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Localisation barriers to trade: The case of South Africa's renewable energy independent power program

James Leigland[a] and Anton Eberhard[b]

[a]Independent Consultant, Johannesburg, South Africa; [b]Graduate School of Business, University of Cape Town, Cape Town, South Africa

ABSTRACT

South Africa's Renewable Energy Independent Power Projects Procurement Program (REIPPPP) has been hailed as one of the most successful programmes of its kind, contracting 92 renewable energy projects totalling 6 328 MW and US$20.5 billion since its inception in 2011. Despite this success, the programme's use of non-price factors such as local jobs, local black ownership, local content, and local community ownership in bid evaluation has generated criticism and controversy. Lessons learned in other countries about how and when to use policies like import substitution to promote sustainable economic development seem not to have been fully incorporated by the REIPPPP. We therefore offer a cautionary note that dramatic and impressive localisation results are not inevitable – especially considering the size of the South African market and accompanying investment uncertainties – and that there is bound to be a trade-off between price and non-price factors in these kinds of competitive procurement programmes.

KEYWORDS

Renewable energy; South Africa; local content requirements; trade barriers; import substitution; competitive bidding

1. Introduction

In August 2011, the South African government initiated a successful programme to attract private investment in grid-based renewable energy generation. Through four rounds of bidding over a four-year period, the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) has contracted 92 utility-scale (5 MW and above) Independent Power Projects (IPPs) totalling 6 328 MW and R193 billion (US$20.5 billion), using technologies like wind, solar PV, and concentrated solar, as well as smaller amounts of hydro, landfill gas, biogas, and biomass energy. The size of the programme, the speed of implementation, and the reasonable pricing of the power have all contributed to REIPPPP's reputation as one of the most successful programmes of its kind (Eberhard et al., 2014).

However, while most stakeholders judge REIPPPP to have been successful through the first three bidding rounds, the programme's strong reliance on non-price factors in bid evaluation has generated criticism and controversy. These non-price factors are organised in bid documents under the heading of 'economic development' requirements and

CONTACT Anton Eberhard anton.eberhard@gsb.uct.ac.za Graduate School of Business, University of Cape Town, Breakwater Lodge, Greenpoint, Cape Town, 7701, South Africa

generally have the effect of creating non-tariff 'localisation' barriers to trade in goods and services.

There is also a possibility that REIPPPP may face serious consequences because the use of local content requirements and other economic development measures violates various multilateral trade agreements, like the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO) Agreement on Trade-Related Investment Measures (TRIMs). The WTO has become increasingly active in enforcing rules against the use of import substitution, and has investigated – and ruled against – the use of such requirements in the renewable energy sector several times over the last few years (The Canadian Press, 2013; Miles, 2016).

Because of this vulnerability to WTO enforcement action, the use of localisation requirements is said to introduce 'legal uncertainty and as such it is not part of a stable and trusted policy environment for attracting investments in the renewable sector' (Peszko, 2012). This paper attempts to demonstrate that although the REIPPPP clearly violates at least the spirit of international trade law, it does so by acting in a manner that is broadly consistent with a widespread emerging reassessment of policies like import substitution in the developing world. While staunch free trade advocates are currently arguing for tightened WTO restrictions on programmes like REIPPPP, many developing countries are following the lead of a growing number of international trade economists who see economic development value in some of the measures that restrict free trade.

The WTO issue may be something of a distraction – because of legal technicalities, the WTO is unlikely to target REIPPPP with disciplinary action. A much more important issue is the extent to which REIPPPP's specific approach to localisation is consistent with the emerging reassessment of such policies. In other words, how well has REIPPPP incorporated practical lessons learned in other countries about how and when to use policies like import substitution to promote sustainable economic development? This paper aims to review the literature on localisation and apply these insights to the South African REIPPPP, primarily through analysing bid data from the Department of Energy (DOE)'s IPP projects office. We argue that not many of those practical lessons have been incorporated by REIPPPP. The paper therefore ends with a cautionary note around expectations that dramatic and impressive localisation results are inevitable. Furthermore, we seek to point out the trade-offs between price and non-price factors in these kinds of competitive procurement programmes, and the possible longer-term effects of this.

2. Localisation policies: The shaping of conventional wisdom

The use of localisation barriers to trade in Africa has a long history, beginning with the import substitution programmes adopted by many African countries following independence from colonial rule. Among other things, this approach promoted import substitution industrialisation as a means for improving the terms of trade and driving industrialisation in developing countries that had historically focused on exporting primary commodities rather than manufactured goods.

By the 1960s import substitution policies were being adopted in a large number of African countries, in large part influenced by the Latin America model (Galal, 2008).

After some initial successes, most of the more ambitious industrialisation initiatives in Africa were scaled back because the programmes were created with little attention to local capacity or competitiveness, and ultimately created disincentives against long-term foreign investment. African countries like Zambia, Ghana, Egypt, and Morocco are among the best-documented failures of import substitution (UNECA, 2011).

