
# SAWEA

# POSITION PAPER

# ON RSA MANUFACTURING AND LOCAL CONTENT REQUIREMENTS IN THE REIPPPP

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**CONTENTS**

# 1. INTRODUCTION

The South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) started in 2011 creating up a market that would become one of the top 20 global renewable energy markets by 2013. The REIPPPP was lauded as the most successful renewable energy programmes globally.

The programme aimed to achieve three objective, i.e. energy security, economic development and environmental sustainability. The aim of the programme was to achieve a number of objectives which include, competitive low cost procurement of electricity by the incumbent utility, guaranteed performance by the successful projects, local manufacturing, local job creation, South African ownership, South African Black ownership, management control, preferential procurement, enterprise development and socio-economic development.

- SA's 2010 Integrated Resource Plan (2010-2030) allocated 17,800 MW to renewable energy as part of the country's energy mix by 2030. That equals more than one fifth of the county's predicted demand. The draft IRP 2018 update for NEDLAC energy task team, makes an allocation of 20.4 GW of new additional capacity to renewable energy (solar PV 6000 MW and wind 14400 MW) by 2030.
- Since 2011, the Department of Energy has committed, through ministerial determination, to procure 14725 MW of renewable energy generation by 2022, consisting of 6225 MW of solar PV, 1200MW of CSP, 6360 MW of wind and 725 MW from other renewable energy technologies. This capacity is procured under the REIPPPP, a rolling procurement programme which has been running since 2011 and has already completed 4 successful bidding rounds.
- By December 2018, 112 projects had been selected as part of the REIPPPP, attracting R209 bn in private sector investment, R43 bn (20%) of this total comes from foreign investment, totalling a contribution of 6 376 MW of capacity to the national grid over 6 bidding rounds, of which 3901 MW is operational.
- The wind energy sector contribution to the power mix is quite significant. To date in South Africa there are 33 wind farms at various stages of development, with more than 1365 wind turbines generators equalling 3672MW installed capacity of which 2020 MW is fully operational. The wind industry has invested R80.6bn in the South

African energy generation capacity. The REIPPPP is bringing renewable energy to the National grid fast and cheaper than new-build coal. Construction times for projects average less than two years, and the electricity price paid to projects has declined 68% over the 4 bidding rounds.

- The price of wind energy in the last Round 4 expedited was R0.62/kWh hich is approximately 40% less than forecast prices for Eskom's new-build coal plants Kusile and Medupi.

Local content requirements have been a constant feature of the REIPPPP since the first bidding round in 2011. For wind energy the local content requirement for round 1 ranged from a threshold of 25% to a target of 45%. For round 2 the threshold remained the same while the target increase to 60%. The requirements for Round 3 and 4 ranged between 40% threshold and 65% target. According to the IPP Office report (2018), the actual local content achieved for active projects totals 72% of their commitment, which illustrates the industry commitment to reach and exceed government targets on local content.

This aim of this position paper is to report the status of the wind energy industry localisation efforts and to outline challenges and possible solutions to meeting this important economic imperative of the REIPPPP programme. SAWEA and its members remain resolute to find ways and means of pursuing the programme and encouraging all involved in creating the market conditions which will encourage investors and developers to create new economically viable projects. SAWEA and its members are herewith highlighting the main issues and proposing solutions to ensure that wind energy in RSA is able to perform as expected in the IRP and compared to international norms.

## 2. POLICY ALIGNMENT, MARKET CERTAINTY AND PROCUREMENT CONTINUITY

The Renewable Energy sector in South Africa is slowly emerging for a 3-year slump. In 2015 when the then minister of energy announced the preferred bidders in the Round 4 of the REIPPPP and announced that this would soon be followed by an expedited round announcement, the industry felt a sense of assurance and renewed hope. The industry did not anticipate that what was to follow would be a 3 year stale-mate on signing of Power Purchase Agreements and the very unfortunate cancellation of the 'expedited round'. This had an immediate negative impact on local manufacturing, as most of the factories that had been opened in response to the localisation requirements had to close down or reduce operations, impacting on jobs and skills.

