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RENEWABLE ENERGY: WHERE ARE THE JOBS?

A critique of the government's socio-economic programme



AIDC
Alternative
Information &
Development
Centre

Renewable Energy Independent Power Producer Procurement Programme Review 2016: a critique of process of implementation of socio-economic benefits including job creation

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The author also wishes to thank all those community members who enthusiastically provided information to enable their story to be told. In addition, those in local government as well as industry representatives, labour, academia and other stakeholders who expressed keen interest, offered additional information – all was gratefully received and processed to the best of my ability.

All errors are mine.

The dynamic renewable energy environment in the country probably means that some aspects of this report were out of date before it was published. Our wish is that this report be received in the spirit in which it is offered, a snapshot in time and space that provides some insights into the challenges on the ground that South Africa must grapple with in order to have a successful renewable energy sector.

Citation

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Abbreviations

CLO	Community Liaison Officer
COP	UN Conference of the Parties
CSP	Concentrated solar power
DFI	Development Finance Institution
DoE	Department of Energy
IPP	Independent Power Producer
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
LED	Local Economic Development
MW	Megawatt
NCCRS	National Climate Change Response Strategy
NCCR White Paper	National Climate Change Response White Paper
NERSA	National Energy Regulator of South Africa
NGO	Non-Governmental Organisation
OCGT	Open cycle gas turbine
OCN	Open Climate Network
PPA	Power Purchase Agreement
PPPFA	Preferential Procurement Policy Framework Act
PV	Solar voltaic power
RE	Renewable Energy
REFIT	Renewable energy feed-in tariff
REI4P	Renewable Energy Independent Power Producers Procurement programme
SOE	State Owned Enterprise

1. Summary

INTRODUCTION & BACKGROUND

The need for countries to transition from coal and nuclear electricity generation to a renewable energy supply has become a necessity in light of the climate change crisis that now threatens our survival.

South Africa's Renewable Energy Independent Power Producers Programme Process (REI4P) was one of the programmes identified by the government as a climate change flagship programme. Launched in 2011 the REI4P was tasked with deploying 3 725 MW of renewable energy by 2016.

A proportion of the renewable energy project income is required to be directed towards local economic development of communities, and there is a mandatory provision for communities to hold equity or ownership of wind and solar farms. This is intended to take place despite the REI4P's institutional structure and mandate to minimise costs and maximise profit.

Our reading of the aims of the REI4P is to provide a mechanism for the community to have control of their future, to make decisions about their needs and to have some resources to implement their decisions. It is however arguable that REI4P expects renewable energy companies to carry out local government mandates of local community development, and service delivery that is rightly the responsibility of the state.

We believe that the REI4P model of development is flawed, in that it is reliant on renewable energy companies, operating for profit, that are expected to deliver socio-economic benefits for affected communities. The balance of power is unequal, as in the mining sector on which these expectations are based. The model of renewable energy development is therefore similarly unsound. However, South African has entered into 20 year contracts for the delivery of renewable energy using this highly problematic development model.

This review critically examines the current REI4P model of socio-economic development implementation. More specifically, it asks whether the REI4P is creating decent full time jobs to its maximum potential; delivering services to those affected communities, and empowering communities to identify and implement opportunities beyond the renewable energy projects.

METHODOLOGY & LIMITATIONS

The review is based on focus group discussions and interviews with community representatives from various renewable power producer sites. It additionally draws on publicly available information and insights from government, academic and industry representatives¹.

Much of the information gathered is stakeholder perception, and as such, it is important that trends are identified. Where ever possible, supporting information has been sought.

Unavoidably limiting the research is that documents such as the social development plans for each project are not publicly available, neither are the commitments that IPPs have made to the community, despite public calls for transparency. Even the detailed tender requirements for such social development plans are accessible only to people who have signed up to the Independent Power Producer (IPP) website. Such registration comes with an R 15 000 fee, and our information is thus sourced from secondary sources where available.

The sites were selected in order to provide a geographic spread covering the Western, Eastern and Northern Cape provinces, and to cover diverse technology choices. We focused on geographic areas where most projects are already operational, and where a flow of income should already be reaching beneficiary projects and communities.

¹ In this respect, it follows a similar approach to the EG-SA review of 2014

FINDINGS & RECOMMENDATIONS

To date, the REI4P has delivered limited socio-economic benefits. There are very few cases of good practice, with the majority of IPPs falling back on a corporate social investment (CSI) approach.

Our research does not support the continuation of this welfare system within the REI4P. Our findings show that it continues to maintain and exacerbate current inequities in power relations between impacted communities and RE IPP developers.

The REI4P has been able to provide short term construction employment for local people and there have been some instances of technical training to enable locals to be employed during the operational life of the plant. The renewable manufacturing industry has potential to employ more people, but growth in manufacturing is dependent on increasing the proportion of renewables in the energy supply plan.

Manufacturing jobs are likely to be in urban centres and not in rural affected communities. It may be possible to create many jobs in the future, but, for now, the focus of community stakeholders is far less about direct jobs, and more about how the structure of the IPP revenue flows could lead to socio economic development and livelihood creation at community level in the near term. This would firstly improve the lives of affected communities, and provide a means to invest in the future and therefore enable those communities to break the poverty cycle.

As part of constructive engagement with the REI4P and in support of additional renewable energy supply for South Africa, we submit the following recommendations:

1. The REI4P in its current form should not extend beyond Round 5, as the entire RE programme needs re-conceptualisation.
2. National government has identified a number of challenges, and their response should include developing an integrated and comprehensive approach to the widest possible use of renewable energies (including solar water heaters, rooftop PVs and the prioritisation of labour intensive production and processes).
3. Government should prioritise labour intensive production and processes in order to explicitly maximise the employment potential of renewable energy.
4. Government should set up a multi-stakeholder task team (including national, provincial and local government, renewable industry, labour, NGOs and affected community organisations) to review the current REI4P implementation model in order to address the consequences of the current bidding and implementation process for affected communities.
5. The IRP update should be prioritised urgently and further annual iterations of the IRP review undertaken in order to support job creation.
6. Socio-economic developments arising from the fullest possible use of renewable energy must return to being direct government responsibilities.
 - o Local government is the locus of local community development and service delivery.

Renewable energy projects should be included in the IDP and a priority focus should be directed towards

local municipalities to ensure that their IDPs meet the needs and aspirations of the constituent communities.

- o The role of local government in the REI4P has been woefully neglected and there is a need for cooperative governance between national and local government to be strengthened.
 - o A number of individuals with community development expertise, including community leaders, CLOs, NGOs and consultants have been able to achieve some social change within the current REI4P system. These individuals should be drawn into a supportive team that can strengthen accountable local government and intervene to enable community empowerment to take place in the current affected communities.
7. The municipal development fund model that directs revenue from development projects into a local government fund, should be investigated for replication in municipalities with IPPs within their boundaries. Such a fund can be used to direct SED and ED funds towards IDP priorities.

Suggested improvements to the existing REI4P projects, which will be with us for at least twenty years, include:

- a) Local government officials all felt that the local government could play a role in monitoring progress of how the IPP is supposed to carry out its SED and ED. This would then enable the national government IPP office to monitor and cross check how the IPPs were fulfilling their SED obligations.
- b) The SED, ED plans and the formation of the community trust formation should not form part of the competitive bidding process, but can be implemented in a transparent and cooperative manner after the IPP has won the bid. All SED, and ED plans should be transparently available to the local government and the community.
- c) Money has been spent on genuinely useful projects of benefit to the affected communities, but money has also been spent on projects that are not useful and in some cases were actively resisted by the communities. There is no clarity on what does, or does not qualify, and IPPs do not disclose decision-making criteria. Clear guidelines for SED and ED are needed from government.
- d) Working with impoverished communities who might have high expectations and understandably get frustrated at delays, is a task requiring considerable skill. Drawing on the CALS mining study, CALS (2016) identifies the following skill set as necessary for constructive engagement: community engagement, gender and race awareness, developmental economics, social justice and constitutionalism. Such training should be mandatory for any consultants, CLOs or other industry personnel.
- e) In order to understand community dynamics and participatory decision-making, it is recommended that industry associations organise training seminars both for top management, middle management and for community liaison officers. Such training should be given by organisations skilled and experienced in working with communities.
- f) Skills training and mentoring are a key part of empowerment and, given the history of South Africa, and lack of role models in most communities, such mentoring processes are a crucial part of building confidence in leaders to participate effectively in both project implementation and governance. Community liaison offices and Trustees could benefit from a shared platform where they can meet to share experiences, and for those with skills and experience to mentor those less experienced.
- g) All existing trusts should have democratically elected community trustees. Trustees that have not been elected through a democratic process within the community should be removed from the trust and new trustees elected.

2. Introduction

Sustainable energy security for South Africa is dependent on the successful implementation of Renewable Energy. Transitioning away from an electricity supply based on non-renewable sources (coal and nuclear) is no longer an option but a necessity in light of the climate change crisis.

South Africa's electricity supply is dominated by an ageing coal fired power station fleet that historically served the demands of business and industrial sector that use 75% electricity generated (DoE 2011). After 1994, the new democratic government proposed a diversification of energy supply to include various forms of renewable energy.

Renewable energy, derived primarily from solar and wind, lends itself to a decentralised model of energy supply, and international examples demonstrate its potential to develop energy cooperatives, and empower local communities. The growth of a new economic sector that has reportedly created 7.7 million jobs globally in 2014 (IRENA 2015) has the potential to deliver much needed decent sustainable jobs in South Africa.

The development of technological advances within the renewable energy sector, combined with the development of smart grid technology enables a decentralised energy system, reliably able to supply energy for all sectors of the South African society. Eskom's reluctance to invest in renewable energy and its continued support of coal, and recently nuclear energy remains a key stumbling block to renewable energy implementation (Paton 2016).

AIDC's one million climate jobs initiative (OMCJ) developed a model of public sector led renewable energy roll out that would rehabilitate the degraded environment, address climate change and result in more than 150 000 decent sustainable jobs in the energy sector. Such a campaign aims to restore dignity, reduce poverty and grow economic sectors that support sustainable development.

Initially envisaged as a feed in tariff, South Africa's initial renewable energy implementation morphed into a competitive bidding system which identified the private sector as the implementing agency for renewable energy in South Africa. South Africa's Renewable Energy Independent Power Producers Programme Process (REI4P) was one of the programmes identified as a climate change flagship programme in the National Climate Change Response White Paper published in 2011. It was jointly launched by the Department of Energy (DoE), national Treasury, the National Energy Regulator of South Africa (NERSA) and state electricity utility, Eskom, in 2011.²

The South Africa's Renewable Energy Independent Power Producers Procurement Programme (REI4P) has been acclaimed internationally for its ability to deliver electricity into the grid on time and within budget. However, government is also expecting to see societal change through this 20 year programme, but has relinquished its responsibility for this to the private sector. In addition to creating jobs, the REI4P is also expected to deliver socio-economic benefits to local South African impoverished communities, within 50km of the renewable energy power stations.

The global economic system of the 21st century includes companies with access to larger amounts of capital than medium sized countries. Such capital is not only able to move around the globe looking for the best returns but is also able to negotiate to bend or to ignore national laws set up to protect local communities, the environment and workers. In the mining sector, in South Africa, evidence abounds concerning the inability of the government to enforce the socio-economic requirements of mining companies. Marikana underscores these problems (Amnesty 2016).

Within a South African context, the legacy of allowing the private sector to dictate socio-economic development for affected communities, is found in the mining sector.

² Please refer to the 2014 review for further information on the assessment (see the EGI-SA web site Tools and Downloads at: http://www.egi-sa.org.za/downloaded_documents/ or from <http://thegreenconnection.org.za/doaction/wp-content/uploads/2015/04/EGI-REI4P-review-2014.pdf>

Experience, both international and local, demonstrates the impossibility of any fair and just agreement being reached given the unequal power relations that exist between mine owners and mine affected communities. The Social Labour Plans (SLPs) are supposed to provide for mining affected communities to receive benefits from the mine. However, research shows that for a number of reasons, due to the disparity in power relations, the SLPs fail to deliver anticipated social benefits (CALS 2016). In many African countries, extractive industries have been seen as an economic benefit, supposedly bringing jobs and development to the people of Africa. However, these industries have mostly resulted in economic upheaval, and environmental harm. In neighbouring Mozambique, while approximately 3000 Mozambicans are employed in the coal mines, around 17 000 people have lost their farmland and their livelihoods due to mining, and failed to receive adequate compensation (Justica Ambienta 2015).

Foreign investment in extractive industries aims to maximise profits, leading to failure to implement any social programmes or environmental safeguards. Local affected communities lack the power to challenge their operations. The profits return to the foreign investors, and the communities bear the negative injustices. Although renewable resources do not carry the same environmental hazards or land alienation as extractive industries, it is likely that affected communities will be similarly disempowered and unable to challenge company decisions, under a similar private investment model.

Parastatals, such as Eskom, appear focused on profits, rather than delivering energy services to all South Africans and upholding their environmental responsibilities. Government seems unable to rein them in. Eskom has received exemptions from implementing air quality improvement equipment at their coal fired power stations; the CEO ignores government policy and proposes to refuse to implement its part of the REI4P, i.e. to connect the IPPs to the grid; and the energy regulator has recently been found to have acted unlawfully in giving Eskom yet another electricity price increase (CER 2014, Paton 2016, Fripp 2016).

At this time in our history, massive public resources are being directed towards the roll out of false climate change solutions such as nuclear power plants (estimated R1 trillion), while renewable energy implementation is reliant on the private sector for delivery.

For the REI4P, government has put in place conditions whereby the private sector has to fund community development, whereas Eskom power stations of Medupi and Kusile did not have to implement the stringent SED requirements of the REI4P programme. IPPs have shown themselves skilled at generating electricity and have performed outstandingly in this regard, but are not experienced or skilled in implementing service delivery at a local community level.