By the late 1960s, import substitution was beginning to seem unrealistic and counter-productive (Pollock et al., 2006). By the early 1970s, influential academic studies (e.g. Little et al., 1970) were demonstrating the economic inefficiencies associated with highly protected manufacturing sectors. By the end of the 1970s, growth rates were falling in many of the countries that previously seemed to be doing well with import substitution, particularly those in the Middle East and Latin America. The debt crisis that followed in the early 1980s was blamed by many economists on trade and industrial policies and many Latin American countries, where the crisis hit hardest, began unwinding their import substitution policies. In the 1980s and early 1990s, countries that had not yet abandoned these policies, including African countries, were forced to do so by the structural adjustment policies of the World Bank and International Monetary Fund (IMF). Structural adjustment was implemented via loan conditions imposed on borrower countries, and seems to have been successful in achieving its immediate goals, which included trade liberalisation, industry deregulation, and privatisation of state-owned industries and services (Ogbu et al., 1995).

The World Bank and IMF claim to have discontinued the use of structural adjustment requirements in their lending operations, but the WTO, which began operations in 1995, very much continues the effort to liberalise trade. The organisation provides a formal system of negotiation and conflict resolution on trade issues, enforcing rules that its member countries have agreed to. The basic philosophy is that barriers to free trade generally retard economic growth and inhibit national development.

Measures used to implement industrial policies like import substitution industrialisation include traditional forms of protection, like tariffs and quotas. However, as more unconventional non-tariff barriers have been adopted to distort trade and discourage foreign direct investment, the term 'localisation barriers to trade' has been more frequently used to capture the entire range of protectionist measures (Ezell et al., 2013; Hufbauer et al., 2013). The US government, for example, classifies anything that disadvantages foreign goods, services, or intellectual property compared with domestic counterparts as 'localisation barriers to trade' (Office of the US Trade Representative, 2013).

The WTO has a number of legal tools at its disposal to deal with conventional and unconventional barriers to trade and seems to be using some of these tools more frequently over the past few years, investigating the use of local content requirements (LCRs) in renewable energy policy several times. In February 2013, the United States notified the WTO Secretariat of a request for consultation with India regarding local content requirements and subsidies associated with a solar energy programme in India, known as the Jawaharlal Nehru National Solar Mission (Panda, 2014). In November 2012, China notified the WTO Secretariat of a request for consultation with the EU regarding local content requirements associated with feed-in tariff programmes of EU member states (Beattie & Chaffin, 2012). On 19 December 2012, after a complaint was registered with the WTO dispute Settlement Body by the European Union (EU) and Japan, the body ruled that the provincial government of Ontario Canada violated

GATT and TRIMS provisions by requiring wind sector renewable energy developers to purchase a designated amount of locally sourced materials in order to qualify for the province's renewable energy feed-in tariff programme (WTO, 2012). A WTO Appellate Body upheld the decision, which meant that the localisation requirements had to be withdrawn from the Canadian scheme as well as other similar feed-in tariff programmes adopted or being developed by other WTO members (Creed & Kordvani, 2014).

3. The emerging reassessment of localisation

While the WTO continues to oppose the use of localisation measures, the global use of protectionist trade measures has been growing – especially in renewable energy programmes, along with a widespread reassessment of policies like import substitution in the developing world (Lewis, 2014). The 2013 report of the Global Trade Alert documented over 3 300 protectionist trade measures since their monitoring began in 2008, including 431 measures from June 2012 to May 2013 – three times the number of liberalising measures over that period (Evenett, 2013). Hufbauer et al. (2013) identified 117 LCR measures since 2008, with more than a dozen of these associated with renewable energy policies.

Hufbauer et al. attribute this increase in protectionist measures to the desperate need to restart job growth and industrial development after the global financial crisis in 2008, but the foundation for it began forming in the 1990s as economists began critically evaluating the results of structural adjustment. Lall (1995), Stein (1992 and 1996) and Ogbu et al. (1995) found that many African countries experienced de-industrialisation in the wake of structural adjustment.

Contrary to the traditional view that Latin American and East Asian countries developed at different speeds because the former used industrial policy and the latter did not (e.g. Chen, 1979; Krueger, 1990; Wolf, 1993), Rodrik (1997, 1999, 2001) and others demonstrated that both sets of countries adopted government-led localisation policies, but implemented the policies in very different ways, with the East Asian approach being far more successful. According to UNCTAD (2007), a common problem among African countries was not that they depended too heavily on import substitution policies, but that structural adjustment forced the abandonment of import substitution before it had a chance to build domestic industrial capacity and entrepreneurship as it did in East Asia.

As a result of this global reassessment of trade protectionism, a number of authors have attempted to differentiate the 'right way' to use import substitution from the 'wrong way.' Wells & Hawkins (2010) attempt to demonstrate to policymakers that expanding the local content of infrastructure construction is an achievable and worthwhile objective. The UN Economic Commission for Africa (UNECA, 2011) has endorsed the reassessment of the benefits of import substitution, and suggested its own set of lessons learned based on an assessment of the East Asia experience. Johnson's (2016) assessment of localisation policies in India's National Solar Mission finds that, for these policies to be effective, they need to have a clearly defined lifetime and evaluation plan; focus on technological and value chain areas where barriers to entry are manageable; and link the programme to a wider strategy that focuses on training, value chain development, and overall industrial policy.

4. Localisation policies in South Africa

Like many other African countries, South Africa has a good deal of experience with localisation trade measures. Beginning in 1965, the government used targeted local content policies in the country's automobile sector as part of an effort to save foreign exchange, resulting in a 19% decrease in the value of imported auto parts and components between 1965 and 1985 (Black & Bhanisi, 2006).

