points in respect of these criteria in the second stage evaluation.

There has been a change in the scoring of ED criteria to incentivise bidders to maximize their economic development contributions. In BW 1 bidders received 10 points for any outcome in excess of the minimum threshold level, and an additional 10 points if they exceeded the target level as well (Eberhard et al, 2014). Absolute points are no longer awarded simply upon meeting the minimum requirement (threshold) per sub-element. Instead the bidder with the greatest commitment (“the Highest Compliant Bidder”) is awarded full points, provided this is at or above the prescribed target level, while the remaining Compliant Bidders are allocated points in proportion to how they place between the Highest Compliant Bidder and the threshold, or zero if there is no threshold. If there is no Highest Compliant Bidder (i.e. no bidder has met or exceeded the target), all Compliant Bidders are awarded points proportionately based on their position between the target and threshold, or zero if there is no threshold.

The IA stipulates that IPPs are obliged to report on their ED obligations to the DOE quarterly<sup>23</sup> and will be required to provide proof to substantiate progress claims. The first quarter of monitoring begins at FC. There are penalties and rewards based on quarterly performance in respect of these commitments, with underperformance resulting in financial penalties and/or drawing termination points (if performance is below a termination threshold), which may

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<sup>23</sup> Despite the quarterly reporting only they are still required to keep monthly records of implementation.

accumulate to the point where the DOE is entitled to terminate the contract. The inclusion of these stringent economic development criteria, accounting for a significant 30% of final project scores and therefore playing a large role in bid selection, has been a distinguishing feature of the South African REIPPPP. As a result this report places particular emphasis on this component, and its criteria and outcomes will be discussed in detail in Appendix 2, Section 3.4.

**Table 5: Elements of the Economic Development Criteria (as at BW 4)**

| Element (Weighting)                     | Description                                                     | Threshold  | Target |
|-----------------------------------------|-----------------------------------------------------------------|------------|--------|
| <b>JOB CREATION (25%)</b>               | RSA Based employees who are citizens                            | 50%        | 80%    |
|                                         | RSA Based employees who are Black people                        | 30%        | 50%    |
|                                         | Skilled employees who are Black people                          | 18%        | 30%    |
|                                         | RSA based employees who are citizens and from local communities | 12%        | 20%    |
|                                         | RSA based citizens employees per MW of Contracted capacity      | N/A        | N/A    |
| <b>LOCAL CONTENT (25%)</b>              | Value of local content spending                                 | 40% – 45%* | 65%    |
| <b>OWNERSHIP (15%)</b>                  | Shareholding by Black People in the Seller                      | 12%        | 30%    |
|                                         | Shareholding by Local Communities in the Seller                 | 2.5%       | 5%     |
|                                         | Shareholding by Black people in the Construction Contractor     | 8%         | 20%    |
|                                         | Shareholding by Black people in the Operations Contractor       | 8%         | 20%    |
| <b>MANAGEMENT CONTROL (5%)</b>          | Black people in Top Management                                  | -          | 40%    |
| <b>PREFERENTIAL PROCUREMENT (10%)</b>   | BBBEE Procurement**                                             | -          | 60%    |
|                                         | QSE & SME Procurement**                                         | -          | 10%    |
|                                         | Women Owned Vendor Procurement**                                | -          | 5%     |
| <b>ENTERPRISE DEVELOPMENT (5%)</b>      | Enterprise Development Contributions***                         | -          | 0.6%   |
|                                         | Adjusted Enterprise Development Contributions***                | -          | 0.6%   |
| <b>SOCIO ECONOMIC DEVELOPMENT (15%)</b> | Socio-Economic Development Contributions***                     | 1%         | 1.5%   |
|                                         | Adjusted Socio-Economic Development Contributions***            | 1%         | 1.5%   |

\*Depending on technology. 45% for solar PV, 40% for all other technologies.

\*\*As percentage of total procurement spend.

\*\*\*As a percentage of Revenue

Source: DOE (2014)

### 2.3.3. Overall Scoring

The bidder's score out of 30 points in respect of ED Criteria, together with its price score out of 70 points, are added together for a final combined score. All bids for a particular technology are then ranked and Preferred Bidders are appointed, giving consideration both to those highest ranked and to the maximum MW available per technology in the relevant bid round<sup>24</sup>.

## 2.4. Legal Contracts

The primary legal contracts (the PPA, IA and DA) will be discussed in detail under Part B and Appendix 5.

<sup>24</sup> This is also subject to the available grid connection capacity.

## Section 3: Outcomes of the REIPPPP, Bid Windows 1 to 4

### 3.1. Capacity and Project Investment Outcomes

Table 6 below outlines the status of projects procured under the REIPPPP as at September 2016 (incl. SP-IPPPP projects). Within five years of the REIPPPP's launch, 51 projects (2.7 GW) of 102 in total (including SP-IPPPP projects<sup>25</sup>) are already operational. Projects from Bid Windows 1 and 2 are all operational, and all but one project from BW 3 have reached financial close. The rest of the projects from Bid Windows 4 and 3.5, as well as the SP-IPPPP projects, are all waiting for the DOE to facilitate financial close. A testimony to the quality of the REIPPPP has therefore been the zero percent failure rate to date.

**Table 6: Progress of procured projects as at September 2016**

| Status                 | Number of Projects |           |           |          |           |           |            | MW           |
|------------------------|--------------------|-----------|-----------|----------|-----------|-----------|------------|--------------|
|                        | BW 1               | BW 2      | BW 3      | BW 3.5   | BW 4      | SP-IPPPP  | Total      |              |
| Operational            | 28                 | 19        | 4         | 0        | 0         | 0         | 51         | 2,755        |
| Under Construction     | 0                  | 0         | 12        | 1        | 0         | 0         | 13         | 1,251        |
| No Financial Close yet | 0                  | 0         | 1         | 1        | 26        | 10        | 38         | 2372         |
| <b>TOTAL</b>           | <b>28</b>          | <b>19</b> | <b>17</b> | <b>2</b> | <b>26</b> | <b>10</b> | <b>102</b> | <b>6,378</b> |

Source: IPP Office, 2016

Under each bid round the RFP prescribed a date by which bidders must be capable of reaching COD (Table 7). As of Nov 2016, BW 4 projects were in the process of obtaining final approvals and consents and awaiting financial close. The REIPPPP has been progressing well versus the prescribed targets under Table 7 for BWs 1 to 3.5. The DOE is however significantly delayed in arranging BW 4 and SP-IPPPP financial close, and there have also been delays from Eskom in issuing budget quotes to Round 4 Preferred Bidders. Additionally, there have been significant delays in announcing the Expedited Bid Window (BW 4.5) preferred bidders. All of this is likely to cause a delay in these projects reaching financial close and therefore COD.

**Table 7: Dates by which awarded bidders must be capable of reaching COD per Bid Window<sup>26</sup>**

| BW 1     | BW 2     | BW 3     | BW 3.5   | BW 4     | EBW      |
|----------|----------|----------|----------|----------|----------|
| Jun-2014 | Dec-2016 | Dec-2017 | Dec-2017 | Dec-2020 | Dec-2019 |

<sup>25</sup> None of the SP-IPPPP projects have yet reached financial close or commenced construction.

<sup>26</sup> Due to delays in PPA's being signed by Eskom, most of the COD dates from BW3 onward have been moved out.

Table 8 summarises the general outcomes of the completed rounds to date and Figure 3 shows the weighted average tariff<sup>27</sup> achieved per bid window. A breakdown of projects by technology, geography and capacity is provided in the table below.

**Table 8: Capacity and Investment Outcomes of Bid Windows 1 to 4**

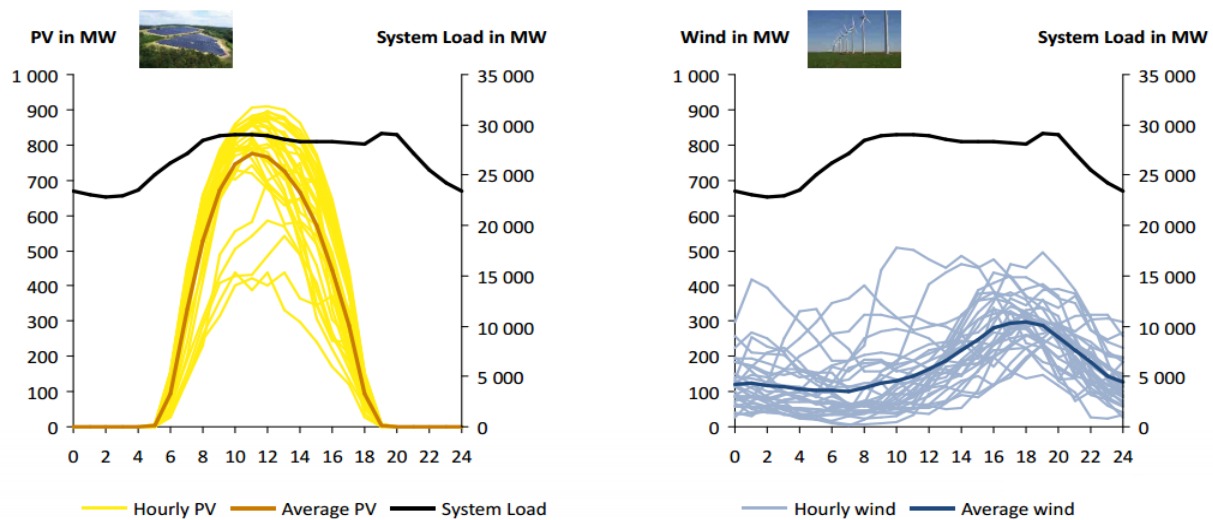
|                                        | Wind   | PV     | CSP    | Biomass | Biogas | Landfill | Hydro | Total  |
|----------------------------------------|--------|--------|--------|---------|--------|----------|-------|--------|
| <b>BW 1</b>                            |        |        |        |         |        |          |       |        |
| Capacity offered (MW)                  | 1,850  | 1,450  | 200    | 13      | 13     | 25       | 75    | 3,626  |
| Capacity awarded (MW)                  | 649    | 627    | 150    | 0       | 0      | 0        | 0     | 1,425  |
| Projects awarded                       | 8      | 18     | 2      | 0       | 0      | 0        | 0     | 28     |
| Average tariff (ZAR c/kWh)             | 114    | 276    | 269    | N/A     | N/A    | N/A      | N/A   | N/A    |
| Average tariff (USD c/kWh) ZAR8/\$     | 14     | 35     | 34     | N/A     | N/A    | N/A      | N/A   | N/A    |
| Total investment (ZAR m)               | 13,876 | 23,559 | 11,891 | 0       | 0      | 0        | 0     | 49,326 |
| Total investment (USD m) ZAR8/\$       | 1,734  | 2,945  | 1,486  | 0       | 0      | 0        | 0     | 6,166  |
| <b>BW 2</b>                            |        |        |        |         |        |          |       |        |
| Capacity offered (MW)                  | 650    | 450    | 50     | 13      | 13     | 25       | 75    | 1,276  |
| Capacity awarded (MW)                  | 559    | 417    | 50     | 0       | 0      | 0        | 14    | 1,040  |
| Projects awarded                       | 7      | 9      | 1      | 0       | 0      | 0        | 2     | 19     |
| Average tariff (ZAR c/kWh)             | 90     | 165    | 251    | N/A     | N/A    | N/A      | 103   | N/A    |
| Average tariff (USD c/kWh) ZAR7.94/\$  | 11     | 21     | 32     | N/A     | N/A    | N/A      | 13    | N/A    |
| Total investment (ZAR m)               | 13,783 | 13,841 | 5,097  | 0       | 0      | 0        | 722   | 33,442 |
| Total investment (USD m) ZAR7.94/\$    | 1,736  | 1,743  | 642    | 0       | 0      | 0        | 91    | 4,212  |
| <b>BW 3</b>                            |        |        |        |         |        |          |       |        |
| Capacity offered (MW)                  | 654    | 401    | 200    | 60      | 12     | 25       | 121   | 1,473  |
| Capacity awarded (MW)                  | 787    | 435    | 200    | 17      | 0      | 18       | 0     | 1,457  |
| Projects awarded                       | 7      | 6      | 2      | 1       | 0      | 1        | 0     | 17     |
| Average tariff (ZAR c/kWh)             | 74     | 99     | 164    | 140     | N/A    | 94       | N/A   | N/A    |
| Average tariff (USD c/kWh) ZAR9.86/\$  | 8      | 10     | 17     | 14      | N/A    | 10       | N/A   | N/A    |
| Total investment (ZAR m)               | 16,969 | 8,145  | 17,949 | 1,062   | 0      | 288      | 0     | 44,412 |
| Total investment (USD m) ZAR9.86/\$    | 1,721  | 826    | 1,820  | 108     | 0      | 29       | 0     | 4,504  |
| <b>BW 3.5</b>                          |        |        |        |         |        |          |       |        |
| Capacity offered (MW)                  |        |        | 200    |         |        |          |       | 200    |
| Capacity awarded (MW)                  |        |        | 200    |         |        |          |       | 200    |
| Projects awarded                       |        |        | 2      |         |        |          |       | 2      |
| Average tariff (ZAR c/kWh)             |        |        | 153    |         |        |          |       | 153    |
| Average tariff (USD c/kWh) ZAR10.52/\$ |        |        | 15     |         |        |          |       | 15     |
| Total investment (ZAR m)               |        |        | 18,319 |         |        |          |       | 18,319 |
| Total investment (USD m) ZAR10.52/\$   |        |        | 1,741  |         |        |          |       | 1,741  |
| <b>BW 4 (a)</b>                        |        |        |        |         |        |          |       |        |
| Capacity offered (MW)                  | 590    | 400    | 0      | 40      | 0      | 15       | 60    | 1,105  |
| Capacity awarded (MW)                  | 676    | 415    | 0      | 25      | 0      | 0        | 5     | 1,121  |
| Projects awarded                       | 5      | 6      | 0      | 1       | 0      | 0        | 1     | 13     |
| Average tariff (ZAR c/kWh)             | 62     | 79     | N/A    | 145     | N/A    | N/A      | 112   | N/A    |

<sup>27</sup> Average tariff across all preferred bidder projects in each round, irrespective of technology.

|                                       |        |        |        |       |     |     |     |         |
|---------------------------------------|--------|--------|--------|-------|-----|-----|-----|---------|
| Average tariff (USD c/kWh) ZAR12/\$   | 5      | 7      | N/A    | 12    | N/A | N/A | 9   | N/A     |
| Total investment (ZAR m)              | 13,466 | 8,504  | 0      | 1,195 | 0   | 0   | 245 | 23,411  |
| Total investment (USD m) ZAR12/\$     | 1,122  | 709    | 0      | 100   | 0   | 0   | 20  | 1,951   |
| <b>BW 4 (b)</b>                       |        |        |        |       |     |     |     |         |
| Capacity offered (MW)                 | 650    | 520    | 450    | 100   | 15  | 40  | 25  | 1800    |
| Capacity awarded (MW)                 | 686    | 398    | 0      | 0     | 0   | 0   | 0   | 1,084   |
| Projects awarded                      | 7      | 6      | 0      | 0     | 0   | 0   | 0   | 13      |
| Average tariff (ZAR c/kWh)            | 72     | 85     | N/A    | N/A   | N/A | N/A | N/A | N/A     |
| Average tariff (USD c/kWh) ZAR12.5/\$ | 6      | 7      | N/A    | N/A   | N/A | N/A | N/A | N/A     |
| Total investment (ZAR m)              | 15,330 | 8,363  | 0      | 0     | 0   | 0   | 0   | 23,693  |
| Total investment (USD m) ZAR12.5/\$   | 1,226  | 669    | 0      | 0     | 0   | 0   | 0   | 1,895   |
| <b>TOTALS</b>                         |        |        |        |       |     |     |     |         |
| Capacity offered (MW)                 | N/A    | N/A    | N/A    | N/A   | N/A | N/A | N/A | N/A     |
| Capacity awarded (MW)                 | 3,357  | 2,292  | 600    | 42    | 0   | 18  | 19  | 6,328   |
| Projects awarded                      | 34     | 45     | 7      | 2     | 0   | 1   | 3   | 92      |
| Total investment (ZAR m)              | 73,423 | 62,411 | 53,256 | 2,257 | 0   | 288 | 968 | 192,603 |
| Total investment (USD m) ZAR12.5/\$   | 7,540  | 6,892  | 5,690  | 207   | 0   | 29  | 111 | 20,470  |

Source: Authors' calculations from the DOE IPP office project data; Eberhard et al (2014). Note that all tariffs are as reported at time of bid.

A CSIR (2015) analysis of solar PV and wind production profiles for 31 days in January 2015 (as well as the average daily production profile) is illustrated below in Figure 2.



**Figure 2: Hourly Solar PV and Wind Production Profiles for all 31 days of January 2015 & Average System Load Diurnal Course**

Source: CSIR, 2015.

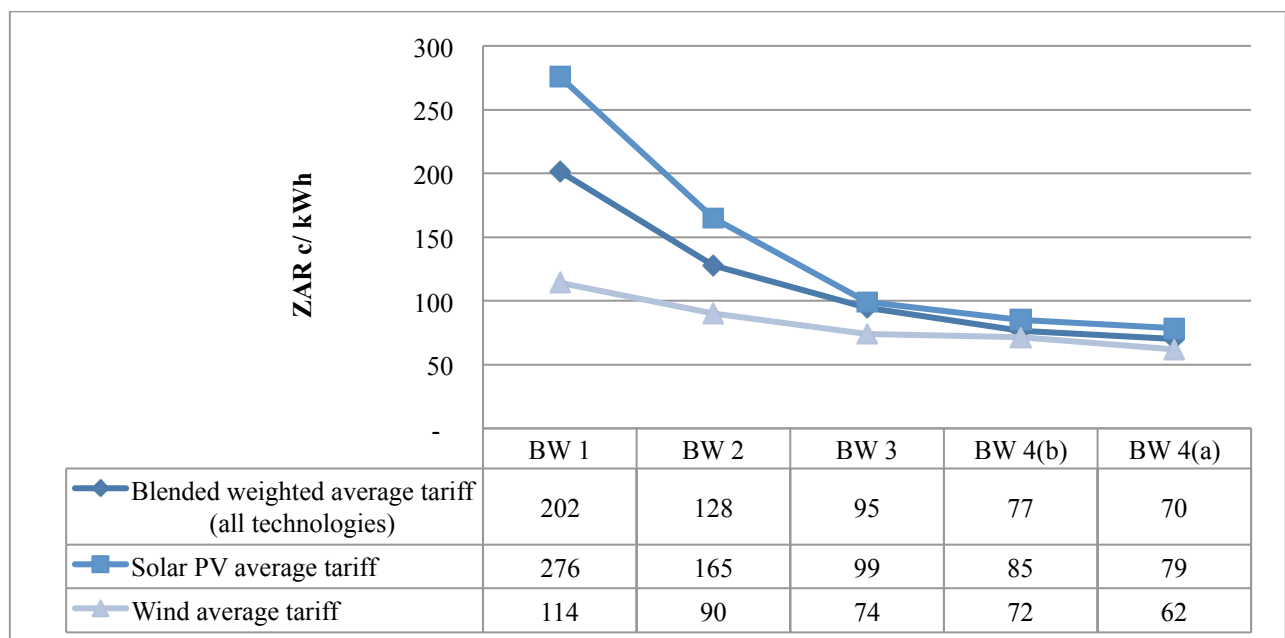
Additional data for February to June 2015 showed that PV production remained stable, reflecting the same daily average profile as that illustrated. Wind production peaked in the evenings during January and February and, while fluctuating much more on a day-to-day basis since March, still tends to peak in the early evening on average. This supports a multiple technology RE

development plan, as different technologies clearly contribute to serving demand at different times during the day on average and diversify the risks associated with one RE technology only. Once the cost of CSP installation declines, its storage capability will make it an extremely attractive option for assisting with peak load production.

### 3.2 Energy Price Outcomes

The most striking outcome of the REIPPPP has been the decline in average energy prices over time for all technologies except small hydro, as shown in Table 9 above. This has resulted in a declining weighted average energy tariff (Figure 3) and is an important step for renewable energy IPPs in achieving grid parity, whereby the prices of new renewable energy sources are now cheaper than energy from conventional fuel sources.

Due to the competitiveness of the bids received in BW 4, the DOE decided to make an over-allocation to preferred bidders in two stages. In the first stage, BW 4(a), the DOE awarded the 13 highest ranked bid responses received. In the second stage, BW 4(b), the DOE awarded another 13 projects as preferred bidders, selecting bids that had ranked 14th to 26th. Because the BW 4(b) projects were lower ranked bids with higher tariffs, BW 4(b) has been included before BW 4(a) in Figure 3 below to best represent the downward trend in tariffs.



**Figure 3: Weighted Average Bid Tariff (across all selected projects) per Bid Window**

Source: Authors' calculations from DOE IPP office data and Eberhard et al (2014).

Note: BW 3.5 excluded from this illustration

\*Weighting by share of Contracted Capacity for that Round. All tariffs are reported as at time of bid.

There have been several contributors to the downward trend in prices. Firstly, lower capacity allocations per round, and investor confidence, amongst other factors, have stimulated competition. Secondly, RE technology costs have declined which means that lower bid prices may be offered while still achieving an acceptable rate of return on the project. Another key driver has been the global economic downturn, and renewable energy markets being suppressed in Europe and the US, which prompted investors to look to emerging markets such as South Africa.

Declining international prices for RE equipment (due to excess supply) have played the largest role in decreasing costs, although this would have been partly offset by the significant Rand depreciation over the past few years making equipment imports more costly. Importantly, movements in both international and local capital input prices greatly affect capital-intensive projects such as these. The USD-converted average tariffs (Table 8 above) show an even greater relative decline than the ZAR c/ kWh tariffs illustrated in Figure 3. This is again due to the Rand's depreciation, although as stated above it would have been partly offset by the increasing cost this depreciation imposes on imported inputs.

In BW 1, the bid tariffs were fairly close to the prescribed tariff caps (Table 9) and less capacity was bid for than was made available for tender. It is believed that bidders charged a premium because they knew that competition was likely limited as a result of tight deadlines (not all potential bidders would have located sites, undertaken resource measurements or obtained the necessary permits), and significant capacity was on offer. The sizable average tariff decline from BW 1 to 2, despite the price caps remaining unchanged, clearly illustrates the impact of imposing capacity constraints in driving increased competition.

**Table 9: Price caps and Average Bid Tariffs per Technology and Bid Window**

| Technology   | BW 1 (ZARc) |            | BW 2 (ZARc) |            | BW 3 (ZARc) |            | BW 4(b) (ZARc)    |            | BW 4(a) (ZARc) |            |
|--------------|-------------|------------|-------------|------------|-------------|------------|-------------------|------------|----------------|------------|
|              | Price Cap   | Bid tariff | Price Cap   | Bid tariff | Price Cap   | Bid tariff | Price Cap         | Bid tariff | Price Cap      | Bid tariff |
| Onshore wind | 115         | 114        | 115         | 90         | 100         | 74         | 76                | 72         | Removed        | 62         |
| Solar PV     | 285         | 276        | 285         | 165        | 140         | 99         | 87                | 85         | Removed        | 79         |
| CSP          | 285         | 269        | 285         | 251        | 165         | 164        | 137 <sup>28</sup> | -          | 165            | -          |
| Biomass      | 107         | -          | 107         | -          | 140         | 140        | 147               | -          | 140            | 145        |
| Biogas       | 80          | -          | 80          | -          | 90          | -          | 147               | -          | .*             | -          |
| Landfill Gas | 84          | -          | 84          | -          | 94          | 94         | 99                | -          | 94             | -          |
| Small Hydro  | 103         | -          | 103         | 85         | 85          | -          | 111               | -          | 106            | 112        |

Source: Authors' calculations from DOE Project data. All tariffs are as reported at time of bid.

\*\*No biogas capacity was made available for tender under BW 4

As the primary technology (wind and solar) caps were adjusted downwards in BW 3 the bid tariffs also declined significantly, and further reductions were seen in BW 4 when their price caps were removed entirely<sup>29</sup>. Onshore wind is the cost leader of the renewable technologies and has consistently been the cheapest source over all rounds. In BW 4(a), the most competitively priced round to date, the average tariff for awarded wind projects was ZARc 62/ kWh (USDc 5.16/ kWh), with the cheapest awarded wind project submitting a bid tariff of only ZARc 56/ kWh (USDc 4.66/ kWh)<sup>30</sup>.

However, the largest price drops over the course of the REIPPPP have been noted for solar PV, which decreased by approximately two-thirds from BW 1 to 3, and by 25% from BW 3 to 4. In BW 4(a) the lowest tariff for an awarded solar PV project was ZARc 77/ kWh (USDc 6.43/ kWh), with a similar average PV tariff at ZARc 79/ kWh (USDc 6.55/ kWh). A major contributor to these cost declines has been the fact that solar PV technology costs have been dropping significantly.

As discussed, CSP tariffs are treated differently to other technologies during peak periods and as of BW 4 awarded CSP providers will receive 270% of the base contracted price during peak times. While the tariffs of awarded CSP projects have declined over the course of the REIPPPP, this technology remains significantly more expensive than wind and solar PV.

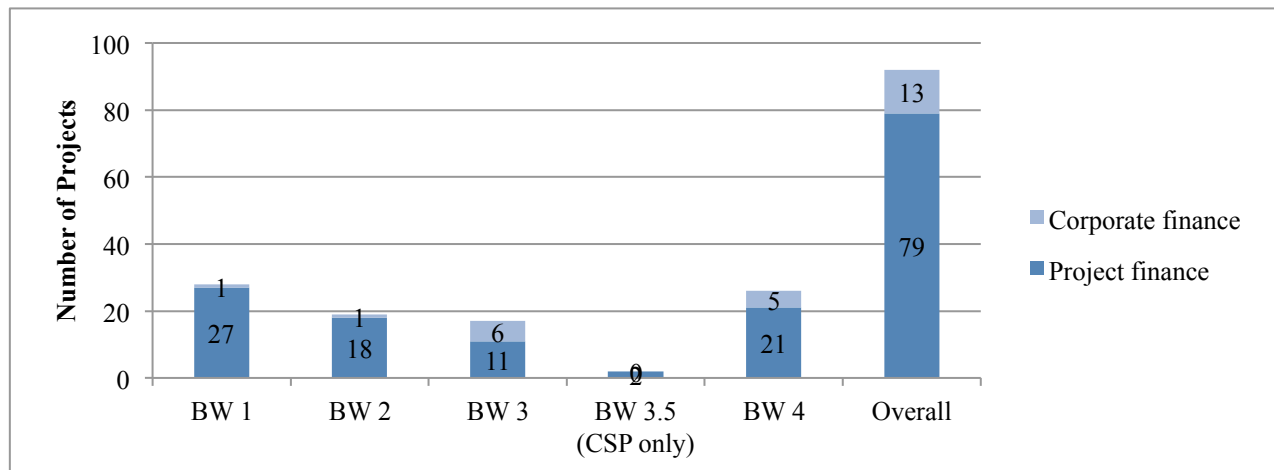
<sup>28</sup> Base price

<sup>29</sup> Price caps for onshore wind and solar PV were reintroduced as part of the Expedited BW (4b), but this was most probably a special measure for this extraordinary BW.

<sup>30</sup> These figures are real as reported as at time of bid.

### 3.3 Investment outcomes

Of the 92 preferred bidders (excl. SP-IPPP) to date, 79 have opted to finance their projects using a combination of project finance and equity, while the remaining 13 have used corporate finance only<sup>31</sup> (Figure 4). As a result external debt (Project financing) accounts for a significant R125.6bn (65%) of the R193bn total funding raised in BWs 1 to 4, while Equity<sup>32</sup> and Corporate finance account for the remaining 23% and 12%, respectively<sup>33</sup>.