The recent signing of the Round 4 projects in 2018 did, to a certain extent, address most of the market uncertainties that had plagued the industry for 3 years. The commitment from government to review and update and publish the IRP 2018 drafts further gives a boost to investor confidence. However in order to actively support local manufacturing as it is the requirement from the authorities, government needs to ensure that the energy policy is aligned to the industrial policy in order to create a supportive environment for localisation. Most critical is the continuity, certainty and transparency with regards to future plans for the REIPPPP. This will help maintain the country's existing manufacturing facilities while building confidence to attract more manufacturing investments. The industry is now facing a challenge to recover the domestic wind energy manufacturing industry in order to meet the local content commitments for round 4 projects currently under construction.

The growth of this industry is particularly critical, given its potential to attract further investments, create significant numbers of jobs and drive down the price of locally available technology. Min. Radebe pronounced that 1 500 jobs could be created in the domestic manufacturing sector, owing to local-content requirements associated with the installation of 2.8-million solar PV modules, 600 inverters, 385 transformers and around 500 wind towers and turbines.

A successful localisation programme largely depends on the size of the local market, active support for local industry's export strategies, and long-term view of the industry. Local manufacturing is crucial to the success of the REIPPPP's economic development (local content) component as it is the basis for creation of long-term sustainable employment opportunities. This is even more relevant in the context of energy sector transition dialogue. The wind energy industry has potential to contribute to the country's green economy objectives and objectives of the National Development Plan, but much hinges on a coordinated supportive policy environment resulting in smooth (as opposed to stop-start) procurement.

## 3. CAPACITY TO ACHIEVE HIGHER LOCAL CONTENT

A further important consideration in defining the localisation agenda is the lack of capacity in the current market to yield higher levels of local content. The so-called *"low hanging fruits"* in localisation of wind energy comprising predominantly electrical and civil Balance of Plant (BoP) expenses (which include transport and erection), have already been exhausted in previous bidding rounds. The average local content achieved in Bid Window 3 was 46,9%, derived from BoP localisation and only a quarter thereof from the procurement of local towers.

Any higher local content targets would therefore necessitate new local manufacturing capacity to be built based on a decision regarding which key Wind Turbine Generator (WTG) components should be prioritized. However, the performance and quality-related challenges experienced by local tower manufacturers have demonstrated the potential pitfalls of establishing new manufacturing capabilities in the absence of sufficient institutional know-how and a specialised and skilled labour force. Blade and nacelle manufacturing would require even higher specialised and precision processes, which would take considerable time and investment to develop.

**However, the primary consideration for investment in local manufacturing for localisation of wind energy (which requires huge capital outlays), is still the need for a sufficiently large market with committed megawatt procurement allocations per year to justify such investments. Any localisation efforts involving new and long-term manufacturing capability would therefore require careful planning and support mechanisms to unlock new opportunities.**

The first of these is the need for the DTI to adopt a clear policy stance on localisation for rollout under the REIPPPP. Such a policy must espouse a long-term perspective that encourages the sustainable and systematic development of the wind energy sector and which defines ambitious, yet practical local content outcomes. Such a policy would also need to consider localisation under REIPPPP holistically, in the context of the broader industrial development framework in South Africa and thereby draw together existing initiatives, programmes and action plans that can support its successful delivery. The capacity allocations of 1600MW per year until 2030 for wind energy indicated in the Draft IRP 2018 Update for NEDLAC Energy Task Team gives confidence to the industry to support further localisation, provided that it's followed through with a clear and solid procurement plant from round 5 and beyond.

A clear policy definition is an important precursor to any local content rule formulation (or revision), as it will avoid a fragmented approach to localisation, which has led to stranded investments and guide government decision-making in a rational and consistent manner. SAWEA is therefore hopeful that the contents of this paper could inform the basis of such a policy formulation.

# 4. CURRENT STATE OF THE LOCAL WIND ENERGY INDUSTRY

In September 2017 the SAWEA conducted a mini survey to establish the then status of the industry and how the industry was affected by the delays in signing of PPAs. To no surprise most companies which had not already closed down, that participated in the survey expressed that they were under duress and were at risk of closing down if delays continued indefinitely. The survey was focusing on four aspects of the status of the industry,

- the components/ products currently manufactured;
- the capacity of the manufacturing facility;
- the number of existing jobs (Direct and Indirect) as well as the number of jobs lost or at risk due to delays; jobs that could be potentially created due to Round 4 Approval;
- the level of investment injected into the manufacturing facility by then.