In essence, the REI4P expects renewable energy companies, whose institutional structure and mandate is to minimise costs and maximise profit, to carry out local government mandates of local community development, and service delivery that is rightly the responsibility of the state.

Within this context, this review critically examines the model of socio-economic service delivery and job creation as currently being implemented by the REI4P.

This report attempts to gain a sense of whether this approach is creating decent full time jobs and delivering services to those affected communities and the extent to which this approach is empowering communities to identify and implement opportunities beyond the renewable energy projects.

As such, it is not a criticism of renewable energy, but rather a critique of process of implementation. This review report serves as a part of civil society monitoring the implementation of this government programme.

3. The REI4P – model of implementation

South Africa's Department of Energy (DoE) is responsible for implementing RE policies and measures.

In 2011, the DoE gazetted the Integrated Resource Plan (IRP2010), an electricity supply plan that proposed 42 % of new electricity capacity initiated between 2010 and 2030 must be generated from renewable energy. This would require a capacity of 18 800 MW. This plan was acknowledged to be outdated and in November 2013, the DoE published the IRP2010 update for comment.

The IRP2010 update contains a base case and a number of alternative scenarios.

Positively, the IRP update offers a decision-making tree approach that enables flexibility in securing supply options that are dependent on electricity demand. It suggests delays and amendments to nuclear and coal technologies, while continuing to support the current renewable bid programme with additional rounds of renewable energy each year (of 1000 MW PV, 1000 MW wind and 200 MW CSP capacity) (DoE³ 2013a). However, as at September 2016, the IRP update had not been accepted by government, and is itself now out of date (De Wet P. 2016, Matthews C 2016).

This failure to update the IRP creates uncertainty over the future of renewable energy in South Africa. This is not helped by a dogged persistence in promoting outdated expensive technologies such as nuclear energy and basing their need on an out of date electricity demand (Matthews C. 2016).

The IRP update has yet to be finalised, but given the rapid uptake of renewable energy worldwide, it is anticipated that the finalisation of the IRP update would lead to increased demand for renewable energy supply.

The current REI4P is one government initiative that is being rolled out by the private sector. In November 2010, the Department of Energy (DoE) and National Treasury entered into a memorandum of agreement with the Development Bank of South Africa (DBSA) to facilitate the entry of the private sector into electricity generation, and established the IPP office to procure renewable energy.

The REI4P was tasked with deploying 3 725 MW of renewable energy by 2016, and part of the motivation is to contribute to a transition away from South Africa's dependence on fossil fuel generated electricity, and contribute to the climate mitigation targets that President Zuma committed South Africa to at the international government meeting COP15, in December 2009.

The stated aim of the Renewable Energy Procurement Programme is not solely to increase a supply of electricity to the grid but to achieve a shift towards a more sustainable society. According to the DoE Independent Power Producer (IPP):

"This IPP Procurement Programme has been designed so as to contribute towards the target of 3 725 megawatts and towards socio-economic and environmentally sustainable growth, and to start and stimulate the renewable industry in South Africa (DoE 2013)."

In addition, both the National Development Plan and the Department of Economic Development identified renewable energy related manufacturing and job creation as a growth area within the South African economy. Figure 1 provides the numbers of jobs created to date (given in job years).

³DoE irp2010 update – November 2013.

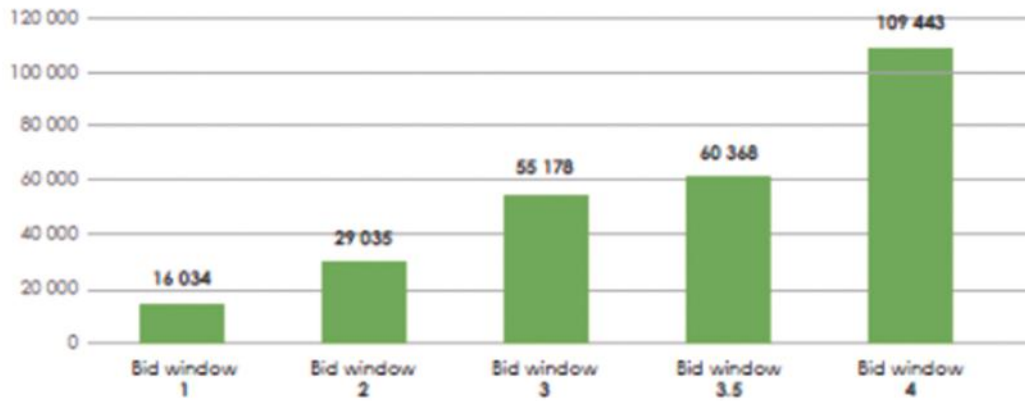


Figure 1: Cumulative job opportunities in job years (DoE IPP review 2015)

According to the DoE requirements, the aim of the community trusts is to ensure that a proportion of the renewable energy project income is directed towards local economic development of communities (refer to Appendix B, an extract from which is reproduced in Table 1 below). There is also a mandatory provision for communities to hold equity or ownership of wind and solar farms.

Our reading of the aims of the REI4P is to provide a mechanism for the community to have control of their future, to make decisions about their needs and to have some resources to implement their decisions.

Table 1: Extract from Appendix B relating to community ownership

Shareholding by local community	2.5% - 5% of project shareholding	The defined local community will have an ownership share in the project company. There are no explicit requirements on how these contributions should be spent, but would probably need to be developmental in nature
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The DoE requirements for RE projects include that a certain proportion of project revenue should be spent in the community to encourage socio-economic development⁴. Refer to Appendix B: Economic development requirements for local communities (an extract reproduced in Table 2 below)

Table 2: Socio-economic development requirements (from Appendix B)⁵

Socio-economic development	1 - 1.5% of project revenue	These contributions should be directed towards activities that facilitate sustainable access to the economy for beneficiaries. These contributions can go towards a wide range of activities including rural development, the environment, infrastructure, enterprises, reconstruction of undeveloped areas, development programmes for women or youth, education, health care as well as arts and culture and sports.
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⁴ Tait et al 2013. . Table provided by Louise Tait, Energy Research Centre, UCT. Adapted from part C of the phased assessment REIPPP Request for Proposals document.

⁵ For a more detailed analysis/description of the design of the REI4P, please refer to the 2014 rei4p review. See <http://thegreenconnection.org.za/doaction/wp-content/uploads/2015/04/EGI- REI4P-review- 2014.pdf>

There are various criteria and targets for diverting revenue generated by the IPPs into community development but with almost zero guidance on how to do this. In such a vacuum, consultants, many drawn from the problematic mining sector, have stepped in and facilitated such SED and ED processes.

The monitoring process for such spending is carried out by government. Government relies on quarterly reports from companies on the amount of funds spent, but with little guidance on what and how to spend, the verification process appears to be little more than checking whether the money has been spent.

Renewable Energy is the future for South Africa, and hence it is essential to implement it in the best manner possible. The research findings of this report are simultaneously an affirmation of renewable energy and a critique of the current form in which it is being implemented.

A 2014 review found serious shortcomings in the manner in which socio-economic benefits were rolled out. The research found that communities had not been consulted about the potential benefits of wind farms and that few community trusts had been established, and the only benefits that had arisen from the renewable energy projects were a limited number of construction jobs. Project Developers were adamant that the reason that communities were not able to point to definite benefits was that it was too soon, that once the projects were operational, community trusts established and community benefits would flow.

For the 2016 review, the research team included contributions from two Stellenbosch post graduate students, who had spent a few weeks in the field in the Northern Cape investigating how the projects there were being implemented. In addition, there were two volunteer AIDC research assistants drawn from community organisations involved in the AIDC led one million climate jobs campaign.

4. Methodology

This review draws on focus group discussions and interviews with community representative from various renewable power producer sites, in addition to the publicly available information and insights from government, academic and industry representatives⁶.

The research team visited three areas (refer to Figure 2 and Appendix C), where REI4P projects have been approved, in order to meet with representatives of different stakeholders interested and affected by the renewable energy projects. The discussion focused on the experience of the interviewees to date, their knowledge of how the community had been consulted, their understanding of renewable energy projects, particularly of how communities have benefitted.

Figure 2 illustrates the areas where our field work took place. The red circles provided an indication of where we went, and the IPPs within the areas we visited are indicated as blue (wind) or orange (solar). The map below indicates all projects bid window 1 to 4. It shows that the areas we visited are not only where operational IPPs are but also the places where construction and future planning for additional renewable energy capacity is taking place.

Figure 2 was sourced from the energy blog website, a site that provides independent news and knowledge of matters of interest to the renewable energy sector in South Africa (<http://www.energyblog.co.za>)⁷.

⁶ In this respect, it follows a similar approach to the EG-SA review of 2014

⁷ For further information about the specific projects that are underway in these study sites, please refer to the energy blog website. www.energy.org.za

Figure 2: Field work sites for the REI4P review 2016



The individuals interviewed for this study were all part of community leadership structures, the assumption being that they were best placed to be consulted about developmental decisions in their areas, either via ward committees, IDPs or other structures. This community leadership included trade unions, politicians, and local government officials, local NGOs, business groups and civil society groups that participate in community meetings. Academics, project developers, consultants and particular beneficiaries in local communities were also consulted. (See Appendix B)

One of our goals was to interrogate how decisions about Socio-economic development (SED) are made, on the premise that real community development is not about being passive recipients of benefits but also includes owning the decision-making process to determine which socio economic benefits are acceptable in a specific community.

The sites were selected in order to provide a geographic spread, in each of the Western, Eastern and Northern Cape provinces, and to cover diverse technology choices. The Northern Cape has the most solar plants, the Eastern Cape has the most wind plants, and the Western Cape has a mix. In travelling across the three provinces, we did not perceive a marked provincial difference in how the projects were rolling out. The Eastern Cape has a concentration of power plants in a small area and theoretically would therefore have to create different community trusts in the same communities, for each project. The Project developers are attempting some consolidation of trusts to avoid such duplication. However, relations between IPPs, local government and the community are the most strained in the Eastern Cape, while in the Western Cape, the relationship between IPPs and local government is rather characterised by its non-existence.

Table 3 details the proportion of projects in the various bid windows that we were able to cover. In the Eastern Cape, the projects selected were wind, with solar in the Northern Cape and a mixture in the Western Cape. In addition, we obtained some information regarding community involvement in additional projects that are at the planning stage, and some additional information from developers of projects in other provinces as well as from academics who have examined all projects. In total, we covered the sites of more than a third of operational projects in the three provinces and were able to visit 82% of the Eastern Cape sites.

Table 3: Proportion of projects in the different provinces where site visits took place

	National IPPs (fully operational)	Reviewed	% National	W.Cape reviewed/ exist	W.Cape %	E.Cape Review/ exist	E.Cape %	N.Cape reviewed/ exist	N.Cape %
Window 1	29 (29)	9	31%	2 of 4	50%	5 of 5	100%	2 of 15	13%
Window 2	18 (17)	8	44%	2 of 4	50%	4 of 6	67%	2 of 6	33%
Window 3	19 (3)	3	16%	0 of 1	0	2 of 2	100%	1 of 12	8%
Window 4	26 (0)	5	19%	0 of 3	0	3 of 4	75%	2 of 13	15%
TOTAL	92	25	27%	4 of 12	33%	14 of 17	82%	7 of 46	15%
BW 1-2 reviewed	47	17	36%	4	50%	9	82%	4	21%

Given that much of the information we gathered were the perceptions of stakeholders within communities, it was particularly important to identify trends of issues rather than relying on one person’s opinion. Wherever possible, documentary evidence or corroboratory testimony was sought. The data gathered from the conversations have been aggregated and all individuals’ inputs have been treated confidentially, although many interviewees were keen to be quoted.

In this report, we saw examples of best and worst practice of community development and we have drawn from these examples to provide some illustrative case studies, aggregating examples from various sites to avoid breaking our confidentiality promises.

We used a set of guiding questions (see Appendix A) to guide discussions. In many cases, few of the questions were applicable, due to the lack of understanding of the REI4P process or its implementation.

Limitations of this review:

There are now 92 projects under planning and construction and within our resource limits, it was not possible to visit all 92 projects. We focused on geographic areas where most projects are already operational, and where a flow of income should already be reaching beneficiary projects and communities. The research focused on the bid window 1 and 2 projects as these are mostly already generating power and are at a phase in their development where there is added emphasis on engagement with local communities within the 50km radius in order to determine how to distribute the financial benefits to communities. One of the limitations of such a review is the reliance on data that is in the public domain. Documents such as the social development plans for each project are not publicly available, neither are the commitments that IPPs have made to the community, despite public calls for transparency. Even the detailed tender requirements for such social development plans etc. are still accessible only to people who have signed up to the Independent Power Producer (IPP) website.

This report attempts to gain a sense of whether this approach is creating decent, full time sustainable jobs, delivering services to those affected communities and the extent to which this approach is empowering communities to identify and implement opportunities beyond the renewable energy projects.

The REI4P model of development is flawed in that it is mostly international renewable energy companies, operating for profit, that are expected to deliver socio-economic benefits for affected communities. The balance of power is similarly unequal, as for the mining sector, and the model of renewable energy development is therefore similarly flawed. However, South African has entered into 20 year contracts for the delivery of renewable energy using this development model. Part of the focus of this review therefore, is to examine the impact of such a developmental approach on affected communities.

5. The implementation of the REI4P

The success of the REI4P has been internationally acclaimed. This success relates to the ability of the programme to deliver renewable energy projects that are financially viable, deliver electricity into the grid on time and on budget. The renewable programme has gone a long way to establishing the importance of renewable energy, including its role in addressing climate change. The programme has been well thought out and managed from the electricity delivery perspective and has contributed to keeping Eskom's electricity system functioning in light of the abysmal performance of the ageing coal fleet, and the failure of new coal fired power stations to deliver.