Source: Authors calculations based on DOE IPP project data

**Figure 4: Corporate finance vs. Project finance per Bid Window<sup>34</sup>**

Project finance lends itself to these renewable energy projects as it involves setting up a separate company (SPV) for the project, which is already a RFP requirement, and provides funding directly to the project. The amount of funding provided is based only on the project's future anticipated cash flows, whereas Corporate finance is provided to the project owners themselves (not the project SPV) and is based on their current financial standing, creditworthiness etc. For a large, financially healthy company, corporate finance tends to be cheaper than project finance. As Table 10 below illustrates, the average Project financed project is highly geared. Most of the awarded projects indicate a 70 - 80% Debt to 20 - 30% Equity ratio.

<sup>31</sup>With the exception of 1 project that funded the majority using Corporate finance and a small remainder via Equity.

<sup>32</sup>Both pure equity and shareholder loans.

<sup>33</sup>In some of these projects pre-commissioning revenues and VAT facilities also provide a source of funding however, these are relatively immaterial.

<sup>34</sup>Debt figures for BW4 reflect what was bid; it is important to note that these projects have not yet reached financial close, and that this might therefore change. This is also with regards to the use of corporate finance, with some bidders who had initially stated that they will be using corporate finance now having switched to project finance.

**Table 10: Average External Debt funding as a percentage of Total Funds (where the remainder is Equity)**

| Technology          | BW 1  | BW 2  | BW 3  | BW 3.5 | BW 4  |
|---------------------|-------|-------|-------|--------|-------|
| <b>Onshore wind</b> | 74.5% | 75.4% | 75.0% |        | 70.7% |
| <b>Solar PV</b>     | 73.5% | 72.6% | 77.5% |        | 75.4% |
| <b>CSP</b>          | 70.0% | 70.5% | 75.0% | 71.7%  |       |
| <b>Biomass</b>      |       |       | 60.0% |        | 75.0% |
| <b>Biogas</b>       |       |       |       |        |       |
| <b>Landfill Gas</b> |       |       | 56.3% |        |       |
| <b>Small Hydro</b>  |       | 77.5% |       |        | 69.4% |

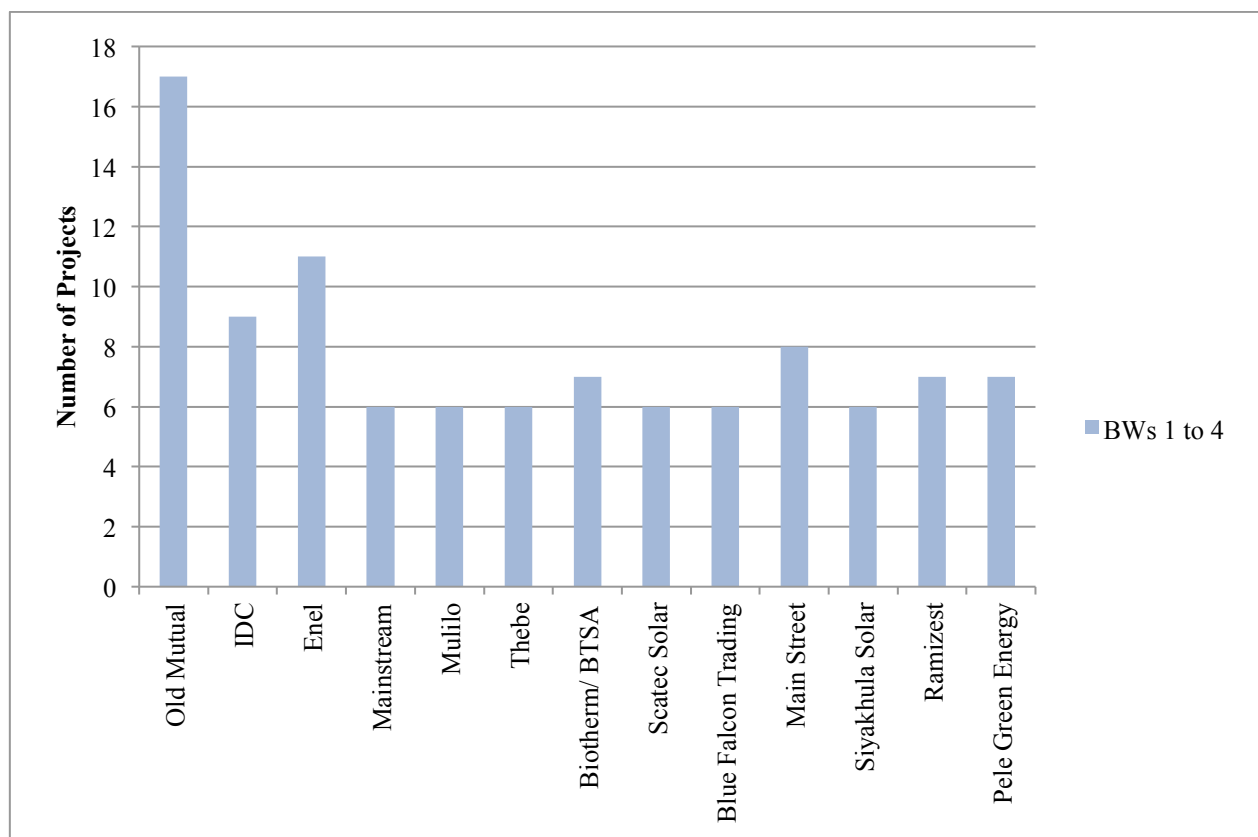
Source: Authors' calculations from DOE Project IPP data

### 3.3.1. Key Sponsors (Equity Providers)

The REIPPPP has succeeded in generating interest from local, regional and international project developers and sponsors. A large number of participants in different BWs have committed capital contributions through equity, debt or both, highlighting investor confidence in the process and its outcomes. The large permitted foreign shareholding of up to 60% has attracted sustained interest from international companies looking for diversification benefits and higher return potential than developed countries. Enel, the Italian utility, has been particularly prominent with equity holdings in 11 awarded projects since BW 3. A number of internationally backed IPPs have also established local offices such as Biotherm, Scatec Solar, Globeleq, Gestamp, Acciona, Abengoa, Windlab, Engie and Building Energy.

Many South African IPPs have complained that the presence of these internationally backed companies has limited their ability to participate, with stringent RFP and lender requirements 'forcing' local developers to on-sell projects or partner with the multinationals. On the other hand, these partnerships seem to have been very successful. An interesting observation has been the emergence of preferred local-foreign equity partnerships. Some examples include Pele partnering with Enel on 4 of the 7 projects in which it has an equity holding; Aveng repeatedly partnering with Acciona Energy, a Spanish company, under the entity Blue Falcon Trading (Figure 5); and Intikon Energy partnering with SolarReserve, a US developer.

South African companies and financial institutions have still been successful in building a portfolio of projects. Old Mutual has emerged as a clear leader in terms of the number of projects in which it owns equity, while others include the Industrial Development Corporation (IDC) and Mulilo. Figure 5 below highlights the major recurring sponsors (both local and international), but is not an exhaustive list. Local participation has been promoted by the Economic Development thresholds that bids were required to meet or exceed to qualify for award; firstly, that at least 40% of each Project Company must be owned by South African citizens, secondly that 12% or more must be owned by Black individuals and finally that at least 2.5% must be owned by the Local Community. As Figure 5 shows, Black-owned local entities such as Thebe Investment Corporation and Pele Green Energy have also benefited from numerous project shareholdings.



**Figure 5: Major Equity Providers in the REIPPPP by number of projects (BW 1 to 4)**

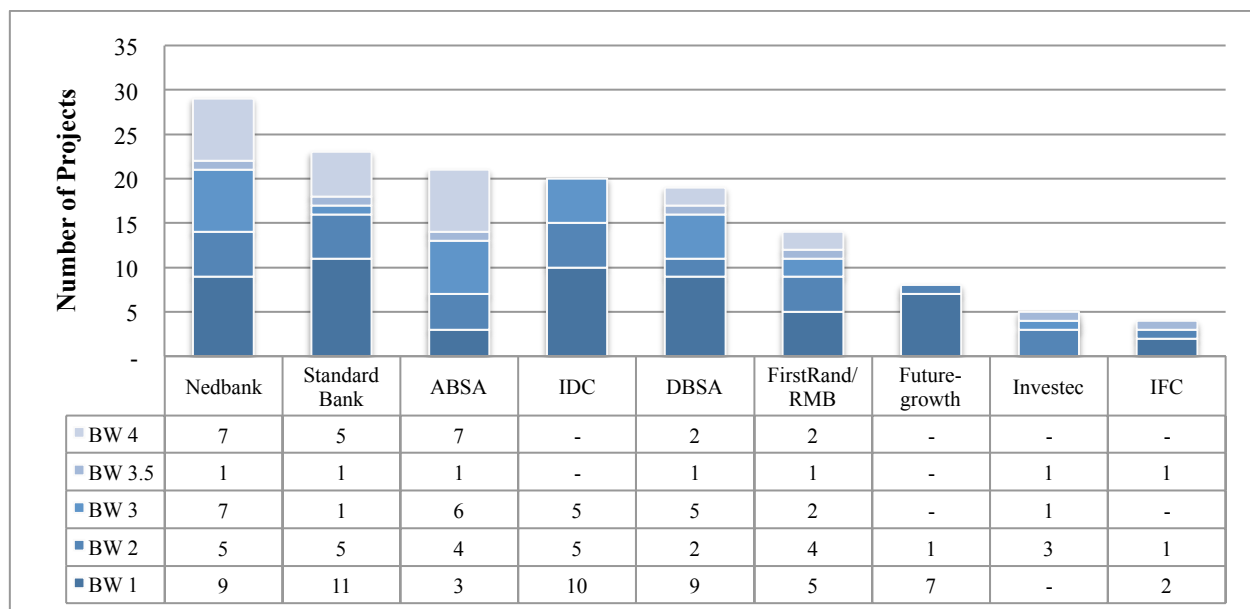
Source: DOE IPP Project data

Note: Only includes entities that have shareholding in 6 or more projects.

### 3.3.2. Key External Debt Providers

Over 20 different debt providers have participated in financing projects awarded under the REIPPPP. In contrast to equity investment, which has been a mixture of foreign and local sponsors, debt has been mainly provided by local entities (Figure 6, Figure 7 and Figure 8). South Africa has a highly sophisticated banking sector and the 5 largest local banks (ABSA, Nedbank, RMB, Standard Bank and Investec) have contributed 68% of the external debt to REIPPPP projects to date. The Development Bank of Southern Africa (DBSA) and IDC have also been instrumental in the REIPPPP's success, providing 13% of the debt. The remainder has been provided by other development finance institutions (DFIs), (export credit agencies<sup>35</sup>) and local insurance/ asset management companies. It is important to note that this analysis is based on bid submission data provided by the IPP office; there have been several changes taking place in terms of the debt structures of most projects up to and also post-Financial Close. These figures, and our analysis, does not reflect these changes.

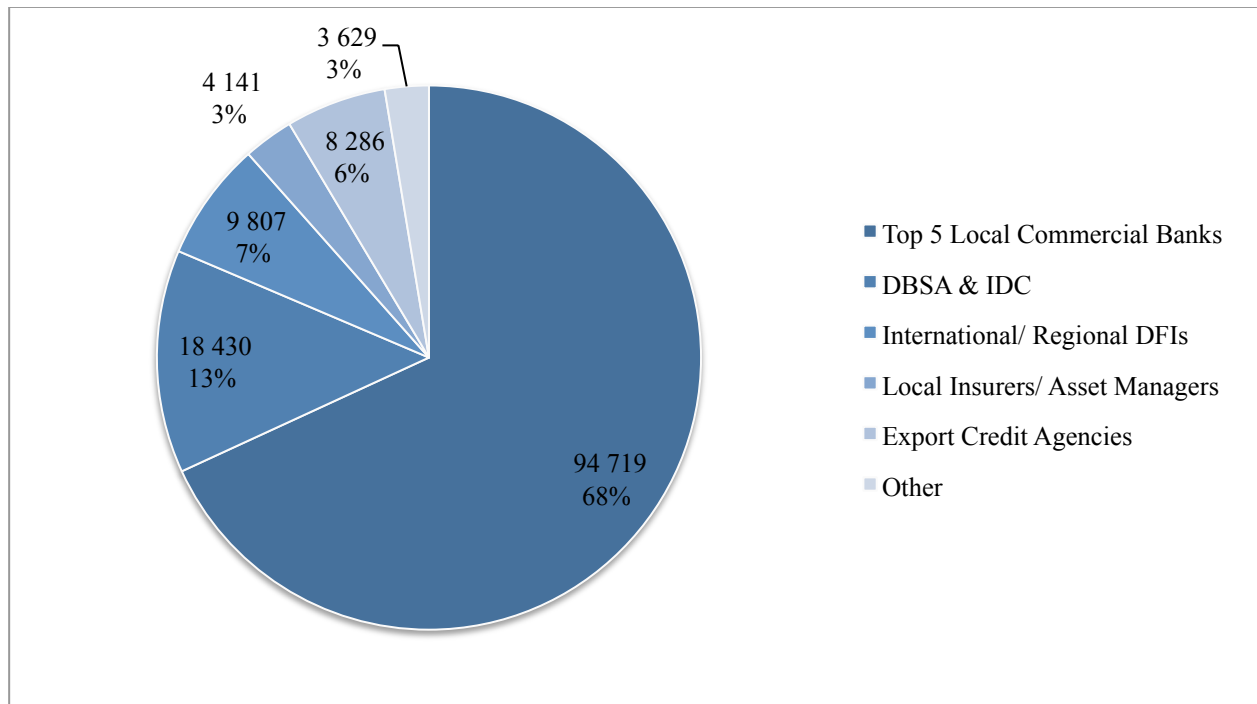
Several factors may contribute to local dominance, such as low currency exposure (international lenders may be reluctant to lend to projects that earn revenue in Rands) and an awareness of local issues. For example, Nedbank has tied its RE investment with its green brand image, and has provided debt to the majority of projects thus far (Figure 6).



**Figure 6: Major Debt Providers in the REIPPPP (based on number of projects for which debt funding was made available, based on data from IPP office bid submission documents)**

Source: Authors' calculations from DOE IPP Project data

<sup>35</sup> One export credit agency was involved at the bid stage, but has since pulled out.

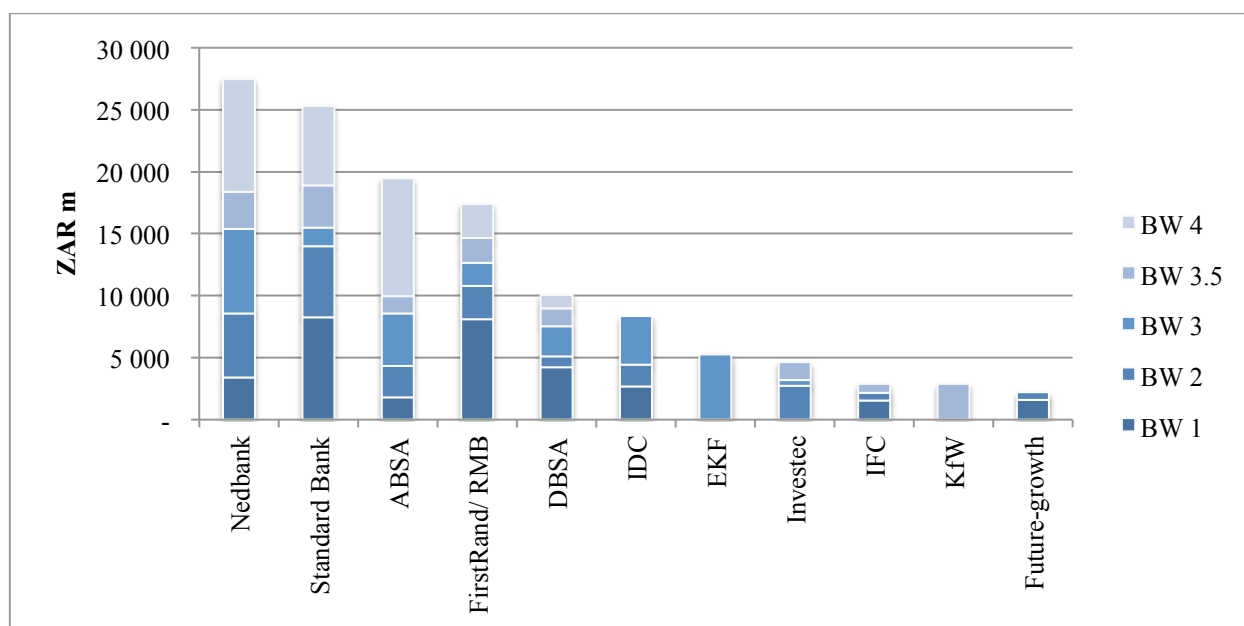


**Figure 7: Total funding per lender category (ZAR m) and percentage contribution to total debt funding - BWs 1 to 4 (based on data in submitted bids from IPP office)** Error! Bookmark not defined.

Source: Authors' calculations from DOE IPP Project data

As Figure 8 below shows, Nedbank and Standard Bank have provided the highest value of debt to date, each contributing over R25bn towards the REIPPPP versus total debt financing of R139bn<sup>36</sup>. The Big 4 Local Banks (ABSA, Standard Bank, Nedbank and FirstRand/RMB) and the DBSA have participated in every bid window, including the CSP only round, showing their commitment to the programme. While the international DFIs such as IFC and KfW did not fund a large number of projects, their nominal contributions were significant (at 13% of total debt funding) and demonstrate the value of DFIs in addition to commercial lenders.

<sup>36</sup>Note: this differs to the R126bn total debt funding discussed earlier. This is because the per lender data is based on the debt facility that was offered (amounting to a higher R139bn) versus the debt ultimately utilised (R126bn).



**Figure 8: Largest nominal debt investors in the REIPPPP (ZAR m) at bidding stage (based on data in submitted bids from IPP office)<sup>37</sup>**

Source: Authors' calculations from DOE IPP Project data

### 3.4. Economic Development Outcomes

This section summarises the outcomes of the key ED criteria imposed on bidders by the RFP, based on data collected from the 92 preferred bidders' obligatory disclosures. Appendix 2 provides more detail; firstly on each of the 7 ED categories, secondly on the outcomes per category over all bid windows (where applicable, relative to the sub-element thresholds) and lastly on how these criteria have evolved over time.

Data in respect of the outcomes of the ownership, management control and preferential procurement criteria could not be obtained. Together the remaining 4 ED criteria - job creation, local content, enterprise development spend and socioeconomic development spend - account for 70% of the ED score and their outcomes are summarised below.

<sup>37</sup> This figure presents what was originally included in bids, and does not represent current hold positions or what was concluded at financial close.

### 3.4.1. Job creation

As discussed earlier, the job creation criterion comprises a substantial 25% of the final ED score. The sub-elements of this criterion are summarised in Table 11, and require bidders to disclose the percentage of the project's total jobs that will be awarded to South African citizens, skilled Black individuals, Black individuals and the local community, respectively. Both the thresholds and targets have remained unchanged from BW 1 to 4 and are the same for all technologies.

**Table 11: Sub-elements of the Job Creation criterion**

| Description                                                     | Threshold | Target |
|-----------------------------------------------------------------|-----------|--------|
| RSA Based employees who are citizens                            | 50%       | 80%    |
| RSA Based employees who are Black people                        | 30%       | 50%    |
| Skilled employees who are Black people                          | 18%       | 30%    |
| RSA based employees who are citizens and from local communities | 12%       | 20%    |
| RSA based citizens employees per MW of Contracted capacity      | N/A       | N/A    |

Source: Authors' calculations from DOE Project IPP data

It is projected that 109,444 jobs will be created for local citizens based on awarded projects over all rounds (including the dedicated CSP bid window), where a "job" is defined as a job-year i.e. 109,444 is the number of one year jobs that has been created for citizens. Of this, a substantial 84,564 job years will be awarded to black citizens and 57,690 job years to people from the local communities (Table 12). The majority of employment will be attributable to onshore wind and solar PV projects, given that they represent 79 of the 92 large renewable energy awarded projects to date.

**Table 12: Job creation outcomes (where 1 job = 1 job year)**

| Technology   | Jobs during Construction |                |                    | Jobs during Operations |                |                    | Total Jobs  |                |                    |
|--------------|--------------------------|----------------|--------------------|------------------------|----------------|--------------------|-------------|----------------|--------------------|
|              | SA Citizens              | Black Citizens | Local Comm-unities | SA Citizens            | Black Citizens | Local Comm-unities | SA Citizens | Black Citizens | Local Comm-unities |
| Onshore Wind | 11,355                   | 9,165          | 4,827              | 32,041                 | 24,751         | 16,384             | 43,396      | 33,916         | 21,210             |
| Solar PV     | 13,356                   | 9,742          | 6,022              | 33,790                 | 27,874         | 22,823             | 47,146      | 37,616         | 28,844             |
| CSP          | 8,400                    | 5,370          | 2,223              | 7,212                  | 4,920          | 3,276              | 15,612      | 10,290         | 5,499              |
| Biomass      | 245                      | 183            | 106                | 2,187                  | 2,000          | 1,710              | 2,432       | 2,183          | 1,816              |
| Biogas       | -                        | -              | -                  | -                      | -              | -                  | -           | -              | -                  |
| Landfill Gas | 6                        | 6              | 2                  | 240                    | 180            | 60                 | 246         | 186            | 62                 |
| Small Hydro  | 439                      | 280            | 150                | 174                    | 93             | 109                | 613         | 373            | 259                |
| Total        | 33,799                   | 24,746         | 13,328             | 75,644                 | 59,818         | 44,362             | 109,444     | 84,564         | 57,690             |

### 3.4.2. Local Content

The local content criterion requires a certain percentage of total project value to be spent in South Africa (DOE, 2011) and accounts for 25% of the ED score. A stricter definition of what constituted 'local content' was enforced in BW 2, with further refinements to the definition and required disclosures in BW 3. These changes are detailed in Appendix 2. Table 13 compares the average local content outcomes to their respective targets and thresholds per technology over the bid windows.

**Table 13: Average Local Content as a percentage of Total Project Cost versus Thresholds and Targets (where Threshold = Minimum obligation)**

| Technology   | BW 1 |        |             | BW 2 |        |             | BW 3 |        |             | BW 3.5      | BW 4 |        |             |
|--------------|------|--------|-------------|------|--------|-------------|------|--------|-------------|-------------|------|--------|-------------|
|              | Min. | Target | Average Bid | Min. | Target | Average Bid | Min. | Target | Average Bid | Average Bid | Min. | Target | Average Bid |
| Onshore wind | 25%  | 45%    | 27.4%       | 25%  | 60%    | 48.1%       | 40%  | 65%    | 46.9%       | n/a         | 40%  | 65%    | 44.4%       |
| Solar PV     | 35%  | 50%    | 38.4%       | 35%  | 60%    | 53.4%       | 45%  | 65%    | 53.8%       | n/a         | 45%  | 65%    | 62.3%       |
| CSP          | 35%  | 50%    | 34.6%       | 35%  | 60%    | 43.8%       | 45%  | 65%    | 44.3%       | 43.0%       | 40%  | 65%    | No bids     |
| Biomass      | 25%  | 45%    | No bids     | 25%  | 60%    | No bids     | 40%  | 65%    | 40.0%       | n/a         | 40%  | 65%    | 47.8%       |
| Biogas       | 25%  | 45%    | No bids     | 25%  | 60%    | No bids     | 40%  | 65%    | No bids     | n/a         | 40%  | 65%    | No bids     |
| Landfill Gas | 25%  | 45%    | No bids     | 25%  | 60%    | No bids     | 40%  | 65%    | 41.9%       | n/a         | 40%  | 65%    | No bids     |
| Small Hydro  | 25%  | 45%    | No bids     | 25%  | 60%    | 76.3%       | 40%  | 65%    | No bids     | n/a         | 40%  | 65%    | 40.0%       |

Source: Authors' calculations from DOE Project IPP data

In BW 1 local content commitment was generally much closer to the minimum prescribed levels rather than the stipulated targets. Despite this, these targets committed to by bidders were increased for all technologies in BW 2, by at least 10% or 15% depending on the technology. For all technologies bid, the average local content commitment increased significantly, which is remarkable since the minimum thresholds were unchanged from BW 1.

In BW 3 there were 10% - 15% increases in the Local Content minimum thresholds, technology-dependent, and another 5% increase in the Local Content target levels for all technologies. However, associated changes in the average outcomes for the primary technologies - wind, solar PV and CSP - versus BW 2 were negligible, suggesting that there were constraints to achieving higher local content expenditure. In BW 4 both thresholds and targets remained unchanged, and again most awarded technologies reflected average local content commitments that were much closer to the threshold than target. A notable exception was solar PV, which showed the most significant increase across all bid windows and on average almost reached the target in BW 4.

### *3.4.3. Enterprise Development Spend*

Enterprise Development spend, accounting for 5% of the ED score, is calculated as a percentage of project revenue. This criterion aims to direct funding towards EME or QSE development in South Africa, as well as businesses owned by Black Women and Black individuals. Given this criterion's low weighting, the low target (of enterprise development spend equal to 0.6% of revenue) and voluntary nature of the requirement due to the lack of minimum threshold, it is noteworthy that only 16 of the 92 preferred bidders since the REIPPPP commenced have not pledged any enterprise contributions. In BW 4 alone, a projected total of R 3.4 billion was pledged by the bidders as their ED contributions commitment over the life of the projects, which is four times greater than the R 0.8 billion that was committed to by BW 1 projects. Since its inception, the REIPPPP has contributed R 6.0 billion to enterprise development in South Africa over the life of the projects<sup>38</sup>.

### *3.4.3. Socio-economic Development Spend*

This criterion accounts for 15% of the ED assessment and aims to direct funding in such a way that IPP projects have a positive socio-economic impact (i.e. fund improvements in healthcare, infrastructure and education). There is particular emphasis on achieving this in the communities where the projects are located, defined as the “Recognition for Localness” when evaluating this criterion. The project’s total socio-economic development contributions are calculated as a percentage of project revenue, subject to a threshold of 1% and target of 1.5%. As discussed earlier, this threshold must be met for a bid response to qualify as a Compliant Bid. Both the thresholds and targets have remained unchanged from BW 1 to 4 and are the same across all technologies. In BW 4 alone, a projected total of R 9.3 billion was pledged by the bidders over the life of the projects versus the R 2.3 billion that was secured in BW 1. In total the REIPPPP has dedicated a remarkable R 19.1 billion<sup>39</sup> to socioeconomic development initiatives across South Africa.

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<sup>38</sup> These cashflows are reported in nominal terms

<sup>39</sup> Nominal

## Section 4: The Small Projects IPP Procurement Programme

### 4.1. Overview of the Small Projects IPP Procurement Programme

The SP-IPPPP is available only to onshore wind, solar PV, biomass, biogas or landfill gas<sup>40</sup> projects with a capacity of 1 - 5 MW each. It follows a very similar process to the utility-scale REIPPPP and is evaluated under the same broad categories; however the bidding is split into a two-stage process summarised in Table 14 below (Mulcahy, 2014). The SP-IPPPP's RFP documentation was very similar to that of BW 3's under the REIPPPP; however it is currently under revision.