The post-Apartheid government of South Africa began immediately to establish a series of localisation policies to integrate the previously disenfranchised majority into the economy and revitalise industry. One of the first of these policies was a public procurement framework. Procurement is regulated by the South African Constitution, which stipulates that government entities, in the implementation of their procurement policies, can advance categories of persons who have been disadvantaged by unfair discrimination in the past. To give effect to this constitutional principle, the Preferential Procurement Policy Framework Act (PPPFA) was promulgated in 2000, and regulations to the Act in 2001 (RSA, 2000).

The PPPFA requires government entities conducting a tender process to allocate 90 of the total possible bid-scoring total of 100 points to the price submitted by the bidder. The 10 remaining points are allocated to the categories of preference referred to in the Constitution. If the contract is below a prescribed threshold value (currently 1 million rand), then 80 of the 100 points go toward price evaluation with the remaining 20 points allocated to the bidder's compliance with requirements relating to categories of preference.

A second localisation policy employed by the government since the end of Apartheid has been a framework for 'black economic empowerment' (BEE). In 2007 a Broad-Based Black Economic Empowerment (BBBEE) Act was promulgated, which defined BBBEE in terms of seven categories that can be scored when bids are evaluated in terms of BEE. The two most important categories are ownership (20%) and preferential procurement (20%).

5. South Africa's localisation aspirations for renewable energy

The post-Apartheid government's first statement on energy policy in 1998 pointed out that the energy sector could contribute to employment creation as well as providing services for households (RSA, 1998). The first white paper on renewable energy in 2003 noted that government support for projects would depend on the extent to which they incorporated 'empowerment'. This in turn was interpreted to involve not just operation and maintenance of facilities, but the manufacture of technology, which 'is more labour-intensive than conventional energy technologies and requires an appreciable labour force' (RSA, 2003:39). But the white paper goes on to warn that to make local manufacturing viable, significant levels of demand, made possible by government support, would be necessary. And because in the short term at least the government would have many other priorities, 'employment expectations should not be unduly raised' (Ibid., p. 40).

However, in just a few years the reserve evidenced in the 2003 white paper was abandoned in favour of more ambitious expectations. The government's Biofuels Industrial Strategy, prepared by the Department of Minerals and Energy in 2007, initiated a trend that involved estimating numbers of jobs to be created via government support for

renewable energy. The strategy document noted that 'the jobs-to-investment ratio in biofuels is about 100 times higher than for crude oil refineries' (RSA, 2007:10). It estimated that a five-year pilot to achieve a 2% penetration level of biofuels in the national liquid fuel supply would create 25 000 jobs, reduce unemployment by 0.6% (mainly in rural areas), and boost economic growth by 0.05% (Ibid.)

In 2010, the government adopted its New Growth Path, an ambitious framework for economic policy and jobs strategy. The framework aimed at creating 5 million new jobs by 2020. The 'green economy' would account for 300 000 additional direct jobs, of which 80 000 would be in manufacturing and the rest in construction, operations, and maintenance. The figure was expected to rise to 'well over 400 000 by 2030' (RSA, 2010a:31).

The government's Industrial Policy Action Plan for 2011–13 (IPAP2), also published in 2010, talked specifically about the job-creating potential of a number of industrial sectors, including biofuels, which was expected to generate up to 150 000 new direct jobs over the following decade (RSA, 2010b). Perhaps more importantly, the IPAP2 also established a process whereby the Department of Trade and Industry (DTI) could 'designate' sectors and/or products with required local content levels for the purposes of local procurement. In cases where the DTI had not designated local content requirements, government entities could, under certain conditions, specify their own requirements for bidding purposes.

6. Localisation requirements under REIPPPP

The distributed nature of REIPPPP's power generation scheme meant that power would be generated by small, grid-connected generation facilities, mostly in rural areas. The government recognised this as an opportunity to promote economic development in these areas, which hosted the poorest of South Africa's citizens and under normal conditions could attract little or no private investment. The first of REIPPPP's request for proposals described the programme as 'inherently excellent for achieving positive socio-economic outcomes' (RSA, 2011:11). In the view of government officials, this potential for facilitating economic development offered unusual opportunities that warranted several exceptions to established localisation procurement requirements. The main exceptions were later highlighted in a report on renewable energy in Africa prepared by the UN Economic Commission for Africa (UNECA, 2016).

The first exception involved a dramatic increase in the role of non-price factors in bid evaluation. Existing government frameworks like PPPFA or BBBEE reflected a traditional emphasis on price. But REIPPPP allocated one-third of evaluation points to non-price 'economic development' criteria. In addition to stimulating more serious bidder focus on economic development project features, this exception to normal policy helped lay the groundwork for arguments that could be used later to justify the expected higher cost of renewable energy with clearly robust socio-economic benefits.

A second exception to normal government procurement rules was a somewhat diminished focus on black economic empowerment. BEE remained an important element of REIPPPP's focus on economic development, but with smaller weightings for BEE categories than had long been the case for BBBEE. Within the BEE categories the emphasis is also different, stressing black job creation instead of black ownership. In addition, some

of the categories normally classified under BEE headings, like enterprise and socio-economic development, were reclassified by REIPPPP as local community development targets.