The REI4P is one of the country's climate change flagship programmes and key highlights include:

To date, the programme REI4P has 1860MW capacity operational, with 6327 MW procured out of a determination of 15 834 MW. The proportion of solar and wind projects are indicated in the Figure 3 below.

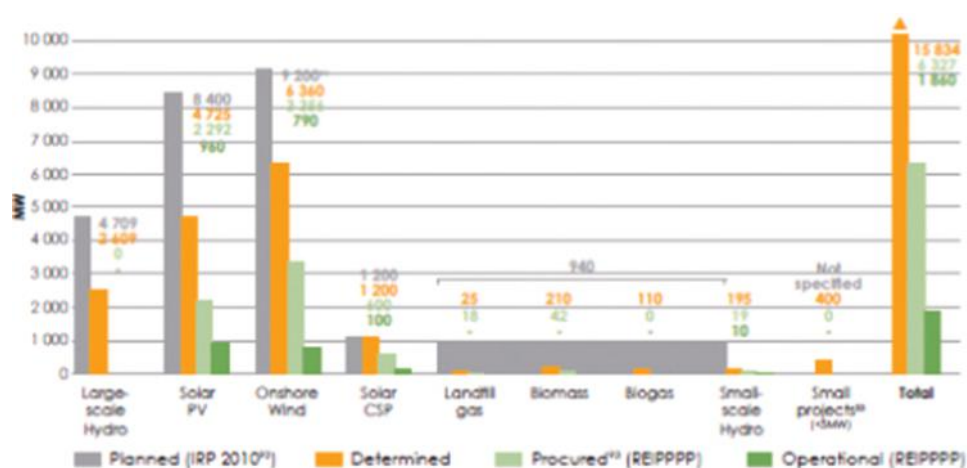


Figure 3 RE capacity planned, determined, procured and operational as at 30 June 2015

The REI4P requires a significant diversion of revenue to local communities, as can be seen from Figure 4 below.

Element	Requirements	Description
Shareholding by local community	2.5% - 5% of project shareholding	The defined local community will have an ownership share in the project company. There are no explicit requirements on how these contributions should be spent, but would probably need to be developmental in nature.
Employment	12% - 20% of South African employees	This requirements requires that a percentage of the South African employees in the project should come from the local community.
Enterprise development	0 - 0.6% of project revenue	Enterprise development refers to contributions to black-owned businesses with the specific objective of assisting or accelerating the development, sustainability and ultimate financial and operational independence of that enterprise.
Socio-economic development	1 - 1.5% of project revenue	These contributions should be directed towards activities that facilitate sustainable access to the economy for beneficiaries. These contributions can go towards a wide range of activities including rural development, the environment, infrastructure, enterprises, reconstruction of underdeveloped areas, development programmes for women or youth, education, health care, as well as arts and culture and sports.

Figure 4: Description of economic development requirements with respect to local communities (Tait 2013)

The IPPs committed to the formation of community trusts with community ownership and with socio-economic and enterprise development aimed to benefit people living within a 50km radius of the project ⁸

⁸ For a more detailed analysis/description of the design of the REI4P, please refer to the 2014 rei4p review (<http://thegreenconnection.org.za/doaction/wp-content/uploads/2015/04/EGI- REI4P-review- 2014.pdf>)

6. Financial Flows – where did the money come from and where is it going?

According to the DoE overview of the REI4P as at December 2015, the following flow of finance has taken place within the REI4P.

According to the State of Renewable Energy in South Africa report of 2015, investment into the renewable energy programme equals R193 bn over all bid windows (Bid Window 1-4), of which 28% (R53 bn) is foreign investment (debt plus equity) (DoE 2015a).

South African private financial institutions financed 45% (R57.8bn) of the total IPP investment, while state owned institutions (SOEs) and development finance institutions (DFIs) cover 22% of the total project costs. Of this 22%, the Industrial Development Corporation (IDC) has invested 25%, the DBSA has 16%, with GEPP/PIC⁹ having 7%, and the Central Energy Fund having 13%. This is for a total of 92 projects of which 37 (1860MW) were operational as at end of June 2015 (Dept. of Energy and National Treasury 2015)¹⁰.

Once projects become operational, money starts to flow into various socio-economic and enterprise development within local communities. Over bid window 1-4, R19 billion has been committed to socio-economic development with R6 billion committed for enterprise development.

In addition, community ownership of projects is required, most of which has taken place through community trusts. The amount of money that will end up in community trusts over the life of the projects is R29.2 bn, which if averaged out over the life of the projects would amount to R1.46 bn per year. However, the way in which the projects are financed is such that the financing debts must be repaid before money is available for community spend. Figure 6 shows how the community trusts financing is structured.

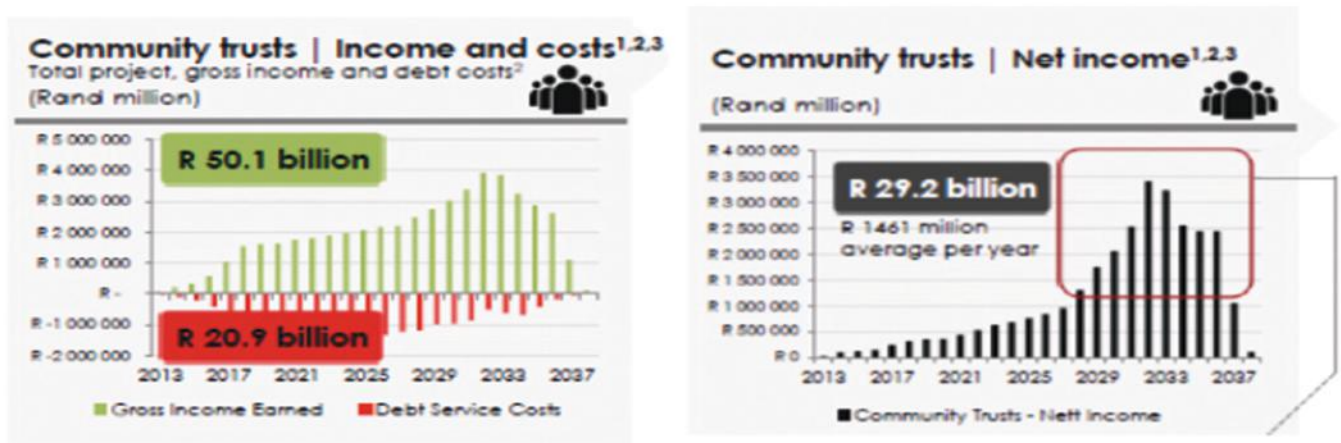
Communities do not have the capital to invest in renewable energy projects and the community trusts are financed through loans from financial institutions such as the IDC.

In general, for each of the community trusts, the loan must be repaid before income flows to the community, although there is a trickle dividend that flows to the community at present. The end result is that within the current financing structure, the bulk of the money will only start flowing in 2028.

⁹ Government Employees Pension Fund managed by the Public Investment corporation.

¹⁰ Although additional projects have come online since the publication of the IPP review report, for consistency, all data provided are taken from the office DoE IPP Dec 2015 report unless otherwise indicated.

Figure 6: structure and timing of flows of finance into community trusts.



The socio-economic contribution over the entire programme is R19.2 bn of which R136 million (amounts to 1% of revenue from 37 operating projects at this time) has been committed to date.

Table 4: An analysis of the allocation of SED spend to date¹¹ :

category	Detailed description of some of the projects ¹² that received funding to date.	% spend	Amount
Education	Early Childhood Development (ECD) centres Primary School High School Bursaries for students Alternative education programmes for youth After school education programmes for youth Skills development programmes for youth	40%	R54 mill.
Welfare and social (11%) and Health Care (3%)	Sport opportunities for youth Elderly participating in sport to keep healthy Provide support for feeding schemes Provide trauma counselling centre and training for counsellors Support for elderly Provide activities for children and youth	14%	R19 mill.
infrastructure	Solar street light project – provide street lights in town, create temp jobs, provide skills training	11%	R15 mill.
Management and planning	Principals Academy to improve management of schools, improve resource management at schools and improve collaboration amongst schools in the same area	8%	R11 mill.
Enterprise development	Recycling to promote responsible waste management, job creation, promote environmental awareness	20%	R27 mill.
unallocated		6%	R 8 mill.

¹¹ This information sourced from R. Amansure (PhD candidate) 2016.

¹² The proportional amounts are from the IPP 2015 report and the detailed projects are obtained from academic research, but do not necessarily match the proportionate categories and should be regarded as illustrative.

Of the enterprise development spend, R40 million has already been made to local communities, according to the IPP office report (IPP 2015). In our field work, we could find no evidence of implementation of enterprise development although a few projects were mentioned as potential for future development. As was found in the 2014 REI4P review, community representatives were not clear about the distinction between socio economic spend or economic spend, and could not point to economic enterprise projects. Examples of potential economic enterprise were mentioned by local government officials who had heard of mention of beekeeping, potential rabbit farming and vegetable farming projects but knew of nothing that had been implemented. One IPP described how one community member had opened his own electrical contract business after gaining skills through the project and another Project developer referred to their website which described a few enterprises such as a beauty salon, and ostrich farmers etc.

The enterprise development aspect of the REI4P appears slow in getting off the ground. There were some stories of small business development, but most procurement spend on equipment for the renewable projects is happening in urban industrial zones rather than in the areas where the projects are located.

There is a discrepancy between the extent of economic enterprise found in the field compared to that reported by the IPP office 2015 report. (This is still to be explored with the IPP office.)

7. Jobs Creation, Localisation and new industry development – how far have we come?

What jobs have been created to date and what is the future job creation potential?

Climate jobs – the renewable energy sector

In 2011, civil society, led by AIDC, formed the million climate jobs campaign (0MCJ) which researched how to create a million new jobs as part of tackling climate change. Part of this included jobs in agriculture, alien vegetation clearing, green building refurbishment, energy efficiency and renewable energy. Within the renewable energy sector, it was calculated that there was a potential 15 0000 jobs that could be created. The suite of technologies that could create jobs if developed included solar water heaters, biogas digesters, and solar and wind power generation. According to the data available at the time, about 35 000 direct jobs could be created in the solar and wind energy sectors (Burton 2011).

It is important to note that the REI4P is only one programme of government to implement renewable energy. This report does not look at how the solar water heater programme is rolling out, it does not look at other forms of renewable energy such as biogas, and it does not look at other ways in which renewable energy is rolling out in the country, for example, the installation of roof top PV, and associated industries. Rooftop solar installations fell outside the scope of this study but is a topic for future research. India is indicative of the job potential; it being estimated to employ 72 000 people in the off grid solar PV sector with about 53 000 employed in the grid connected solar sector (IRENA 2015). Appendix F provides a brief overview and includes some potential job numbers.

The 0MCJ campaign defines 'climate jobs' as jobs that are "decent, people- and publicly driven jobs that reduce the causes and impacts of climate change" (AIDC 2011). A decent job provides healthy working conditions, and offers social protection, security and fair wages. Such jobs should meet the international labour organisation definition of 'decent work' and such jobs should meet the social needs of the majority of the population (AIDC 2011).

In the international literature and in government job related data regarding renewable energy, job creation is beginning to be standardised in job-years. The term job-year refers to one person's employment for one year. For example, 40 job years could mean two people employed for twenty years each, or four people employed for 10 years each.

We have therefore used the convention of job years in our calculations of jobs in the renewable industry over the operational timeframe of the plant.

However, there are also construction jobs, temporary jobs that last on average 18 months to two years, during the time of the construction of the power plant. In an area rich in renewable resources, a construction job could extend beyond two years if the worker is able to secure employment at a subsequent power plant site after the first plant is built. However, that analysis is beyond the scope of this report and we have rather distinguished between construction jobs and operational jobs wherever the data provided does so.

Another complication in attempting to count the number of jobs is the distinction between direct and indirect jobs. Direct jobs are those which are directly related to the power plant. For example, workers employed during construction, or during the operations of the power plant, power plant operators, other technical personnel, as well as cleaners and administrative support. Indirect jobs are associated with activities related to the power plant. Examples include the manufacturing of power plant components, or with construction related activities such as cement manufacturing or transport of components to construction sites.

Induced jobs are a category of jobs which arise from economic activity in an area but which are not directly related to the renewable energy industry. For example, an increase in family income due to employment at a renewable energy plant might mean that families eat out more often. An increase in restaurant staff due to an increase in restaurant bookings could be classed an induced job.

In our analysis, we mention the induced jobs, as calculated by a South African government study but our focus is on the direct and indirect jobs that can be directly attributed to the renewable energy sector.

Renewable energy jobs - international

International experience of the renewable energy sector and its history of job creation is useful to examine to assess the potential for South Africa. This report does not examine the world's renewable energy job creation in any detail but as an example, we have drawn on BRIC countries who have expanded their renewable energy substantively over the last few years.

Worldwide in 2014, the total world renewable energy capacity was 657GW, with about 550GW from solar PV and wind power, and India contributed 25GW to this (REN21, 2015).

Renewable jobs¹³ reached about 7.7 million worldwide in 2014, and the top ten countries with the largest renewable energy employment were China, Brazil, USA, India, Germany, Indonesia, Japan, France, Bangladesh and Colombia. In Brazil, jobs in the wind sector rose 12%, with an estimated addition 35800 jobs created, of which 14 000 were in manufacturing. The number of wind power equipment manufacturers has risen from one to ten since 2007, while the power capacity has increased from under 1GW in 2010 to nearly 6GW in 2014 (IRENA 2015). India has created 437 000 jobs in the renewable sector, with approximately 173 000 attributable to the solar PV and wind power sectors. Given that India's total renewable energy installed capacity of 42849MW¹⁴ is roughly equivalent to South Africa's current installed capacity of 42090MW¹⁵, this provides an approximate indication of the potential for renewable energy jobs in South African, should we convert all of our existing fossil fuel derived power to renewables. Note that the numbers provided in the Table 5 include both direct and indirect jobs (IRENA 2015).