**Table 14: The evaluation categories considered per stage of the SP-IPPPP**

| Evaluation Criteria                 | Stage 1 | Stage 2 |
|-------------------------------------|---------|---------|
| Legal Criteria & Evaluation         | ✓       | ✓       |
| Land (Acquisition & Use rights)     | ✓       | ✓       |
| Environmental Criteria & Evaluation | ✓       | ✓       |
| Technical Criteria & Evaluation     | ✓       | ✓       |
| Economic Development Criteria       | ✓       | ✓       |
| Financial Criteria & Evaluation     | ✗       | ✓       |
| Structure of the Project            | ✗       | ✓       |
| Value for Money                     | ✗       | ✓       |

Source: Greencape, 2014

According to the DOE this programme was designed to achieve three key objectives:

- 1) To allow South African citizens who own or control SMEs and/ or emerging smaller power developers an opportunity to participate in the country's RE generation. This was in response to smaller/ local players' complaints that large multinationals were crowding them out of the market.
- 2) To offer South African generation equipment manufacturers, who may not have international certification (which was a qualification requirement for certain technologies under the REIPPPP) the opportunity to supply equipment.
- 3) To limit the cost-at-risk incurred by bidders by utilising a two-stage procurement process, unlike the single-stage REIPPPP.

<sup>40</sup>Small hydro was included as a technology for the SP-IPPPP under the Second Determination. However the DOE elected to exclude small hydro initially and introduce it at a later stage.

To date the Minister has allocated 100 MW to this programme under the First and Second Determinations, respectively, and recently 200 MW under the Third Determination. Ten projects have been awarded to date in the stage 2 SP-IPPPP, totalling 49 MW, with an additional 10 projects awarded in January 2017.

A bidder may not simultaneously register or submit a bid response under the REIPPPP and SP-IPPPP. However if they registered for the REIPPPP but did not submit a bid response on the submission date, or submitted one that was unsuccessful, they may register to participate in the SP-IPPPP provided that the project is eligible and they disclose their prior REIPPPP participation upon registration. Non-disclosure could result in disqualification. Lastly, the contracted capacity of a project that was previously (or is currently) registered and or submitted under the REIPPPP may not be split into two or more projects to comply with the SP-IPPPP requirement of being 1 - 5 MW. This was included to prevent larger players from using this as a means to penetrate the SP-IPPPP and detracting from the objective to support local SME participation.

The SP-IPPPP involves a two-stage submission process. Bidders that meet high-level qualification criteria under Stage 1 are awarded 'Selected Bidder' status and only they may prepare and submit Stage 2 bid submissions. As indicated in Table 10 above, the first stage does not include any financial requirements. To date there have been two Stage 1 bid submission phases and one Stage 2 bid submission phase (Table 15)<sup>41</sup>.

**Table 15: A Summary of Bid Submission Phases to date**

| Bid Submission Phase  | Date        | Notes                                                             |
|-----------------------|-------------|-------------------------------------------------------------------|
| <b>First Stage 1</b>  | 14-Oct-2013 | Selected Bidders were appointed in Mar-2014.                      |
| <b>Second Stage 1</b> | 26-May-2014 | Selected Bidders were appointed in Feb-2015.                      |
| <b>First Stage 2</b>  | 3-Nov-2014  | 29 bids amounting to 139MW were received on this date.            |
|                       | 5-Oct-2015  | 10 Preferred Bidders announced based on First Stage 2 evaluation. |

Source: DOE, 2015

A Selected Bidder under the first Stage 1 submission is not obliged to submit a Stage 2 bid response on the corresponding first Stage 2 bid submission date, but may do so at a later Stage 2 submission date when they are better prepared to comply with the requirements.

As a result of the extra bid stage, the SP-IPPPP has 4 parts to the RFP as opposed to 3 under the REIPPPP. Part A lists general rules and requirements, Part B and C prescribe the Stage 1 and

<sup>41</sup> 10 project awards have been made in January 2017, but have not been announced yet.

Stage 2 Qualification Criteria, respectively, and Part D lists the Evaluation Criteria for all bid responses that are found compliant under Part C (with the same broad 70% price: 30% economic development weighting).

The Department decided to follow the two stage process to eliminate underprepared or under-resourced bids early, thereby mitigating the risk of numerous new and inexperienced developers incurring significant bid preparation costs on projects that may have little or no chance of success (DOE, 2015). However in practice it has not been effective in achieving this, with many bidders complaining that the transaction costs are still too high and due diligence is similar regardless of the project size, therefore making small projects expensive and difficult to finance (Mulcahy, 2014).

## **4.2. Key features of the SP-IPPPP**

### ***4.2.1. General Requirements, Rules and Provisions (Part A of the RFP)***

Unlike the REIPPPP, which prescribes that projects across technologies must sign a 20-year PPA, projects under the Smalls programme may propose a Scheduled Operating Period between 5 and 20 years. This was allowed to acknowledge the different structuring of projects. For example, a project that is financed by external debt will most likely require a longer operating period to repay the loan than one that is funded by a related party or corporate financed. On the other hand, a project without a dependable fuel source that may not last 20 years is able to match the operating period with anticipated available supply.

Price caps per technology were the same as those in BW 3 above, with the exception of biogas, which was capped at R0.90/ kWh versus R0.80/ kWh in the REIPPPP.

### ***4.2.2. Stage 1 Qualification Criteria (Part B of the RFP)***

#### ***4.2.2.1. Legal Criteria and Evaluation***

Bidders must comply with 3 key criteria to pass this Stage 1 legal qualification. Firstly, they must complete all returnable schedules contained in Volume 1, Part 2 to the RFP in the required form. Secondly, when a bidder is a consortium, the consortium agreement or founding agreement must

be submitted and lastly, bidders must provide detailed information about the bidder, its members, potential EPC Contractors and Operations Contractors, as well as Legal Advisors.

#### *4.2.2.2. Land Acquisition and Land Use Criteria and Evaluation*

The bidder must provide the registered address and co-ordinates of the Project Site, as well as details of the registered owner. If the bidder is not the owner, they must submit information on which rights they intend to acquire over the Site and a signed letter from the owner confirming he is prepared to engage in such negotiations.

In addition a report from the bidders' legal advisors must be submitted detailing whether or not the bidder will be required to undertake a land use change, subdivision, zoning applications and so forth in respect of the Site.

Where landfill gas or municipal land will be used for the Project Site, a signed letter from the relevant municipality stating that it has already engaged with the bidder, and is willing engage further, must be submitted. Terms of how the two parties propose to enter into the land and resource use arrangements must be clearly stated.

#### *4.2.2.3. Environmental Criteria and Evaluation*

The bidder must appoint an Independent Environmental Assessment Practitioner (EAP) and submit the EAP's detailed CV. The EAP is responsible for assessing whether the proposed project requires an environmental authorisation under the 2010 EIA Regulations, together with the 2010 Listing Notices. If the proposed project triggers any activity listed in the 2010 Listing Notices, the EAP must prepare a signed report that includes the following:

- Activity Description of the proposed project (technology, size, height) and a description of the activity/ies listed in the 2010 Listing Notices which are expected to be triggered.
- Locality or Sensitivity Map depicting the Project Site and containing all prescribed information under this RFP.

- Draft Site Layout Plan of the Proposed Project.
- Identification and description of any reasonable alternatives considered to the above.
- Planning documents, including the identification of all environmental policies and plan that are applicable to the proposed project.
- Information on the legislative context, including the identification of all relevant environmental legislative requirements as well as the anticipated process and timeframe for obtaining any required Environmental Consents.
- A Screening Report based on a Screening Process to identify potential environmental fatal flaws, which assessment must adhere to all RFP requirements.
- Generate an initial stakeholder database through general discussions, which must at least include details of landowners adjacent to the proposed Site.

In cases where the EAP does not believe that the proposed project triggers any of the above Listing activities, they must prepare a signed statement substantiating this.

#### *4.2.2.4. Technical Criteria and Evaluation*

Each project must pass all the threshold criteria set out per technology. These requirements take largely the same form as those in Part B of the REIPPPP (Section 2.2.6) and as such, only key differences will be highlighted here.

- Under the REIPPPP, wind turbines used for proposed wind projects had to be internationally certified<sup>42</sup> and the submission of this certificate as proof was a threshold requirement. The SP-IPPPP, however, does not require equipment to be internationally certified in an attempt to encourage local manufacturing. Equipment is still required to comply with standards imposed by the South African Bureau of Standards (SABS) and the Grid Codes. In cases where the equipment is not internationally certified, the DOE recommends that bidders engage with prospective lenders as early as possible in the procurement process to obtain their approval to lend to such equipment.

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<sup>42</sup>However this requirement of an international certification (in terms of the wind turbine's design) was not meant to exclude the local manufacturing of the turbine.

- For some technologies, requirements in respect of Forecast Energy Sales are less stringent under the SP-IPPPP. For example, only 6 months of wind data is required versus the REIPPPP's requirement of at least 365 days, and the wind assessment expert is only required to have 3 years of relevant experience versus 5 years under the REIPPPP, respectively. Wind data must still be collected in accordance with international (IEC) standards and (IEA) recommended practices.
- Across technologies, instead of one resource assessment expert performing the forecast energy sales report and another independent expert reviewing this as in the REIPPPP, the SP-IPPPP expert is simply required to be independent of the bidder and no review is prescribed.
- All First Stage 1 projects must be capable of reaching COD by 2017.
- The SP-IPPPP does not prescribe that certain technologies used must be "proven" through a particular track record, as is the case in the REIPPPP.

#### *4.2.2.5. Economic Development Criteria and Evaluation*

Under the REIPPPP, the ED qualification criteria related to South African Entity Participation and B-BBEE Contributor Status Level (CSL). The SP-IPPPP adds three further requirements, namely Shareholding by SMEs in the Project Company, Track Record and Local Content.

Firstly, bidders are required to tabulate the anticipated extent of South African Entity Participation in the Project Company. Secondly, they must tabulate the anticipated shareholdings of SMEs in this Company. This was done in an attempt to involve new developers and SMEs in the SP-IPPPP, due to complaints that the large multinationals were crowding out smaller players in the REIPPPP.

They are also required to indicate the CSL in respect of each of the members, as well as the Project Company itself, where available. Proof of the CSL is required through the provision of a valid verification certificate (as is the case under the REIPPPP); however members with an annual turnover of less than R1m may submit a certificate provided by a Chartered Accountant registered with a professional board.

The "track record" requirement stipulates that bidders must provide the experience of each member in planning and carrying out programmes in relation to preferential procurement, enterprise development and socio-economic development. Lastly, bidders must indicate the anticipated value of local content spend that they expect to achieve in their project and provide details thereof. In respect of all above criteria, the DOE has the right to request further information, based on which they can conduct a due diligence. In respect of this Part B Qualification Criteria, the bidder will only 'pass' the qualification if the DOE determines that it has responded satisfactorily to all required sub-clauses.

#### *4.2.3. Stage 2 Qualification Criteria (Part C of the RFP)*

Most criteria under this Part C are identical to Part B of the REIPPPP RFP in BW 3. Therefore only noteworthy differences and key features will be discussed.

##### *4.2.3.1. Financial Criteria and Evaluation*

Part B (the Stage 1 Qualification) of the SP-IPPPP does not include any financial criteria. In Stage 2, two such criteria are assessed versus four under the REIPPPP. The first criterion is price and is similar to the REIPPPP with the exception that only 30% of the price may be index-linked under the partial indexation method, versus 20 - 50% for the REIPPPP.

The second criterion is the robustness and deliverability of the funding proposal, which only lists requirements in respect of equity finance as well as senior and mezzanine debt funding, versus equity finance, corporate finance and external debt requirements under the REIPPPP. Under this requirement bidders are still required to provide a letter of support from each equity member confirming that it has completed its due diligence of the project. Senior and mezzanine debt financiers, however, are simply required to provide a letter in support of *preliminary* credit approved term sheets, as well as a detailed plan for obtaining final credit approval. This differs to the REIPPPP.

Finally, a noteworthy difference to the REIPPPP is that success payments are limited to 2.5% of total project costs for projects to be developed under the SP-IPPPP. A schedule declaring all success payments must be submitted. This is an important restriction to manage costs, considering

that the average success payment per awarded project under the REIPPPP was 2.9% and the highest success payment on an individual project was 11% of its total project cost.

#### *4.2.3.2. Technical Criteria and Evaluation*

These requirements are largely comparable to the BW 3 RFP Part B of the REIPPPP, introducing more detailed requirements than in the previously discussed Stage 1 qualification.

#### *4.2.3.3. Economic Development Criteria and Evaluation*

A key objective of the SP-IPPPP was to ensure that the majority of participation came from South Africans who are emerging, small power developers. As a result bidders are required to have a 40% South African Entity Participation at bid submission (as under the REIPPPP), thereafter increasing to 60% within no more than one third of the Scheduled Operating Period.

Another notable difference to the REIPPPP is that SMEs are required to have a shareholding of at least 10% in the Project Company at SP-IPPP bid submission, which must increase to 30% within one third of the Scheduled Operating Period. In demonstrating compliance with the above two increases over time, the bidders must submit a plan of how the increase in these respective shareholdings will be achieved within the required period.

Finally, bidders must have a CSL of 5 and meet or exceed the minimum thresholds indicated in an Economic Development Scorecard, as under the REIPPPP. Proof of compliance must be provided through supporting documentation.

#### *4.2.4. Stage 2 Evaluation Criteria (Part D of the RFP)*

The evaluation weighting of 70% price/ 30% economic development criteria is the same as that of the REIPPPP. However within the 30 points allocated to ED, the basket of criteria is weighted slightly differently to the REIPPPP - as indicated in red text (Table 16).

**Table 16: Comparison of Weighting of ED Criteria between REIPPPP and SP-IPPPP**

| Element                    | REIPPPP Weighting | SP-IPPPP Weighting |
|----------------------------|-------------------|--------------------|
| JOB CREATION               | 25%               | 20%                |
| LOCAL CONTENT              | 25%               | 20%                |
| OWNERSHIP                  | 15%               | 15%                |
| MANAGEMENT CONTROL         | 5%                | 5%                 |
| PREFERENTIAL PROCUREMENT   | 10%               | 10%                |
| ENTERPRISE DEVELOPMENT     | 5%                | 5%                 |
| SOCIO ECONOMIC DEVELOPMENT | 15%               | 15%                |
| PARTICIPATION BY SMEs      | 0%                | 10%                |
| <b>TOTAL</b>               | 100%              | 100%               |

Source: Authors' calculations from DOE Project IPP data

Table 17 further compares the ED thresholds and targets under the SP-IPPPP to those prescribed under the REIPPPP, again highlighting differences in red. A key distinction is that the SP-IPPPP imposes fewer minimum thresholds than the REIPPPP, with thresholds on local content and SME participation/ development only. One awarded bidder under the SP-IPPPP noted that this voluntary nature of the ED obligations, versus the REIPPPP which was more prescriptive, did assist in cases where compliance would have added cost layers.

**Table 17: Comparison of ED thresholds and targets between REIPPPP and SP-IPPPP**

| Element<br>(Weighting)     | Description                                                     | REIPPPP    |        | SP-IPPPP  |        |
|----------------------------|-----------------------------------------------------------------|------------|--------|-----------|--------|
|                            |                                                                 | Threshold  | Target | Threshold | Target |
| JOB CREATION               | RSA Based employees who are citizens                            | 50%        | 80%    | -         | 90%    |
|                            | RSA Based employees who are Black people                        | 30%        | 50%    | -         | 60%    |
|                            | Skilled employees who are Black people                          | 18%        | 30%    | -         | 50%    |
|                            | RSA based employees who are citizens and from local communities | 12%        | 20%    | -         | 30%    |
|                            | RSA based citizens employees per MW of Contracted capacity      | N/A        | N/A    | N/A       | N/A    |
| LOCAL CONTENT              | Value of local content spending                                 | 40% – 45%* | 65%    | 50%       | 70%    |
| OWNERSHIP                  | Shareholding by Black People in the Seller                      | 12%        | 30%    | -         | 40%    |
|                            | Shareholding by Local Communities in the Seller                 | 2.5%       | 5%     | -         | 10%    |
|                            | Shareholding by Black people in the Construction Contractor     | 8%         | 20%    | -         | 30%    |
|                            | Shareholding by Black people in the Operations Contractor       | 8%         | 20%    | -         | 30%    |
| MANAGEMENT CONTROL         | Black people in Top Management                                  | -          | 40%    | -         | 40%    |
| PREFERENTIAL PROCUREMENT   | BBBEE Procurement**                                             | -          | 60%    | -         | 70%    |
|                            | QSE & SME Procurement**                                         | -          | 10%    | -         | 20%    |
|                            | Women Owned Vendor Procurement**                                | -          | 5%     | -         | 10%    |
| ENTERPRISE DEVELOPMENT     | Enterprise Development Contributions***                         | -          | 0.6%   | -         | 1.0%   |
|                            | Adjusted Enterprise Development Contributions***                | -          | 0.6%   | -         | 1.0%   |
|                            | Enterprise Development Contributions on SMEs                    | N/A        | N/A    | 0.5%      | 1.0%   |
| SOCIO ECONOMIC DEVELOPMENT | Socio-Economic Development Contributions***                     | 1%         | 1.5%   | -         | 3.0%   |
|                            | Adjusted Socio-Economic Development Contributions***            | 1%         | 1.5%   | -         | 3.0%   |
| SME PARTICIPATION          | Key components &/or Equipment & Balance-of-Plant spend on SMEs  | N/A        | N/A    | 30%       | 60%    |

\*Depending on technology. 45% for solar PV, 40% for all other technologies.

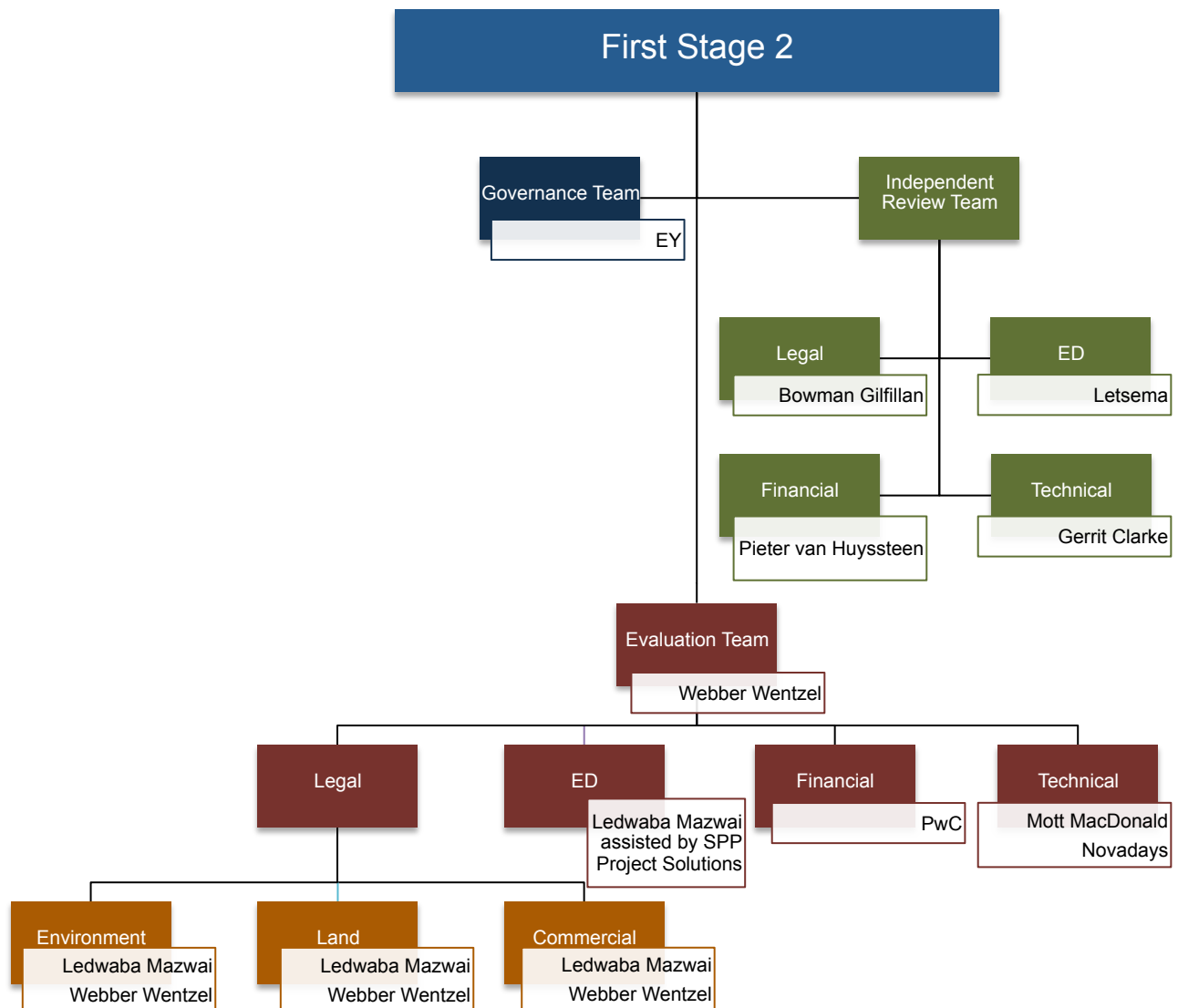
\*\*As percentage of total procurement spend.

\*\*\*As a percentage of Revenue

Source: DOE (2014)

#### 4.2.5. The Evaluation Process

Figure 9 below illustrates the evaluation and independent review process. While structured similarly to that of the REIPPPP, there are some differences in the professional firms used.



**Figure 9: The SP-IPPPP Stage 2 Evaluation and Independent Review Process**

Source: DOE, 2015

### 4.3. Outcomes of the SP-IPPPP

While wind and biomass projects were either equal to or only slightly below their respective price caps of 100c and 140c per kWh, solar PV projects were well below their cap of 140c/ kWh and generally in line with the REIPPPP's BW 3 average solar PV bid tariff of 99c/ kWh (Table 18). The REIPPPP BW 3 average tariff of 74c/ kWh for wind, however, is significantly lower than that of awarded wind projects under the SP-IPPPP, indicating that wind farms benefit from scale and thus that the SP-IPPPP is more conducive to solar PV developers.

**Table 18: Outcomes of SP-IPPPP Preferred Bids awarded in October 2015**

| Project Name                  | Technology   | Contracted Capacity | Fully Indexed Price* (ZARc/kWh) | ED Score (out of 30) |
|-------------------------------|--------------|---------------------|---------------------------------|----------------------|
| Adams Solar PV Project        | Solar PV     | 5 MW                | 98,1                            | 16,89                |
| Bellatrix Solar PV Project    | Solar PV     | 5 MW                | 102,8                           | 17,04                |
| Du Plessis Solar PV 4         | Solar PV     | 5 MW                | 116,0                           | 23,57                |
| Heuningspruit PV 1            | Solar PV     | 5 MW                | 101,7                           | 10,37                |
| Steynsrus PV 1                | Solar PV     | 5 MW                | 101,7                           | 10,34                |
| Steynsrus PV 2                | Solar PV     | 5 MW                | 101,7                           | 10,38                |
| Hopefield Community Wind Farm | Onshore wind | 4 MW                | 100,0                           | 9,76                 |
| Klawer Wind Farm              | Onshore wind | 5 MW                | 95                              | 15,93                |
| Busby Renewables              | Biomass      | 5 MW                | 140,0                           | 11,37                |
| George Small Scale Biomass    | Biomass      | 5 MW                | 140,0                           | 23,06                |

Source: DOE, 2015

Half of the awarded projects were Corporate financed, which is expected given that Project finance can be difficult for smaller projects to access. Cronimet Mining Power Solutions - a multinational entity that develops, constructs and operates its own projects in the mining and industrial sectors - emerged as a key player with 3 project awards. Its intention is to corporate finance these projects and keep them on-balance sheet during construction until COD, after which they will be refinanced using commercial loans (Gifford, 2015).

All project financed projects received senior debt from both the IDC and a specialist black-owned fund manager, Mergence Investment Managers. A key obstacle for SP-IPPPP participants was obtaining the necessary debt finance, because commercial banks typically have no interest in financing these small capacity projects. Banks have to conduct an extensive and costly due

diligence of any project proposal to determine whether the project is bankable, and a similar amount of due diligence is required regardless of project size. As a result, their return margins on smaller capacity, lower value projects are too low relative to the cost and time incurred to make lending to them worthwhile. In such programmes, corporate finance as well as DFIs become a valuable source of funding. The South African developer Aurora Power Solutions (via its subsidiary SOLA Future Energy) was a prominent equity sponsor, winning 2 projects versus Cronimet's 3 awards. Varying consortiums, with some well-known equity holders including Building Energy and Pele in partnership, as well as Old Mutual, sponsored the remaining projects.

One could argue that Cronimet's dominance in the SP-IPPPP, as well as the continued presence of multinational EPC contractors such as Vestas, Goldwind and Juwi amongst awarded projects, suggests that the SP-IPPPP is not achieving its objectives of shielding local players from multinationals and promoting the use of South African generation equipment manufacturers. Also, several project sponsors such as Aurora, Building Energy, Pele and Old Mutual have participated as equity holders in the REIPPPP as well, leading one to question whether the SP-IPPPP is truly affording "smaller", "emerging" power developers/ consortiums an opportunity for project award or simply awarding smaller projects to entrenched players. On the other hand, the award of Aurora's projects has demonstrated the SP-IPPPP's ability to facilitate local players competing at a higher level. Aurora only had minor shareholdings in its REIPPPP projects whereas it now owns a significant 80% of both of its SP-IPPPP projects and will serve as the EPC and O&M contractor, thereby deriving much greater economic benefit.

Finally, the SP-IPPPP was meant to reduce cost-at-risk for bidders by reducing transaction costs for unsuccessful bidders through a two-stage tender. This risk is a serious deterrent to small players who lack the cash flow and financial strength, firstly to incur such costs, and secondly to absorb the losses, in the event that their bids are unsuccessful. In practice this objective has not been achieved, with the SP-IPPPP requirements still being far too onerous and expensive for projects of this size, and qualifying bidders complaining that the two-stage process actually exacerbates their costs by prolonging the tender period and preparation intensity.

## **PART B: Lessons learned from the South African REIPPPP**

### **Section 1: Overview of the REIPPPP's success to date**

The South African REIPPPP has achieved worldwide recognition for its success. Since 2011, the DOE has awarded 6,327MW<sup>43</sup> of capacity to 92 IPPs (excluding the SP-IPPPP projects), with another 1,800MW to be awarded shortly.

The programme has been highly beneficial for South Africa. One of the most important benefits has been the reduction in tariffs achieved over the bid windows. The most recent wind energy and solar PV bids are cheaper than Eskom's average tariff and certainly below the cost of its new coal power plants. The REIPPPP projects have already produced significant net cost savings for Eskom in 2015, both through fuel savings and partially mitigating load shedding which would have led to unserved energy (CSIR, 2015). They have diversified the energy mix and have provided environmental benefits of importance in reducing our reliance on fossil fuels. The REIPPPP's dual consideration of economic development objectives has also led to the creation of a significant number of jobs, as well as contributed to B-BBEE and preferential procurement objectives. A further key benefit of the programme has been the promotion of foreign direct investment and private sector investment into the South African energy sector.

Because it has proved so innovative and effective, the REIPPPP provides valuable lessons for other developing countries. While it would be necessary to tailor the design for country-specific factors, it could be used as a springboard for expedited tender rollouts whilst still achieving certain broader development objectives. Below we discuss the REIPPPP's key successes and lessons, after which we highlight some of the lessons learnt through the challenges experienced and risks identified during implementation of the programme.

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<sup>43</sup> 6327MW was awarded but 6322MW was signed at Financial Close. Landfill Gas project reached Financial Close with 13MW instead of the Bid Submission capacity of 18MW.

## Section 2: Key Lessons from the REIPPPP's success

According to IRENA & CEM (2015), a successful competitive tender is one that is designed to achieve two key goals:

- Increased competition among bidders in order to reduce price outcomes.
- Participation only by bidders that have the capacity to implement their projects at the contracted price within the given timeframe (to ensure fail-safe projects).