A third exception to normal procurement rules was in REIPPPP's use of bidder compliance thresholds that reflected local economic development priorities. For bids to be judged 'minimally compliant,' projects were required to demonstrate 40% participation by corporate entities registered in South Africa, with South African shareholding.

Each of the seven types of renewable energy targeted by REIPPPP was broken down into weighted elements and associated measurement formulas. Most of the elements had one or more threshold measurement percentages, which were the minimum scores needed for bidder compliance. Extra points were earned by bidders if scores for any element exceeded the thresholds. (The evaluation framework for 'onshore wind,' one of REIPPPP's seven types of renewable energy, is presented in Table 1.) Up to 2017, most of the projects reaching financial close exceeded targets for jobs, ownership, and BEE (DoE, National Treasury & DBSA, 2017).

Over time, as the bid rounds proceeded, existing exceptions to established government procurement rules were broadened in the sense that thresholds and targets for local content expenditure requirements were sharply increased (Table 2). Other localisation requirements were tightened or redefined as the DOE and its advisers identified problems

Table 1. REIPPPP localisation scoring categories – onshore wind.*

Elements		Weights	Measurement		Round 4 scoring	
			Numerator	Denominator	Threshold	Target
1.	Job Creation	25%	SA-based employees who are citizens	Number of RSA-based employees	50%	80%
			SA-based employees who are black citizens	"	30%	50%
			SA-based employees who are citizens of local communities	"	12%	20%
			Skilled employees who are black citizens	Number of skilled employees	18%	30%
2.	Local Content	25%	Value of local content expenditure	Total project value	40%	65%
3.	Ownership	15%	Black shareholding in the project company	Total shareholding	12%	30%
			Black shareholding in the construction contractor	"	8%	20%
			Black shareholding in the operations contractor	"	8%	20%
			Local community shareholding in the project company	"	2.5%	5%
4.	Management Control	5%	Black top management	Number of people in top management	–	40%
5.	Preferential Procurement	10%	BBBEE procurement expenditure	Total procurement expenditure	–	60%
			SMME procurement expenditure	"	–	10%
			Women-owned vendor procurement expenditure	"	–	5%
6.	Enterprise Development	5%	Community enterprise development contributions	Total project revenue	–	1.2%
7.	Socio-econ. Development	15%	Community socio-economic development contributions	Total project revenue	2%	3.0%
		100%				

*All seven renewable energy technologies have identical thresholds and targets except for 'local content', which is different for each technology.
Source: Eberhard & Naude (2016).

Table 2. Changes in REIPPPP local content requirements.

Technology	Round 1		Round 2		Round 3		Round 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%
Solar 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: Eberhard & Naude (2016).

(Baker & Sovacool, 2017). But the increases in required local content spending reflected the government's plan to increase the pressure on private sector sponsors and investors to help with local economic development, particularly as manufacturing capacity was expected to strengthen with successive bid rounds.

7. REIPPPP and the WTO

REIPPPP's localisation requirements constitute localisation barriers to trade in the view of staunch free trade advocates. All of these factors, except the two community development requirements, afford protection of one kind or another to the domestic production of goods and supply of services. The community development requirements are somewhat different from the other non-price factors, but are not entirely free of criticism from a global free trade perspective. They function to some extent like indirect 'forced' procurement offsets, which are strictly prohibited by Article XVI of the WTO Government Procurement Agreement (GPA). Offsetting involves defined compensation obligations from the foreign supplier to the government purchaser. They are identified as fringe benefits in independent offset agreements that are associated with, but technically separate from, the core supply contract. The point is to force the supplier to reinvest a portion of its revenues from the project in the economy of the host country, as a way of reducing the impact of the imports on the economy and recovering some of the money used to pay for the original sale.

Although it seems clear that all of REIPPPP's economic development requirements constitute 'localisation barriers to trade' as defined by free trade advocates, they do not necessarily violate WTO free trade laws. This is because these laws are less than comprehensive, given that WTO member countries are still negotiating many key trade issues. Cimino et al. (2014), have identified the following gaps in WTO rules when it comes to localisation barriers:

- GATT Article III (the strongest legal basis for requiring equal treatment of imported and domestic products): the article applies only to products, not services, and excludes government procurement from its obligations.
- The WTO GPA (prohibits governments from giving preference to domestic suppliers or employing local content requirements, including offsets): the GPA only applies to the 42 country signatories to the agreement, and only to the limited number of agencies designated in those countries, none of which are in Africa.

- The WTO Agreement on TRIMs (prohibits local content requirements that local parts or components be used by foreign investors): the TRIMs agreement applies only to goods, not services, leaving countries with a good deal of flexibility in imposing localisation measures in tandem with investment incentives. In any case, when local content requirements are paired with investment incentives, multinational firms benefiting from the incentives rarely complain.
- The WTO Agreement on Subsidies and Countervailing Measures (ASCM) (enables WTO members to bring cases in situations where they have suffered adverse effects from subsidy practices of other WTO members): subsidies are defined narrowly in financial terms and complaining countries must show that subsidies have had 'adverse effects' on their domestic industry or commercial interests.

South Africa will likely avoid WTO action against its localisation measures. This is so principally because of the gaps in the WTO rules described above, as well as the fact that REIPPPP measures are used in a public procurement scheme, something very different from a support scheme like that employed in connection with Ontario's feed-in tariff programme (Eberhard et al., 2014). As already noted, South Africa is not a signatory to the WTO GPA.