¹³ The IRENA report does not refer to job-years but refers to jobs created often in a particular year. Given the difficulty in counting jobs, and the references used in IRENA, our cautious note is that these are assumed to be job years for a particular year, whether or not they last for as long as a whole year.

¹⁴ https://en.wikipedia.org/wiki/Renewable_energy_in_India accessed 15th August 2016

¹⁵ Eskom website accessed 20th August 2016

Table 5. Estimated Direct and indirect jobs in Renewable Energy worldwide¹⁶

JOBS IN RENEWABLE ENERGY (Data source IRENA 2015)
ESTIMATED DIRECT AND INDIRECT JOBS IN RENEWABLE ENERGY WORLDWIDE, BY INDUSTRY

	World	China	Brazil	United States	India	Japan	Bangladesh	Germany	France	Rest of European Union
	in THOUSAND JOBS									
Biomass	822	241		152	58			52	53	238
Biofuels	1788	71	845	282	35	3		26	30	42
Biogas	381	209			85		9	49	3	14
Geothermal	54			35		2		17	33	54
Hydropower (small)	209	126	12	8	12		5	13	4	24
Solar PV	2495	1641			125	210	115	56	26	82
CSP	22			174				1		14
Solar heating/cooling	764	600	41		75			11	7	19
Wind power	1027	502	36	73	48	3	0,1	138	20	162
TOTAL	7674	3390	934	724	437	218	129,1	371	176	653

How is South African doing to date?

Part of the aims of the REI4P were to develop enterprises and grow the REI4P as a renewable industry that could be part of the 'green economy' goals of government.

From the renewable energy company reports, the IPP office has calculated the number of jobs created to date and over the entire programme, as well as detailing enterprise development and any localisation of renewable energy industry that is taking place in South Africa. The calculation of jobs is reported in job years but the various sources we consulted to obtain the job counts did not agree with each other. The provincial REI4P reports for Northern Cape, Western Cape and Eastern Cape were in a similar format, but did differentiate between construction jobs, operation jobs and provided the number of locals employed. However the report which covered Gauteng, North West, Limpopo, KZN, Free State only provided one job number and it was not clear how many local community members had gained employment. The total number of job-years reported for the E.Cape and N.Cape in their provincial reports are for 16 and 42 projects respectively. The national Dec 2015 report (DoE 2015) reports a total of 19 033 job years to date. It does not distinguish between construction and operation jobs but does provide totals for the different provinces.

The job numbers for the Northern and Eastern Cape include an additional project in the Eastern Cape and an additional 6 projects in the Northern Cape and the total provincial job count is correspondingly increased. The national IPP office report (DoE 2015) provides a total job estimate of 109 443 job years for Bid Window 1-4 (page 97) but this number does not correspond to the sum of their provincial totals, 107 347 job years, calculated from data provided on page 99. The discrepancies in the job data available from the IPP office reports as described above simply highlights the difficulty of obtaining accurate job creation data.

¹⁶ Key to footnotes contained within the Table: a Power and heat applications (including heat pumps in the case of European Union). b Although 10 MW is often used as a threshold, definitions are inconsistent across countries. c About 304,400 jobs in sugarcane and 199,600 in ethanol processing in 2013; also includes 200,000 indirect jobs in equipment manufacturing, and 141,200 jobs in biodiesel in 2014. d Equipment manufacturing and installation jobs. e Biomass power direct jobs run only to 15,500. f Includes 232,633 jobs for ethanol and 49,525 jobs for biodiesel in 2014. g All solar technologies combined. h Traditional biomass is not included. i The total for 'World' is calculated by adding the individual totals of the technologies, with 3,600 jobs in ocean energy and 8,300 jobs in R&D in Germany. j All EU data are from 2013 and the two major EU countries are represented individually. k Includes 8,300 jobs in publicly funded R&D and administration; not broken down by technology.

For our analysis, using the provincial reports from the three major renewable energy provinces, we were able to obtain an idea of the construction jobs and the operational jobs. Although the data were provided in job-years, we were able to calculate the number of direct construction related jobs for local community members (assuming average construction of 2 years).

Table 6 show how the construction and operational jobs are spread across the provinces. The construction figures provided by government from the industry, and those estimates given by community representatives during our field work appear not to diverge too widely and there is agreement in the number of operational jobs as being very few.

Table 6: the REI4P provincial distribution of jobs indicating both job years and sustainable operational jobs

	No of IPPs (BW 1-4)	No of construction jobs BW 1-4 (jobyears)	No of operational jobs BW 1-4 (jobyears)	Percentage of jobs retained in local communities	No of local people employed in construction	No of local people in operations
E.Cape	17	4734	13139	53%	2509	348
N.Cape	48	20857	32327	51%	11888	1616
W.Cape	11	2340	7933	45%	1680	165
Other	16	15818	1878	n/a	n/a	n/a
TOTAL	92	43749	55277		16077	2129

The trend is that a portion of construction jobs are sourced within the community adjacent to the renewable project. There are likely to be somewhere between 180 to 300 jobs. The project contractors travel from project to project with their team of skilled workers. Our interviews with communities on the ground found that at the construction period, people did gain employment. Within affected communities, estimates were that about 180 to 300 people gained direct employment in any particular community. Post construction, our field work indicated that there were very few jobs, and these were generally not for those from the surrounding communities.

Once operational, there are very few jobs at the power plant itself, 5-15 and a few additional job opportunities for security or cleaning services. One case in the Western Cape illustrates a common trend. During construction there were up to 1000 jobs but only 15 now that the wind farm is **operational**. Additional services such as cleaning, roads maintenance have been local procured, as well as security services. This provides an additional thirteen permanent jobs, with eleven of those sourced from local community, a total of 28 jobs.

In another case, the IPP has trained 4 local community members to be part of the operations of the plant at a low skilled level. One of these four has been provided with funding to increase their qualifications and the aim is for this person to become the technical operator of the IPP in the future.

In our discussions with stakeholders, the question of quality of work experience was also raised. Although we were not able to get specific wage rates, there has been some unjust labour practice, which has led to community protests. However, the stakeholders we spoke to knew of isolated incidences of bad practice, but on the whole people felt that they had benefited from local employment during construction. Interestingly, operational job expectations were not high, and there was much more interest in how the socio economic spend could be invested so as to create more jobs.

According to the DoE (2015) a cumulative 109 443 job years would be created over the 5 bid windows. Using the provincial IPP office reports, it was possible to calculate the numbers of local community people who were employed. This is included in Table 4.

The DoE commissioned a study to examine the potential localisation of various energy generation options as part of the IRP update. This study, headed “Socio-Economic Deep Dive –final report” uses detailed calculations to estimate the potential benefits of localising different energy generation technologies.

Critically, the DoE deep dive localisation study (DoE 2014) assessed how ready South Africa was to localise – whether we already had the existing capacity, needed some short term investment or whether we would never be able to localise the industry at reasonable cost. This study used the multipliers (0.84 jobs for every direct job) for indirect and induced jobs (1.18 jobs for every direct jobs) to estimate how many jobs could be created over time with a shift to renewables. The study then presented a colour coded series of results which were coded according to the ability to localise. For further reading, extracts of the study are attached as Appendix D. Using the DoE localisation study (DoE 2014) , and the direct job estimates of 21 875 construction jobs and 2 764 operational jobs, we calculated an additional 20 697 indirect sustainable jobs would also be created for the REI4P. If we include the induced jobs multiplier, the numbers of sustainable jobs created included a further additional 29 074 jobs.

But this is only for the REI4P, (BW 1-4 will total a cumulative 6327MW). Increasing the amount of renewable energy in our mix as we transition away from fossil and nuclear energy, could yield greater job creation both in power plant build, operations and the associated local manufacturing. Given the diversity in job creation calculation methodology (Rutovitz, Agama, DoE 2014), and the rapid technology advances in renewable energy, it is difficult to accurately estimate the total potential for renewable energy associated jobs.

In creating a simple job calculator (see appendix G), we have used the conventional measurement of job years. Applying the job creation calculations based on the REI4P to a renewable energy capacity of 50% renewables by 2030 (approximate 22000 MW¹⁷) could lead to about 281 500 construction job years. With an assumed output of 48 180GWh per year, this would create a further 66 100 direct operational job years for each year of operation (totalling 1 322 000 job years over a twenty year operational life), with a further approximate 1 110 480 indirect job years in associated industries (over twenty years).

8. Emerging renewable energy manufacturing and localisation.

In our field work, we were not able to visit the industrial hubs with established renewable energy facilities. From a desktop review, we gained the following insights.

According to the IPP office:

“A review of 30 studies covering 15 countries and the European Union as a whole found appreciable, actual or potential, net gains ... in the order of 0.5 to 2.0 percent of total employment, or 15 million to 60 million additional jobs. In emerging market economies such as Brazil, China, Mauritius, and South Africa, green investment was found to accelerate economic growth and employment generation when compared with business as usual. Several studies suggest that more ambitious climate targets would generate greater gains in employment.” (Poschen 2015)

The aspirations of the REI4P were in line with the Green Economy Accord which set a target of 50 000 ‘green economy’ related jobs by 2020 and an “industry wide localisation of at least 35% by 2016, with an aspirational target of 75%.¹⁸

¹⁷ For illustrative purposes, we used 10 000MW wind, 5 000MW solar CSP, and 7000MW solar PV

¹⁸ Green industrialisation story Q3 2015 (IPP office)

The Western Cape and the Eastern Cape have both facilitated the creation of renewable energy industry. According to various academic studies, job creation is dependent on successful industrialisation as most jobs are created in the manufacturing side of the renewable energy sector (Mulcahey 2012).

The design of the REI4P was to use investment in the energy sector to grow industrialisation of the local economy. The DoE IPP office has further highlighted how renewable energy industrialisation is taking place in the Western Cape. For Instance:

- The local manufacturing of concrete wind towers, by an existing concrete manufacturing company in Cape Town, created 116 construction jobs over 10 months. The local concrete company has also been able to realign their quality standards and upgrade to the latest European standards. Prior to being involved in the renewable energy projects, the concrete design standards were based on codes from the 1980's but partnering with an international company has enabled this South African company to upgrade its concrete design to the highest European standards. This should stand it in good stead to gain further renewable energy contracts as the renewable energy industry expands.
- A local company has become a specialist transport company for bringing towers to wind farms. This company had a permanent workforce of 50 people, created an additional 200 temporary jobs during its first renewable energy contract, and has now doubled its permanent staff, with 110 people working there today. An additional spin off is that a separate company that handles permitting aspects of the transport company's work has also increased its staff complement, creating an additional office job.
- This specialist transport company has also been contracted to deliver wind towers from Coega manufacturer to Eastern Cape wind farms.
- There are also other examples of solar companies that have set up in the Eastern Cape, for example a solar PV manufacturer employs 70 permanent employees while a KZN based solar manufacturing plant employs 160 employees full time.

In the Western Cape, a special purpose vehicle, GreenCape, has been established to facilitate the development of the renewable industry in Western Cape. This includes the development of renewable energy manufacturing in Atlantis, which has supplied locally manufactured wind towers to projects in the REI4P. To date, a wind tower manufacturing facility has been established with the creation of 220 direct sustainable jobs. An additional renewable energy company that manufactures wind tower components has also located in Atlantis, creating a further 80 jobs¹⁹.

In addition, skills development has become a priority to ensure that local skills meet the needs of the industry that is locating to Atlantis. The local FET College has now reintroduced welding into the curriculum, while solar PV installation training took place in Atlantis in February 2016. The 2014 review found that upskilling opportunities were not available for welders and this welding training will address a critical concern of trade unions that local welders failed to secure jobs due to not having international welding qualifications.

Although, we were not able to visit the renewable energy manufacturing facilities, we were able to engage with labour representatives who provided some critique of the industry. From their perspective, the jobs were welcomed. However, in some facilities, there had been unfair labour practices.

¹⁹ Although this review did not specifically look at gender aspects of the renewable sector, at least one of the renewable energy companies that manufactures wind turbines in the Western Cape is majority women owned.

For example, workers were employed as interns at pay around one quarter of the minimum wage, while others who were employed as contractors as for a fixed project although the factory continues to operate full time, project following project. Fortunately, the former case has now been resolved through union intervention but the latter is a difficult one to address as the factory is dependent on gaining contracts from individual IPPs, and there is only work if the company continues to get the contracts. However, it would be assumed that the business case for the company calculated the likelihood of gaining sufficient IPP contracts each year to be financially viable. The workers employed there have become skilled in this work over time and unless the management of the company is also on project by project contracts, the failure to provide sustainable jobs to factory workers undermines a crucial part of the government REI4P programme.

In another area where renewable energy factories have been established, labour representatives stated that jobs were secure, there were no labour issues within the companies concerned. One of these companies was a new renewable company but had been an established company in another sector with unionised workforce with sound labour relations.

In Eastern Cape, the 2014 Socio economic review and outlook for the province sees renewable energy as contributing to the economic development of the province in future, but does not provide any details of how renewable energy is benefiting the Eastern Cape socio-economic status to date (DEDEA 2016).

News reports on the East London IDZ indicated that some R2 billion renewable energy investment had been secured, with the potential to create 900 jobs. According to DTI, the ELIDZ is targeting component manufacturing and assembly (SANEWS 2016).

In the Coega IDZ, 2014 media reports highlighted the commissioning of a wind towers factory, which was expected to create 200 operational jobs, and to supply the windfarms in the Eastern Cape (IDC 2016), and another solar plant was to be constructed to supply solar power to the Coega IDZ, and planned to create 2 000 jobs over the next three years in the region (Williams 2014).