8 manufacturing companies responded to the survey and the results are presented per question to protect the identity of the respondents.

## 4.1 Products and components currently manufactured in South Africa and capacity of local manufacturing facilities

The momentum gained between Round 1 to Round 3 coupled with the local content requirements prompted investment in the wind energy sector in the form of manufacturing facilities. The different types of products and components are listed below.

- Customised solutions service provider stated they were in the primary phase of establishing a facility and would have the capability to supply customized solutions based on the client's requirements. Their solutions included:
    - medium voltage primary and secondary switchgear up to 36kV
    - supply mineral oil and bio-electra oil pole mount switchgear and transformers?
    - distribution and power transformers up to 10MVA
    - supply and partially assemble indoor and outdoor ring main units

    - supply and partially assemble miniature substations and supply and partially assemble mobile substation solutions

- A wind tower manufacturing company stated that they had been operating since 2014and commenced production in January 2015. Concrete and Steel towers + internals are manufactured and assembled up to readiness to transport to Wind farm sites for installation. Their manufacturing capacity is 150 Towers per annum.
- Maintenance service provider with limited manufacturing expansion potential provides plant inspection and maintenance services (engineering and construction e.g. design and build of substations, installing metmasts, etc.). The company does some manufacturing of metmasts, however the metmast facility was not yet fully utilised. The plant is in place, but it will require training and hiring steel-workers to get to full capacity.
- Wind Turbine OEM designs and produces turbines for all wind classes, including the design and manufacture of rotor blades and towers. The Company's designs and manufactures concrete towers with high proximity to rural local communities. These manufacturing facilities are temporarily setup to support the site in the production of concrete towers. The Company has capacity to supply 4 approved Round 4 IPP projects with total capacity of 522 MW
- Wind Tower Manufacturing facility that was idle at the time of the survey due to delays in signing of PPAs. The plant has capacity to manufacture 110 towers per annum at full production capacity, working two eight hour shifts per day, and five days per week. It has potential to upscale to ca. 300 towers. At the time, a strategic equity partner with technical capabilities was being sought to take over the operation of the facility.
- A Steel Manufacturing Plant that manufactures primary steel products indicated that 70% to 80% of steel has been locally supplied and its components locally produced. This proves that substantial capacity does exist to supply this industry.
- Wind Tower components manufacturer established in 2015 for the manufacturing of all internals for wind towers, metal platforms, ladders, entrance staircase, power cables, internal lights and the elevator .

One of the manufacturers indicated that they currently have a factory of 3 000 m2 equipped which is standing empty and not utilized due to no orders. Another indicated that *"We have sufficient capacity to deliver Round 4 demand (1,3 GW) according to the timeline indicated by the Minister"*, while another stated that the company will be scaled to a manufacturing facility should the economies of scale support such an investment. Their assembly plant was in design phase and had no purchase/contract orders at the time.

One of the local manufacturers indicated that they had issued rebates of more than R50 million in order to enable this local industry to be competitive. While it was noted with concern that for Round one projects 85% of steel components have been imported, this would need to be improved substantially future procurement rounds.

There is a view that the production capacity of nacelles, blades, hubs and other imported components will not impose any constraints in any future round of the REIPPPP.. **However it was noted with concern that due to technology improvements, some of the equipment that was scheduled to be installed in 2014 may no longer be available in 2019 and 2020. This might necessitate amendment of the project scope with more recent equipment.**

If capacity issues are not resolved swiftly in the wind tower domain, this may introduce constraints. Unless the combined production capacity of wind towers is definitely known, there is concern that this may lead to long lead times caused by constrained production schedules. The long lead time is an increasing risk, increasing the financial and storage cost of the projects.