Building on this, we identified eight key elements of the REIPPPP that have enabled it to achieve these goals. These are:

|                                                                           |
|---------------------------------------------------------------------------|
| 1. Enabling policy and regulatory environment                             |
| 2. Mandated, authorized leadership to manage the procurement programme    |
| 3. Adequate resources for hiring experienced transaction advisors         |
| 4. Auction Design Built on International Best Practice                    |
| 5. High quality, bankable documentation and contracts                     |
| 6. Fairness, transparency and trust building to earn private sector trust |
| 7. Capital markets that provide adequate and competitively priced funding |
| 8. Maintain credibility of the procurement programme                      |

### 2.1. Enabling policy and regulatory environment

*"Would you tell me, please, which way I ought to go from here?"*

*"That depends a good deal on where you want to get to," - C. S. Lewis*

This quote captures the importance of developing a policy 'blueprint' that guides RE procurement. The South African experience shows the importance of a strong policy foundation in enabling optimal utilisation of the country's RE resources and attracting private sector interest (DOE, 2015).

### *2.1.1. Enabling Policy and Targets for Renewable Energy*

Energy policies, and specific policies for renewable energy, are important for establishing and communicating a clear roadmap for renewable energy investments. While renewable energy appears to be high on the agenda of most African governments, countries are at differing stages of development with varying population sizes, infrastructure, resources, and social and economic priorities. As a result it is not useful to replicate another country's RE policy, just as it will not work to simply replicate a generic procurement programme. Instead, when formulating renewable energy and procurement policy, government should seek to address the following questions:

| To be addressed                                              | Policy Foundations        |
|--------------------------------------------------------------|---------------------------|
| What are the country's energy priorities?                    | Policy objectives         |
| What outcomes do we wish to achieve in these priority areas? | Policy targets            |
| How do we go about achieving this?                           | Policy tools/ instruments |

High-level energy policy objectives generally do not differ much between countries: most seek an energy sector that will foster economic development and social welfare within the bounds of environmental sustainability. Within these broad categories, policy targets might be set around the adequacy and reliability of energy supply, competitive prices, access, and RE targets. Policy tools or instruments to achieve these targets could include least-cost electricity planning, competitive tenders or auctions, or feed-in tariffs for renewable energy, etc. - discussed in the sections below.

### *2.1.2. Policy tools*

South Africa's experience shows that neither of the first two policy steps (establishing policy objectives and targets) was sufficient to unlock private sector investment without the third step, which was the development of well-defined policy instruments to achieve the desired outcomes. A renewable energy policy and set of targets was published and targets set, but the initial policy instruments were only proposed later.

South African policy had already started to consider broad RE objectives and private procurement in 1998, in the Energy policy White Paper. Later it developed these further and set the first (albeit

modest) RE policy target in the 2003 Renewable Energy White Paper. Despite these policies, there was little follow-through and it was only when NERSA's REFIT consultation paper was published in late 2008, representing the first RE policy tool, that South Africa captured the attention of investors worldwide. Unfortunately this interest was not converted into RE investments as South Africa failed to prepare the necessary contracting framework for REFIT projects. When the shift was made to renewable energy tenders or auctions in 2011, the RFP included all the contracts necessary for these large investments. Table 19 below provides a summary of the key policies, as well as political commitments, to RE development in South Africa.

As the DOE stated in their recent 'State of Renewable Energy' Report (2015), "it is often assumed that creating a conducive clean energy policy environment will deliver the desired energy developments and environmental and economic benefits. In South Africa, a clear policy direction, including a target for renewable energy, was in place for almost a decade, during which limited development in renewable energy took place".

This offers an important lesson - policy objectives and targets are simply not enough. Policy tools are essential for attracting private sector participation. The private sector is generally distrusting of governments and their timely commitment to objectives and targets, therefore remaining unwilling to invest on this basis alone. While the REFIT scheme was never implemented, publishing the proposed tariffs indicated for the first time that South Africa was serious about utility-scale RE IPP partnerships. For this reason the REFIT announcement is considered the 'tipping point' for RE technologies in South Africa (DOE, 2015). As Pickering (2013) of Globeleq stated, South Africa experienced significant policy uncertainty en route but NERSA's REFIT consultation paper in 2008 was finally a sufficiently strong signal to stimulate private sector interest. By mid-2010 Eskom reported RE project grid applications for approximately 20 GW. When the REFIT was abandoned in 2011, many of these projects were taken further in the REIPPPP process.

**Table 19: History of South Africa's RE Policy and Political Commitments**

| Year            | Policy                                                  | Political Commitment | Issuing body                                 | Relevance to RE Procurement                                                                                                                                                                                                      |
|-----------------|---------------------------------------------------------|----------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dec-1998        | White Paper on the Energy Policy of South Africa        |                      | Department of Minerals & Energy <sup>1</sup> | Discusses the importance of considering RE policies & programmes, in line with growing international trends, and that IPPs will be allowed to enter the SA electricity market.                                                   |
| Nov-2003        | White Paper on Renewable Energy                         |                      | Department of Minerals & Energy <sup>1</sup> | Considers measures for integrating RE technologies into the mainstream energy economy. Government sets 10,000 GWh target for RE contribution to energy consumption by 2013 (equal to $\pm$ 4% of projected demand by this time). |
| Dec-2008        | REFIT Consultation Paper                                |                      | NERSA                                        | Published for public comment. This was considered a tipping point for private sector interest.                                                                                                                                   |
| 2009            | NERSA approved REFIT policy & tariffs                   |                      |                                              | REFIT Guidelines containing Phase 1 tariffs (for certain RE technologies) in Mar-09 & REFIT Decision containing Phase II tariffs (for remainder) in Oct-09.                                                                      |
| 7 - 18 Dec-2009 |                                                         | COP 15               |                                              | Pres. Zuma voluntarily committed to reduce South Africa's carbon emissions by 34% by 2020 and 42% by 2025 off a business as usual trajectory. <sup>2</sup>                                                                       |
| Mar-2011        | Review of REFIT Consultation Paper                      |                      | NERSA                                        | NERSA published revised draft REFITs (lower than those decided upon in 2009).                                                                                                                                                    |
| Mar-2011        | Integrated Resources Plan (IRP) 2010 - 2030 promulgated |                      | Department of Energy (DOE)                   | Government sets target of 17,800MW (equivalent to 42%) of new power generation capacity to be derived from RE - primarily Solar PV & CSP and Wind.                                                                               |
| Aug-2011        | Issue of REIPPPP RFP                                    |                      | DOE                                          | REFIT policy abandoned in favour of RE competitive tender.                                                                                                                                                                       |
| Oct-2011        | National Climate Change Response White Paper            |                      | Government of South Africa                   | Government shows a policy commitment to the climate change mitigation plans pledged at COP 15.                                                                                                                                   |
| Nov/ Dec-2011   |                                                         | COP 17               |                                              | Hosted in Durban, South Africa further demonstrates political commitment for RE.                                                                                                                                                 |
| Sep-2012        | National Development Plan                               |                      | National Planning Commission                 | More than 20 000MW of renewable energy to be contracted by 2030.                                                                                                                                                                 |

1: Divided into 2 ministries in 2009 - the Department of Mineral Resources and Department of Energy.

2: This commitment was made, subject to SA obtaining development funding and technical support.

Sources: NERSA, DOE

### *2.1.3. Linking RE policy, targets, power planning and procurement initiatives*

It was possible to initiate the REIPPPP because South Africa's electricity plan had set ambitious targets for procuring renewable energy. All previous plans had been based on least-cost supply options, viz. mostly coal power stations. But, for the first time, the Integrated Resource Plan (IRP) for electricity, 2010, included renewable energy options. The plan was formalized in a Government Gazette published in terms of the Electricity Regulation Act. The IRP 2010 estimated that electricity demand by 2030 would require additional generation capacity of 52 GW, of which a significant 17.8 GW would be derived from RE sources. This marked a conscious policy adjustment, considering that at the time of the IRP's development less than 0.5%<sup>44</sup> of South Africa's generation capacity was RE-based (DOE, 2015).

However, as discussed above, broad policy targets (or plans) do not provide investors with sufficient certainty to enter the market. Firstly, they need to know how governments will reach the targets (i.e. the proposed policy tool(s)). Secondly, it is difficult to plan business activities when the only target is that 17.8 GW will be procured over a 20 year period, with no certainty on which years and how this will be procured.

South Africa's Electricity Regulation Act, 2006, and New Generation Regulations published in terms of the Act, give the Energy Minister powers to translate the electricity plan into procurement by making Ministerial Determinations specifying how much power should be procured from which sources by when and by whom (Eskom or IPPs). The private sector thus has an indication of available investment opportunities over the short and medium term. The REIPPPP's ultimate replacement of the REFIT policy in 2011 finally brought clarity to exactly how planned renewable energy capacity would be procured.

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<sup>44</sup>Excluding large-scale hydro capacity of 2.1GW.

The provision of standard PPAs and IAs in the RFP documentation, and non-discriminatory access to the grid (defined in the Electricity Regulation Act, 2006) were crucial elements of the enabling environment and removed possible barriers to entry for IPPs competing with an entrenched national utility.

While South Africa did have a sound RE policy and regulatory framework by the time the REIPPPP was introduced, there was still room for improvement. In particular, South Africa's Grid Code was not designed to accommodate renewable energy IPPs and its amendment remains work-in-progress. While "RE-friendly" policies and regulations are important for private sector procurement and guiding the optimal utilisation of resources, a country in urgent need of additional generation capacity need not wait for the enabling environment to be perfect: these can evolve and be adjusted in response to market challenges.

The REIPPPP's success lay, in part, in policy and legislative flexibility when necessary. The REIPPPP received an exemption from the Public Preferential Procurement Framework Act in that it was allowed to score bid projects based on a 70:30 price: non-price weighting versus the normal government prescribed 90:10 split. This allowed for heavier weighting of economic development, which has played a large role in continued government support for the REIPPPP. Secondly, it was not subject to National Treasury Regulations on PPPs. While this legislation reflects international best practice, it is extremely onerous and expensive and most likely would have delayed the programme's rapid implementation (Eberhard et al, 2014).

| <b>SUMMARY OF LESSONS - POLICY AND REGULATORY FRAMEWORK</b>                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| An enabling policy and set of targets is important to establish a clear roadmap for RE development.                                                                                                         |
| There is no one-size-fits-all renewable energy policy framework or set of targets. These will depend on electricity needs, natural resources and other local factors.                                       |
| An integrated resource plan is useful for establishing long-term RE targets within the overall energy mix.                                                                                                  |
| Renewable energy policy objectives and targets must be supported by clear policy tools (e.g. power plans translated into REFIT/ competitive tender frameworks) in order to attract private sector interest. |
| A policy favouring competitive tenders or auctions rather than FITs can be more effective in attracting investment in grid-connected renewable energy.                                                      |
| Renewable energy policy tools, such as planning and procurement programmes, should be accompanied by a government commitment to create a broader enabling environment for private sector investment.        |
| Policy, legislation, regulations, plans and procurement programmes should be responsive to new challenges as they emerge and should be incrementally improved over time.                                    |

## 2.2. Mandated, authorized and coordinated leadership

### 2.2.1. Political support

The REIPPPP undoubtedly benefited from high-level political support. A defining moment was at the 15th Conference of the Parties (COP15) of the United Nations Framework Convention on Climate Change in 2009, when President Jacob Zuma pledged that South Africa would follow a "peak, plateau and decline" trajectory<sup>45</sup> for future greenhouse gas emissions. Under this commitment national emissions would be limited to 34% below a "business as usual" trajectory by 2020 to peak at 42% below business as usual by 2025. Thereafter they would remain flat for approximately a decade before declining in absolute terms through a gradual shift to non-fossil fuel sources, all on condition that South Africa would receive finance, technology and capacity-building support from the international community (Department of Environmental Affairs, 2011).

Despite international financial assistance not materialising as planned, South Africa proceeded to transform its electricity planning in the wake of COP15 (Eberhard et al, 2014), evidenced by the publications of the IRP 2010 and the National Climate Change Response White Paper . The government further demonstrated this commitment by hosting COP17 and signing a Green Accord<sup>46</sup> with business and other stakeholders in 2011 (Eberhard et al, 2014). It is clear that South Africa hosting COP17 in Durban played a profound role in adding pressure to fast-track the roll-out of the REIPPPP: the RFP for BW1 was announced in August 2011, first submissions were due by Nov 2011 and preferred bidders were announced in December 2011 at COP17.

While there has been some debate as to the depth of commitment (EarthLife Africa, 2014), there is no doubt that South Africa's voluntary UNFCCC carbon reduction pledges have had a profound impact on electricity planning and the launch of the REIPPPP. A second factor, that led to an accelerated procurement programme for renewable energy, was power shortages and power cuts that emerged at that time and the need to get more capacity on the grid in the shortest possible time. Renewable energy projects such as wind, solar and biomass offered this possibility.

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<sup>45</sup> This pledge was based on the culmination of research, known as the Long-Term Mitigation Scenario (LTMS) formulation, led by the Department of Environmental Affairs in South Africa between 2005 and 2008. The DEA submitted four possible strategic options to mitigate climate change to Cabinet, which chose to adopt a peak, plateau and decline trajectory in mid-2008 (DOE, 2015).

<sup>46</sup> This brought together a coalition of interests to shift South Africa towards a lower-carbon intensive economy, as well as promote job creation and industrial development. It contains commitments in twelve areas (Mulcahy, 2014).

Political support has also been vital to sustaining the REIPPPP. The REIPPPP process has been extraordinarily transparent and there have been no opportunities for rent-seeking or corruption. The fact that the REIPPPP has, indeed, delivered broader social and economic benefits has served to blunt criticisms and strengthen overall political support, although this remains an on-going battle.

### *2.2.2. Mandated and authorised champion and team to drive the procurement programme*

The REIPPPP was unique in that it was controlled by the DOE, with the support of National Treasury, rather than the national utility, Eskom, who was historically responsible for IPP procurement efforts but had made little progress. There was also a shift of responsibility from NERSA, who had previously designed the REFIT scheme but are now only involved in a secondary role of licensing Preferred Bidders.

When the DOE took over responsibility for procuring renewable energy, it acknowledged that it had little institutional capacity to run a programme of the size and complexity envisaged for the REIPPPP and approached the National Treasury's Public Private Partnership Unit (PPP) for assistance (Eberhard et al, 2014). A small number of technical staff from the DOE and PPP Units, respectively, established a combined team known as the DOE IPP office and were given full authority to run the programme. The largely ad hoc institutional status of the DOE IPP unit, acting at arm's length from the DOE as a kind of dedicated project office, allows and, to some extent, encourages an operating approach that emphasises problem solving to make the programme successful, rather than automatically following governmental operational policies and procedures that emphasised enforcement of rules.

### *2.2.3. Respected, credible and capacitated "Tender Agent"*

The PPP Unit and the DOE-IPP office team leader, has extensive experience working with the private sector, managing consultants and working with PPP contracts (Eberhard et al, 2014).

Because of its background and skills, the DOE IPP unit exhibited none of the kind of mistrust of private businesses that sometimes characterises other government agencies in South Africa.

South Africa's lack of experience in RE deployment prompted the DOE-IPP office to tender for a large suite of transaction advisers, many of whom were from abroad and had international experience. In the initial stages of designing the programme there were over 50 advisers around the table (and the number of advisers increased over the course of the programme). The PPP Unit's prior experience with managing consultants provided the competency to manage the numerous transaction advisers.

It was important, at the outset, to be "brave". In other words, the DOE-IPP office had to be willing to assume the risk of trying new design options rather than simply replicating international frameworks that may not necessarily have suited the country's unique requirements. For example, in international RE tenders governments had typically chosen the sites, borne the cost of connection and generally assumed more of the risk. The team leader knew this would place unacceptable pressure on the South African government and the decision was made to transfer the responsibility for locating suitable sites to the bidders. She required the transaction advisers to be in-country and constantly challenged them to change their thinking rather than applying the "norms".

Private sector stakeholders have consistently noted that the DOE-IPP leadership team were integral to the programme's success. It may not be possible in other country contexts to appoint a team leader with extensive experience of PPPs and working with the private sector. Neither may it be possible to replicate the independent institutional format. However, the South African experience highlights the importance of carefully mandating a programme champion who is able to manage transaction advisers within an institutional environment where they have sufficient authority, and ambition, to steer the procurement programme.

#### *2.2.4. Co-ordination of government departments*

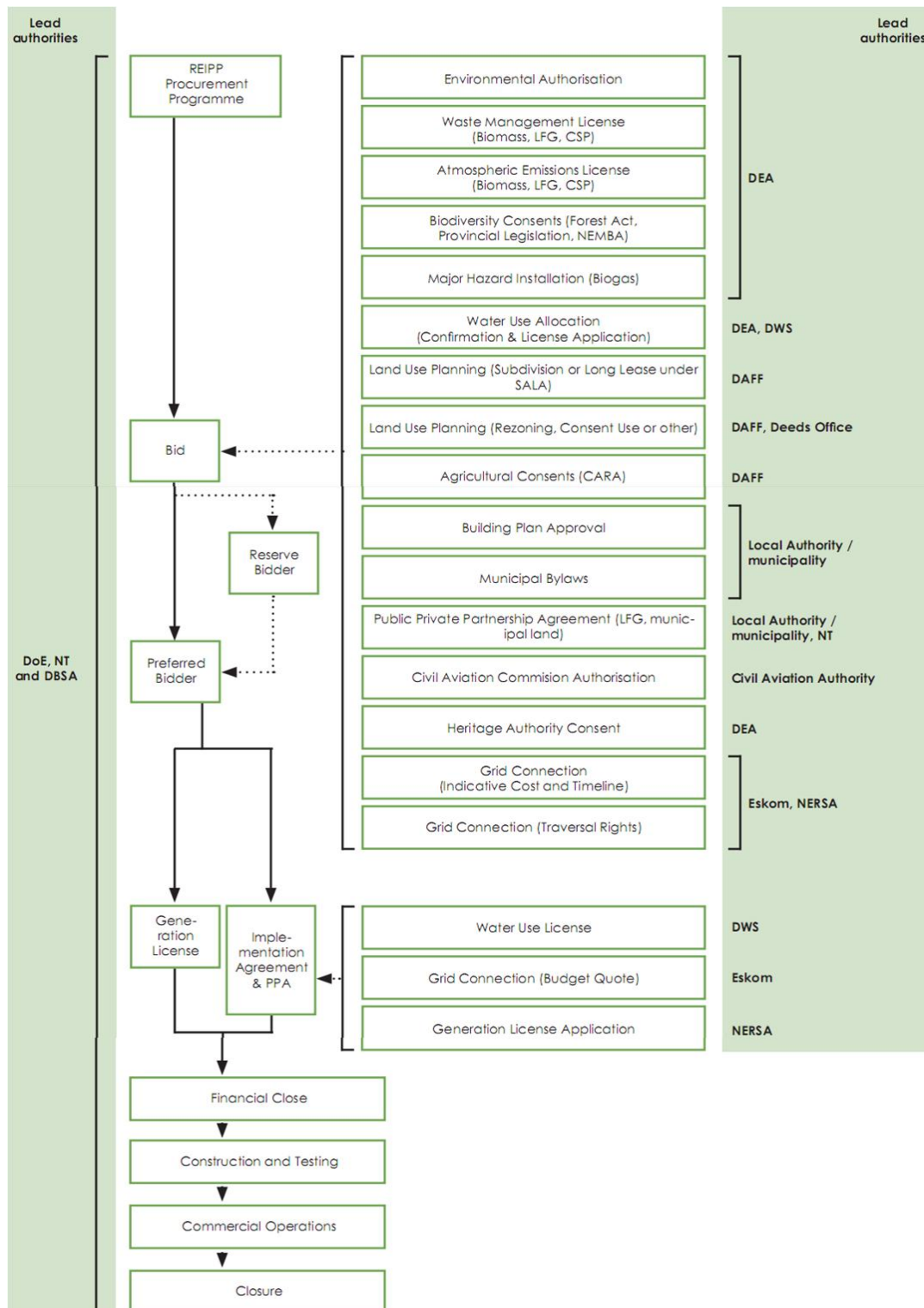
Figure 10 below illustrates the complexity of the programme and the extent of cooperation required from authorities who had to provide IPPs with necessary consents/ approvals. In the SA REIPPPP the DOE had to coordinate closely with the Department of Environmental Affairs

(DEA), Department of Water Affairs (DWA), the Department of Agriculture, Forestry and Fisheries (DAFF), and provincial and municipal departments, amongst others.

This placed enormous pressure on affiliated government departments. For example, by 2013 more than 1,500 environmental authorisation applications had been made to the DEA in respect of RE projects (Mulcahy, 2014). Eskom, although not a government department, is a government-owned entity and was arguably placed under the most pressure of all. It was required to issue cost estimate letters to all projects submitting bids regarding the feasibility and approximate cost of their connection to the grid, which became increasingly onerous with the rapidly growing number of bidders in each bid round.

An important lesson is that government departments and related authorities (at all levels - national, provincial and municipal) should be involved from the early stages of the programme to facilitate coordination and allow them to prepare, particularly where additional resources may be needed to fulfil their commitments and avoid delays in implementation. The programme should also be structured in a way that minimises unnecessary burden on these affiliated departments. For example, in the REIPPPP the DWA would only consider water use licence applications for preferred bidders, otherwise application volumes would have been too great.

A key lesson from the REIPPPP is that the IPP office has not worked closely enough with strategic interests within Eskom; we need to see closer collaboration and alignment to obtain buy-in for the programme early enough. The failure to do this is partly why the programme is currently facing an impasse due to Eskom's unwillingness to sign any more PPAs.



**Figure 10: Representation of the Coordination of Numerous Departments**

| <b>SUMMARY OF LESSONS - MANDATED, AUTHORISED AND COORDINATED LEADERSHIP</b>                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High-level political support is necessary to authorize and sustain the procurement programme.                                                                       |
| A dedicated team should be given a clear mandate and full authority to drive the procurement programme.                                                             |
| The programme office should be separate and independent from the national state-owned generation utility.                                                           |
| The procurement team should be sufficiently qualified, experienced and credible to earn private sector trust.                                                       |
| A procurement team should have the mandate to operate flexibly, rather than being weighed down by unnecessary government bureaucracy and regulations.               |
| The programme champion and team should be competent in managing transaction advisers and sufficiently challenge them to find tailored solutions for the country.    |
| Coordination of government departments is essential to the programme's success and additional strains on these departments should be minimised as much as possible. |

## 2.3. Adequate resources for hiring experienced transaction advisors

### *2.3.1. Sufficient resources need to be allocated to the procurement programme in order to hire experienced transaction advisors*

The DOE IPP unit was given only 9 months to prepare all the bid documentation and associated legal contracts before the launch of the REIPPPP. This was a formidable task considering that South Africa had no experience at all in running RE competitive tenders. To achieve this, the programme received significant financial support so that external expertise could be employed.

The Development Bank of Southern Africa (DBSA) initially provided R80m for the office to hire numerous transaction advisers, a project office and facilitate capacity building (and subsequently also provided senior debt to some of the awarded projects). National Treasury subsequently made R100m available in the 2011 budget, which was used to repay the DBSA, and which saw the REIPPPP through its first round and into part of the second (ERC, 2014).

The expertise of these external transaction advisers, both in terms of programme design and evaluation, has been fundamental to the REIPPPP's success. It is crucial that an inexperienced

country implementing a RE competitive tender secures sufficient funding to hire consultants, and as many as necessary. The key transaction adviser firms to the DOE IPP unit were Ernst & Young and PWC (financial advisers); Webber Wentzel, Bowman Gilfillan, Ledwaba Mazwai and ENS (legal advisers); as well as Mott MacDonald (technical adviser). There were also several other advisory firms in the above fields, as well as firms hired for the independent review of the evaluations conducted by the above companies (discussed later).

It was initially challenging for all of these firms to work together when they were used to competing in the private sector. However it was important to hire more than one company, if possible, because they brought unique strengths and perspectives. For example, amongst the four law firms Webber Wentzel was good at drafting documents, Bowman Gilfillan assumed a strong role in critically questioning these, ENS had a solid foundation in public law and finally Ledwaba Mazwai had a good understanding of government thinking in this arena. This highlights a key lesson - the programme champion should not hold back on qualified and experienced transaction advisers, which were essential in designing and running an effective procurement programme.

### *2.3.2. Fees for ongoing costs*

Bidders are required to pay registration fees in order to receive RFP documentation and preferred developers must pay project development fees equal to 1% of their total project costs, which must be audited to ensure it is fair. These fees now cover the current and future costs associated with the REIPPPP and the DOE IPP Unit and ensure that it remains off the government budget. This has been a key success.

| <b>SUMMARY OF LESSONS - ADEQUATE RESOURCES TO HIRE EXPERIENCED TRANSACTION ADVISERS</b>                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The procurement programme champion(s) must recognise their limitations and hire as many experienced transaction advisers as necessary to advise on programme design and perform bid evaluations.                                   |
| The need to hire advisers means that programmes require a large amount of upfront funding. Governments could seek grant funding or loans from DFIs.                                                                                |
| The programme should keep its impact on the government budget as low as possible. Charging developers a development fee helps to cover ongoing adviser and running costs, as well as pay back DFI programme loans where necessary. |

## **2.4. Auction Design Built on International Best Practice**

### ***2.4.1. Wide consultation***

The DOE IPP unit engaged extensively with the private sector during the design stages of the programme, attempting to determine market readiness and which factors the private sector deemed essential in order to invest.

The Programme Leader (Head of the IPP office), in particular, invested a lot of time in 'courting' and consulting with the banks, pension funds and life insurance companies to stimulate interest and ensure that the programme addressed the needs of lenders. Without legal contracts that the primary lenders considered bankable, the programme would not get off the ground. It is recommended that governments wishing to introduce RE utility-scale tenders engage similarly with the private sector beforehand and conduct road shows to court potential financiers and discuss their bankability requirements.

### ***2.4.2. Benchmarking***

The DOE IPP unit and advisers also studied international experience and best practice. For example, the team studied PPAs that had been used for RE programmes in Spain, India, California & the UK. While not all international experience could be replicated, it provided a framework off which South Africa could benchmark and adjust according to country-specific needs.

### ***2.4.3. Procurement Model – Competitive Tender versus REFIT and Directly Negotiated***

In 2009 NERSA's approved REFIT policy was initially designed to cover generation costs plus a real after-tax return on equity of 17%, and would be fully indexed for inflation. In 2011 NERSA published a proposed tariff reduction out of concern that they had originally been set too high (Eberhard et al, 2014).

The DOE and National Treasury, already concerned about the high REFITs, finally obtained a legal opinion that the FIT scheme constituted non-competitive procurement and was therefore

prohibited by the Constitution and government's public finance and procurement regulations. The REFIT was abandoned in 2011, without any projects having been contracted, and the DOE implemented the REIPPPP in its place.

Competitive tenders undoubtedly produce better price outcomes than REFIT programmes. Their key strength is that they provide a highly effective mechanism for real price discovery (IRENA & CEM, 2015), particularly in countries that lack RE experience which makes it difficult for the government/ regulator to establish a market related tariff. The risk is that the FIT is set too low to attract investment or developers contract at this low tariff and later struggle to achieve an acceptable return, thereby stalling the project's development. Alternatively the FIT is set too high, as would have been the case in South Africa, and the buyer is locked into 20 year overpriced contracts.