The above section provides some indication of how renewable energy industrialisation is starting to take shape in the country, but it was not possible to confirm the state of implementation on the ground in the Eastern Cape.

There is also some media coverage of renewable energy firms that have had to close their doors. Internationally, German company SMA found itself unable to cope with the downward pressure on solar prices. Unfortunately, both the Denver plant in the USA as well as the Cape Town plant will close, "in the face of competition from cheaper, Chinese-made solar power equipment" (Proctor 2016). In addition, SMA criticised South Africa government's "lack of commitment to their renewable energy independent power producer procurement programme" and claimed that this wavering commitment did not contribute to a predictable business environment and could not justify the costs of the factory (Jordan 2016).

Manufacturing jobs are more likely to be generated in the industrial zones close to ports. If we accept that few sustainable jobs will be located at the local area where the power plant is located, the benefits of local economic development to local communities depends on how the revenue stream from the community trusts and the SED and ED spend are directed. If such income is invested in job creation rather than welfare, the money from the renewable energy projects could uplift the local communities out of poverty. Energy related job creation could support small scale sustainable farming through solar powered irrigation, or the use of biogas digesters which could provide gas for agricultural product beneficiation, for example vegetable, fruit preserves ²⁰.

In our discussions with developers, they indicated how they have sourced local companies where possible, and we were directed to the success stories on their website. One project outlined its local procurement spend to include accommodation (presumably of contract staff at B&Bs) and basic services of R11.5 million. According to the IPP, this indirectly benefits the communities by "sustaining employment and boosting the local economy".

²⁰ www.goedgedacht.org

In one case, one of our interviewees told us of a local contractor from the community who had been employed in the construction stage and had now gone on to run his own electricity contracting business.

In the bidding phase of the REI4P, IPPs had approached local black business chambers to support their bid. Such business chamber members told how they were taken to Gauteng to meet the minister etc. in order to help the IPP to win the bid. The business chambers provided letters of support and signed MOUs in support of the bid. These MOUs enabled the IPP to preferentially procure necessary services from the business chamber. However, once the bid was won, the IPPs failed to deliver on the commitments made in the MOU.

In our field work, this practice was detailed in more than one IPP area, and local black businesses were understandably frustrated. In one case, the business claimed to have approached government for assistance but not received a response. In one instance, the local municipality had attempted to facilitate resolution but to no avail and the matter is now in the hands of lawyers. The issue at hand is that the renewable energy projects have changed ownership and the new owners claim no knowledge of the previous agreement and refuse to honour it.

Such practices are indicative of the unequal power relations between large companies and smaller less experienced businesses, or communities who are promised economic benefits for their unconditional support, but are unable to force the companies to live up to such promises. Such practices are not unique to the renewable sector but do provide further evidence that the REI4P design is flawed, and like the mining sector, is unable to address the power imbalances that exist between large corporations and vulnerable communities.

9. Community empowerment and delivery of socio-economic benefits.

The DoE IPP2015 status report refers to the design of the REI4P as to enable it to “capture a share of the value/prosperity from the programme for South Africans and local communities”. Although the weighting of the evaluation of the REI4P bids allocates 30% for jobs, social development and localisation (a departure from the government’s preferential procurement rules of 10%) (Creamer 2011), little local manufacturing and sustainable local economic development has been realised to date.

The DoE IPP 2015 status report (DoE 2015) does acknowledge some challenges faced by Renewable Energy developers within the SED implementation, one of which is that Renewable Energy companies “are not in the business of community upliftment and thus often have difficulty in identifying areas that will effectively address SED in impacted communities”.

This identified challenge is at the core of the design flaw of the REI4P. Government has the responsibility for service delivery. National government creates national plans, for example the National Development Plan (NDP), and at local government level, government creates integrated development plans (IDPs). Government has the responsibility to ensure that such plans are developed consultatively with the participation of the local community stakeholders that they serve. Such plans are accompanied by budgets, transparently drawn up by local governments in consultation with local affected community stakeholders.

The manner in which the REI4P is designed is that the government has shifted its responsibility of service delivery and community development onto the private sector. In effect, a company whose expertise is about investing and building electricity generation power plants, for profit, is now tasked with the same functions as that of local government.

Our fieldwork revealed the unequal power relations and resulting frustrations that occur when large, often international, corporations interact with vulnerable poor local communities. Community leaders cannot negotiate a fair deal, and in stepping out of the way, government leaves communities at the mercy of exploitative practices.

Despite its fundamentally flawed nature, over the next twenty years, 92 project developers have now been contractually obligated to carry out socio economic and enterprise development within the area that their renewable energy projects are located.

Dedicated individual RE IPP developers, academics, community leaders, small business owners, government officials, NGOs, consultants, trade unions, community liaison officers and activists are working within a flawed REI4P implementation model to genuinely empower impoverished vulnerable communities to own their development path.

In engaging with all stakeholders lessons have been learnt about how community empowerment could take place within such a flawed REI4P model. These lessons are captured in a set of recommendations at the end of the report.

Local government is tasked with local economic and social service delivery and we have allocated a section of the report to detailing our findings on the role of local government.

In addition to communities seeing projects on the ground, effective development is closely tied to good governance. Communication, transparency, participation and accountability are part of good governance. In our fieldwork, certain issues arose over and over in the interviews and we have structured this part of the report to look in a little more detail at these theme issues.

Table 7 compares the 2014 review with the 2016 review highlighting the progress or lack thereof with regard to certain issues of importance to community leaders. On the positive side, community representatives had been part of democratic processes to elect trustees. In some cases, in the past, the original trustees had not been elected and in the last two years this has been corrected.

There was also visible spending on projects on the ground, which was regarded as positive although community members disputed the relevance in some cases.

On the negative side, RE IPP developers continue to operate secretly and fail to disclose how decisions are made to support particular projects within a community. Local government's frustration with the REI4P had increased, and there were specific complaints about the lack of communication between the DoE IPP office and local government.

Table 7 Qualitative assessment of aspects related to stakeholder engagement with the REI4P (2016 compared to 2014) drawn from our stakeholder interviews.

Issues raised by stakeholders	2014	2016	Improvement or not	comment
Communication between local govt. and IPP office			↓	Frustrated local govt.
Communication between local govt. and IPPs			↑	Increasing conflict but some sharing of IDPs
Communication between IPPs and communities			↓	Initial engagement but then deteriorated
Transparency of decision making regarding SED			↑	In some cases, initial engagement
Transparency of decision making regarding trust			↑	In some areas engagement initially
Participation in trustee selection			↑ ↑	Elections held in most areas
Visible spend of money on the ground			↑	Projects taking place but critique over relevance

Code	
No engagement/ secrecy/ little known impact/ conflicts	
Some consultation over projects/ sporadic communication	
Regular engagement/ participation in SED decisions/ trustee accountable	

The DoE mandates all REI4P projects to target communities within a 50km radius of the power plant. If an area has a number of projects taking place in it, the same community will be targeted by more than one project developer.

Project developers admitted the issue of overlapping beneficiary communities and in certain areas, companies are attempting to coordinate their efforts. All project developers initially communicate with the selected communities, promising jobs and community benefits. When they arrived in the area, most companies spent money on what could be called goodwill projects. The vast majority of stakeholders had no understanding of how those decisions were made. Interviews with decision makers on the trusts or company representatives revealed that such decisions tended to be based on individual interests rather than objective criteria.

As mentioned earlier in the report, education makes up 40% of the SED spend to date. RE IPP developers indicated that they had carried out their own research that indicated that education was the priority area for the country's development. They then engaged with provincial government and with school principals in determining how to implement their decision. The government's role in delivering quality education has in effect been privatised.

This focus on mostly pre-school, formal school and higher education projects indicate that spending on youth had been prioritised. However, some concern was raised by several stakeholders regarding the need for a focus on unemployed youth.

Although the company websites list beneficiaries of SED and ED funding, the affected communities have little knowledge of why certain projects have been chosen. There appears to be a culture of secrecy prevalent at the IPP level. With one exception, there was little information about how much money was spent, or how decisions were made about where to spend it.

Even those stakeholders who believed the IPPs were investing in the right projects were critical of the manner in which the IPPs failed to explain decision-making processes. The government evaluates the bids weighting price as 70% with 30% dependent on criteria which include SED and ED plans. The RE IPP developers are profit driven corporations operating in a bidding system which forces them to compete with each other over their SED plans. Such a system advocates against transparent communication with stakeholders. The impact of this secrecy is that communities are in the dark over what has been planned for them. Local government also finds this particularly frustrating.

A common criticism of the projects in most areas were that these were window dressing, covering up the outside but not really having an impact on the ground. One example included painting of schools, which had taken place in several areas, but not providing any of the needed staff. Another example was building a library without funding resources such as staff.

Local government officials unanimously felt frustrated by the failure of the IPP office to explain what the IPPs were supposed to fund and what not.

In some cases, community projects had been identified after some form of community needs assessment had been carried out, and in good examples, the community representatives were aware of what was happening in their area. These were cases where the community representatives were embedded in the area, lived in the community and kept an eye on what was taking place.

10. Participation in decision-making structures and project selection.

Although community trusts are established to govern revenue arising from the ownership dividend, in some cases, the RE IPP developers are using the trusts to make decisions about where to direct SED funding, and from a community perspective, there was no real distinction between the IPP SED spend and the involvement of the trust. We have therefore dealt with both together in our case studies. In most cases, community meetings, or some form of needs assessment took place in affected communities. However, in the vast majority of cases, no feedback was provided to communities. There were complaints that what was identified as priorities were then not implemented, or projects identified by IPPs, were implemented against the wishes of community stakeholders or local government.

In the few better cases, a community-accepted plan was initiated. There were cases where the IPP responded to specific requests for support, often projects that were one off events, rather than a sustained initiative. Although the recipients of such funds were not necessarily appreciative of its limited nature, it does show a willingness for flexibility from the IPPs.

In areas where projects have been implemented, the recipients are excited and appreciative of the support they have received. This includes equipping pre-schools and teacher training, the provision of solar water heaters for old council housing, and the provision of solar panels for schools, as well as irrigation equipment for vegetable gardens.

In all but one of these good examples, the recipients were not aware that IPPs were compelled to carry out SED projects, and were surprised to find that it was not the IPP's generosity but a directive from government that had resulted in their receiving assistance. The attitude from the impoverished communities in all of these projects appears to be that of charity that should be gratefully received.

This appears to be a legacy of our past which has not changed in the present, of the attitude that the powerful elite decide what is good for the masses with the masses being suitably grateful.

In the majority of cases, there appears no real intention to empower communities but rather to maintain a welfare relationship.

This was epitomised in one case where the IPP representative was challenged by the community about how the IPP planned to spend the money. The IPP liaison officer walked out of the meeting stating "if you don't agree with me, I will take my money elsewhere".

The reality is that the money does not belong to the IPPs but is allocated to communities but managed by the IPP.

The other issue concerns that of community facilitation. In several cases, it seems that the consulting enterprise that is selected by the RE IPP developer to carry out community liaison/facilitation belongs to a board member of the Trust. While this might not be illegal, it is unethical. Clearly being part of the board, which then decides to award a particular contract to yourself, cannot be fair administrative practice. In two cases, the IPP ownership changed and while the previous developer would no longer own the project, they would now benefit from having an ongoing contract to do work for which they have not shown any aptitude to date.

It has also emerged from discussions with developers that some companies entered into this REI4P business to build wind or solar farms and then sell the project on and move on as soon as possible. This is not surprising as a business decision based on prioritising profits, and explains the lack of attention to community development to date.

However, as has been pointed out in the literature, attempting to create a needs assessment and planning process without the involvement of the broader community would not be conducive to long term effective community trust and engagement (Tait et al 2013). In a recent industry workshop held to address community conflict, speakers emphasised the need to know the community that IPPs engage with (SAWEA/SAPVIA 2016). Extracts from the meeting report illustrate that the industry is attempting to understand its developmental role:

"A common mistake companies make is to arrive with pre-defined ideas and values about the correct community investments".

"This is the real work – getting to know a community's history, expectations and aspirations. If undertaken successfully, it allows the company to build upon available local ideas, dreams and plans".

In understanding the community, the following point was emphasised, "this process is crucial and requires sufficient budget and time. The allocation of a significant portion of development budgets on this process is appropriate".

Such initiatives are welcome. Although we question whether RE development companies should be carrying out government responsibilities of community development, for those projects that are underway, best practice should be attempted. Within the RE IPP developers, there is still a view that community engagement requires no expertise and can be given to IPP staff in house who have had no experience or training with regard to working within poor and vulnerable communities. Such people are likely to exacerbate community conflict, undermine existing community leadership structures, and potentially lead to further impoverishment of the majority of the community, but allow community elites to benefit.

Working with impoverished communities, who might have high expectations and understandably get frustrated at delays, is a task requiring considerable skills. Drawing on the CALS mining study, CALS identifies the following skill set as necessary for constructive engagement: community engagement, gender and race awareness, developmental economics, social justice and constitutionalism.

Skills training and mentoring are a key part of empowerment and given our history and lack of role models in most communities, such mentoring processes are a crucial part of building confidence in leaders to participate effectively in both project implementation and governance. Community liaison offices and Trustees could benefit from a shared platform where they can meet to share experiences and for those with skills and experience to mentor those less experienced.

Similarly, community trustees need to have an understanding of how trusts work, financial management basics as well as some training in community facilitation and conflict resolution. There are tertiary institutions that are initiating such a programme and these could be approached to help deliver.

In addition, if trustees could be provided with a space to share their experiences, experienced trustees could induct new trustees and mentor them in their new role.