### 4.2 Employment Creation through Wind Energy Local Manufacturing

There is a mix of big and small companies within the wind energy manufacturing sector, the numbers presented below are therefore relative to the company sizes. A risk that was identified under employment as being posed by the delayed signing of round 4 PPAs is that some local organisations have relocated SA staff in European countries to retain knowledge and experience. A risk is that staff may not return to SA which will result in additional cost for knowledge transfer.

| Company | Number of Jobs | Comments |
|---|---|---|
| 1 | 35 | |
| 2 | 540 | 340 people employed directly and about 200 indirectly.<br>Additional direct jobs up to a maximum of 50 could be created when coming back to full capacity, which only depends on the signature of the PPAs so OEMs can issue the new orders<br>Currently we are maintaining all our labour force 100% operational will be forced to make adjustments if we do not receive new orders in the short term. |
| 3 | 42 | Current Direct Jobs: 42; Direct Jobs already lost due to delays: 20<br>Direct Jobs at risk due to further delays: 20<br>Direct Jobs potentially created due to R4 approval: 25 |
| 4 | 11800 | The total number that will be potentially employed for round 4 for projects is 11800 jobs (direct and indirect in person months) |
| 5 | 2 | They had employed 12 staff members, took them to Denmark for training but had to retrench them in the past few weeks and only 2 remain. Their projection is to employ sixty direct staff at full capacity and will use another forty-indirect staff. |
| 6 | 10 jobs / 1000 ton produced | For every 1000 tons steel produced, 10 direct and indirect jobs are created. |
| 7 | 142 Direct jobs | These jobs could be lost if delays continue. |
| 8 | 260 person months per year | Each 140MW project represents approximately 260 person months per year. The delayed program have stalled the recruitment and implementation of employment for approximately 850 person months per year for 460MW |

### 4.3 Planned or Committed Investment (Amount invested already, investment required to scale up, etc)

| Company | Investment | Comments |
|---|---|---|
| 1. | R7m already invested | To scale up: a further R3 million will be invested |
| 2. | R7 mil since inception | "We will invest another R25 mil (twenty-five million) over the next two years, once orders are placed". |
| 3. | R245.6 million invested | R75.6 million in equity and R170 million in debt), whilst the company has invested ca. R120 million in equity. |
| 4. | R15M - R20M | Based on an estimated 1000m² including building, tools, vehicles, test equipment, skills development. This provides for full infrastructure to assemble but not yet manufacture. Manufacturing investment will be considered when policy certainty is provided. |
| 5. | R25 million | This investment has suffered due to deeming of imported steel as local |
| 6. | R400 million invested to-date (initial investment in 2015 + 2016 upgrades) | The company maintain that its investment appetite is intact, and shall be open-minded for additional efforts if there is a clear regulatory framework to protect their investments. However, it's important bear in mind the serious financial impact suffered due to the delay on PPAs signature. |

**Total Investment = R725 Mil**

# 5. CONCLUSIVE REMARKS

Since the REIPPPP was launched in 2011, international and local investors were attracted by transparent regulations, targeting to procure clean energy at a competitive price, but not forgetting to address South African priorities such as economic development. The continuity of the program enabled the manufacturers and contractors to invest in South Africa, not only to serve the demands of the local market, but also to create a hub of capabilities and capacity to target the entire sub-Saharan region. Due to the fact that the renewable energy industry in South Africa and the sub-Saharan Africa region is still emerging, the players in the market have invested time, effort and significant funds to establish a foundation which enables the industry to respond to market demand in a timely manner with local staff and as far as possible for local manufacturing, as well as contractor services. The clarity of the policy created an environment which enables investors, manufacturers and contractors to take bold decisions to invest in South Africa. These decisions were obviously based on the early success of the REIPPPP, but also on trust in the economy, people and government of South Africa.

The impasse on signing PPAs of REIPPPP round 4 had a negative impact on the establishment of local manufacturing capacity. The direct impact was felt first in the tower and smaller component producing industry in South Africa, where blue as well as white collar workers had to be retrenched, or planned head count increases were delayed or cancelled. Companies which were planning to invest in the transportation and construction sector addressing specific needs of the renewable energy industry had to postpone or cancel planned investments. OEMs and contractors targeting the sub-Saharan or even entire African market were starting to consider where the right hub for addressing this market might be. Engineering services companies which invested in generating smart solutions in South Africa for South Africa, such as smart concrete tower solutions to generate jobs also in remote locations and to increase local content as much as possible, had to rearrange their focus.