8. An assessment of REIPPPP's localisation measures

We now explore a series of further questions. Do staunch free trade advocates really make any damaging criticisms regarding localisation policies like the ones used by REIPPPP? How does the global reassessment of localisation deal with those criticisms? Where does REIPPPP actually stand in this debate? Does REIPPPP adequately incorporate the lessons learned over the last 40 years about how and when to use localisation policies like import substitution? The discussion that follows is organised into four sections: job creation, industrial development, community development, and monitoring and evaluation.

Job creation. Perhaps the most contentious argument in support of localisation measures is that they generate local jobs. On the one hand, job creation is the most often used rationale for localisation (Cimino et al., 2014) and it played a strong role in justifying REIPPPP. Renewable energy may originally have been viewed by some critics as an expensive alternative to traditional forms of thermal power used in South Africa, but in a country that has long suffered with high unemployment rates and pockets of extreme rural poverty, REIPPPP's promises of job creation have resonated with many South Africans.

On the other hand, there is a good deal of scepticism among international development economists about the power of localisation requirements to create jobs. The most extreme criticism comes from free trade advocates who argue that reductions in the number of local jobs are more likely to result from such policies than job growth. This is because localisation tends to reduce competition, drive up input costs, increase production inefficiency, and increase prices for consumers. When these price increases are associated with the use of a technology like renewable energy, it becomes less attractive to customers and investors, and sector jobs ultimately decrease as a result.

But theoretical arguments for or against localisation requirements may not always capture what localisation can do to stimulate job growth if it is used in tandem with

other government programmes and policies. A report by the UN Economic Commission for Africa (UNECA, 2015) captures some of these positive policy interactions:

- Most of the job creation associated with a programme like REIPPPP involves short-term employment. Government-funded training can help make capacity building sustainable; government policies can help make use of this skilled labour after a programme like REIPPPP comes to an end.
- Some types of renewable energy are more labour intensive than others. Biomass and biogas tend to generate more employment than wind or solar, particularly if the use of the latter two types is not extensive or long-term enough to lead to the development of local manufacturing opportunities.
- Local content requirements may or may not be defined in a way that maximises job creation. If local content requirements are specified in terms of the highest value elements of the manufacturing and construction chains, large numbers of local jobs probably will not result. Rather than overemphasising high value product manufacturing, some experts favour basic skills training and capacity building so that workers can move on to other jobs after programmes end (Stephenson, 2013).
- Localisation seems to work best when it is a temporary measure used to help kick-start export competitiveness and the job growth. When localisation rules are reduced and eventually eliminated, local companies are incentivised to compete on their own internationally. This is of course the East Asian model, which has been successful in driving export competitiveness. But the model has rarely been successful in other regions because of the policy discipline required to endure short-term job losses and company closures as harsh sunset provisions are enforced.
- The East Asian experience also suggests that if job growth is a goal of localisation rules, the rules should be part of wider governmental industrial policies that go beyond a sector focus, to include research, training, tariff reforms, and business incentives across a much wider range of economic activities.
- Finally, in a country like South Africa, short-term jobs are better than no jobs at all, particularly if localisation does not result in significant production inefficiencies and input cost increases. Tender processes and industry competition, as well some of the measures mentioned in the paragraphs above, can sometimes help control costs and moderate the most negative effects of localisation.

Through four bidding rounds, REIPPPP was able to generate a significant number of jobs (Table 3), while pushing down overall bid prices. Government increased competition dramatically by making less capacity available in Rounds 2, 3 and 4. This increased the number of bids and those that met and exceeded the qualification hurdles. Prices fell significantly: wind prices dropping by 46% by Round 4, and solar prices dropping by 71% by Round 4 (Eberhard et al., 2014).

However, in a number of ways, REIPPPP's job creation performance has raised questions.

- The method for calculating REIPPPP-related jobs guarantees that job numbers will be inflated, especially for longer-term operations jobs. The unit of measure for operations jobs is person-years, calculated over the 20-year life of the project. For construction

Table 3. REIPPPP job creation through four bid rounds.

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: Eberhard & Naude (2016).

jobs, the unit is person-years calculated over the construction period (typically 18 months). These figures are highly aggregated, designed to compare with figures from other industries. But overall, REIPPPP 'job creation' is marketed to politicians and the public in a way that most people are unlikely to fully understand.

- An imprecise understanding of what the job numbers actually mean has led some local critics to question the job creation potential of REIPPPP from the beginning of the programme (Stands, 2015). After REIPPPP Rounds 1 and 2 were completed, the South African National Energy Development Institute (SANEDI, 2012) noted that using a 'one person equals one job' methodology, temporary jobs during construction phases of the projects represented 96% of the total, with no apparent government plans to make further use of the skills learned during construction or to back REIPPPP with training or capacity building. SANEDI also questioned whether job creation was really a government priority, because labour-intensive renewable technologies such as biomass and biogas were not promoted forcefully.
- Civil society critics also noted that although job creation may have been to used to justify the programme, job creation does not seem to have been the government's primary objective: 'The primacy given to competitiveness of South African business and creating a business-friendly environment consigns job creation to the back seat' (Rudin, 2013).
- International experience seems to suggest that job creation through renewable energy programmes often fall short of their aspirations. In Canada, the Ontario government's renewable energy programme, which combines financial support and localisation requirements, is often cited as being successful in creating thousands of local jobs. But several studies have challenged these claims, showing that the programme

> substantially increased costs and actually reduced the job numbers and investment that would have been generated without requirements (WTI, 2013). In the United States, a 2009 clean energy stimulus package was justified by the presidential administration as a way to generate 5 million new jobs. By 2012, although renewable energy use in the US had skyrocketed, job growth was far below expectations, and had actually shrunk in the case of the case of the wind sector. (Johnson, 2013).