Through our interviews, there emerged a number of case studies on what to avoid as well as useful examples of practice that could be recommended for existing IPPs.

Case 1

Prior to setting up the trust, consultants were employed by the IPP to come and consult and do a needs assessment. The results of the needs assessment have not been communicated back to the community. There was also a labour register for the projects. The RE IPP developer has ensured that labour is equally drawn from the different communities involved and meeting minutes reflect an instance when this did not happen and the IPPs commitment to address this. The database had over 3000 entries and 240 construction workers were hired. This is an indication of the depth of unemployment and the impossibility of any single project to make significant inroads into unemployment in any one area.

In order to complete the bid, the project appointed interim trustees, who were appointed after a community nomination process. Once the project got underway, a further trustee nomination process was conducted where the trustees were replaced with new trustees from the communities. This did happen in a consultative manner. In this area, where the community is divided, the different community groups were brought together and the process ensured that individuals from different community groups were nominated to the trust. The trustees appointment was communicated via a newsletter.

The company has been prolific in its communications, sending emailed updates to local community leadership and including both local government officials and politicians. The IPP also sent out notices explaining the nature of a local protest. Local government officials and councillors attended the community meetings and the minutes reflect a range of stakeholders are involved in the trustee meetings which address issues raised by all stakeholders. The community trust held an annual general meeting and also ensured that trust meetings take place alternatively in the different affected communities.

At the construction stage, the IPP also held meetings specifically to engage with local businesses in outlining opportunities that might be available to them.

The communication from the IPP to the community appears centred on a few leaders who they then rely on to distribute the message. This appears to be working in this community but does rely on some community leaders having email and the ability to print notices and distribute them.

Although the trust met, and the community puts forward proposal requests, recently, there has been a lack of response and the IPP has not delivered. These communities had been engaged over the last few years in successive projects and although willing to participate, the conclusion of the leaders we spoke to is that while initially, there is a great deal of engagement, once the project is operational, the engagement tails off.

According to one of the stakeholders, there is no feedback from the needs assessment to the community, and latest community liaison officer is not known to the community. At the time of his appointment, the community leadership were not consulted and had asked for someone local. The CLO is not local but has family nearby and community leadership decided not to challenge this but to wait and see.

Local NGOs who support the renewable projects expressed some frustration and are in the process of organising themselves in order to challenge the IPPs.

Case 2

In this case, significant investment was made into facilitating a community needs assessment that took into account the needs of three separate community groups in the affected area. An external consultant was brought into the area. The consultant was able to facilitate engagement between three disparate communities, facilitate the leadership of the three communities coming together and working together on a joint governance structure.

In order to build the capacity of the community to manage its own projects, the community elected leaders for youth projects and for women's project. These projects enabled women to come together in one space, to work on building their skills and learn enterprise development.

The external facilitator played a mentoring role, as well as facilitating the implementation of projects. Mindful of the gatekeeping that takes place in communities when one or two individuals are given positions of influence and receive stipends, the governance system for the project teams was such that the positions were rotated every three months, allowing others to gain the experience of project management.

The IPP invested in social projects including food gardens, where the produce is used to feed children at a nearby crèche, and where the farm school has been fitted with solar panels. Some street lighting was put in place.

The trust appointed one of the community leaders from the governance triumvirate structure, who has faithfully maintained contact and liaised with the community leaders in the nearby communities.

In addition, the CEO of the IPP and the community trustee liaised informally outside of the formal engagements, building up a relationship that ensured that the community was being listened to.

However, the IPP changed management (and possibly ownership) and the new management did not see the value of the facilitated community development process. Citing expense as a rationale, the new IPP management board did not see the value of the external consultants, or some of the current SED spend and summarily stopped it.

One case was that of transporting children to a central ECD centre. The IPP had refurbished the centre and ensured that it benefited all three communities by providing transport for the kids from the two furthest communities. This transport was stopped, purportedly because the new CEO thought it was too expensive.

Trustee meetings stopped, and the new management did not visit the community trustee to maintain any relationship. A new CLO was appointed, who demonstrated a clear lack of skills in the area of community liaison. He had not visited the community and at a meeting, had walked out when community representatives challenged the decisions around projects.

At our field visit, a local school had recently received solar panels, but the CLO had failed to inform the community trustee who was visibly perturbed.

Due to the mentoring and capacity building that had taken place through the external facilitator, the community trustee was empowered to ask for the financial records of the trust and to ask the board to account for their spend in the area. However, this request had been ignored and the community leadership was becoming increasingly frustrated.

It is probable that relations between the community and IPP will become further strained, exacerbated by the incompetence and arrogance of the CLO appointed by the IPP.

Case 3

During our field visits, we heard about a local NGO that had been established some years ago, had lapsed and was in the process of re-establishing itself in order to build cohesion among renewable energy communities. This organisation proposed, amongst others, to participate in policy debates, develop a sustainable supportive network for its communities, to educate communities, and to share skills and experiences with other projects. Such an organisation if properly constituted, could certainly assist in addressing the current power imbalances between communities and the project developers.

11. Gender and youth

The DoE 2015 report has carried out some analysis of gender aspects, mostly focused on women owned enterprises. From our fieldwork, we met with approximately equal numbers of women and men, across all stakeholder groups. Notable gender imbalances were that all trade union representatives were men, although women are employed in the manufacturing industry. Project beneficiaries were often schools run by women. In one case, a bursary for tertiary level science qualification was given to a young woman.

Women bear the brunt of ensuring household energy security and gender based violence is a sad reality of South African social fabric. While certain SED projects did target household energy security, the motivation was household poverty particularly the plight of the elderly, not any identified gender focus.

There were no overt projects to address gender violence in communities that we heard of, and there was no mention of gender specific issues arising from the needs assessments. Given the gendered power relations, particularly in rural communities, issues that affect women particularly are unlikely to emerge from a needs assessment unless this was made an explicit outcome of community engagement.

12. The formation of Community Trusts

We found that all stakeholders were aware of the community trusts. This is a marked improvement to the findings of the REI4P 2014 review which found that there had been almost no involvement of communities in setting up of community trusts.

In some areas, the selection of community trustees had been a participatory process, and the functioning of the trust in terms of minutes etc. had gone very well. There was communication and transparency. In other cases, trustees were not elected democratically but selected by the IPP after a process of public advertisement. Such trustees are not accountable to any community structure.

Case 4

An advert for the position of trustee appeared in the provincial newspaper. The skills and qualifications asked for were not likely to be found in any of the affected communities. There was no democratic process where the community could put forward nominations for the position of trustee. The trustee was then appointed, board meetings are held in Cape Town and there is no interaction with the community²¹.

Community trustees played a valuable role in communicating between the community trust board and the community. In one case, given that the trust will only receive funding some years after it begins operating, the community trustees were consulted by the IPP developer over how SED funds should be spent.

Case 5

The local municipality officials and the Community liaison officer have discussions approximately two weekly basis, just touching base as the beneficiary community is quite remote.

On a quarterly basis, the local councillor has her community meeting where she reports back and hears feedback from the community members on issues in their area. The IPP community liaison officer attends all those meetings, reporting back at that meeting both to the community and giving feedback to the councillor.

In addition the IPP hosts an annual community meeting to provide feedback on overall progress to date.

Some IPPs had adjusted their community trust board meetings to ensure that community trustees were empowered to speak and not alienated due to their lack of experience at board level. In regressive IPP community trusts, true community leadership was excluded through insisting on criteria such as higher education, financial management qualifications etc. Such regressive IPPs were those that implemented a welfare approach, insisting that they knew what was best for communities, based on their research etc.

There are few trustees that are truly capacitated both to participate meaningfully at board level and sufficiently resourced to keep their community constituents fully briefed. However, most community trusts only have one community trustee, with the board heavily stacked with investors and IPP appointed "independent" trustees. This can be despite a board where the community supposedly holds "25% ownership". Trusts are then run by a group of large, corporate investors that operate out of the main cities in the country, and carry out welfare programmes, that act simply to maintain existing unequal power relations.

²¹ We asked the developer concerned for the names of the trustees in order that we might interview one of these non-elected community trustees but the developer failed to respond

13. The role of Local government

One of the key challenges is that DoE requires each project to effectively come up with a development plan for the area within which the project is located. However, local government (assumed to be democratically representative of a large portion of the community) has already devised a development plan – the IDP. The 2014 review found tensions in areas that had in effect two development plans, rather than one IDP that renewable energy projects could contribute to. Such anomalies were pointed out to DoE REIPP office in meetings and through the submission of the final report to the IPP office.

Our field work revealed a similar situation to the 2014 field work and an extract from the 2014 review is included here as it holds for 2016 as well.

Local Government has formal legal processes to consult communities in the development of general local government development plans (Municipal Systems Act, Act 32 of 2000). This is articulated in the integrated development plan (IDP) updated annually, and revised every 5 years. Public meetings are required in the wards, and ward committees are conceived as the formal conduit for community structures to engage with political leadership around local development. However, our ground level discussions revealed that not only is the ward committee system not operating optimally, but that renewable projects are operating outside such structures, effectively creating multiple parallel private sector driven processes for determining economic priorities within the same geographic locality as that governed supposedly by local authorities.

In general, communities (ordinary members of the public) can get involved in local development planning through IDP engagements, and more regularly, through ward committee meetings. Although stakeholders such as labour, community project leadership, and community organisation leaders have meetings with their own members, which are well attended, all stakeholders felt that IDP and ward committee meetings were not well attended.

From community and local government perspective, the meetings, while providing a space for individuals to raise their grievances, were often “talk shops”, with little follow-up action. Local government officials felt that people might be tired of coming to IDP meetings to say the same thing over again and with no results, and community leaders felt that even if projects were accepted at ward committee meetings, there was manipulation through the local councillors where projects are taken off the agenda, at the local councillors’ discretion, even if in opposition to the ward committee wishes.

As one community representative put it, the IDP is simply a cut and paste from one year to the next, but nothing gets implemented.

Given this failure of local government structures to operate transparently and consult with the public, it is perhaps not surprising that renewable energy developers should also be sceptical of engaging local government. The amounts of money that will flow into communities for economic benefits are substantial²², and there is a perception that this money will not find its way into community projects. Developers relayed stories of local areas where there is no clear majority and politicians, who receive information from IPPs, then do not share with other parties. In areas where there is a clear majority, developers suggested it is easier to operate and disseminate information.

The 2014 review found that one municipality had established a development fund into which any large infrastructure should contribute. This development fund was then used to channel SED spend into community needs. It was aligned with the IDP.

²²Specific numbers for particular projects are not available as that is part of the information that is not in the public domain. However, according to DoE, the average value of adjusted socio-economic development contribution per MW would be R1 769 475

The rationale for this development fund had arisen at a time when a large infrastructure project had attracted thousands of job seekers into the area. Many of the jobseekers did not find jobs but settled in the area and the municipality was then responsible to deliver services. This fund was not established for the renewable industry but the municipality officials felt that this was the vehicle which would ensure that renewable energy development projects can plough back into the municipality's service delivery needs.

In 2016, local political leadership in the same area were not aware of how this fund operated. However, in other areas, municipal officials were keen to learn about this development fund and its operation as they felt this could help them in guiding renewable energy project SED into municipal priorities.

In our interviews with different stakeholders it was sometimes difficult to establish the facts amongst the different perspectives. In the case of local government, developers insisted they engage with local government but our engagements on the ground found only the most superficial engagement in the majority of the cases. There were a few exceptions but in general the only engagement was a request for a copy of the IDP, or a call for help to the local councillor when faced with conflict situations. On the other hand, there were cases where local government officials and or councillors had been invited to meetings but had failed to attend.

Local Government has not been consulted or engaged in any meaningful manner by either the IPP office or the IPPs themselves. Local government clearly needs to be involved in local development in the area, and as relayed by a local government official, "we are all government and we would like national government to brief us as to our roles and responsibilities in this programme".

Local government officials and politicians are extremely frustrated and are vocal in relaying their experiences of the RE projects in their area. Local government officials expressed caution and some frustrations in 2014. In 2016, this has got worse. Labour unrest, violence and community dissension take place within the area governed by the local government. Ward Councillors are then called to the site of such unrest to intervene, often by the IPP. The local government is then brought into the situation, without any understanding of what is happening and has not been kept up to date.

All local government's representatives we spoke to had offered the IDPs to the RE IPP developers. However, in most cases, officials were not aware of how the IDP had been used to plan for the SED or ED in any relevant area. There had been no feedback or discussion, and most RE IPP developers had then carried out some form of individual separate needs assessment.

As one official put it, "it seems that there is a lot of money being spent to bring consultants from Johannesburg or Cape Town to carry out needs assessments to determine community development priorities. That money would be better spent on things that would benefit the community itself".

Local government officials felt that if it was necessary to confirm the IDP priorities with the communities, that could be done and the cost would then be less than duplicating the IDP using external consultants. Municipalities also do have databases of local SMME's and labour databases of job seekers. In one area, the database was provided to the renewable energy developers but, according to one local government official, no-one benefited.

The projects carried out by the IPPs are often unrelated to the IDP, and in some cases, infrastructure projects are built but no operating resources are provided. "It seems they like to have something to show off and cut ribbons on, even if it doesn't work" observed one official.

As part of government, local government felt let down by the failure of the IPP office to brief them on this programme, and on their role in it. Understanding that the IPPs were spending money on infrastructure, and yet not having sight of the SED plan that had been approved by the IPP office, this leaves the local municipality with a problem that their only role is to approve land rezoning for the project. Local government officials do not want to hold up projects but after the project has been approved, they are then ignored. One official spoke of seeing the IPP representative who flew from the city to attend some sponsored event but the IPP representative did not even have the courtesy to greet the local municipality.