However, with the signing of the REIPPPP round 4 PPAs a momentum has been initiated which should be fully utilized to generate maximum value when it comes to localization and industry growth. Fortunately investments have been approved to ramp up the local tower manufacturing facilities again to serve the demand of local steel towers; fortunately certain companies producing other important equipment, for example, tower internals for wind turbines or site parts have been patient, waiting for the first orders afters initial investments had been committed. Those companies and employees thereof who are currently active in South Africa

will obviously benefit from the signing of the PPAs, and their confidence is further strengthened by the latest draft IRP indications of consistent roll-out of wind energy until 2030.

The momentum generated should be utilized to invest in a supply chain which is serving a stable, predicable, reliable and sustainable market. Cranes to install wind turbines should be procured and localized to serve the South African market. Trailers and other transportation equipment should follow the same path. The target should not be to build up a single supplier in South Africa able to localize specific services or supply specific components, but to create a healthy industry driving down the cost and by so doing enabling global competitiveness of our local industry. Certain investments would be too late to still serve the round 4 projects, but others will still generate localized value to the round 4 projects, provided that there is a stable and consistent demand beyond round 4.

Looking at the mid-term perspective, the DRAFT IRP 2018 Update shows a wind power demand of 14.4 GW beyond round 4 until 2030. This is very promising for the industry, and if this has to be realised according to the plan, and considering a typical construction time of 24 month of a wind energy project, procurement of Round 5 should commence as soon as IRP is approved. Considering that procurement and production of localized components will be finalized before COD of R4 projects and start once the round 5 PPAs are signed and have achieved financial close, the industry should be able to sustain continuity of existing manufacturing facilities and this will be a big win for the manufacturing sector in South Africa.

The ramp up of an industry takes time, and localization of production takes 12 – 36 month depending on the complexity of the service or component. A gradual ramp up would be required to ensure maximized local content, maintaining required quality levels as well as protecting the environment, health and safety. The closing of the procurement gap, with procurement of new capacity planned for COD in 2022, the industry will be able to maintain services, equipment and expertise. This will go a long way in fulfilling the ambition of South Africa and active OEMs in South Africa to create a sustainable industry by localizing as well as further expanding local capabilities and expertise.

Based on the annual allocation of 1600MW per annum until 2030, the industry would like to engage with the South African government to agree on regulations, which in return will ensure a growing local content percentage of the wind energy projects as well as industrialization starting with REIPPPP round 5. As a second step it could be discussed to increase incentives

to localize production in South Africa for export business to maximize volumes, achieve economies of scale and drive cost competitiveness.

## 6. KEY RECOMMENDATIONS

Based on the foregoing, SAWEA makes the following recommendations for consideration in the formulation of a localisation strategy for implementation under the REIPPPP:

1. **DOE to Prioritise the finalisation and publication of the IRP** in order to counteract the uncertainty in the market created by the delayed signing of Round 4 PPAs;

2. **Clear plans on further procurement rounds of the REIPPPP should be announced and assurance of the roll-out provided.** This will enable investors (from project developers to manufacturers) to make informed investment decisions and take long-term views on the market.

3. **DTI to draft a Local Content Policy** document to be discussed with industry before implementation;

4. **Clear definition of the measurement of local content**, which is consistent and coupled with periodic compliance audits by the DTI;

5. **Implementation of localisation incentives** such as the granting of export credits for locally manufactured goods to be competitive and the implementation of options for bidding at different levels of localisation.

6. **A participative, consultative and transparent approach in setting local content requirements for further rounds**. Industry consultation and participation and buy-in is key to successful localisation

7. **Local content requirements must be reflective** of the dynamics of setting up local industry and joining global value chains, and incorporate learnings of the past four rounds.

8. **Constant consultation between industry and government is crucial**, to the effect the wind industry recommends the revival of the Wind Industry Localisation Forum which was formerly hosted by the DTI.