However, according to the South African government's quarterly monitoring reports of the IPP programme, job creation through REIPPPP has exceeded both targets and commitments from bidders, for both construction and operations. By end March 2017, 56 projects had successfully completed construction and moved into operation. These 56 IPPs had planned to deliver 14 356 local job years during construction (4.5 jobs per MW), but achieved 23 475 (7.4 jobs per MW). This is 64% more than planned, and seems to be in line with the experience of solar PV in India (7.6 jobs per MW) and onshore wind in Brazil (7.7 jobs per MW), both countries with aggressive renewable energy localisation requirements (Simas & Pacca, 2013; CEEW & NRDC, 2014). While important questions remain about the definition, measurement, and verification of these jobs, it should be acknowledged that at this stage the REIPPPP appears to be going beyond even its own ambitions in realising job creation opportunities through the programme. It is therefore reasonable to conclude that without the emphasis on job creation and localisation, it is very likely that the programme would not have achieved the job creation impact it has.

Industrial development. A second area of debate between proponents of localisation requirements and free trade advocates involves the value of protections for local industry. The position reflected in REIPPPP's policies is that emerging industries need protection as they develop, before they can achieve international competitiveness. This is the second most common argument in favour of localisation requirements (Cimino et al., 2014).

A report by the UN Economic Commission for Africa (UNECA, 2015) summarises the free trade response to this position, and the various counter arguments raised against it and in favour of 'infant industry' protection. The free trade response argues that it is impractical and inefficient for most economies without a foothold in an industrial sector like renewable energy equipment manufacturing to try to quickly achieve a significant share of the international market for such products. In high technology sectors like renewable energy, most economies – particularly emerging economies – simply cannot catch up, and are unlikely ever to be able to compete with industry leaders like China. Attempting to do so simply drives up input costs and wastes resources. The free trade argument suggests that this kind of infant industry protection undermines rather than enhances a country's long-term economic development.

The UNECA report (2015) looks beyond the theoretical arguments made by free trade advocates and, as in the case of localisation job policies, identifies several practical dimensions of this issue that have been explored in recent studies. These practical dimensions suggest that the position taken by REIPPPP is not as inconsistent with best practice as free trade advocates maintain:

- Some economists reject the free trade position on infant industry protection as too extreme and argue that such protection can have positive impacts in certain circumstances. But these economists are mostly in agreement regarding the view that local

industrial development does not necessarily depend on locally owned businesses. One study calls this the 'primary lesson' from the global experience with infant industry protection (WTI, 2013). Firms operating locally, regardless of the nationality of owners, employees, or investors, can benefit from measures used to develop and protect infant industries, including infrastructure development, policy reform, capacity building, research and development, as well as limited forms of trade protection. As these firms benefit, the wider economy benefits as well (Peszko, 2012). Focusing this kind of protection only on locally owned firms tends to dilute whatever positive impacts might result.

- Infant industry protection seems to work best in economies that combine three things: (i) size and stability; (ii) a focus on relatively immature target technologies that are still evolving; and (iii) likelihood of sustained demand for the technology. REIPPPP's Round 3 tender reflected a policy shift toward protection and promotion of locally manufactured high-value components like wind turbines and blades. Bidders were no longer given credit for sourcing local materials for these components but had to begin sourcing locally manufactured components themselves (de Vos, 2013). Whether this measure would lead to efficient market development and ultimately lower input costs depended on whether the government's demand for renewable energy would be sustained at high enough levels and prices to make the establishment of manufacturing capacity commercially viable. Eskom's opposition to REIPPPP eventually brought the tender process to a standstill, forcing several local manufacturing facilities to close, and raised concerns about the wisdom of protecting an industry that seemed unlike to grow much beyond infancy (Moyo, 2016; SAPVIA, 2017).
- The UNECA study (2015) identifies several additional rules of thumb that seem to help infant industry protection generate modest benefits:
  - Focusing the policy on carefully selected industry subsectors increases the chances of sustainable market impacts.
  - Strictly enforcing clear sunset provisions for infant industry protection helps limit the period during which the industry might have to endure higher input prices, and signals that protected firms have only a limited period during which to achieve sustainability.
  - Government officials are rarely the best judges of what market subsectors will benefit from protection. To set meaningful industrial development targets and appropriate supporting policies, officials need to consult with the local private sector (foreign as well as domestic firms), as well as trade unions and civil society groups.
  - Infant industries grow relatively slowly, as domestic firms build capacity and gradually increase their competitiveness. Similarly, protection needs to be adjusted incrementally, to match the speed of domestic industrial development (Kuntze & Moerenhout, 2013).
  - The experience of infant industry protection in East Asia suggests that government financial support can help facilitate technology transfer needed for domestic firms to become internationally competitive.