Case 6

The ward councillor was called by the IPP after the community protested at the gate. The council was then brought into the matter and were able to facilitate calm. The matter turned out to be a labour dispute and involved a subcontractor who treated his workers unfairly. The IPP dismissed the subcontractor and the municipality provided a list of potential replacements, local subcontractors who were on the local council database of small businesses.

After some time, the local municipality found out that the same contractor had been hired again!

In our discussions with local authorities, they were supportive of the renewable energy projects but were critical of the manner in which they had been implemented. As part of government, officials were keen to see how they might assist national government in implementing the programme.

Local government officials all felt that the local government could play a role in monitoring progress of how the IPP is supposed to carry out its SED and ED. This would then enable the IPP office to monitor and cross check how the IPPs were fulfilling their SED obligations.

14. Concluding comments and recommendations

Climate Change is a crisis that threatens our survival. The campaign for One Million Climate Jobs seeks to address both the climate crisis and the massive unemployment crisis in South Africa, with a package of plans that emphasises a just transition to a low carbon economy. Renewable Energy is an emerging sector that can create new jobs and address climate change, but its long term sustainability will depend on the manner in which it is implemented.

Currently, state owned utility Eskom remains wedded to fossil and nuclear electricity generation, while part of the motivation for the REI4P is to contribute to a transition away from South Africa's dependence on fossil fuel generated electricity.

The unfolding of the REI4P over the last 4 years has shown what can be achieved. As a government led, energy generation programme with 37 new renewable energy power projects in operation and a further 55 in the pipeline, it deserves its international accolades.

However, in a similar vein to the mining sector Social and Labour Plans, the government saw fit to mandate the private sector to deliver community development to the areas within which the projects operate. The design of the REI4P is therefore fundamentally flawed, in its reliance on the private sector to deliver government responsibilities.

To date, the REI4P has delivered limited socio-economic benefits. There are cases of good practice, but these cases are few and far between, and the majority of IPPs appear to have fallen back on a corporate social investment (CSI) approach.

Our research does not support the continuation of this welfare system within the REI4P, as our findings show that it continues to maintain and exacerbate current inequities in power relations between impacted communities and RE IPP developers.

The REI4P has been able to provide short term construction employment for local people and there have been some instances of technical training to enable locals to be employed during the operational life of the plant. The renewable manufacturing industry has potential to employ more people, but growth in manufacturing is dependent on increasing the proportion of renewables in the energy supply plan.

Manufacturing jobs are likely to be in urban centres and not in rural affected communities. It may be possible to create many jobs in the future, but at this moment, the focus of community stakeholders is

far less about direct jobs, and more about how the structure of the IPP revenue flows could lead to socio economic development and livelihood creation at community level in the near term. This would firstly improve the lives of affected communities at this current time, and provide a means to invest in the future and therefore enable those communities to break the poverty cycle.

As part of constructive engagement with the REI4P and in support of additional renewable energy supply for South Africa, we submit the following recommendations:

1. The REI4P in its current form should not extend beyond Round 5, as the whole RE programme needs fundamental re-conceptualisation.
2. National government has identified a number of challenges as reflected in the IPP 2015 publication, and has indicated that it is reflecting on how to address such challenges. We go further by urging the government to involve all stakeholders in discussions not only about addressing the challenges that have arisen, but in developing an integrated and comprehensive approach to the widest possible use of renewable energies (including solar water heaters, rooftop PVs and the prioritisation of labour intensive production and processes). To this end, the Government should set up a multi-stakeholder task team (including national, provincial and local government, renewable industry, labour, NGOs and affected community organisations) to review the current REI4P implementation model in order to address the consequences of the current bidding and implementation process for affected communities.
3. The creation of large numbers of renewable energy related jobs depends on a national electricity plan that contains consistently increasing amounts of renewable energy. The IRP update should be prioritised urgently and further annual iterations of the IRP undertaken in order to ensure a just transition towards 100% renewable energy
4. Renewable energy specialist expertise should be directed to the technological aspects of renewable power generation. Socio-economic developments arising from the fullest possible use of renewable energy must return to being direct government responsibilities.
5. The role of local government in the REI4P has been woefully neglected and there is a need for cooperative governance between national and local government to be strengthened.
6. Local government is the locus of local community development and service delivery. Renewable energy projects should be included in the IDP and a priority focus should be directed towards local municipalities to ensure that their IDPs meet the needs and aspirations of the constituent communities.
7. A number of individuals with community development expertise, including community leaders, CLOs, NGOs and consultants have been able to achieve some social change within the current REI4P system. These individuals should be drawn into a supportive team that can strengthen accountable local government and intervene to enable community empowerment to take place in the current affected communities.
8. The municipal development fund model that directs revenue from development projects into a local government fund, should be investigated for replication in municipalities with IPPs within their boundaries. Such a fund can be used to direct SED and ED funds towards IDP priorities

Suggested improvements to the existing REI4P projects, which will be with us for at least twenty years, include:

- a) Local government officials all felt that the local government could play a role in monitoring progress of how the IPP is supposed to carry out its SED and ED. This would then enable the national government IPP office to monitor and cross check how the IPPs were fulfilling their SED obligations.
- b) The SED, ED plans and the formation of the community trust formation should not form part of the competitive bidding process, but can be implemented in a transparent and cooperative manner after the IPP has won the bid. All SED, and ED plans should be transparently available to the local government and the community.
- c) Money has been spent on genuinely useful projects of benefit to the affected communities, but money has also been spent on projects that are not useful and in some cases were actively resisted by the communities. There is no clarity on what does, or does not qualify, and IPPs do not disclose decision-making criteria. Clear guidelines for SED and ED are needed from government.
- d) Working with impoverished communities who might have high expectations and understandably get frustrated at delays, is a task requiring considerable skill. Drawing on the CALS mining study, CALS (2016) identifies the following skill set as necessary for constructive engagement: community engagement, gender and race awareness, developmental economics, social justice and constitutionalism. Such training should be mandatory for any consultants, CLOs or other industry personnel.
- e) In order to understand community dynamics and participatory decision-making, it is recommended that industry associations organise training seminars both for top management, middle management and for community liaison officers. Such training should be given by organisations skilled and experienced in working with communities.
- f) Skills training and mentoring are a key part of empowerment and, given the history of South Africa, and lack of role models in most communities, such mentoring processes are a crucial part of building confidence in leaders to participate effectively in both project implementation and governance. Community liaison offices and Trustees could benefit from a shared platform where they can meet to share experiences, and for those with skills and experience to mentor those less experienced.
- g) All existing trusts should have democratically elected community trustees. Trustees that have not been elected through a democratic process within the community should be removed from the trust and new trustees elected.

15. Appendices:

Appendix A: Semi-formal interview questions

Semi-formal interview questions for community and representatives (with local govt and developer focused questions added in)

Possible questions to see how communities participated in governance of RE derived benefits in their local area;

Research Question:

This research investigates the nature of representation in the development of the REIPPP implementation in South Africa

Questions –

Carried out in Afrikaans or Xhosa or English in different areas (using translator if necessary)

Ethics Statement:

Explain who EG SA is and who AIDC is and who the Green Connection is.

Explain that purpose of research is to strengthen renewable energy programme and we are specifically looking at how communities have benefited or how much they know about potential benefits from the REI4P

Your participation in this research is entirely voluntary. Any information provided will be treated as confidential and anonymity is assured.

Thank you very much for your participation.

June/July 2016

To understand the level of knowledge about the RE IPP process...and its relevance for the lives of the communities?

1. Were you aware of the existence of RE IPP, and if so, how did you hear about it?

- ° Never heard of it
- ° Press/radio/TV/ other members of community/ committee/ govt official/ other
- ° When did you hear?
- ° 2011.....2016
- ° Government representatives
- ° Business developer/ project team
- ° EIA
- ° NGOs if NGOS which ones
- ° Other? Eg researchers

2. What do you think of the eventual outcome of the REIPP process?
3. Impacts/ benefits – Did you benefit, think you will benefit or be impacted?
 - a. if yes, how and when did this or will this happen?
 - b. If no, why do you think this RE IPP did not benefit you? Will it affect other community members?
4. How is your organisation involved in development plans in your area?
 - a. part of ward committees
 - b. part of community structures
 - c. not involved
 - d. ad hoc meetings, engage with local government other
5. How is the local government involved in planning for local development?
 - a. is there a job seekers database
 - b. how does participation in the IDP take place
 - c. what has been the involvement of the local government with the REI4P process
6. What do you know about the numbers of jobs that have been created through the renewable projects?
 - a. how many local jobs? Construction or operational long term jobs?
 - b. skills training – do you know of this?
7. How have local communities benefited from the renewable energy projects
 - a. Social responsibility projects
 - b. How were decisions made as to who benefits
8. How were governance structures of community trusts established?
 - a. How was local rep chosen?
9. What localisation initiatives have been initiated
 - a. Training and education in fields applicable to renewable energy
 - b. Small businesses established relevant to renewable energy projects
10. Where are the financial flows in the community
 - a. Who is getting contracts, and how much?
 - b. What is the dividend flow to the community via the trust, and who is benefiting now?
 - c. What understanding do community organisations have of the manner in which the trusts operate?

Representatives on the governance structure questions: (only if there is a community trust structure where community reps are involved)

11. To understand the basis for community stakeholder representatives selection?
 - a. What were the criteria for their selection?
 - b. How did your representative get involved in the RE IPP?
 - c. What were the reps' roles and mandates, as perceived by the communities, the government/ project developer and the representatives themselves?

12. Effectiveness of representative:
 - a. Did you experience any difficulties in representing the views and concerns of your community?
 - b. Were there any barriers that prevented you from performing even better?
 - c. What were the strengths/benefits of having a representative being part of the process?
 - d. Was it sufficient consultation to have a rep on a RE IPP governance structure?
 - e. If not, what other consultation was needed, took place? Why?
 - f. How did you benefit from being part of the RE IPP governance structure?

Specific questions for local government

1. Which branch of local municipality is dealing with the IPP programme?
2. When were they approached to be involved?
3. How was the municipality involved in selecting people for construction jobs, operational jobs if at all?
4. Are you aware of how many local people actually got jobs?
5. Are you aware of how many local small businesses got contracts?
6. Is anyone at local government focused on monitoring whether ipps comply with their stated commitments?
7. How is the municipality involved with the setting up of the community trusts?
8. At what time, if at all, has the broader community who is to benefit from the trusts, been involved in their establishment?
9. How were decisions made about who should be the beneficiaries of the trust funds?
10. Is there some sort of forum or link between local government and provincial and/or national government where munics can get information/advice for implementing the renewable projects?

For developers, the following questions are important:

11. How did they envisage community trust benefits flowing to communities?
12. How is the project financed? How does this impact on financial flows to communities?
13. How are the community trust governance structures set up?
14. What positive socio-economic benefits has the community experienced from the project – details of numbers, where and how decisions made.
15. Should Communities should be involved in decisions affecting their own development? If so, how?
16. How has project developer contributed to job creation and skills development in the local area?
 - a. Are there local businesses that have been established as a result of the project?

- b. or existing businesses that expanded?
- c. Are the BEE partners from the local area or national organisations/businesses?

17. Where are the financial flows from the project?
- a. Who is getting contracts, and how much?
 - b. How much local spend has taken place within the local community and/or town?
 - c. What is the dividend flow to the community via the trust, and who is benefiting now?
 - d. What understanding do community organisations have of the manner in which the trusts operate?

Appendix B: Economic development requirements for local communities

Element	Requirements	Description
Shareholding by local community	2.5% – 5% of project shareholding	The defined local community will have an ownership share in the project company. There are no explicit requirements on how these contributions should be spent, but would probably need to be developmental in nature.
Employment	12% - 20% of South African employees	This requirement requires that a percentage of the South African employees in the project should come from the local community.
Enterprise development	0 – 0.6% of project revenue	Enterprise development refers to contributions to black-owned businesses with the specific objective of assisting or accelerating the development, sustainability and ultimate financial and operational independence of that enterprise.
Socio-economic development	1 – 1.5% of project revenue	These contributions should be directed towards activities that facilitate sustainable access to the economy for beneficiaries. These contributions can go towards a wide range of activities including rural development, the environment, infrastructure, enterprises, reconstruction of underdeveloped areas, development programmes for women or youth, education, health care as well as arts and culture and sports.

Appendix C: Stakeholders

Stakeholder interviews

The table below shows the number of individuals that we engaged with in producing this snapshot of the renewable energy programme at this moment in time. All interviews were conducted with the commitment

²³ Tait et al 2013. . Table provided by Louise Tait, Energy Research Centre, UCT. Adapted from part C of the phased assessment REIPPP Request for Proposals document

to confidentiality and so our report does not single out any individual or aim to embarrass any particular company or community member. Several interviewees expressed themselves forcibly and were willing to be quoted. However, we felt that this is not within the spirit of the review. The aim of the review is to provide a reflection of how the REI4P is rolling out from the ground up. Such a reflection provides a different perspective from the quantitative statistics which form part of the IPP office reports.

Stakeholder group	Number of interviews
Local government officials	20
Political leaders	8
Local business	8
Developers and consultants	2+2+2+8
Academics	6
NGOs	6
Community trustees	7
Community Liaison officers	8
SED beneficiaries	15
Labour	3

Sites Investigated	Number of people who participated in interviews	Stakeholder groups
Western Cape	16	<ul style="list-style-type: none"> • Local Government politicians • Local Government officials • Trade union representatives and project workers • Community Liaison officers • IPP community trustees • Local Business forum • Project Developers • SED beneficiaries
Eastern Cape	26	<ul style="list-style-type: none"> • Local Government officials • Local Government councillors • Trade union representatives • Local NGOs • SED beneficiaries • Local Business Forum • Community Liaison officers • IPP Community trustee • Project Developers
Northern Cape	53	<ul style="list-style-type: none"> • Local government • Political leaders • Local business • Developers and consultants

		<ul style="list-style-type: none"> • Academics • NGOs • Community trustees • CLOs • SED beneficiaries • Labour
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Appendix D. Case studies of socio economic development practice

In our fieldwork site visits, and in the offices of consultants, local government and project developers, we found a handful of individuals who have entered into the REI4P with skills and expertise to attempt to address the skewed power relations and to drive community owned development. Their experience is valued and should be drawn in future renewable energy project implementation.