As Table 20 below shows, the price caps set for the REIPPPP Round 1 were set between the 2009 and 2011 REFITs designated by NERSA, but closer to the higher end. Resulting average bid tariffs in BW 1 were close to these price caps, and it is believed that IPPs charged a premium because they knew that the capacity allocation (3,625MW) was high and competition was still limited due to the programme's infancy and the shortage of bid-ready projects. This REFIT-like price cap shows the potential danger of the REFIT scheme. Despite price caps remaining the same in BW 2, the reduced capacity on offer (1,275 MW) stimulated more competition and resulted in the average bid tariff dropping by 21% for wind and a remarkable 40% for solar PV. Ongoing competition resulted in further falls in prices in subsequent rounds.

It is unlikely that consecutive REFITs would have resulted in such a fall in renewable energy prices. Updated REFITs would first require debate and policy approval, and it is unlikely that NERSA would have accurately predicted the market well enough to sufficiently reduce the REFITs.

**Table 20: Comparison of FITs under the terminated REFIT Scheme vs. REIPPPP Round 1& 2 Bid Caps and Actual Price Outcomes**

| Technology | REFIT (ZAR/ kWh) |                | REIPPPP (ZAR/ kWh) |         |         |                |         |         |                       |                        |              |              |
|------------|------------------|----------------|--------------------|---------|---------|----------------|---------|---------|-----------------------|------------------------|--------------|--------------|
|            | 2009<br>Tariff   | 2011<br>Tariff | Price Cap          |         |         | Average Tariff |         |         |                       | Average Tariff Decline |              |              |
|            |                  |                | BW<br>1 &<br>2     | BW<br>3 | BW<br>4 | BW<br>1        | BW<br>2 | BW<br>3 | BW<br>4 <sup>47</sup> | BW 1<br>to 2           | BW 2<br>to 3 | BW 3<br>to 4 |
| Wind       | 1.25             | 0.94           | 1.15               | 1.00    | Removed | 1.14           | 0.90    | 0.74    | 0.62                  | -21%                   | -18%         | -16%         |
| PV         | 3.94             | 2.31           | 2.85               | 1.40    | Removed | 2.76           | 1.65    | 0.99    | 0.79                  | -40%                   | -40%         | -20%         |
| CSP        | 3.14             | 1.84           | 2.85               | 1.65    | 1.65    | 2.69           | 2.51    | 1.64    | n/a                   | -7%                    | -35%         | n/a          |

Source: Eberhard et al, 2014, based on DOE source; Authors' calculations from DOE IPP unit data

Prices reported as at bid submission.

Competitive tenders are more responsive to market movements and innovations. This is particularly beneficial in the context of RE and developing countries, where technologies are still rapidly evolving and local markets are immature. Renewable energy auctions in developing countries can attract bids from well-established international project developers that have installed thousands of MW's of RE capacity in various countries and boast extensive sector expertise. They are therefore more likely to determine appropriate market-related prices for these projects (adjusting for developing country risks) than African governments/ regulators that generally have limited experience in RE and IPP partnerships. As summarised by IRENA & CEM (2015), competitive tenders address the fundamental problem of information asymmetry between the price-setting body and project developers.

RE competitive tenders also produce better price outcomes than directly negotiated projects. Governments and utilities seldom have the capacity to assess whether an unsolicited offer is competitively priced. On the other hand, bidders in competitive tenders face price competition and must agree to standardized contracts upon bid submission, which removes their bargaining power during the contract signing stage.

<sup>47</sup> Excluding the 13 additional projects awarded in BW 4 (b)

Finally, if a competitive tender or auction attracts market interest then *a pipeline of bankable projects* quickly develops (the REIPPPP has awarded 92 projects in less than 4 years) as opposed to an ad hoc series of unsolicited offers, often from dubious project developers. Up-to-date power plans linked to timely initiation of competitive tenders is a much more effective way of dealing with power shortages than direct negotiations with unsolicited offers.

A downside to competitive tenders is that the additional complexity (extensive qualification and evaluation criteria) significantly increases the costs, both for government in terms of designing and running the programme, and for bidders to meet all the criteria. High transaction costs have been a recurring complaint of bidders that have participated in the programme. On the other hand, directly negotiated, unsolicited offers also need serious scrutiny and evaluation, and resources need to be made available for this.

The adoption of the RE competitive tender model has increased worldwide from 6 countries in 2005 to over 60 today (IRENA, 2012), suggesting that it is increasingly recognized as ‘best practice’. However, it needs to be recognized that auctions only work if there is sufficient competition (World Bank, 2014). To attract a large number of (experienced) bidders, the programme must be structured in a way that stimulates competition. The REIPPPP achieved this through the following design features.

#### *2.4.4. Two-stage or One-stage Tender Process*

The DOE IPP unit decided against a prequalification phase because of the additional time it would add to the procurement process, choosing instead to follow a one-stage combined Request for Qualifications and Proposals that allowed only 3 months for bid preparation. They also believed that a one-stage process was better from a government cost perspective, as a prequalification round would involve additional documents and evaluation, both of which would require costly advisers.

An expedited process was particularly important in South Africa's case, as the country was facing a critical power supply shortage and needed additional generation capacity to come online rapidly. The 2014 Uganda GET FiT Solar competitive tender provides an example of a two-stage tender process. The Expression of Interest (EOI) notice was issued in January, EOIs were submitted in March under the Prequalification Stage and final bids were submitted in August. The bid preparation period was a total of 6.5 months versus South Africa's 3-month period, thereby illustrating the time advantage of a one-stage tender.

The DOE compensated for the lack of prequalification phase by implementing extremely stringent RFP requirements and non-negotiable contracts that would ensure that bidders were serious and adequately resourced to complete their proposed projects. While this has been successful, it has imposed a significant cost burden on bidders, many of whom absorb these costs without being awarded any projects.

#### *2.4.5. Sealed-Bid versus Open-Bid Tenders*

The REIPPPP is a sealed bid tender in which all bidders are required to submit proposals by a predetermined date and do not know what others have bid, due to strict confidentiality undertakings. Because they may only bid once, they are unable to adjust their proposal based on competing bids. An alternative method is the descending clock auction such as that used in Brazil, where the auctioneer would offer a price and developers would propose the quantity they would be willing to provide at that price. The auctioneer would then progressively lower the price in multiple phases until the total quantity bid matches, or marginally exceeds, the quantity available for procurement. In Brazil's case, the descending clock phase is followed by a final sealed bid, which has seen prices fall up to 20% below the last of descending clock bids.

Open, descending clock auctions have the advantage of producing more competitive price outcomes and are perceived to be more transparent than sealed bid auctions. This is a future possibility for SA now that the RE sector is entrenched. However, this model may be too complex to introduce in other developing countries at the current time, particularly since most of their

electricity sectors are less developed and will initially be limited to much smaller capacity procurements than that awarded under the REIPPPP or, for example, in Brazil.

The REIPPPP has shown that a sealed bid tender is relatively straight forward to implement and can achieve substantial competition, with price reductions. Bidders are also required to submit a signed undertaking at bid submission that they have not discussed their bids with competitors.

#### *2.4.6. Single Bid Round versus a Series of Bid Rounds*

The REIPPPP's multiple bid round programme has offered several valuable lessons. Firstly, the rolling bid window format has attracted continued market interest and stimulated competition. As per IRENA &CEM (2015) and World Bank (2014), discussed above, stimulating competition to reduce price outcomes is key to a successful competitive tender.

Under the REIPPPP, bidders have comfort in the knowledge that if their project fails to meet the requirements by a specific bid window they are able to improve the project for the next auction. The perceived 'higher chance' of being awarded a project at some point, knowing that there will be several rounds of capacity on offer, encourages more investors to participate. In addition, investor confidence in the off-taker and the country's commitment to RE, builds with each successfully completed round, thereby increasing the number of interested private sector players.

Secondly, a series of bid rounds allows for lessons to be learned and improvements to be made in RfP documentation and contracts in each subsequent round (DOE, 2015; ERC, 2014). This flexibility is important to streamline the process, reduce transaction costs and make participation more attractive, which again increases the number of interested bidders. For example, the introduction of "Returning Compliant Bidder" provisions as of BW 4 makes it less onerous for previously unsuccessful bidders to resubmit bids. During this round the environmental and land use consent requirements were also reduced so that only the NEMA environmental, and one or two consents specific to each technology, were required upon submission. The remaining consents were only required after the award of preferred bidder status, provided they would not delay FC.

This learning curve also applies to developers; they become familiar with the auction process and are able to reduce costs and bid more competitively (IRENA & CEM, 2015). For example, in BW 1 none of the 53 bids submitted were fully compliant in terms of Part B to the RFP. The 'failures' were largely due to non-material omissions and inconsistencies that were believed to be as a result of the tight preparation timeframe (DOE, 2012).

Lastly, the REIPPPP benefited from growing public support as prices reduced, RE plants came operational and economic development benefits began to emerge. For example, a CSIR Report (2015) determined Eskom's net savings to be approximately R4bn as a result of the contribution from operational wind and solar plants in the first half of 2015.

#### *2.4.7. Influencing the level of competition through the volume auctioned*

It is believed that the size and readiness of the South African renewable energy market were initially overestimated by the DOE (Eberhard, 2013); the capacity on offer in BW 1 significantly exceeded that available from bid-ready projects. As a result competition was limited and BW 1 price outcomes were close to price caps.

In addition the programme's size and complexity placed significant strains on available legal and financial advisory firms. Given the shortage of experienced advisory capacity, the DOE allowed these firms to advise both government and bidders, provided that ring fencing mechanisms were put in place as discussed in Part A Section 2 above. Even so, some bidders complained that legal and financial firms were offering a "one size fits all" service due to their time and resource constraints, which was not always appropriate to the project's unique characteristics (Eberhard, 2013).

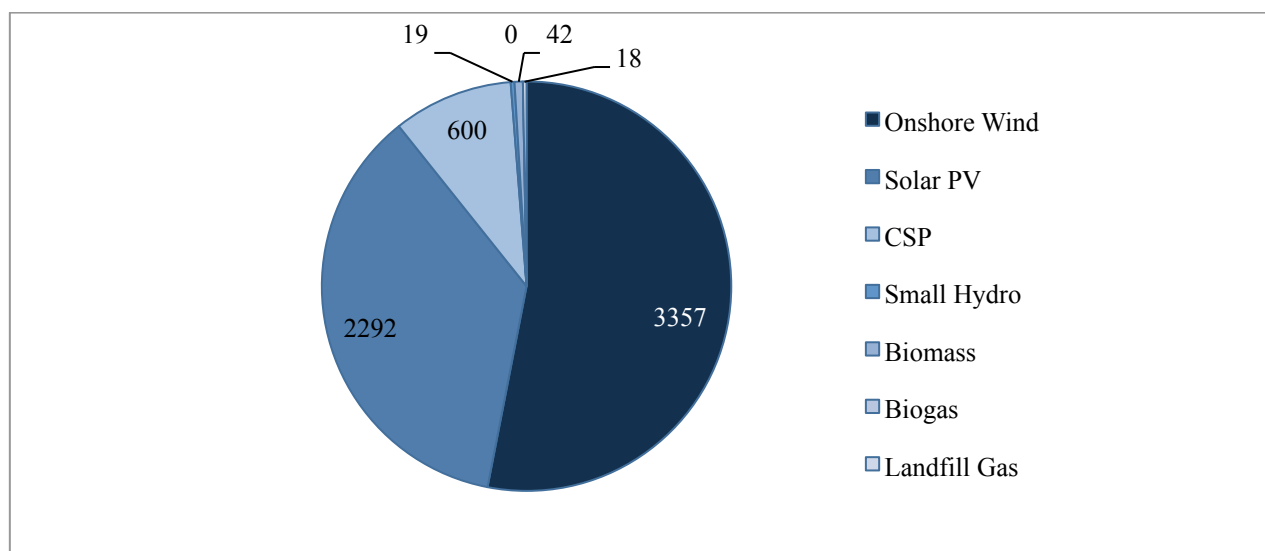
Based on the above two points, it may have been more prudent to start smaller and then gradually ramp up the program through larger capacity offerings in later rounds (Eberhard, 2013). An initial

offering of around 1000MW (as opposed to more than 3000MW) would still have attracted significant private sector interest.<sup>48</sup>

Lastly, the DOE has subsequently made much lower capacities available for tender per bid window. This has led to strong competition and provides a valuable lesson to offer smaller blocks of capacity over multiple rounds, rather than the full capacity in one.

#### 2.4.8. Technology-specific vs. technology-neutral competitive tenders

In the South African context, seven different renewable energy technologies were auctioned, with the most capacity offered and bid in the two lowest cost technologies, wind and solar PV (Figure 11). While there were a number of common qualification and evaluation criteria, there were also technology specific requirements and contracts (for example technology-specific PPAs).



**Figure 11: Total MW procured per Technology (BW 1 to 4, incl. CSP only round)**<sup>49</sup>

Source: Authors' calculations from DOE Project IPP data

As discussed, the DOE is considering removing biomass, biogas and landfill gas from the REIPPPP entirely due to their unique requirements and small size. Probably, the South African REIPPPP was too ambitious is trying to cover such a wide range of technologies. On the other

<sup>48</sup> However, competition could be dampened If overall auction volumes are too small (tens of MWs), and individual projects are equally limited. International experience indicates that very small auctions result in higher prices.

<sup>49</sup> While 18 MW landfill gas was procured, only 13 MW reached financial close.

hand, the auctions were useful in revealing relative market prices and which technologies show the greatest promise for cost and price reductions.

Whether or not other countries should use technology-neutral or -specific tenders depends on their renewable energy resource, their power requirement, as well as grid constraints, and there is no one-size-fits-all solution.

#### *2.4.9. Limitation of individual project size per technology*

As discussed, projects under each technology band are subject to maximum capacity limits. For example, each wind and solar project is subject to a maximum limit of 140 MW and 75 MW, respectively. Some have argued that these caps prevent greater economies of scale, which could result in lower bid tariffs (Papapetrou, 2014); however, there are likewise strong arguments regarding the benefits of capping the maximum size per project. Increasing the number of possible bidders that may be awarded within each available technology capacity stimulates competition and ensures that a single IPP cannot win the full capacity available for that technology through one major project, which also better diversifies the buyer's risk in terms of seller non-performance. Another consideration when looking at project size is the ability of the market to finance these projects in terms of liquidity constraints.

Because the range is wide (i.e. wind project sizes may be 1 MW - 140 MW), the REIPPPP allows smaller players to participate, provided they find innovative ways to reduce costs to be competitive with larger projects benefiting from scale. However in practice an "uneven playing field" has emerged where large RE developers with strong balance sheets (often foreign utilities) are pushing smaller players out of the market (Papapetrou, 2014). This has been a big challenge for the SA REIPPPP and is an important lesson for developing countries that they should attempt to balance a competitive environment with local, broad-based procurement (Papapetrou, 2014).

| <b>SUMMARY OF LESSONS –AUCTION DESIGN BUILT ON BEST INTERNATIONAL PRACTICE</b>                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Competitive tenders provide an effective mechanism for real price discovery and, unlike FITs, respond rapidly to ongoing market changes.                                                                       |
| Competitive tenders produce better price outcomes than FITs and directly negotiated projects.                                                                                                                  |
| Competitive tenders enable the development of a <u>pipeline</u> of projects to tackle the critical power supply shortages than many SSA countries face.                                                        |
| Multiple bidding rounds increase competition by building investor confidence with each successfully completed bid window and signalling that there is potential for further RE investment in future.           |
| Multiple rounds enable the refinement of the tender/auction design and process as lessons from prior rounds are incorporated.                                                                                  |
| Multiple bid windows improve price outcomes as bidders learn from their experiences in prior rounds and are able to bid more competitively.                                                                    |
| So as not to over-estimate initial market readiness, and allow opportunities for more auctions in the future, it is prudent to start small and increase capacity offerings per round as the programme matures. |
| The volume auctioned should not exceed the capacity available in bid-ready projects so that competition is stimulated between bidders.                                                                         |
| Capacity limits on individual projects should not be so low that they prevent economies of scale, but should nevertheless be capped to allow a greater number of bid awards, stimulating competition.          |
| A one-stage tender expedites the process, although it does impose greater transaction costs on bidders that will potentially be unsuccessful.                                                                  |
| A single price offer, sealed bid tender is much simpler to implement and prevents collusion.                                                                                                                   |

## 2.5. High quality, bankable documentation and contracts

We have discussed how the REIPPPP's design successfully promoted competition. However equally important was its achievement of IRENA & CEM's (2015) second overarching objective for a successful competitive tender, which is ensuring participation only by bidders that have the capacity to implement their projects at the contracted price within the given timeframe. This was facilitated through the programme's high quality documentation. DOE set high standards for bid compliance<sup>50</sup>. The most onerous requirements were that bidders were required to submit proof that most permits were in place<sup>51</sup> by bid submission, as well as firm commitments that all funding was locked in.

<sup>50</sup>Some criteria have been relaxed over the course of the REIPPPP.

<sup>51</sup>This was relaxed in BW 4.

These requirements were carefully designed to filter out bidders that were not financially, technically or legally capable of implementing the project as promised within the given timeframe. This would ensure that awarded projects would be as "fail-safe" as possible i.e. almost "guaranteed" to proceed to financial close and construction timeously, and has been an effective strategy thus far. As discussed in Section 4 earlier, a criticism of international RE competitive tenders has been a failure to bring procured capacity online as a result of construction delays and cancellations. In contrast, the REIPPPP's clean record to date indicates that valuable lessons can be learned from the REIPPPP RFP requirements, and these are outlined below<sup>52</sup>.

### *2.5.1. Part A of the RFP: Key Requirements*

Establishing general rules and requirements is a careful balancing act of eliminating non-serious bids without creating barriers to entry for serious projects.

#### *2.5.1.1. Restrictions on available capacity per technology and total capacity being tendered*

This was key to stimulating competition. However the clause allowing the reallocation of MWs between technologies, as well as the increase/ decrease of available MWs per technology and overall, is important for giving the contracting authority flexibility in the face of unexpected bid results (either good or bad).

#### *2.5.1.2. Bid Bonds*

As per IRENA & CEM (2015), while imposing strict rules on bid projects restricts competition to those capable of delivering the promised quantity in the timeframe stated, if too stringent these requirements may act as entry barriers for smaller and/or new players.

Historically high bid bonds have been known to deter investment. For example, in a 2009 Peruvian RE auction bidders were required to deposit several guarantees, including a high bid

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<sup>52</sup>Where such requirements have been discussed as lessons under other categories, they are simply listed without further explanation.

bond of USD 20,000 per MW of capacity to be installed, which significantly deterred investment (IRENA & CEM, 2015).

As a rough comparison the SA REIPPPP required a bid bond of ZAR 100,000 per MW at BW 4 (equivalent to only USD 8,000 at a ZAR:USD rate of 12.5:1), which bidders were required to double to roughly USD 16,000 per MW before being officially appointed as preferred bidders. While this was relatively high, it was necessary because of the lack of prequalification phase, which normally eliminates bidders chancing their luck.

*2.5.1.3. Advisor firms serving the DOE and bidders or lenders must create a "Chinese Wall" to prevent conflicts of interest.*

*2.5.1.4. Bidders must pay a Development Fee equal to 1% of total project costs.*

*2.5.1.5. Strict confidentiality undertakings to prevent collusion.*

The bidder may not discuss whether it is participating in any bid window or provide any related details. All bid responses must be kept confidential.

## ***2.5.2. Part B of the RFP: Key Requirements***

*2.5.2.1. The RFP must minimise variations in bid responses*

A key lesson from the programme is to draft RFP documentation in a way that allows for as little 'qualitative' assessment as possible. The REIPPPP achieved this by ensuring that bid responses received were as standardised as possible. Firstly Volume 1, Part 2 to the RFP contained the Form of Bid and Returnable Schedules, which provided numerous standardised undertakings required from bidders upon bid submission.

The RFP also included numerous Appendices (under various Volumes to the RFP) to the Part B Qualification Criteria that provided templates for declarations and submissions required. A prime

example is Appendix R of Volume 4 (Financial Requirements), which provides template Letters of Support from each category of funder, along with the RFP requirement that bidders must submit their Letters of Support in substantially the same form as the template provided. The result is that the evaluation teams do not have to consider in detail the terms of every individually drafted Letter of Support submitted and ensure they are declaring what is required.

On the downside, this adds to bidders' preparation costs and as a result some requirements were softened over time.

#### *2.5.2.2. Refining the RFP over the course of the Programme*

While the REIPPPP has maintained its thorough qualification criteria to date, requirements that emerged as being excessively stringent as the programme progressed were relaxed in later rounds to reduce unnecessary bidder burden and cost.

The most noteworthy example is the BW 4 RFP relaxation of land use criteria. As discussed earlier, bidders were no longer required to prove by bid submission that all necessary applications relating to land use change, subdivision, removal of restrictive conditions and zoning applications had been made by the Project Company to secure the right to lawfully use the Project Site for the intended project purpose. Instead proof would only be required post-appointment, if they were selected as a preferred bidder.

Land use consents are extremely time consuming and expensive. The Sub-division of Agricultural Land Act (SALA) requirements, with which a bidder must comply when a project is going to be developed on "agricultural land" as defined under SALA by means of a 10+ year lease agreement, are particularly onerous. The amendment highlights another key success factor of the REIPPPP - the flexibility of the bid documentation in response to lessons learned from prior rounds. Non-core environmental consents have been similarly relaxed, again on condition that these will be provided post-appointment as a preferred bidder.

Another example of refining the process to reduce unnecessary bidder burden was the introduction of the "Returning Compliant Bidder" clauses in BW 4, which potentially offer bidders from prior rounds that are re-submitting their bids an exemption from responding to the extensive land acquisition and land use criteria and environmental consent requirements under Part B.

This is however subject to certain important conditions. Firstly, it applies only where the Returning Compliant Bidder submits a bid in respect of a project located on the same project site that they submitted in an earlier BW response. In addition, this bidder's previous bid response must have been approved as a Compliant Bid by the DOE under Part B of the RFP, but was unsuccessful in the Part C Comparative Evaluation.

The REIPPPP was also able to strengthen requirements in later bid rounds, when necessary. For example, Part B required a minimum of 40% "South African Entity Participation" in the Project Company across bid windows. However this was initially defined as those entities "based and registered in the Republic of South Africa, which have legal and beneficial participation in the Project Company" (DOE RFP, 2011). From BW 3 the definition was narrowed to participation by South African Citizens<sup>53</sup>, determined by looking through the Bidder and Member structure to determine the *ultimate natural citizens* to whom the shareholding benefits will accrue (DOE RFP, 2013). This was done to prevent international companies from circumventing this requirement by simply establishing subsidiaries in South Africa, but still taking all shareholding benefits offshore, and ensured that South Africans would benefit from the programme.

#### *2.5.2.3. Land Acquisition and Land Use Criteria & Evaluation*

Land options (for the purchase of land upon award of preferred bidder status) are allowed to be submitted in the bid response. In contrast the Uganda GET FiT Solar Programme only permitted submission of the title deeds indicating ownership or a lease agreement, which some developers cited as a deterrent.

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<sup>53</sup>As direct or indirect shareholders in the Project Company

The removal of the requirements for land use consents at bid submission is another key element.

#### *2.5.2.4. Environmental Consent Criteria & Evaluation*

As discussed, some of the non-core environmental consent criteria have been relaxed from BW 4.

#### *2.5.2.5. Financial Criteria & Evaluation*

##### *Prevention of “low-balling” through stringent Financial Requirements*

The documentation requirements were designed to prevent “low-balling” (Eberhard et al, 2014) - a common occurrence in RE auctions where bidders under-state their bid prices to win tenders. They later attempt to increase the bid tariff during contract negotiations which results in deals not closing, or later stall/ halt the process as construction cost over-runs place the project under financial strain.

In order to prevent this, the REIPPPP required Letters of Support as opposed to Letters of Indicative Support from the project’s equity sponsors/ corporate finance providers and their external debt lenders. Letters of Indicative Support simply confirm that the relevant financier has held preliminary discussions with the bidder for providing finance. The DOE, however, wished to ensure that financing was locked in upon bid submission. This requirement was highly unusual for a RE competitive tender, effectively transferring a greater share of the project development risk to the debt providers and basically outsourcing the due diligence to them (Eberhard et al, 2014). This is because finance providers will only sign the required letter upon extensively assessing and testing the project proposal and its projected cash flows so that any “low-balling” would be detected before bid submission and save the DOE experts from wasting time evaluating implausible projects.

##### *Local content requirements supported through forex coverage restrictions*

Bidders cannot hedge until FC and therefore require some protection against forex changes between bid submission and FC. The DOE decided to protect them only in respect of the foreign

currency movement on 60% of capex, because at least 40% should be local content as per the ED threshold.

#### *2.5.2.6. Economic Development Criteria & Evaluation*

##### *Voluntary targets in respect of difficult criteria:*

While the REIPPPP's ED criteria have been ambitious, 3 of these 7 criteria (relating to preferential procurement, management control and enterprise development contributions) set targets and not thresholds, which means that their realisation is voluntary and bidders that do not fulfil them will not be disqualified from progressing to the second stage comparative evaluation (although they will score zero for those criteria in the comparative evaluation). This ensures that, where the fulfilment of criteria is challenging, bidders are not discouraged from participating due to an inability to do so.

#### *2.5.2.7. Value for Money*

In order to pass this threshold, the bid project had to demonstrate 'value for money' through the assessment of numerous factors. The requirement that 'excessive success payments' could result in failure of this criterion, albeit without a clear definition of what constituted an 'excessive' amount, was essential for ensuring that developers did not inflate these costs. It was taken one step further in the SP-IPPPP, through the requirement that success payments could not exceed 2.5% of total project costs.

### ***2.5.3. Part C of the RFP: Key Requirements***

#### *2.5.3.1. Inclusion of non-price factors in final evaluation*

African countries may also wish to include an ED component, both to sustain political support and to align the programme with broader development objectives such as poverty alleviation. However this does create a price trade-off by adding compliance complexity and costs, as was evidenced in the SA REIPPPP.

Country-specific applicability would have to be considered; however at a basic level we would recommend that the non-price component includes the requirement for developers to contribute 1% of their future project revenues to SED commitments, which is the minimum requirement under the SA REIPPPP and must be committed in order to qualify for evaluation. This will benefit the local community and, if utilized effectively, help to maintain a good relationship with its members for the duration of the project life.

The principles of nurturing local job creation and local ownership (albeit through small percentage holdings) are also easily transferable to other countries, although thresholds and targets would have to be adjusted to present realistic goals in each country's context. Local content requirements, on the other hand, are not easily transferable. Local content requirements, on the other hand, are not easily transferable, given the smaller market sizes and lack of local manufacturing capacity.

#### *2.5.3.2. Incentives to maximize IPP performance in terms of ED components*

As described earlier, bidders were initially allocated a set number of points for passing the threshold/ target ED requirements. This has been revised in subsequent RFPs so that bidders are now scored on a relative scale based on where they rank between the maximum bidder commitment/ target, depending on which is higher, and the threshold level/ zero, depending on whether or not the criterion is voluntary. This clever design ensures that bidders maximize their pledged commitments whereas before they simply had to meet the threshold/ target to acquire a flat score.

#### *2.5.4. Standardised and Non Negotiable Contracts*

##### *2.5.4.1. Power Purchase Agreements*

*The PPA must be considered "bankable" by potential lenders*

The PPA is key to the viability of any IPP procurement programme. While it is technically an agreement between the IPP and the off-taker, it is critical that any project financed with external

debt has a PPA that lenders consider "bankable" (i.e. satisfactory) in order to access debt. Under the REIPPPP the PPA was standardised and non-negotiable, so the programme champion considered international best practice and consulted extensively with potential lenders (i.e. local financial institutions) *prior to the drafting of this PPA* to ensure that the contract would address their needs.