REIPPPP seems to have some of these conditions, but not all.

- Perhaps above all, REIPPPP has clearly presented opportunities for developers to make robust profits (at least in the initial rounds) and this helped compensate for the

increased costs of localisation. When the Round 1 bid documents were released in August 2011, developers saw tariff caps set at or near levels of an earlier, discontinued feed-in-tariff (FIT) programme, which meant that projects could potentially make equity returns close to 17%. In addition, initially the minimum compliance levels for most localisation targets were not overly restrictive. After meeting the minimums, bidders were free to do more to earn extra bid evaluation points, but many did not. Still, data from government shows that bidders consistently committed to local content levels well above the threshold requirements: on average, local content commitments amount to 45% of total project value for projects in Rounds 1–4. Actually realised local content levels for projects that have started construction is even higher, currently sitting at just above 50% (RSA, 2017).

- Although many bidders have been willing to comply with localisation targets because of the potential profitability of these projects, many also questioned whether or not localisation would help develop local industry. REIPPPP targets required the establishment of local manufacturing capacity, but this meant that South Africa's protected infant companies would be dealing with relatively mature technologies and well-established industries that were already experiencing global over-capacity, intense competition, and low profit margins (Baker & Sovacool, 2017). This is an industry in which South African firms will face severe challenges in becoming globally competitive. According to the South African National Energy Development Institute (SANEDI), the critical mass of demand needed to drive local manufacturing in South Africa did not yet exist, particularly in wind and solar PV. Nor was the government seen to be pursuing any kind of coordinated public policy effort beyond REIPPPP to promote manufacturing of these technologies, although the DTI has now become involved and is working with the DOE to revise targets for Round 5. An expert from the World Wide Fund for Nature was quoted as saying that full localisation of wind power manufacturing capacity in South Africa would require local demand for 800 MW a year for 20 years (Kings, 2013). What further adds to this concern is uncertainty regarding the exact nature and degree of compliance with these requirements, with some bidders apparently 'gaming' the system through for example using transfer pricing on imported components (Baker & Sovacool, 2017).
- The principal focus of REIPPPP on short-term gains associated with South African ownership and management control of domestic industry also seems to lack support from international experts (e.g. Bell & Albu, 1999). Such factors account for almost 55% of the non-price value of bids. Local ownership may be desirable, but is not the same thing as capacity building, which involves the development of managerial, technical, and operational skills in national firms and the domestic labour force. By focusing on local ownership, REIPPPP seems mostly to be just adding to the costs of power production, without the likelihood of long-term benefits.
- Part of REIPPPP's problem with localisation targeting may be attributable to the nature of consultation about the targets with stakeholders. As REIPPPP moved through its initial bid rounds, the private sector, particularly foreign firms, seem not to have been consulted regarding localisation policy, making it 'the area most subject to speculation and rumour' (PWC, 2013:2).
- Although the private sector has not always been consulted on these targets, other stakeholders appeared to have considerable influence, and this raised questions among

some bidders regarding who was in charge of the localisation policy and how stable it would be. In January 2012, two months before Round 2 bids were due, the Congress of South African Trade Unions (Cosatu) claimed that jobs were being lost because local content rules were too lenient. Cosatu demanded increases in the minimum thresholds from 25–35% to levels of 50–65% and threatened demonstrations to force the government to take these demands seriously (*Green Times*, 3 February 2012). The DTI seemed to be responding to Cosatu when they insisted on sharp increases in the local content thresholds and targets for the Round 2 bids that were due in just over a month. The DOE indicated that the thresholds would not be revised at that time, but the eventual Round 3 targets were those proposed by DTI (RSA, 2012).

- Finally, as with job promotion efforts, REIPPPP's localisation measures intended to protect infant industries do not seem to be part of a comprehensive industrial policy that includes capacity building, research, tariff reforms, and various incentives that support competitive export activities. The lack of a policy framework may have contributed to the precipitous increase in target levels in Round 3, far faster than the local learning and capacity building needed to germinate competitive local industry. Perhaps the most glaring policy omission has been the lack of sunset provisions for these localisation measures.

Localisation requirements: Monitoring and evaluation. It is worth noting that all of the REIPPPP localisation requirements require clear target setting and meaningful monitoring and evaluation systems. And it is difficult to argue with free trade advocates that such arrangements – even if adequately designed and resourced – do tend to distort the competitive process by making bidding more difficult, expensive, and ultimately inefficient. REIPPPP localisation requirements do this in two ways:

First, bidders must confirm compliance with localisation requirements. The South Africa press has consistently reported that many bidders consider the process of confirming compliance, to be 'extremely complicated and prohibitively expensive' (Benjamin, 2013) and REIPPPP in general to be 'the most complex bidding process ever seen in the world in this industry' (Buthelezi, 2013). Bidders were required to score their own performance against REIPPPP's localisation criteria, and back up the scoring with other documents including organisation charts, employee information, shareholder certificates and agreements, etc. The plans and other documentation were meant to be the basis of a long-term monitoring plan, also proposed by the bidders, which the government could use to evaluate localisation performance. Bidders were required to break down the economic development obligations into quarterly segments over the lifetime of each 20-year project, and include quantitative measures for their localisation obligations to facilitate government monitoring and evaluation. Bidders repeatedly urged simplification of bid documentation and open dialogue sessions with preferred bidders rather than written communication (McKenzie, 2012). The significant extra paperwork and higher bid costs associated with such programmes tend to reduce competition and result in higher costs to customers; however, bidding outcomes from the latest rounds of REIPPPP show an increased level of competition, as well as prices below the national utility's average cost of supply – potentially tempering some these criticisms.