The benefit of standardised, non-negotiable contracts is that FC is reached much quicker than negotiable contracts under a directly negotiated project for example, where the latter is a lengthy iterative process. As a result it is important to draft these contracts appropriately in the first place to ensure that non-bankable contracts do not delay or stall FC entirely.

#### *A PPA must fairly apportion risks*

PPAs must sufficiently protect the buyer, in this case Eskom, but also be reasonable in terms of minimizing revenue risks for IPP sponsors and debt providers over the life of the project. The REIPPPP's PPA was unique in that Eskom, the buyer, assumed much less risk than had typically been the case in international PPA's for RE procurement, with two key examples provided below.

Firstly, the DOE decided to take on very limited force majeure risk, in terms of what can cause the PPA to be terminated, compared to common international experience at the time. Specifically, they only considered war (including embargoes & sanctions), biological contamination, environmental contamination and nuclear contamination as typical force majeure. Anything else was merely a relief event i.e. time would be added to the PPA to compensate the IPP or relief from its obligation would be allowed, but the single buyer/ government would not pay any amount at that time and there was no termination of the PPA.

Secondly, PPAs at the time had typically provided compensation for "unforeseeable conduct", broadly covering unforeseen changes in law. The REIPPPP narrowed this definition to include only the following scenarios:

- Discriminating government action - e.g. NERSA wouldn't issue a license to the IPP for a trivial reason.
- Changes to the Grid Code -the IPP would be protected against any changes that would impact on the tariff (e.g. changes to tariff methodology).

The rationale behind this was that all other businesses in the private sector face the risk of changes in law (such as changes in tax) without being compensated by government; therefore the IPP should not receive additional protection simply because the other party to the contract was a governmental organisation.

Developing governments cannot afford to take on as much risk as those in developed countries. In South Africa's case, termination *payments* are not allowed for anything other than government default, thus ensuring that the government balance sheet is not encumbered with contingent liabilities.

On the other hand, the PPA needs to protect investors. Only predefined 'seller defaults' bring about termination of the PPA (unless at the request of a lender). A key innovation of the South African programme is that sellers do not receive termination payments in the event of seller default, which was a marked difference from most international PPA's.

#### *2.5.4.2. Implementation Agreement*

The primary function of the IA is to offer government support in the event of non-payment by the single buyer, Eskom. In South Africa, it also imposes ED obligations on the IPP and places limitations on changes in equity ownership post-COD.

#### *Provide credit support to the off-taker*

The IA provided that the South African government would stand behind Eskom in the event of late or non-payment, provided that the IPP followed predefined due process. This is not a sovereign guarantee in the strict sense of the word, but more a sovereign support because of Eskom's current poor financial status. To minimise government's liability in this regard, the

government, Eskom and NERSA signed a Government Framework Support Agreement (GFSA), which prescribes clear rules around this "sovereign support". For example, within South Africa's electricity tariff allocation is a proportional allocation to cover the payments to IPP's. The GFSA prohibits Eskom from using this for any purpose (for example, upgrading the grid) other than paying IPPs, which ensures Eskom will have sufficient funds and should avoid government having to step in.

#### *Impose consequences for failure to perform ED obligations*

The IA did not just serve as a guarantee, but also imposed obligations in terms of meeting certain criteria (discussed above). The fact that non-compliance with ED criteria can result in termination points has resulted in lenders being extremely conscious of these obligations and ensuring that IPPs do not fall behind, which in turn assists the DOE with monitoring and the enforcement of required obligations. Consequently some IPPs have accumulated termination points, but none to the extent that the IA has been terminated.

#### *Clauses restricting changes in ownership post-COD*

For the entire operating period, the IA prohibits the IPP from affecting a change in control of the Project Company (or in any company of which it is a subsidiary) without prior written approval from the DOE. Additionally, for three years after COD the Project Company must not permit any change in equity<sup>54</sup> whatsoever (such as dilution, sale, transfer etc.), whether in part or in whole, without prior written DOE approval.

The IA also holds the IPP to the Ownership obligations under the ED criteria, requiring that no sale, assignment, cession, transfer, exchange, renunciation or other disposal of equity may result in the Seller breaching its undertakings with regard to the Ownership criterion under the ED criteria. Furthermore no dilution in the aggregate Shareholding by Black People below these obligations is permitted.

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<sup>54</sup>This also applies to the dilution, sale, assignment, cession, transfer, exchange, renunciation or other disposal of the issued share capital of and/or the shareholder loans in and to a Conduit Shareholder (BW 4 IA, 2014).

These restrictions on changes in ownership ensure that South African citizens, Black individuals and local communities truly benefit from the project over the duration of its term. This prevents bidders from treating the ownership criterion as a "tick box exercise" to win awards, after which ownership percentages are changed and economic benefits do not stay within South Africa. However the restriction on changes in equity for 3 years from COD can be limiting, particularly considering that the risk profile of these projects reduces significantly from construction to operation and so they could be refinanced to free up construction finance, which is considered too risky by the broader equity market.

#### *2.5.4.3. Direct Agreement*

This agreement with lenders is fairly standard and was developed after engagement with banks and developers to determine appropriate risk allocations.

## **2.6. Fairness, transparency and trust building with the private sector**

### *2.6.1. Evaluations conducted under strict security conditions*

The REIPPPP tender evaluation process has been beyond reproach. Despite the large number of unsuccessful bids, there have been no formal or legal challenges to any of the award decisions. Careful attention was given to ensuring that evaluations were independent and transparent. Independent evaluators (being the afore-mentioned professional firms) conducted tender evaluations in a secure environment and were filmed by CCTV cameras. The process was therefore trusted by developers (ERC, 2014).

### *2.6.2. Thorough Review Process*

Evaluation reports per project were prepared by each discipline (e.g. technical/ legal/ financial), after which they had to be reviewed by independent review teams. Linklaters and Blueprint Consulting performed the legal and technical independent reviews, respectively, while Ernst & Young and PWC cross-moderated each other's financial evaluation work (Pickering, 2013).

Finally, an independent governance review of the overall process was conducted (ERC, 2014). Ernst & Young was responsible for this, by observing the receipt and evaluation of bid responses and identifying any areas of non-compliance with the Evaluation Manual (Pickering, 2013).

### *2.6.3. Meeting deadlines*

In order for a government-run programme to build private sector trust it must effectively meet deadlines. Despite a few exceptions, the REIPPPP has generally done this and kept the evaluation periods short (1 – 2 months only per bid window). However, later rounds have seen some slippages, some due to delays in Eskom issuing budget quotes to preferred bidders.

### *2.6.4. Strong communication with the private sector*

As discussed previously, the National Treasury PPP Unit already had significant expertise in working with the private sector. There were numerous consultations with banks and project developers as the bid documentation was developed. In general, the programme has been characterised by openness of the IPP office (with DoE) to listen to the private sector and funders, and adapt if necessary. In addition the DOE IPP unit made a concerted effort to communicate with bidders in order to build trust and receive feedback. For example, a compulsory pre-bid workshop conference was held in 2011 to take bidders through the process before BW 1 submission, and this was done again for BW 3 when there were numerous revisions. Any responses to queries during the bidding process were set out in briefing notes and distributed to all bidders to ensure the process was fair.

## **2.7. Capital markets that provide adequate and competitively priced funding**

### *2.7.1. Debt funding for projects*

The success of South Africa's REIPPPP was facilitated by a well developed local financial and banking sector. This is not necessarily a transferable lesson, considering that certain African countries have underdeveloped financial markets relative to South Africa. As a result greater reliance may have to be placed on DFIs for IPP funding. Alternatively, as discussed above, other African countries could present road shows to incentivise finance from South African banks and pension funds.

Over time, some of the South African projects will need to be refinanced, thus creating a secondary market with increased life and pension fund participation, while enabling commercial banks to continue supporting the development of new projects. This would also be a long-term consideration for any country planning a significant RE IPP roll out - how to refinance projects once they are operational so that experienced lenders who are willing to assume construction risk are freed up to finance future projects as well.

### **2.7.2. DFI Support**

The SA REIPPPP also benefited from DFI support, not only in terms of initial funding to design the programme but also through their debt support to numerous projects over the bid rounds. Together the DBSA and IDC have provided total debt financing of R17.5bn to projects under the REIPPPP (incl. SP-IPPP), which is equivalent to 13.6% of the total debt commitment to date. International DFIs have also played a role, contributing R9.8bn (7% of total debt pledged). There are numerous international and regional DFIs willing to offer assistance to Sub-Saharan African countries so it is expected that other countries will benefit from this support as well.

## **2.8. Maintain credibility of the procurement programme**

To date, Eskom has paid all IPPs as and when due, which sends a positive signal to the private sector to maintain interest for future bid windows. In addition, all bidders were issued with cost estimate letters within 90 days although recent statements by Eskom have provided cause for concern about whether this will continue to be the case.

## **2.9. Grid connection**

Increasingly, South Africa's grid connection constraints have begun to adversely affect the REIPPPP. This is now that all the 'low hanging fruits' have been picked and future grid connections will require more "deep connection works" i.e. dispersed transmission capacity upgrades, which Eskom does not have sufficient funds to carry out. Bidders were permitted to

select their own project sites, which was unusual compared to international tenders. Sites were chosen based on the quality of resource and corresponding energy output level.

In hindsight, it may have been beneficial for the DOE to limit project sites to specific zones where transmission capacity was in place, or could be strategically upgraded to serve several projects. For example, in the Uganda GET FiT Solar PV competitive tender, projects located in the designated "green priority zones" were awarded more points, and all project sites had to be within 3km of an interconnection point to the grid to reduce the shallow connection time and cost burden.

Following a recent Strategic Environmental Assessment, on the 17th February 2016 the South African Cabinet approved the gazetting of Renewable Energy Development Zones (REDZ). These REDZ essentially concentrate wind and solar PV development in specific zones, designed to:

- Reduce the negative environmental consequences of these projects.
- Align authorisation and approval processes in a way that will reduce bureaucracy and the cost of compliance.
- Offer attractive incentives to create a more enabling investment environment.
- Most importantly, allow for the *focused* expansion of South Africa's grid (Dempster & van der Merwe, 2016).

This is a positive step towards integrating IPP investments into grid planning and minimising delays and associated costs.

Lastly, bidders were previously allowed to complete the shallow works on a self-build basis, or pay Eskom to complete the works. As of the Expedited Bid Window, all projects were explicitly required to self-build the shallow connection works, which avoids further constraining Eskom's already limited resources.

## Part C: Reducing Transaction Costs

### Section 1: Introduction

Understanding the building blocks determining the bid tariff for a REIPPPP project is the first step. The tariff that the IPP may charge is the most important provision in the PPA in that it must allow the IPP to recuperate all costs it incurs in generating the power, to ensure bankability. As a result the tariff should be based on, and reflect, the plant's levelised cost of electricity (LCOE).

The LCOE is defined as "the costs per kWh of constructing and operating a power plant over a specified life cycle, taking into account factors including cost of capital and the anticipated plant load factor" (Sager, 2014). Plant load factor will be used interchangeably with capacity factor in this report, where it is defined as the actual output of a RE plant relative to its hypothetical maximum (Sager, 2014). Simply put, the LCOE is the tariff at which revenues would equal costs, including making a return on the capital invested equal to the discount rate. A bid tariff should be higher than the LCOE to yield a greater return on capital (IRENA, 2012).

Our analysis of LCOE is based on the National Renewable Energy Laboratory formula for calculating the simple LCOE of a plant, below.

$$\text{LCOE} = \{(\text{overnight capital cost} * \text{capital recovery factor} + \text{fixed O\&M cost}) / (8,760 * \text{capacity factor})\} + (\text{fuel cost} * \text{heat rate}) + \text{variable O\&M cost}.$$

Where:

- Overnight capital cost = the cost of building a power plant overnight, measured in local currency per installed kW.
- Capital recovery factor =  $\{i(1+i)^n\} / \{(1+i)^n - 1\}$ , where  $i$  is the interest rate and  $n$  is the number of annuities (i.e. project life).
- Fixed O&M cost should be included in kW *per year*.
- 8,760 represents the number of hours per year (i.e. 365 days \* 24).
- Capacity factor is a fraction between 0 and 1 representing the portion of a year for which the plant is generating power.
- Fuel cost is zero for wind and solar.
- Variable O&M cost should be measured in kWh.

*Source: NREL, 2014*

In a WWF Report, Sager (2014) substituted the overnight capital cost for an “adjusted capital cost”, which includes interest during construction, capitalised and accrued. This is because discussions with developers and financiers have confirmed that capitalising interest during construction is a standard practice for plants that are project financed, which has been the majority of awarded REIPPPP projects to date.

The LCOE formula above essentially annualises this adjusted overnight capital cost (used interchangeably with "investment cost" hereafter) over the life of the project using a discount rate that is equivalent to the weighted average cost of capital (WACC). This is then added to the fixed O&M costs per annum and divided by the expected annual energy production to arrive at a cost per kWh. The fuel costs associated with RE technologies are mostly zero, removing this element from the equation (IRENA, 2012). Finally the variable O&M costs per kWh are added to provide an overall LCOE in cents per kWh.

In summary the four drivers of LCOE are: capital/ investment cost, WACC, capacity factor and O&M costs, both fixed and variable (IRENA, 2015). For our purposes the adjusted LCOE formula, below, has been used.

$$\text{LCOE} = \{(\text{capital cost} * [(WACC * (1 + WACC)^n) / ((1 + WACC)^n - 1)] + \text{fixed O\&M cost}) / (8,760 * \text{capacity factor})\} + \text{variable O\&M cost}.$$

RE generation technologies are very capital intensive, which means that both the upfront investment cost and project WACC have a critical impact on the LCOE (IRENA, 2012).

## 1.1. Capital Costs

Table 21 and Table 22 below further break down this upfront investment cost based on REIPPPP data. Only wind and solar PV have been used for this analysis, as there are an insufficient number of awarded projects under the other RE technologies, respectively, for meaningful analysis and comparison over the bid windows.

**Table 21: A breakdown of the average 'upfront investment costs' per installed MW in respect of awarded wind projects under the REIPPPP**

| ONSHORE WIND (Average cost per MW in R'000)        | BW 1          | BW 2          | BW 3          | BW 4 <sup>55</sup> | Average % of Total Cost |
|----------------------------------------------------|---------------|---------------|---------------|--------------------|-------------------------|
| EPC Costs                                          | 15,354        | 17,224        | 15,775        | 17,552             | 74%                     |
| Interest during Construction                       | 1,283         | 1,781         | 1,416         | 1,058              | 6%                      |
| Development Costs*                                 | 937           | 1,810         | 849           | 493                | 5%                      |
| Success fees paid to Sponsors/ Developers*         | 559           | 837           | 540           | 769                | 3%                      |
| Debt Service Reserve Account*                      | 946           | 591           | 944           | 26                 | 3%                      |
| Contingencies*                                     | 885           | 831           | 593           | 211                | 3%                      |
| Other borrowing costs (arranging & facility fees)* | 672           | 506           | 340           | 214                | 2%                      |
| VAT Working Capital                                | 172           | 343           | 278           | 264                | 1%                      |
| DOE Development Fee*                               | 176           | 242           | 215           | 176                | 1%                      |
| Working Capital                                    | 131           | 209           | 219           | 81                 | 1%                      |
| Other Costs                                        | 64            | 51            | 103           | 59                 | 0%                      |
| Other construction costs                           | 81            | 42            | 202           | 156                | 1%                      |
| Professional Fees*                                 | 51            | 191           | 12            | 35                 | 0%                      |
| Maintenance Reserve Account*                       | 81            | -             | 73            | 38                 | 0%                      |
| <b>Total</b>                                       | <b>21,396</b> | <b>24,661</b> | <b>21,559</b> | <b>21,129</b>      | <b>100%</b>             |

Source: DoE IPP Office, 2017; Prices are reported as at bid submission

**Table 22: A breakdown of the average 'upfront investment costs' per installed MW in respect of awarded solar PV projects under the REIPPPP**

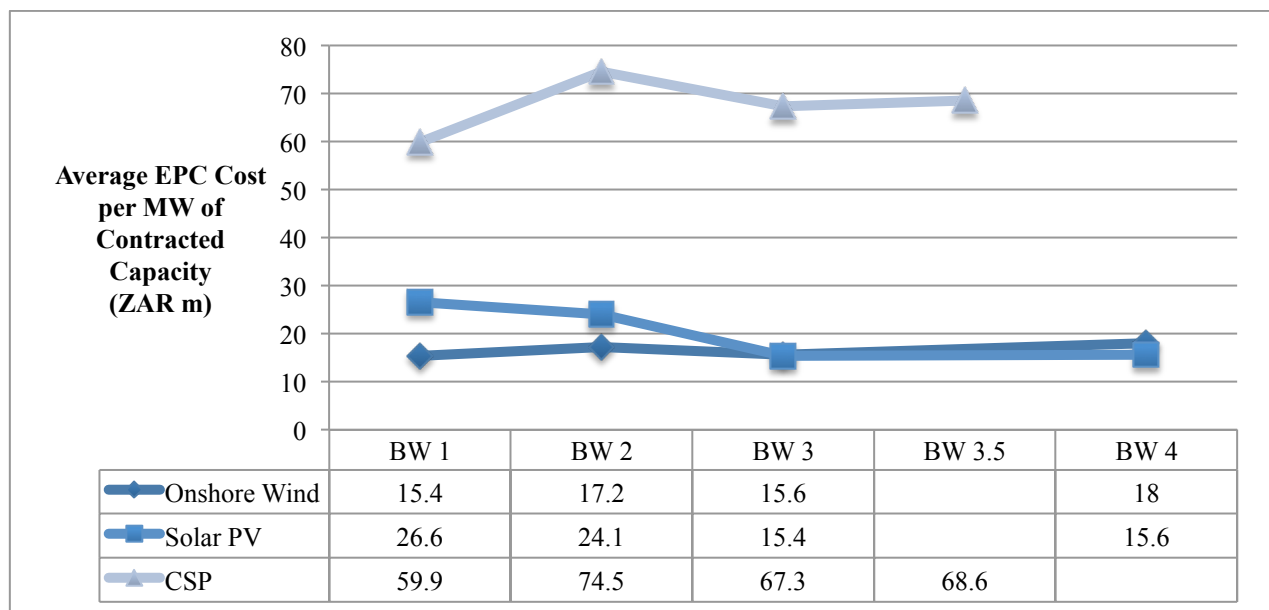
| SOLAR PV (Average cost per MW in R'000)            | BW 1          | BW 2          | BW 3          | BW 4          | Average % of Total Cost |
|----------------------------------------------------|---------------|---------------|---------------|---------------|-------------------------|
| EPC Costs                                          | 26,562        | 24,140        | 15,394        | 15,662        | 74%                     |
| Interest during Construction                       | 2,233         | 1,742         | 317           | 1,302         | 5%                      |
| Development Costs*                                 | 2,370         | 2,322         | 903           | 323           | 5%                      |
| Success fees paid to Sponsors/ Developers*         | 1,607         | 1,163         | 466           | 423           | 3%                      |
| Debt Service Reserve Account*                      | 1,750         | 1,632         | 537           | 80            | 4%                      |
| Contingencies*                                     | 731           | 600           | 100           | 300           | 2%                      |
| Other borrowing costs (arranging & facility fees)* | 744           | 690           | 127           | 529           | 2%                      |
| VAT Working Capital                                | 367           | -143          | 484           | 669           | 1%                      |
| DOE Development Fee*                               | 359           | 334           | 187           | 296           | 1%                      |
| Working Capital                                    | 256           | 180           | -1            | 339           | 1%                      |
| Other Costs                                        | 24            | 298           | 0             | 571           | 1%                      |
| Other construction costs                           | 38            | 67            | 52            | 180           | 0%                      |
| Professional Fees*                                 | 136           | 2             | 159           | 162           | 1%                      |
| Maintenance Reserve Account*                       | 409           | 53            | -             | 4             | 0%                      |
| <b>Total</b>                                       | <b>37,585</b> | <b>33,181</b> | <b>18,724</b> | <b>20,749</b> | <b>100%</b>             |

Source: DoE IPP Office, 2017. Prices as reported as at bid submission.

<sup>55</sup> BW 4 projects have not yet reached financial close, so these figures can still change and need to be treated as such.

As the above tables show, EPC costs account for three-quarters of the upfront capital/ investment cost, on average. They comprise the supply and installation of mechanical, civil and electrical equipment for the plant and, because they form such a large percentage of capital cost, EPC cost management is vital to submitting a competitively priced bid. However the price of plant equipment is primarily driven by market conditions (global and local), market dynamics and the life stage of the technology rather than the design of the procurement process (Sager, 2014). The local tax laws also affect this cost category, particularly in terms of VAT and import duties on imported equipment. In general a more enabling environment for RE investment will assist to reduce EPC costs, such as tax incentives or at least clear tax treatment, as well as local infrastructure upgrades.

To a lesser extent, EPC costs may be affected by the stringency of tender requirements themselves, which is a design consideration. For example, in the Uganda GET FiT Solar PV tender bidders were prohibited from using trackers. Trackers add significant cost and maintenance, but may increase the plant capacity factor to the extent that the increased energy output ultimately reduces the required bid tariff. In the SA REIPPPP, strict local content requirements were believed to raise EPC costs. All such trade-offs must be carefully considered when designing the RE procurement programme.



**Figure 12: Average EPC cost per MW of the three primary RE technologies under the REIPPPP**

Source: Authors' calculations from DOE Project IPP data

Debt-associated costs are the second largest investment cost category, with capitalised interest during construction, other borrowing costs (facility and arranging fees) and the debt service reserve account (DSRA) together constituting 9 - 11% of the upfront project cost. Both the arranging fee and DSRA are considered transaction costs, and will be discussed in Section 2 below.

All other major cost categories marked with a star in Table 21 and Table 22, including development costs, success fees, contingencies and professional fees, are considered transaction costs and will be analysed under Section 2 of this Part C. While these costs have a lesser impact on the LCOE than factors such as the cost of equipment and the WACC, the latter which will be discussed below, to be competitive bidders need to shave all cost items and margins to the minimum. Because transaction costs are largely driven by tender design and requirements, they will form the focus of our analysis.

## **1.2. Cost of Capital (Discount Rate)**

The WACC is determined by the availability and cost of equity and debt, as well as the capital structure i.e. the portion of project cost funded by equity and debt, respectively. Both the required return on equity and cost of debt vary between countries and projects. On a country level, policy and regulatory settings should be used to minimise the perceived risks of RE investment, thereby reducing the WACC and LCOE in turn (IRENA, 2015).

According to Sager (2014), the deal structure presents the most variability in the financing cost and therefore provides the greatest opportunity for cost reductions. This was shown by the use of corporate financing by Enel in BW 3, which gave the company a significant cost advantage over project-financed projects due to the lower interest rate associated with balance sheet financing<sup>56</sup>. The WWF compared the impact on WACC and LCOE of a hypothetical project- versus corporate-financed deal in BW 3 and determined that corporate financing would have reduced the WACC by 1.1%, in turn reducing the bid tariff by 7 - 8% (Sager, 2014). These types of deals are expected to increase in popularity. On the other hand, many project-financed projects have increased their gearing from the conventional 70:30 debt:equity ratio to 80:20, in order to access cheaper debt capital and reduce the WACC (Sager, 2014).

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<sup>56</sup> ENEL is apparently considering re-financing some of their corporate finance positions using project finance, although nothing has been concluded yet.

Not only has competition increased between bidders from BW 1 - 4, but also between lenders to win bidders and partner with Tier 1 sponsors, in particular. This is because Tier 1 sponsors have proven themselves to be highly competent and trustworthy in prior rounds, reducing the perceived risk of lending to them and meaning that lenders need to compete for their business through offering more competitive rates. It is estimated that this competition has led to a 100 basis points (bps) drop in interest rates on project financing since BW 1 and as of 2014 the estimated pre-tax nominal cost of debt ranged from JIBAR + 270 - 390 bps i.e. approximately 11.3%. Future reductions are uncertain, as syndicated debt buyers such as asset managers show little appetite below JIBAR + 300 basis points (Sager, 2014).

Discussions with developers have revealed that the required return on equity has reduced significantly over the bid windows, with some global utilities such as Enel able to accept post-tax nominal unleveraged equity returns as low as 8 - 10%. On average it is estimated that the post-tax nominal equity return as at 2014 was 18% (Sager, 2014). In other African countries the WACC could be reduced by permitting foreign equity investment, as was the case in the REIPPPP (up to 60% foreign equity ownership), as these global investors are generally willing to accept lower returns.

### **1.3. Operations & Maintenance Costs**

Annual O&M costs over the project life, both fixed and variable, are significant and typically account for 20 - 25% or more of the LCOE (IRENA, 2015). They include equipment maintenance and refurbishment costs, operating staff, site running costs and insurance, amongst others. A manager at an operational PV plant informed us that security costs for this site account for a sizeable 30- 40% of annual O&M costs, due to initial problems with theft. Most operational REIPPPP sites appear to have strict security measures, which may not be necessary in other countries and could assist to reduce this driver of LCOE.

### **1.4. Capacity factor**

The capacity factor is technology- and site-specific, and beyond the scope of this report.

## Section 2: Tender Design and Reducing Transaction Costs

It is important to distinguish between transaction costs that affect bidder cash flow and cost/expense, respectively. For example, paying for the EIA is a cash outflow that forms part of the bid development cost, and can later be recovered through inclusion in the bid tariff. A contingency, on the other hand, is factored into the proposed bid tariff as a buffer for cost overruns during construction, but does not actually involve any cash outflow for the bidder prior to bid submission. While reducing the cash outflow for bidders prior to submission may assist in increasing competition through minimising irrecoverable losses in the event of bid rejection, shaving all costs that add to the bid tariff reduces the ultimate cost of RE to the host government and consumer. As a result all costs, and not cash-costs only, have been considered.

From a government perspective, transaction costs are those incurred in designing and running the competitive tender. For bidders, however, they relate to the preparation of bids, project development costs, reaching financial close, construction and reaching COD.

In the above tables "development costs" are broadly defined, and a significant amount of the cost pertains to grid connection costs, thus accounting for a large 4 - 5% of the upfront investment cost. Strictly speaking, "bid development costs" - being costs for legal, financial and technical advice, permits and consents, SPV establishment and so forth - are much less than this broader definition, with IPPs generally estimating them at R5 - R15 million for REIPPPP projects.

### *Multiple tender rounds/ bid windows*

Several interviews with REIPPPP and SP-IPPPP participants revealed that, above all else, a series of bid windows is the most effective design feature for reducing transaction costs. This is because IPPs, lenders and professional advisors learn as the process evolves and this acquired expertise translates into better cost management, lower advisory fees and a general comfort in the programme, which reduces the need for "buffers" to be built into the bid tariff.

### *Documentation that is not too onerous and complex*

Legal advice is a big cost driver in bid preparation and minimising the need for it through simple, clear RFP documentation and contracts is key to a successful tender.

### *Suite of Standardised, Non-Negotiable contracts*

All developers highlighted the importance of this to reduce legal advisory fees associated with having to draft and or negotiate contracts.

### *Debt-related Costs*

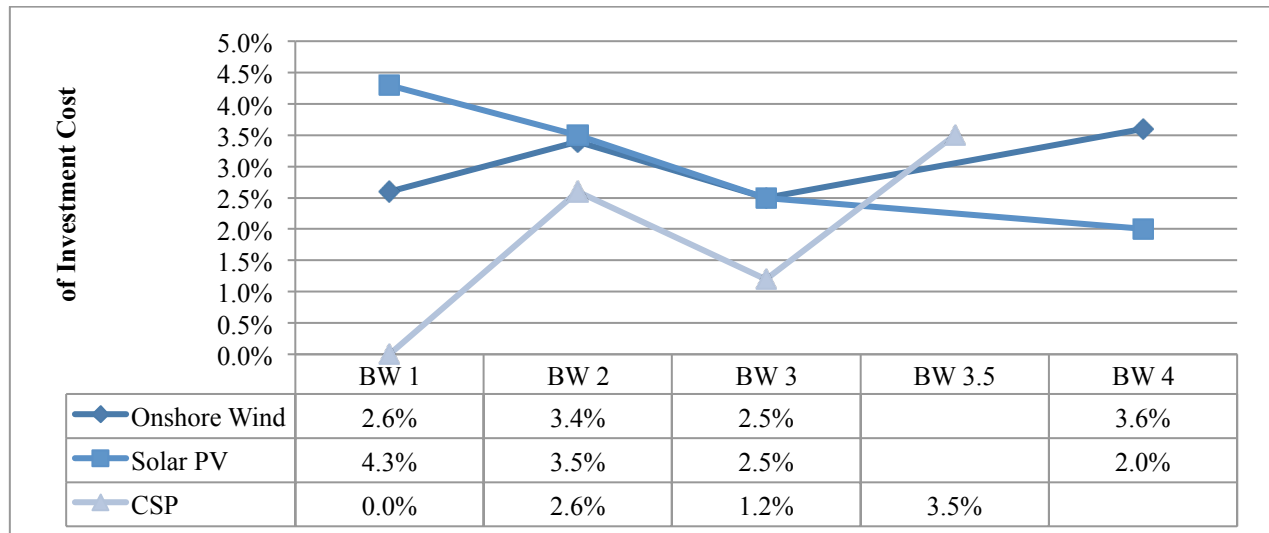
The arranging fee is often charged to developers when there is more than one lender bank or financial institution, and it is typically a percentage of the total funds being arranged.

The DSRA is considered part of the overall project cost even though, like capitalised interest during construction, it is not an upfront cash cost. Instead it is built up from the cash flow available for debt service (CFADS) during the plant's early operational period, typically up to the point that it could fund 6 - 12 months of interest and principal debt repayments (Wärnelid, 2013). Its purpose is to act as a buffer that plugs any CFADS shortfall in servicing the debt, therefore being topped up and released over the project life to ensure it always meets a prescribed target buffer. Finally it empties out together with the final debt repayment (Wärnelid, 2013). As Table 22 above shows, the average DSRA has declined significantly over the bid windows for both technologies, thus indicating that lower DSRAs were shown to be possible as IPPs gained experience and comfort in the programme.

### *Success fees*

Success payments/ fees have been discussed in Part A. While the average success fee for wind projects has increased over the bid windows, the average for solar PV has declined significantly and indicates that this cost can be squeezed when developers face stiff competition. Success fees in respect of awarded projects for biomass, landfill gas and small hydro, respectively, ranged from 4.5% to 10.8% of total project cost. This is significantly higher than the average success payment percentage for the more popular RE technologies and shows that stimulating competition is key to controlling costs and reducing bid tariffs. The DOE attempted to prevent excessive success payments by including the Value for Money qualification criterion, detailed in Part A.

In the SP-IPPPP this was taken a step further, with success fees being limited to 2.5% of the total project cost. We would recommend a similar qualification criterion and or cap in other SSA countries to avoid exorbitant success payments that push up bid tariffs.



**Figure 13: Success fees as % of total upfront cost, BW 1 - 4**

Source: Authors' calculations from DOE Project IPP data

### Contingencies

Contingencies have also shown an important decline from BW 1 to BW 4. Discussions with developers reveal that this is because multiple rounds allow for learning adjustments and comfort in the construction process, allowing lower contingencies to be factored into the bid tariff calculation.

### Bid development costs

As mentioned above, development costs relate to bid development, EIAs, permitting, grid connection etc. They differ from project to project but are largely driven by the rules and regulations of the relevant country and its procurement process (Sager, 2014).

The requirement for IPPs to include Cost Estimate Letters (CELs) in the bid response placed a huge strain on Eskom's resources. As an indication of this, Eskom had cumulatively processed 1,120 CELs by the end of BW 4(a) that ultimately supported only 83 preferred bidder sites at this time - a success rate of 7.4% (Smit, 2015). The high work load and low success rate associated with these CELs prompted Eskom to introduce a Cost Estimate Fee (CEF) to process and issue a CEL, in line with international utility norms, which became effective in October 2013 (Smit, 2015)<sup>57</sup>.

**Table 23: Cost Estimate Fees since their introduction in 2013**

| Customer Supply Size Category   | Cost Estimate Fees 2013/14 | Cost Estimate Fees 2015/16 |
|---------------------------------|----------------------------|----------------------------|
| <b>Large: &gt; 1 MW - 50 MW</b> | R52,000 + VAT              | R54,950 + VAT              |
| <b>Key: &gt; 50 MW</b>          | R78,000 + VAT              | R82,450 + VAT              |

Source: Eskom, 2013; Eskom, 2014. VAT at 14%.

Eskom is then required to provide a CEL within 90 days of receiving the proof of payment of the CEF, together with the above mentioned application form. The CEL is valid for 1 year, therefore typically covering one bid window (Eskom, 2013). Table 19 below provides the CEFs per capacity bracket, which are updated annually and or as required (Eskom, 2014).

The CEL simply provides an indicative cost estimate within a short space of time and is non-binding (Eskom, 2014). Upon being awarded preferred bidder status, IPPs are required to obtain a much more detailed Budget Quote. The associated Budget Quote Fee is not a set amount and depends on project scope, however it is quoted in the CEL and payable upon applying for a Budget Quote.

Considering that the average cost per project across the 92 REIPPPP projects awarded to date is a significant R2,1bn<sup>58</sup>, the CEF and budget quote fee (which should not be confused with the connection costs themselves) seem negligible. Even under the SP-IPPPP the average project cost of the 10 projects awarded thus far is R154.5m, meaning that the CEF is less than 0.1% of total upfront cost and is recoverable by successful bidders through the bid tariff. Despite this many small-scale developers have complained that the cost is too high (Kolver, 2014).

<sup>57</sup> The fee is payable within 10 working days of submitting the Application Form for a Generator Connection to the Eskom Network, and Eskom only commences the cost estimate studies thereafter

<sup>58</sup> This is a simple average across projects of varying capacities.

### *Incorporation of an SPV*

Legal incorporation of an SPV takes time and is costly. In the SA REIPPPP the SPV could be established post-bid submission, provided certain commitments were made by the project company to be established within the bid response. Developers who had also participated in the Uganda GET FiT Solar PV tender cited this as an advantage of the REIPPPP, as in Uganda the SPV was required to be established prior to submission and this meant that all unsuccessful bidders had to absorb an unnecessary cost.

### *Environmental Impact Assessment*

The EIA is one of the largest single cost items of bid preparation, costing R2 - 6m. With that said, a proper EIA is essential and an unavoidable cost. A positive is that bidders only had to comply with the local laws, NEMA, whereas other countries such as Uganda require compliance with the IFC Environmental and Social Performance Standards, which are even more onerous. Where possible, local environmental law should be followed to allow local firms with the necessary knowledge to conduct the EIAs. If the requirements are foreign and too onerous, local firms will first have to master these, which will require additional resources and therefore cost.

### *Land Use Consents*

As discussed in Part B the number of permits and consents required by bid submission was reduced from BW 4. This was a positive move to reduce unnecessary cost burden for unsuccessful bidders. Only essential permits should be required by bid submission i.e. those that could compromise the success of the project.

### *Locked-in Finance by Bid Submission*

This requirement was considered very stringent and adds a significant cost to the bidder, who must pay for an expensive lender due diligence prior to submission<sup>59</sup>. Despite this cost burden we would recommend it to other countries, as it reduces project failures after award.

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<sup>59</sup> The Letters of Support to be provided by funders were “softened” in terms of their commitment requirements from BW4. This included the provisions that lenders could add conditions to the letters, and that they did not need to go to final credit approval pre-bid.

### *Land Options*

Acquiring land or signing a 20-year lease agreement before receiving certainty on the outcome is a costly exercise. The REIPPPP allows land options to be used, which reduces the loss for unsuccessful bidders but still sufficiently locks in the site for those that are successful. A recurrent developer complaint regarding the Uganda GET FiT Solar PV tender was that KfW did not permit land options. We would recommend that they be permitted in other SSA countries.

### *Delays*

Delays in the RE procurement process result in more costs being incurred by bidders. For example, according to the South African Photovoltaic Industry Association (SAPVIA) vice-chairperson, Mike Levington, the delay in announcing the dates of the bid windows for the SP-IPPPP, placed financial strain on companies and particularly on SMMEs, who have less capacity to absorb transaction costs (Kolver, 2014). Another example is that bidders may pay developers a monthly retainer until FC. Where FC is unexpectedly delayed relative to indicated timelines, this cost, amongst others, will be higher than necessary.

The programme champion should ensure that, as much as possible, they comply with prescribed deadlines. Grid connection is a key consideration here. For example, in BW 3 of the REIPPPP the FC was delayed as a result of connection issues stemming from concerns around future grid capacity. FC was initially scheduled for July 2014 but was subsequently staggered until 11 December 2014, which negatively impacted the costs of the affected preferred bidders. Connection issues have become a key risk for the continuity of the South African programme.

How can such delays, and associated higher transaction costs, be avoided? As stated by Chown in 2014, "The procurement process should ensure that Eskom is mandated and incentivised to ensure connections are available and made in time. Eskom must allow bidders to go the self-build or own-build routes as a matter of course, not as a matter of exception to the current rule" (as cited in Pombo-van Zyl, 2014).

Where the country's grid and or grid provider's financial wellbeing are constrained, self build and own build options should be the norm rather than the exception, as was originally the case under the REIPPPP.

*Designing legal contracts that adequately address political risk*

Bhengu (2014) noted that, despite attractive rates of return in Africa, investors remain "preoccupied" with the political risks such as expropriation, currency inconvertibility, tariff changes and lastly regulatory or tax regime changes.

Within the PPA, political risks are dealt with under the Force Majeure clause. It is essential that the PPA appropriately allocates these risks between the off-taker and IPP, because this will also ultimately affect the price that is charged by the IPP. For example, this clause must clarify the extent to which the off-taker remains liable to pay for contracted capacity as opposed to actual power generated, or must compensate the IPP for lost revenue, in circumstances where the IPP is affected by a Force Majeure event (Bhengu, 2012).

This is an important part of tender design, firstly because it can be a make or break consideration for investors, and secondly because political risk insurance is often extremely expensive and so increases the LCOE and bid tariff (Bhengu, 2012). For example, in the Uganda GET FiT Solar PV competitive tender in 2014 all IPPs were offered a partial risk guarantee (PRG) by the World Bank. In broad terms, PRGs may cover political force majeure risks such as expropriation, currency inconvertibility or non-transferability, government contractual payment obligations (for example, in the event of termination payments), regulatory risk and or other uninsurable force majeure risks (World Bank, n.d.).

No bidders made use of this facility, citing the fact that it was far too costly and onerous to take on relative to the size of the projects (5 MWp each). The government signed an IA with each awarded IPP to mitigate off-taker risk, and beyond this the country's relatively stable political and investment climate was deemed acceptable in terms of investor risk appetite. However this will not be the case with many other African countries, and therefore affordable products to mitigate or insure against political risk will be an important consideration.

When the off-taker or government is in a strong bargaining position, political risks are usually mostly assumed by the IPPs under the Force Majeure clause. However where the IPPs have more bargaining power, these risks must be addressed through government guarantees or indemnities against any losses that the IPP may suffer as a result of politically motivated interventions.

In addition, governmental involvement in the programme may also lead to the conclusion of a direct contract between government and the IPP, usually referred to as Implementation Agreements (IAs) in Africa. These IAs appear to be exclusive to Africa.

## Conclusion

Arguments against competitive tenders - that they are too complicated, carry a high associated cost and take too long versus other mechanisms - can mostly be countered by experience. As demonstrated in the South African REIPPPP, competitive tenders are able to deliver a pipeline of projects within a short time, and any resources devoted to designing and running these tenders are easily justified due to the lower electricity tariffs obtained. They also result in more transparency and minimize corruption.

Increasingly, global experience is demonstrating that competitive tenders or auctions are highly successful in procuring renewable energy. From 2011 to 2015, the number of countries with RE competitive tender policies in place increased substantially from 36 to at least 60. This is in contrast to a slowed growth in the adoption of FIT policies, which increased from 70 to only 79 over the same period (REN21, 2015).

Since the implementation of REIPPPP in 2012, South Africa has achieved more investment in IPPs than in the rest of Sub-Saharan Africa over the past two decades. It offers valuable lessons for other developing countries in terms of designing and running competitive tenders for grid-connected RE IPPs. In identifying the lessons that it offers other countries, we have been mindful of the different contexts in various African countries and the need to reduce the high transaction costs currently incurred by bidders.

## Appendices

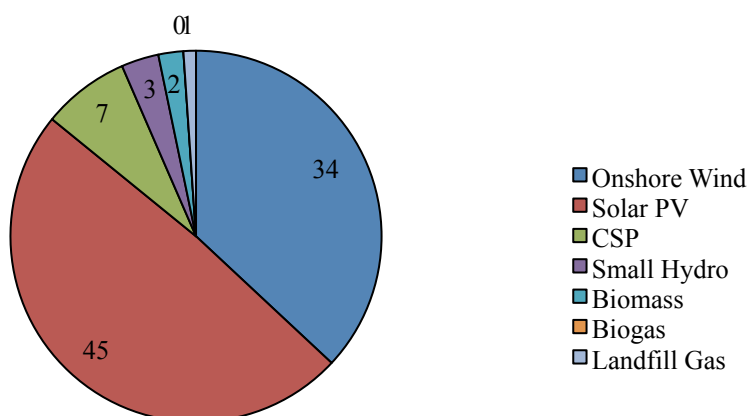
### Appendix 1: Project Outcomes by Geography and Technology

**Table 24: Approved projects by technology and region**

| Technology & Province | No. of Projects procured |           |           |          |           |              |           | Capacity of Projects procured (MW) |              |              |            |              |              |              |
|-----------------------|--------------------------|-----------|-----------|----------|-----------|--------------|-----------|------------------------------------|--------------|--------------|------------|--------------|--------------|--------------|
|                       | Bid Window               |           |           |          |           |              |           | Bid Window                         |              |              |            |              |              |              |
|                       | 1                        | 2         | 3         | 3.5      | 4         | 4 additional | Total     | 1                                  | 2            | 3            | 3.5        | 4            | 4 additional | Total        |
| <b>BM</b>             |                          |           | 1         |          | 1         |              | 2         |                                    |              | 17           |            | 25           |              | 42           |
| KwaZulu-Natal         |                          |           | 1         |          |           |              | 1         |                                    |              | 17           |            |              |              | 17           |
| Mpumalanga            |                          |           |           |          | 1         |              | 1         |                                    |              |              |            | 25           |              | 25           |
| <b>CS</b>             | 2                        | 1         | 2         | 2        |           |              | 7         | 150                                | 50           | 200          | 200        |              |              | 600          |
| Northern Cape         | 2                        | 1         | 2         | 2        |           |              | 7         | 150                                | 50           | 200          | 200        |              |              | 600          |
| <b>LG</b>             |                          |           | 1         |          |           |              | 1         |                                    |              | 18           |            |              |              | 18           |
| Gauteng               |                          |           | 1         |          |           |              | 1         |                                    |              | 18           |            |              |              | 18           |
| <b>OW</b>             | 8                        | 7         | 7         |          | 5         | 7            | 34        | 649                                | 559          | 787          |            | 676          | 686          | 3 357        |
| Eastern Cape          | 5                        | 5         | 2         |          | 3         | 1            | 16        | 481                                | 333          | 197          |            | 397          | 33           | 1 440        |
| Northern Cape         | 1                        |           | 5         |          | 2         | 4            | 12        | 75                                 |              | 590          |            | 280          | 514          | 1 459        |
| Western Cape          | 2                        | 2         |           |          |           | 2            | 6         | 92                                 | 226          |              |            |              | 140          | 458          |
| <b>PV</b>             | 18                       | 9         | 6         |          | 6         | 6            | 45        | 627                                | 417          | 435          |            | 415          | 398          | 2 292        |
| Eastern Cape          |                          | 1         |           |          |           |              | 1         |                                    | 70           |              |            |              |              | 70           |
| Free State            | 1                        | 1         | 1         |          |           |              | 3         | 64                                 | 60           | 75           |            |              |              | 199          |
| Limpopo               | 2                        |           | 1         |          |           |              | 3         | 58                                 |              | 60           |            |              |              | 118          |
| North West            | 1                        |           |           |          |           | 4            | 5         | 7                                  |              |              |            |              | 268          | 275          |
| Northern Cape         | 12                       | 5         | 3         |          | 6         | 2            | 28        | 457                                | 270          | 225          |            | 415          | 130          | 1 497        |
| Western Cape          | 2                        | 2         | 1         |          |           |              | 5         | 41                                 | 18           | 75           |            |              |              | 134          |
| <b>SH</b>             |                          | 2         |           |          | 1         |              | 3         |                                    | 14           |              |            | 5            |              | 19           |
| Free State            |                          | 1         |           |          | 1         |              | 2         |                                    | 4            |              |            | 5            |              | 9            |
| Northern Cape         |                          | 1         |           |          |           |              | 1         |                                    | 10           |              |            |              |              | 10           |
| <b>Grand Total</b>    | <b>28</b>                | <b>19</b> | <b>17</b> | <b>2</b> | <b>13</b> | <b>13</b>    | <b>92</b> | <b>1 425</b>                       | <b>1 040</b> | <b>1 457</b> | <b>200</b> | <b>1 121</b> | <b>1 084</b> | <b>6 328</b> |

Source: Roberts (2015); IPP Office 2017

|



**Figure 14: Total number of projects procured (BW 1 - 4, including CSP only round)**

## Appendix 2: Detailed Economic Development Criteria and Associated Outcomes

### 2.1. Job Creation

This criterion accounts for a significant 25% of the 30 ED points available and comprises 5 sub-elements (namely jobs for citizens, jobs for citizens per MW, jobs for skilled Black individuals, jobs for Black individuals and jobs for the local community).

Points awarded for employment are based on the *percentage* of work done by specific individuals relative to an appropriate denominator (all individuals in that category). In the case of jobs for citizens, jobs for black people and jobs for the local community members, respectively, this percentage is calculated relative to the total number of SA-based employees. The percentage of jobs held by Skilled Black People, however, is calculated relative to the total number of skilled employees only. Table provides the thresholds and targets for each employment category, which remained unchanged from BW 1 to 4.

**Table 25: Sub-elements of the Job Creation criterion**

| Description                                                     | Threshold | Target |
|-----------------------------------------------------------------|-----------|--------|
| RSA Based employees who are citizens                            | 50%       | 80%    |
| RSA Based employees who are Black people                        | 30%       | 50%    |
| Skilled employees who are Black people                          | 18%       | 30%    |
| RSA based employees who are citizens and from local communities | 12%       | 20%    |
| RSA based citizens employees per MW of Contracted capacity      | N/A       | N/A    |

Source: Authors' calculations from DOE Project IPP data

From BW 3 the DOE decided to recognize not only the percentage commitments made by bidders, but also the 'quantum' of these commitments. Bidders must now disclose the *actual number of person-months*<sup>60</sup> per sub-element category of employees, distinguishing between the Construction and Operation phases. While most of these person-month figures are simply used to automatically calculate percentage commitments per employee category, the quantum "total number of jobs for SA-based employees who are citizens (in person-months per MW)" is scored and accounts for two thirds of the total 7.5 points available under this Job Creation criterion. All percentage commitments discussed above account for the remaining third.

From BW 4 bidders are also required to complete a table describing the jobs, number of employees and duration, as well as an undertaking that these details are accurate (Nowak, 2014).

<sup>60</sup> As per the RFP Volume 5, person-months seek to determine the number of jobs created on the basis that employment of 12 months is equal to 1 job.

Following on from Part B Section 3, Table 26 provides a breakdown of Construction versus Operations jobs created for SA citizens. Only 31% of local citizen jobs created will be during Construction while the remainder will be in long term Operations.

**Table 26: Jobs for Local Citizens (where 1 job = 1 person-years)**

| Technology              | BW 1    | BW 2    | BW 3    | BW 3.5 | BW 4    | Total per technology |
|-------------------------|---------|---------|---------|--------|---------|----------------------|
| Onshore Wind            |         |         |         |        |         |                      |
| Local construction jobs | 1 810   | 1 787   | 2 612   | N/A    | 5 146   | 11 355               |
| Local operations jobs   | 2 461   | 2 238   | 8 506   |        | 18 836  | 32 041               |
| Solar PV                |         |         |         |        |         |                      |
| Local construction jobs | 2 381   | 2 270   | 2 119   | N/A    | 6 585   | 13 355               |
| Local operations jobs   | 6 117   | 3 809   | 7 513   |        | 16 352  | 33 791               |
| CSP                     |         |         |         |        |         |                      |
| Local construction jobs | 1 883   | 1 164   | 3 082   | 2 271  | No bids | 8 400                |
| Local operations jobs   | 1 382   | 1 180   | 1 730   | 2 920  |         | 7 212                |
| Biomass                 |         |         |         |        |         |                      |
| Local construction jobs | No bids | No bids | 96      | N/A    | 149     | 245                  |
| Local operations jobs   |         |         | 240     |        | 1 947   | 2 187                |
| Biogas                  |         |         |         |        |         |                      |
| Local construction jobs | No bids | No bids | No bids | N/A    | No bids | No bids              |
| Local operations jobs   |         |         |         |        |         |                      |
| Landfill Gas            |         |         |         |        |         |                      |
| Local construction jobs | No bids | No bids | 6       | N/A    | No bids | 6                    |
| Local operations jobs   |         |         | 240     |        |         | 240                  |
| Small Hydro             |         |         |         |        |         |                      |
| Local construction jobs | No bids | 409     | No bids | N/A    | 30      | 439                  |
| Local operations jobs   |         | 143     |         |        | 30      | 173                  |
| Total construction jobs | 6 074   | 5 630   | 7 915   | 2 271  | 11 910  | 33 800               |
| Total operations jobs   | 9 960   | 7 370   | 18 229  | 2 920  | 37 165  | 75 644               |
| Total jobs              | 16 034  | 13 000  | 26 144  | 5 191  | 49 075  | 109 444              |
| Jobs per MW awarded     | 11.2    | 12.5    | 17.9    | 26.0   | 22.3    | 17.3                 |

Source: Authors' calculations from DOE IPP unit data

It is notable that there have been no adjustments to the thresholds and targets over the REIPPPP rounds, as unemployment (at approximately 25%) is an important economic challenge in South Africa. Also, while disclosures are made separately for the Construction and Operation stages, bids are not assessed separately on the jobs created per stage. This distinction would serve as a key indicator of how sustained the employment is, given that Construction is approximately 2 years whereas the Operation cycle is 20 years.

The introduction of the ‘Jobs for citizens per MW’ is ambiguous in that it was introduced as a requirement but the DOE does not feature any clear threshold or target to indicate what the expectations are. Despite this it is the most heavily weighted sub-element (at two thirds of this criterion’s total points).

## 2.2. Local Content

Local content requirements account for 25% of the total ED score, with the objective of creating jobs through increased local manufacturing. This criterion, assessed by the value of local content expenditure in relation to all expenditure for the construction of the project, has undergone several changes as the bid windows progressed.

Initially (BW 1) “local content” was defined as total costs that could be attributed to each project *at COD (i.e. capital costs and those services procured for the construction of the plant)*, excluding finance charges, land, and mobilization fees of the Operations Contractor (DOE, 2011). This definition was refined in BW 2 to include only those costs up to COD that are spent on South Africans and South African products, and that explicitly excluded imported goods and services. The main changes in the local content definition and associated disclosures are summarised in Table 27 below.

In BW 2 an additional disclosure requirement was introduced whereby bidders had to provide a breakdown of the components and activities intended to achieve the project’s local content commitments. The DOE also identified certain key components that they considered to be ‘priority components’, such as wind turbine blades and towers, PV modules and inverters, that would attract more points in future rounds to encourage manufacturing capacity building in South Africa.

From BW 3 the definition of local content excluded the IPP's costs in relation to distribution and transmission connections (whether payable to the Grid Provider or to a Contractor of the IPP), while all raw or unworked steel and aluminium used in the local manufacture of components was deemed to be locally sourced when calculating local content. The latter change indicated the government's desire to encourage local component manufacturers to reduce costs by seeking the lowest prices globally for primary steel and aluminium (Eberhard et al, 2014).

As of BW 3, submissions were also required to distinguish between costs related to balance of plant and key components. These 'key components' included those priority components defined by the DOE in BW 2, as well as 18 additional components for targeted technologies.

**Table 27: Key Differences in permitted "Local Content"**

| BW | Changes per BW                                                                                                                                                                                                                                                                                                                                      | Exclusions from Definition                                                                               |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 1  | N/A                                                                                                                                                                                                                                                                                                                                                 | Finance charges, Land, Mobilisation fees of Operator.                                                    |
| 2  | Total costs up to COD, limited to spending on South Africans and South African products. More disclosures, such as details of components and activities to achieve local content commitment, were required. Certain components were identified as priorities but no point adjustment was given for these during this round.                         | Same as BW 1 with additional exclusions of imported goods and services.                                  |
| 3  | All raw/ unworked steel and aluminium used in local manufacture of components, regardless of source, deemed local. More detailed disclosures than BW 2 such as types of goods and services that form local content as well as suppliers and providers of these. Bidders also had to disclose costs between 'key components' and 'balance of plant'. | Same as BW 2, with transmission and distribution connections costs of the private company also excluded. |
| 4  | No major changes.                                                                                                                                                                                                                                                                                                                                   | Same as BW 3.                                                                                            |

*Source: Authors' calculations from DOE Project IPP data*

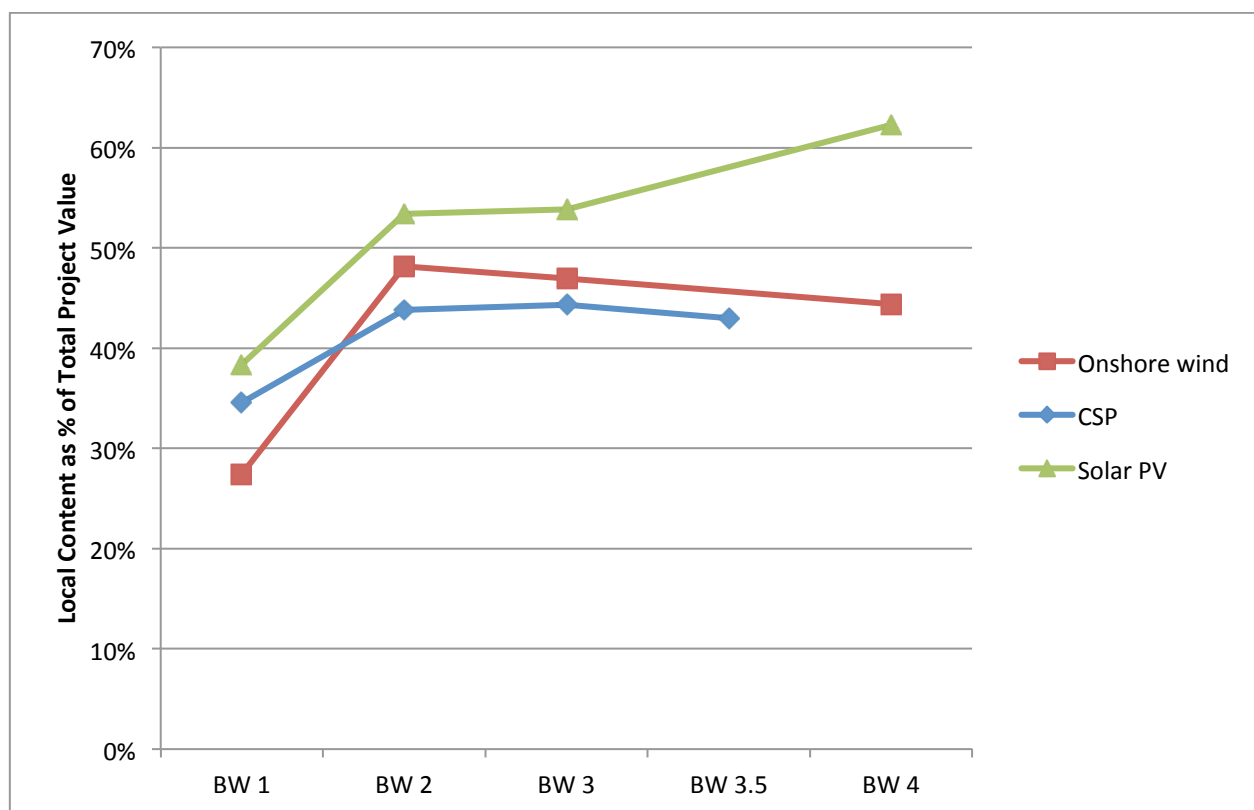
Table 28 provides the local content thresholds and targets per technology for BWs 1 to 4. Only the prescribed targets were increased (for all technologies) from BW 1 to 2, while both targets and thresholds were increased in BW 3. In BW 4 all remained unchanged.