Second, the management and monitoring of localisation programmes is resource intensive for the host government, requiring considerable financial support and highly

professional permanent staff. Several notable examples exist of agencies responsible for monitoring local content performance in developed countries, which have struggled to adequately perform their tasks despite having considerable numbers of professional staff (WTI, 2013). REIPPPP presents unusually formidable challenges in this regard. After three rounds of REIPPPP bidding, the South African government had announced 92 separate IPP contracts, each with a lifespan of 20 years, each involving commitments to as many as 15 economic development targets, each reporting performance on a quarterly basis. The REIPPPP bid documents describe how this reporting system will feed into an elaborate system of performance rewards and penalties, involving the quarterly calculation of performance deductions or credits, as well as 'termination points' that can be accumulated during 12-month measurement periods to the point where DOE is entitled to terminate the IPP. For each termination point, contractors must undertake rectification programmes to solve the underlying problems, with dispute resolution options available if DOE refuses to acknowledge rectification.

But despite the complex and likely labour-intensive nature of this performance monitoring and evaluation system, few government resources are currently in place to deal with it. The DOE unit in charge of REIPPPP has set up a small, internal group to begin monitoring compliance with localisation requirements. The group, like the REIPPPP unit itself, is funded from bidder registration fees and success fees paid out when contracts are finalised. The bid documents describe possible ad hoc arrangements in which DOE may hire independent performance monitors to help confirm contractor compliance. But without a substantial number of permanent professional staff and an ongoing government budget allocation to cover performance monitoring and evaluation costs, it is difficult to see how this monitoring work can be sustained at an appropriate level.

9. Conclusions: The political dimension of localisation

REIPPPP's use of localisation measures is broadly consistent with a new, emerging consensus among influential trade economists that such measures can have positive effects on economic development. But that consensus also points out that there clearly are productive and counterproductive ways of using localisation. The REIPPPP approach seems not to have fully incorporated many of the practical lessons learned from countries that have successfully used localisation in the past.

Why ignore these lessons about which so much was known at the time REIPPPP was initiated? A possible explanation is suggested in the literature on localisation measures associated with renewable energy programmes. The nominal reason offered by South Africa and other developing countries for using localisation measures is the need to achieve the twin objectives of local employment and the protection of infant industries (Cimino et al., 2014). But in the case of renewable energy programmes, Kuntze & Moerenhout (2013) identify what in many cases seems like a more fundamental reason: the need to find some kind of tangible economic justification for a programme that was effectively subsidised and would increase customer costs, at least in the initial bid rounds. Environmental benefits are usually not enough for policymakers to effectively sell incentive schemes to politicians or the general public – economic benefits are also necessary. This explanation suggests that in the renewable energy programmes of many developing

countries, localisation requirements are rarely used exclusively or even primarily for the nominal purposes attributed to them. This conclusion is at least partially substantiated by the absence in countries like South Africa of any kind of rigorous investigation before localisation requirements are adopted, not even basic economic modelling to determine the appropriate weights or targets for different kinds of requirements. Recent experience with renewable energy procurement programmes in other Sub-Saharan countries show that, as renewable energy prices fall to levels requiring no subsidies, localisation and other economic development benefits rarely form part of these programmes' qualification and evaluation criteria (Kruger & Eberhard, 2016).

If positive public relations has been the intention of REIPPPP's localisation requirements, then the use of these measures has been successful in the short term and the management of the localisation programme is rightly categorised as a programme 'success factor' (Eberhard et al., 2014). By dramatically expanding the role of non-price factors in bid evaluation from 10% to 30% of bid value, the government has highlighted what is purported to be the economic development benefits of REIPPPP. The South African Parliament seems to be impressed and pleased with the localisation commitments made so far by project developers. Of course, it has also helped that after three bid rounds, REIPPPP's basic achievements have been impressive, in terms of power procured, numbers of contracts, speed of roll-out, and the reasonableness of power prices (that have sharply declined over the three rounds).

However, if simplified localisation requirements are being used mainly for public relations purposes, REIPPPP risks sacrificing longer-term economic development benefits for short-term political support. Such a strategy may eventually seem short-sighted and even cynical, particularly after REIPPPP's localisation requirements have already generated so much controversy among bidders. Because of a failure to adequately incorporate the lessons learned over the last 40 years about how and when to use localisation policies like import substitution, REIPPPP-driven job growth and industrialisation may not be sustainable in the long term and could ultimately result in job losses as well as higher costs for power than would have been the case without localisation requirements.

Failures to meet job creation and industrialisation expectations in the sector may focus public attention on the relatively higher costs of the first wave of renewable energy projects, leading eventually to questions about the wisdom of pursuing these energy alternatives. This would be a pity, given the fall in prices in recent rounds and international evidence that solar and wind energy are now among the cheapest grid-connected sources of electricity.

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