**Table 28: Local Content Thresholds and Targets per technology and bid window**

| Technology   | BW 1      |        | BW 2      |        | BW 3      |        | BW 4      |        |
|--------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
|              | Threshold | Target | Threshold | Target | Threshold | Target | Threshold | Target |
| Onshore wind | 25%       | 45%    | 25%       | 60%    | 40%       | 65%    | 40%       | 65%    |
| Solar PV     | 35%       | 50%    | 35%       | 60%    | 45%       | 65%    | 45%       | 65%    |
| CSP          | 35%       | 50%    | 35%       | 60%    | 45%       | 65%    | 40%       | 65%    |
| Biomass      | 25%       | 45%    | 25%       | 60%    | 40%       | 65%    | 40%       | 65%    |
| Biogas       | 25%       | 45%    | 25%       | 60%    | 40%       | 65%    | 40%       | 65%    |
| Landfill Gas | 25%       | 45%    | 25%       | 60%    | 40%       | 65%    | 40%       | 65%    |
| Small Hydro  | 25%       | 45%    | 25%       | 60%    | 40%       | 65%    | 40%       | 65%    |

Source: Authors' calculations from DOE Project IPP data

Figure 15 illustrates the evolution of the average local content commitment for the primary contracted technologies from BW 1 to 4.



**Figure 15: Average Local Content Bid Commitments for Wind, Solar PV and CSP**

Source: Authors' calculations from DOE Project IPP data

The following aggregate outcomes have been achieved for local content:

**BW 1:** Local content commitment was generally much closer to minimum prescribed levels than ambitious targets. Onshore wind preferred bidders achieved an average of 27.4% local content, therefore only 2.4% above the threshold and well short of the 45% target. Similarly solar PV projects achieved 38.4%, only 3.4% above the minimum and far below the even higher target of 50%.

**BW 2:** Target levels were adjusted upward by 10% or 15% depending on the technology, while thresholds remained unchanged from BW 1. For all technologies bid (wind, solar PV, CSP and small hydro), the average local content commitment increased significantly. Onshore wind (48.1%) and solar PV (53.4%) averages were closer to the target levels (60% for each) than their thresholds (25% and 35%, respectively). For small hydro, there was only one bid and the commitment of 76.3% was even in excess of the 60% target level.

**BW 3:** There were 10% - 15% increases in the thresholds and a 5% increase in the target levels for all technologies. Associated changes in the average outcomes for wind, solar PV and CSP versus BW 2 were negligible. Landfill gas and biomass technologies were each awarded a project for BW 3, both for the first time in the REIPPPP, with a local content commitment of 41.9% and 40% respectively.

**BW 4:** The thresholds and targets were not adjusted from BW 3. Awarded bids included wind, solar PV, biomass (one project) and small hydro (one project). There was a notable difference between local content achievement in wind and solar PV bids, with the former average commitment only 4.6% above the threshold at 44.6% versus solar PV's average commitment of 64.7% nearly meeting the ambitious 65% target<sup>61</sup>. The Solar PV average showed the most significant increases over the course of the REIPPPP.

### 2.3. Ownership

The REIPPPP aims to direct development to previously marginalised and disadvantaged groups, and communities. Ownership is intended to provide a flow of economic benefits as well as provide

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<sup>61</sup> These figures are only for the 13 preferred bidders. Including the additional 13 preferred bidders, OW is at 44,4% and PV is at 62,3%.

identified parties with voting rights in some cases, which allows them to directly influence project activities.

There are 4 sub-elements within this criterion, altogether contributing 15% of the 30 ED points available. These are Black ownership in the Project Company, Operator and Construction Contractor, respectively, as well as Local Community ownership (Table 29). The thresholds and targets per category remained unchanged from BW 1 to 4.

***Table 29: Sub-elements of the Ownership criterion***

| Description                                                 | Threshold | Target |
|-------------------------------------------------------------|-----------|--------|
| Shareholding by Black People in the Seller                  | 12%       | 30%    |
| Shareholding by Local Communities in the Seller             | 2.5%      | 5%     |
| Shareholding by Black people in the Construction Contractor | 8%        | 20%    |
| Shareholding by Black people in the Operations Contractor   | 8%        | 20%    |

*Source: Authors' calculations from DOE Project IPP data*

Prior to BW 3, bidders were required to disclose only the percentage of project equity held by Local Communities and Black people. However from BW 3 the RFP required a much more detailed disclosure where ultimate ownership was clearly identified based on a Flow-Through principle. It also included identifying (by name) the intermediaries through which final ownership flowed to the priority groups, and the percentages owned by all parties involved (Van der Poel, 2013).

#### *Black Ownership in the Project Company*

The DOE differs from the Department of Trade and Industry (DTI) in recognising Black Ownership in two ways: neither the modified flow through principle nor exclusion principle, as defined in the BBEEE Codes of Good Practice, may be used (CSP World, 2013). The former allows for the participation of non-BEE funders (facilitators) at one tier of ownership, while the latter means that an entity with government ownership will not be rewarded or penalised for this i.e. the state ownership will be excluded from the measurement (DTI, 2005). According to Talt (as cited in CSP World, 2013), the DOE prohibited these conventional methods of enhancing black ownership so as to incentivise sellers to work closely with new BEE investors, particularly broad based investors that have a significant amount of local community ownership.

### *Local Community Ownership in the Project Company*

The RFP defines the Local Community as the nearest residential areas or villages to the Project Site within 50km and, where there are none, then the nearest residential areas or villages. Community ownership is required to take place through a legal entity, typically a trust. Initially it was acceptable that this ownership represented an economic interest only. In BW 4 this was adapted to require that any Local Community ownership that exceeded 5% of the Project Company should result in both an economic interest *and* exercisable voting rights. For those below 5%, an economic interest only was still permitted.

Throughout the bid rounds the RFP prescribed that Local Community ownership must be measured based on principles in the DTI's BBBEE Codes of Good Practice, with the exception of the requirement that at least 85% of the value of the benefits from the vehicle had to accrue to Black People. This was so that all communities could benefit, provided they met the definition of 'local'. As of BW 4 it was added that, where bidders wished Local Communities shareholdings also to qualify as shareholdings by Black People, then at least 85% of the benefits from the Local Community vehicle had to accrue to Black People.

From BW 3, in cases where a Local Community trust had not yet been formed at bid submission, the Lead Member or Project Company had to include in the bid response a written confirmation that the entity would be established and registered as indicated, and would be bound by the bid response as if it had existed at submission. In addition, the bidder was required to submit the draft Constitutional Documents relating to the structure through which participation would take effect. In BW 4 this was altered to require that, if no community investment vehicle existed at submission, then details of the identified Local Community, the corresponding ownership commitment and disclosure of the intended participation structure were required.

Table 30 below provides *an indication of* the average local community ownership per technology and bid window. It includes only those projects where bid responses have clearly disclosed this shareholding as the 'Community' or a 'Community/ Development trust', which accounts for 53 of the 92 awarded projects. This sample indicates the strong commitment to community ownership, with the primary technologies incorporating local ownership holdings that mostly exceed even the targeted 5%.

**Table 30: Average Local Community Ownership versus Thresholds and Targets**

| Technology   | Threshold | Target | Average Local Community Trust Ownership %* |      |       |        |       |
|--------------|-----------|--------|--------------------------------------------|------|-------|--------|-------|
|              |           |        | BW 1                                       | BW 2 | BW 3  | BW 3.5 | BW 4  |
| Onshore wind | 2.5%      | 5.0%   | 10.6%                                      | 5.0% | 12.9% |        | 10.6% |
| Solar PV     | 2.5%      | 5.0%   | 9.1%                                       | 6.1% | 13.7% |        | 15.6% |
| CSP          | 2.5%      | 5.0%   | 20%                                        | 5.0% | 17.5% | 7.5%   |       |
| Biomass      | 2.5%      | 5.0%   |                                            |      | 2.5%  |        | 5.0%  |
| Biogas       | 2.5%      | 5.0%   |                                            |      |       |        |       |
| Landfill Gas | 2.5%      | 5.0%   |                                            |      | 2.5%  |        |       |
| Small Hydro  | 2.5%      | 5.0%   |                                            | 8.8% |       |        | 2.5%  |

\*Cells are blank where no bids were awarded in a specific technology category in that round.

## 2.4. Management Control

This requirement accounts for 5% of the ED score and focuses on Black representation in the project's top management. If we consider prior ED criteria, Ownership is benefits-based while Job Creation is income- and skills-based. Management capacity building blends both since managers are employees in their current capacity, but with experience may become energy developers and project owners in the future. The intention of the DOE seems to be the provision of direct influence to Black individuals in shaping how the energy market evolves.

This criterion is measured as the total person-months of Black individuals as a percentage of the total top management person-months, automatically generated in the ED Scorecard (after a programmed gender adjustment) based on bidder inputs to the ED Information Sheet. As mentioned earlier there is no minimum threshold but a target of 40% against which Compliant Bids are relatively evaluated. In addition bidders must provide organizational charts indicating the names, race (i.e. whether they are Black), gender and position/ levels of persons within the entity.

## 2.5. Preferential Procurement

This section accounts for 10% of the ED criteria. It seeks to direct project procurement expenditure towards the priority groups of Black people, women and small and emerging enterprises. Bidders are required, for the construction measurement and operation measurement periods, to provide indications of their Total, BBBEE, Qualified Small Enterprises (QSEs) and Exempt Micro Enterprises (EMEs) and Women-owned Vendors Procurement Spend, respectively. The ED Scorecard then derives the percentage spend per preferential group relative to total procurement spend.

The highest target has been set for BBBEE procurement spend (Table 31). Targets are consistent across technologies and have remained unchanged over the concluded bid windows. There are no thresholds, again making these commitments voluntary. This allows bidders to remain price competitive if such procurement would largely shift their costs. There are several avenues for contracting with smaller enterprises during the Construction and Operations phases, through electrical, civil, logistical and maintenance services.

**Table 31: Preferential Procurement Sub-Element Targets**

| Description                      | Threshold | Target |
|----------------------------------|-----------|--------|
| BBBEE Procurement**              | -         | 60%    |
| QSE & SME Procurement**          | -         | 10%    |
| Women Owned Vendor Procurement** | -         | 5%     |

*Source: Authors' calculations from DOE Project IPP data*

Prior to BW 3, bidders had to submit high level plans of their preferential procurement. However the RFP in BW 3 provided a list of minimum requirements for these plans, which included requirements on the ownership of female Black individuals, as well as the type and contributor status of the subcontractors (Van der Poel, 2013). The BW 4 RFP added the requirement of disclosure of a table of commitments and did not recognise SPVs formed by the project companies, their associates or Contractors (Operation or Construction) as SMEs or QSEs, hence making procurement from these inadmissible for points related to preferential procurement (Van der Poel, 2013).

## 2.6. Enterprise Development

This requirement focuses on directing funds for the development of enterprises (entrepreneurial capacity and business expertise), particularly those in the local communities, and accounts for 5% of the ED assessment. Bidders are required to identify enterprises that will receive the contributions as well as disclose whether they are EMEs or QSEs, the extent of ownership by Black Women and the ownership by Black individuals (i.e. Local Enterprise categories).

For this purpose, bidders must indicate their total enterprise development contributions, contributions per above-mentioned categories and their expected revenue during the operating measurement period. From this The ED Scorecard derives the total enterprise development

contributions during the operating period as a percentage of revenue, as well as an adjusted percentage accounting for Local Enterprises. There are no minimum requirements for the percentage commitment or adjusted commitment, respectively, making this another voluntary developmental area. The conservative target of 0.6% for each sub-element has remained unchanged throughout the rounds and is the same across all technologies.

In practice, however, other factors are important for the success of small enterprises besides funding, and lack of experience may hinder development. Training and advisory contribution from projects may contribute to building local business capacity. Table 32 provides a summary of the commitment to enterprise development spend for each technology over the course of the REIPPPP.

**Table 32: Enterprise Development Commitments per technology (ZAR m)**

| Enterprise Development Contributions (ZAR m) | BW 1       | BW 2       | BW 3         | BW 3.5    | BW 4         | Total        |
|----------------------------------------------|------------|------------|--------------|-----------|--------------|--------------|
| Onshore Wind                                 | 216        | 319        | 715          | -         | 2 593        | 3 841        |
| Solar PV                                     | 516        | 373        | 295          | -         | 694          | 1 878        |
| Solar CSP                                    | 27         | 118        | 2            | 25        | -            | 171          |
| Biomass                                      | -          | -          | -            | -         | 78           | 78           |
| Biogas                                       | -          | -          | -            | -         | -            | -            |
| Landfill Gas                                 | -          | -          | -            | -         | -            | -            |
| Small Hydro                                  | -          | 15         | -            | -         | -            | 15           |
| <b>Total</b>                                 | <b>758</b> | <b>825</b> | <b>1 012</b> | <b>25</b> | <b>3 365</b> | <b>5 984</b> |

*Source: Authors' calculations from DOE IPP Project data*

## 2.7. Socio-Economic Development

This section accounts for 15% of the ED assessment and aims to direct funding towards projects that have a positive socio-economic impact. There is particular emphasis on achieving this in the communities where they are located, defined as the “Recognition for Localness” when evaluating this criterion. Bidders are required to identify the needs of the surrounding communities and strategize how these needs could be met using their Socio-Economic Contributions. These needs and strategy must be submitted on a high-level basis. Table 33 shows the evolution of the commitment for each technology over the four rounds.

Bidders are required to develop plans very early, which may be premature and limits sufficient time for due diligence. A possible improvement in future is that these plans should only be required at financial close. In practice, many of the plans are very basic while some show more

depth and consider local priorities as well as investment plans for funding infrastructure services, electrification, energy efficiency and skills development (WWF, 2015).

**Table 33: Socio-economic Development Commitments per technology (ZAR m)**

| Socio-economic Development Contributions<br>(ZAR m) | BW 1         | BW 2         | BW 3         | BW 3.5     | BW 4         | Total         |
|-----------------------------------------------------|--------------|--------------|--------------|------------|--------------|---------------|
| Onshore Wind                                        | 795          | 904          | 2 466        | -          | 7 029        | 11 194        |
| Solar PV                                            | 1 278        | 797          | 908          | -          | 2 043        | 5 026         |
| Solar CSP                                           | 266          | 327          | 911          | 996        | -            | 2 501         |
| Biomass                                             | -            | -            | 78           | -          | 196          | 274           |
| Biogas                                              | -            | -            | -            | -          | -            | -             |
| Landfill Gas                                        | -            | -            | 40           | -          | -            | 40            |
| Small Hydro                                         | -            | 49           | -            | -          | 12           | 61            |
| <b>Total</b>                                        | <b>2 340</b> | <b>2 077</b> | <b>4 404</b> | <b>996</b> | <b>9 279</b> | <b>19 096</b> |

*Source: Authors' calculations from DOE IPP Project data*

## Appendix 3: Geographical spread of and additional details on SP-IPPPP awarded projects

**Table 34: Awarded SP-IPPPP projects per Province**

| PROVINCE             | Total Contracted Capacity (and No. of Bids) | Total Project Cost* (ZAR m) | Total Project Value** (ZAR m) | Local Content Value (ZAR m) |
|----------------------|---------------------------------------------|-----------------------------|-------------------------------|-----------------------------|
| <b>Free State</b>    | 15 MW (3 bids)                              | R 333                       | R 333                         | R 168                       |
| <b>Mpumalanga</b>    | 5 MW (1 bid)                                | R 281                       | R 207                         | R 114                       |
| <b>Northern Cape</b> | 15 MW (3 bids)                              | R 345                       | R 284                         | R 186                       |
| <b>Western Cape</b>  | 14 MW (3 bids)                              | R 586                       | R 461                         | R 266                       |
| <b>TOTAL</b>         | <b>49 MW (10 bids)</b>                      | <b>R 1 545</b>              | <b>R 1 285</b>                | <b>R 734</b>                |

Source: DOE, 2015

\* Total Project Cost - aggregate Debt and Equity required to fund the Project

\*\* Total Project Value - defined in the IA, used to calculate Bidders' Local Content commitments

## Appendix 4: PPA Key Clauses

### 1. Capacity to remain as installed at COD

The seller may not make any additions to or expand the facility to increase the installed capacity beyond that which is installed at COD.

### 2. Deadline for seller to commence and continue construction

The seller must “commence and continue construction” of the facility within 180 days<sup>62</sup> of effective (signature) date. If the seller fails to do so, the buyer is entitled to terminate the PPA.

Where there is a dispute between the seller and buyer regarding whether the seller has in fact commenced and continued construction, the Independent Engineer will have final and binding judgment.

“Commence and continue construction” means:

- The seller has authorized a contractor to commence works under a binding written contract directly related to the construction of the facility, and
- Such contractor has begun significant ground works, such as excavations for laying foundations or cables (or other action that would involve significant cost and effort from the contractor), or
- The seller has procured plant items that equate to material expenditure in relation to construction of the facility, and proof has been provided to the buyer and, in all above cases,
- That construction works are on-going and have not been suspended or abandoned.

### 3. Connecting to the grid

When signing the PPA, the seller warrants that it has entered into a Distribution or Transmission Agreement with the Distributor or NTC, respectively, on or before signature date.

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<sup>62</sup>Not 180 business days.

The seller must give the buyer  $\geq 60$  days' advance written notice of the date on which it anticipates it will require a unit or units (if the facility is being commissioned in phases) or the facility to be connected to the system.

As per the Distribution/ Transmission Agreement the distributor/ NTC will construct the Distribution/ Transmission Connection Works, while the seller will construct the Facility Connection Works to connect the unit(s) or facility to the system.

#### **4. Appointment of Independent Engineer**

Within Schedule 5 to the PPA, the parties (seller and buyer) must identify  $\leq 5$  firms of independent consulting engineers, all of which would qualify to be the Independent Engineer that is required to be appointed under the PPA.

In order to qualify, the seller must warrant that:

- Each firm listed has  $\geq 7$  years of professional experience as an engineer in the RE industry and
- Has not rendered any services to the seller, its shareholders (direct/ indirect), contractors, lenders or any affiliate of the project as at the effective date.

Within 20 business days of the effective date, the seller must engage with any (or all) of these firms with a view to appointing one as the Independent Engineer.

The Independent Engineer will be appointed at the sole cost of the seller, but will act on behalf of and owe a duty to both the seller and buyer equally.

It is important that the Independent Engineer remains independent. If, after the effective date, it renders services to the seller or its above-mentioned affiliates, the seller must promptly notify the buyer and the buyer may elect for the seller to terminate the contract with the Independent Engineer. In this case, a new Independent Engineer must be appointed from the Schedule 5 list or as agreed between the buyer and seller.

Schedule 10 to the PPA sets out the terms required for the Independent Engineer Agreement.

#### **5. Facility completion and commissioning**

The seller must use all reasonable endeavours to achieve COD by the scheduled COD.

If it becomes aware that COD will not be achieved by the scheduled COD, it should promptly notify the buyer in writing of this and the measures it will take to mitigate delay, as well as the impact of these measures.

The seller must use all reasonable endeavours to commission the facility and procure the Facility Completion Form by the Independent Engineer (at its own cost) to ensure that the COD falls on or before the scheduled COD.

It must provide the buyer with all relevant information on the associated commissioning and testing on a weekly basis.

The seller must procure the Facility Completion Form in order to achieve COD.

It may still procure the Facility Completion Form where the resulting Achieved Capacity is expected to be less than the Contracted Capacity.

Early Operating Period:

- The seller should issue the Notice of Commencement of Unit to the buyer in respect of each unit (if applicable) at least 10 business days before the seller anticipates that the relevant unit(s) will begin generation and early delivery of early operating energy to the delivery point. The first Notice of Commencement of Unit may not be issued more than 180 days before the scheduled COD.
- Until 00:00 on the Unit Commencement Date, the buyer is not obliged to purchase any early operating energy generated by that unit.

Commercial Operation Date:

- The seller must give the buyer  $\geq 60$  days advance written notice of its *intention* to issue the Notice of Commencement of Facility.
- The seller may not issue the Notice of Commencement of Facility  $> 1$  day before the scheduled COD.
- Once the Independent Engineer has ascertained the facility completion and the seller has received the relevant Facility Completion Form, it must issue the Notice of Commencement of Facility to the buyer within 2 business days of the delivery of this form.

#### Achieved Capacity vs. Contracted Capacity:

If the facility has achieved facility completion and the achieved capacity is  $\geq$  contracted capacity, then for the purposes of the PPA:

- The facility's power output is limited to the contracted capacity, and
- The seller must deliver the buyer a Notice of Commencement of Facility. COD will begin at 00:00 following the day upon which the buyer receives this Notice.

Where the facility has achieved completion and the achieved capacity is  $\leq$  contracted capacity but  $\geq$  the minimum acceptance capacity (where the minimum acceptance capacity is 50% of the contracted capacity) then the seller may:

- Elect not to effect any repairs or replacements and simply issue a Notice of Commencement of Facility
- If necessary, at its own expense, effect repairs or replacements to the facility necessary to achieve its contracted capacity, upon which the Facility Completion shall be re-assessed by the Independent Engineer and
- If it is now  $\geq$  contracted capacity, then the above clause will apply, or
- If, as re-assessed, it remains  $\leq$  contracted capacity but  $\geq$  the minimum acceptance capacity, then the seller may deliver the buyer a Notice of Commencement of Facility,
- Provided that, in the case of replacements, they must be completed and the Facility Completion Form must be completed and submitted to the buyer by the last COD.

If the facility has achieved completion and the achieved capacity is  $\leq$  the minimum acceptance capacity, then the seller must:

- At its own expense, effect the repairs/ replacements necessary for it to achieve an achieved capacity  $\geq$  the minimum acceptance capacity, provided that such repairs have been completed, the Facility Completion Form has been re-assessed and duly completed to demonstrate an achieved capacity  $\geq$  the minimum acceptance capacity by last COD.

For every day that the COD is delayed beyond the scheduled COD (unless caused by a system/ compensation event), the Operating Period will be reduced by an additional day and the expiry date will be brought forward by 1 day.

The seller is entitled to declare COD for the facility at any time up to 17:00 on the last COD, in respect of that achieved capacity for which the Independent Engineer has completed the

Facility Completion Form by no later than 17:00 on the last COD. If the seller does this and the achieved capacity is  $\geq$  minimum acceptance capacity, the buyer is not entitled to call a seller default.

If the buyer does not achieve COD by the last COD (being exactly 18 months after scheduled COD), the buyer is entitled to terminate the PPA.

Where the achieved capacity at COD is  $\leq$  than contracted capacity, then from this COD the contracted capacity will be reduced to the achieved capacity and the power output will be limited to the latter for the purposes of the PPA. The seller may not subsequently increase the achieved capacity beyond that installed at COD.

## **6. Generation forecasts**

The seller must provide the buyer and system operator, in writing for each week in the early operating period and operating period, by no later than 09:00 on the preceding Wednesday, its estimate of the forecast level of energy expected to be generated by the facility for each day in the week.

If the seller fails to do so, the buyer is entitled to do or procure that another person provides it with this forecast, and can recover the costs of this forecast from the seller.

The seller must provide the buyer and system operator, in writing, for each day in the early operating and operating period, by no later than 10:00 on the preceding day, its estimate of the level of energy expected to be generated each hour of the next day.

If the seller fails to do so, the buyer is entitled to do or procure that another person provides it with this forecast, and can recover the costs of this forecast from the seller.

## **7. Invoicing**

The seller must submit an invoice to the buyer within 2 business days of the end of the billing period, specifying:

- The early operating energy payment and/ or commercial energy payment
- The deemed energy payment, if any,
- The Use of System charges due to be reimbursed to the seller and
- Any amounts owed by the seller to the buyer (or vice versa).

The invoice shall be prepared based on the billing data obtained from the Facility Metering Installation.

## **8. Failure to make payment**

The buyer must pay the seller within 30 business days of receipt of the invoice.

If the buyer fails to pay any amount(s) due and payable within 5 business days of the due date, the seller may serve notice on the buyer specifying the details thereof.

If such failure has not been remedied or rectified within 20 business days of such notice, the seller may call a compensation event and enforce the Implementation Agreement.

If any amount due and payable is not paid by the due date, interest will accrue on the full amount due at the agreed interest rate from the due date to (but excluding) the date of payment.

## **9. Billing Disputes**

A party disputing an invoice must notify the other party in writing before the due date for payment thereof, provide details on the disputed portion and pay the undisputed portion of the invoice on the due date.

The dispute must be resolved within 30 days of the notice of dispute. Where this dispute is in respect of the billing data obtained by the seller from the facility metering installation, the buyer is entitled to request a test of this metering installation.

If it is agreed/ determined that all or part of a disputed amount which has been paid should not have been paid, it must be refunded within 5 business days of this agreement/ determination, together with interest at the agreed interest rate from the date of such overpayment to, but excluding, the date of repayment.

If the parties fail to resolve an invoice dispute within 30 days of the date upon which the notice was served, either party will be entitled to refer the dispute to an expert for determination.

## **10. Reports, records, plans & monitoring**

The seller must, within 2 hours, notify the buyer if the facility or  $\geq 10\%$  of the contracted capacity is incapable of generating electricity for any of the following reasons (provided that its unavailability has not already been notified as part of a Scheduled Outage or pursuant to the Generation Forecasts required):

- For reasons of any outages or
- Where to do so would not be in accordance with the standards of a Reasonable and Prudent Operator or
- In circumstances relating to safety (either personnel or the facility apparatus) or
- In circumstances where to do so would be unlawful or
- For reasons of force majeure, a system event, government default or a compensation event, and (in all the above cases)
- Must deliver the buyer a written report detailing the reasons for such incapacity within 5 business days.

The seller must maintain complete and accurate data and records required to facilitate the proper administration of the PPA. It must include an accurate and up-to-date log of operations, updated daily and include:

- For each 10 minute period in each day, the energy output and reactive energy output
- Changes in operating status during the day
- The number of outages in the day, the duration and reason for each as well,
- All resource and climatic data recorded at the project site,
- All data required in terms of Schedule 6 (Deemed Energy Payments)
- Any information required to be recorded and/ or reported in terms of the Consents and
- Any unusual conditions found during Maintenance inspections.