Additional case studies are detailed here in order to provide a record.

Case 7

Prior to setting up the trust, there was a public workshop to which the community members were invited, and where the community identified a set of needs to be implemented over a longer term period. These needs ranged from supporting of sports teams, medical attention for the elderly to education and feeding support for school children.

In order to set up the trust, the entire community was invited to a meeting. The invitation was communicated using posters, using libraries, community hall and the police station. The hall was packed and two community trustees were then elected.

The IPP then appointed an external contractor set up as a special purpose vehicle who manages the operations of the wind farm and then appointed the community liaison officer.

The community liaison officer has a trade union background and is based in the community. His skills and experience enables him to deal with potential community conflict and negotiations.

There is a clear understanding that there is a 5 year vision for the community as projects are starting with immediate effect. "This experience has been an eye opener for the community as this was completely new and brought experience of a different kind".

Everything that happens at the wind farm is communicated via posters etc., including job opportunities.

The IPP brought in various NGOs, consultants that are skilled at working with communities and is reaping the success of that initial investment.

Experienced Community Liaison officers with a wealth of experience and skills could also assist in working with the less experienced CLOs, mentoring them into their new jobs. The industry associations could invest in such exchanges and mentoring programmes which would then benefit the whole industry.

Case 8

A series of meetings were held with the community leadership structures of the three beneficiary communities to explain the REI4P. A democratic public transparent nomination process was then undertaken to create a community leadership structure that consisted of three community representatives, one from each of the affected communities. From that structure, one person was nominated to sit on the trust.

This person regularly meets with the communities, and attends board meetings. In addition, the IPP manager would drop by sometimes to just chat and brief the community trustee so that he could be kept informed. The trustee had raised needs with the IPP management and at the board and their needs had been addressed.

In a similar best case, the community trustee is deeply involved in SED spend in the community, being part of decisions about the awarding of bursaries for example. In both these cases, the trustees were people of integrity who had held positions of leadership in their communities for some time and were trusted by the community members.

From the IPP perspective, in another case, the trustee was democratically elected but was finding himself out of his depth in the alien business culture of the board room. Proactively, this IPP changed the format of the board meeting, opening up a space for the trustee to feel comfortable. This created a positive engagement that has been extremely valuable for the project.

The challenge of the trust operations is to ensure that the trustees have sufficient capacity to participate meaningfully at the trust level.

Case 9

Municipality Development Fund

In the 2014 review, we found that one municipality had established a development fund into which any large infrastructure should contribute. This development fund was then used to channel SED spend into community needs. It was aligned with the IDP.

The rationale for this development fund had arisen at a time when a large infra-structure project had attracted thousands of job seekers into the area. Many of the jobseekers did not find jobs but settled in the area and the municipality was then responsible to deliver services. This fund was not established for the renewable industry but the municipality officials felt that this was the vehicle which would ensure that renewable energy development projects can plough back into the municipality's service delivery needs.

In this review, local political leadership in the same area were not aware of how this fund operated.

However, in other areas, municipal officials were keen to learn about this development fund and its operation as they felt this could help them in guiding renewable energy project SED into municipal priorities.

Case 10

The local municipality officials and the Community liaison officer have discussions approximately two weekly basis, just touching base as the beneficiary community is quite remote.

On a quarterly basis, the local councillor has her community meeting where she reports back and hears feedback from the community members on issues in their area. The IPP community liaison officer attends all those meetings, reporting back at that meeting both to the community and giving feedback to the councillor.

In addition the IPP hosts an annual community meeting to provide feedback on overall progress to date.

Case 11

In an area where the renewable energy project covers 4 different communities, the IPP held meetings with all stakeholders, including the local officials and councillors. Representatives of local government came from all four communities and were constructively engaged in referring the IPP to the IDP, as well as suggesting priorities for IPP SED spend. The councillors were also engaged in ensuring that each of the 4 areas benefitted equitably from the project.

Case 12

A series of meetings were held with the community leadership structures of the three beneficiary communities to explain the REI4P. A democratic public transparent nomination process was then undertaken to create a community leadership structure that consisted of three community representatives, one from each of the affected communities. From that structure, one person was nominated to sit on the trust.

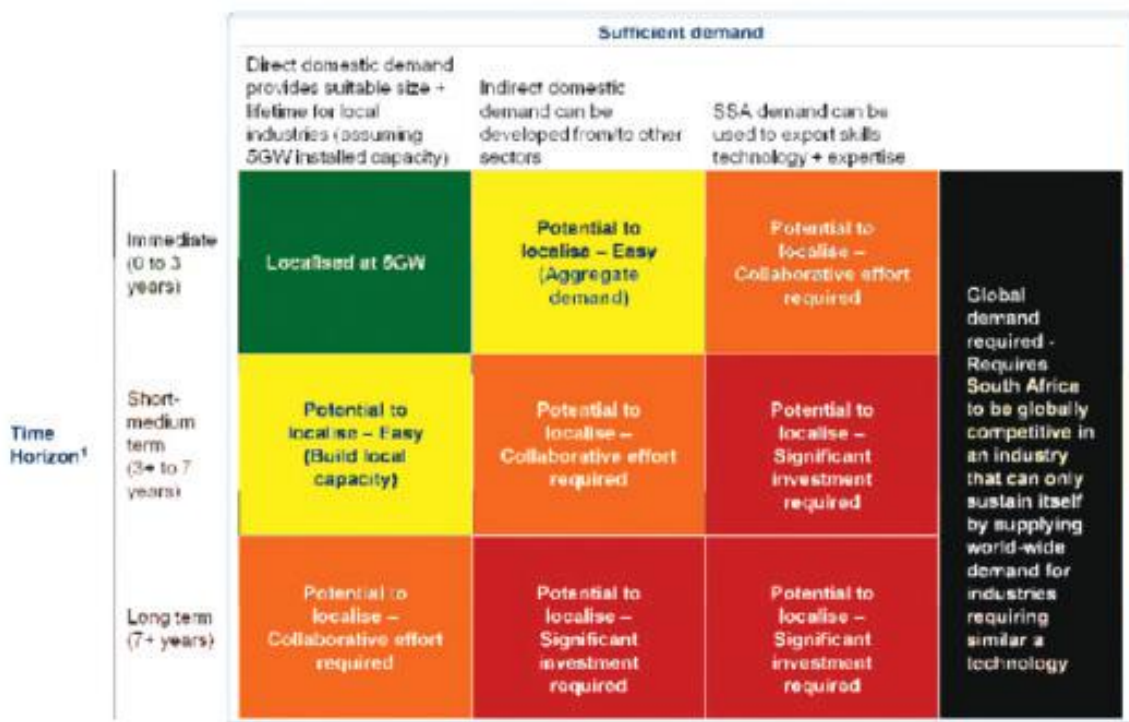
This person regularly meets with the communities, and attends board meetings. In addition, the IPP manager would drop by sometimes to just chat and brief the community trustee so that he could be kept informed. The trustee had raised needs with the IPP management and at the board and their needs had been addressed.

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Appendix E. Localisation study graphics (DoE 2014)

Matrix to assess localisation potential of individual goods and services



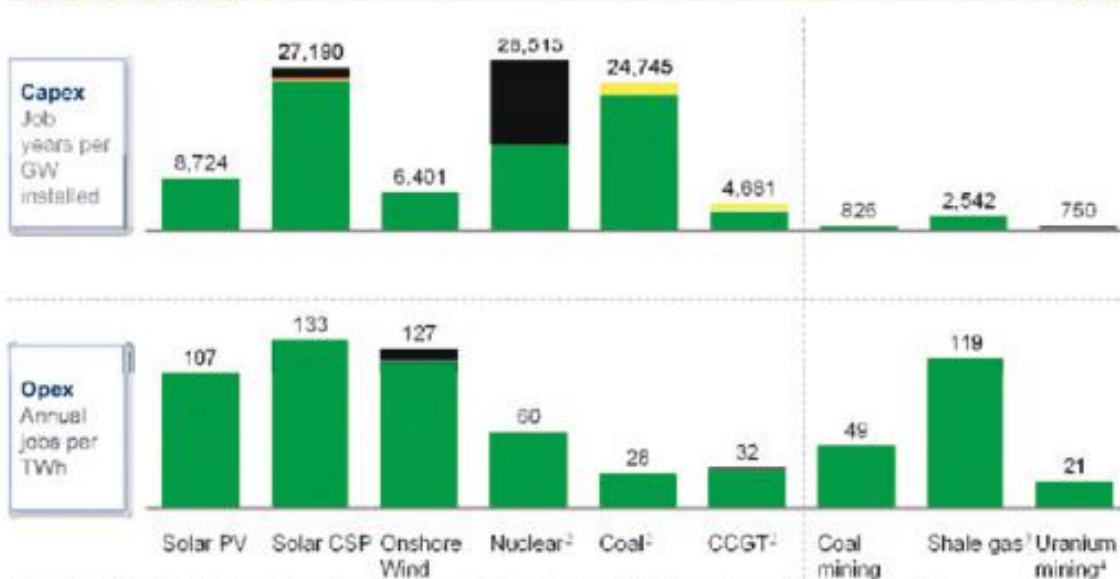
Capacity includes skills, available investment, infrastructure and regulatory environment

The following graph shows the potential direct jobs per energy technology

Direct jobs: total potential per energy technology

■ Localised at 5GW
 ■ Potentially localisable - Easy
 ■ Potentially localisable - Collaboration
 ■ Potentially localisable - Significant investment
 ■ Global demand required

Potential jobs (Direct¹)



¹ Direct jobs (Value Pools 5-9) excludes goods and therefore the localisation potential is different to overall localisation potential

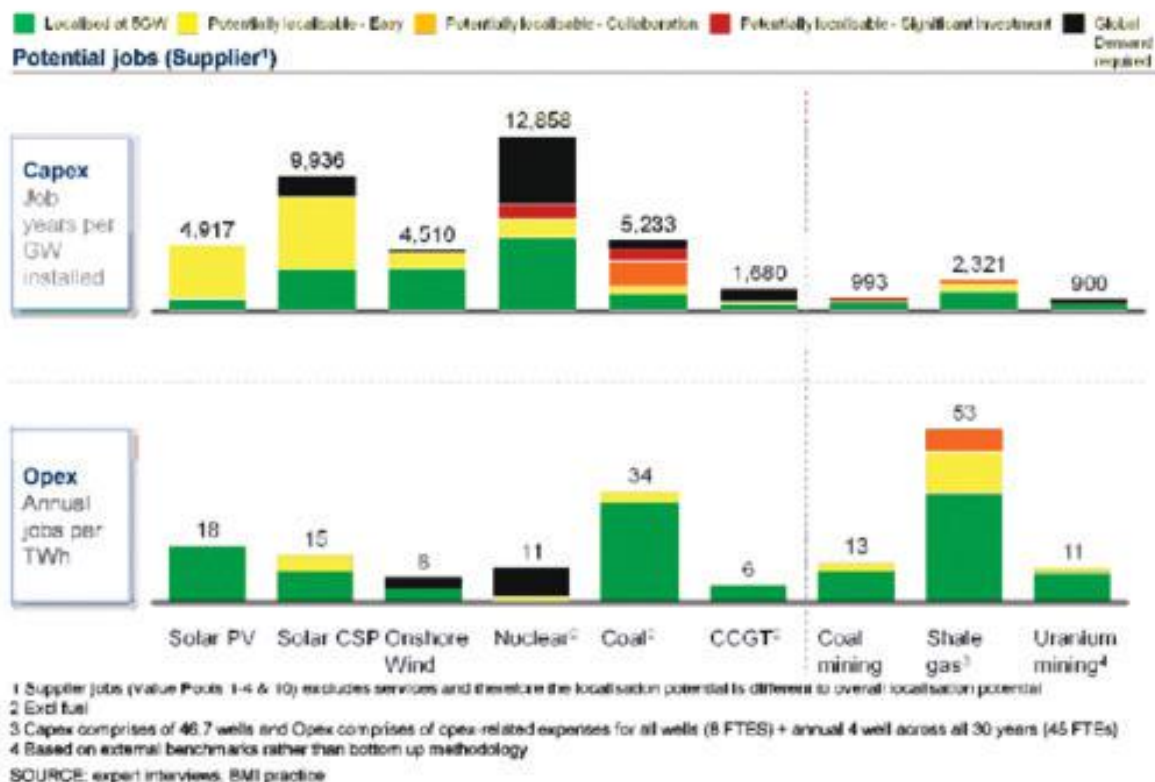
² Excl fuel

³ Capex comprises of 46.7 wells and Opex comprises of opex-related expenses for all wells (70 FTEs) + annual 4 well across all 30 years (49 FTEs)

⁴ Based on external benchmarks rather than bottom up methodology

SOURCE: expert interviews, Team BMI practice

Supplier jobs: total potential per energy technology



The study examines the job potential for 5GW of each technology in order to be able to compare across technologies with different capacities, and different construction times.

Appendix F. Solar rooftop

The rooftop revolution – something to look at in future.

The quiet revolution is taking place in the country within the renewable energy sector. Household and business level rooftop PV is gaining ground. According to industry reports, the estimated number of small scale solar PV systems in the country amounts to a total capacity of 150MW as at April 2016.²⁴ However, other reports indicate a total of 415 listed grid tied PV systems that exclude the REI4P, generating a total of 36.5MW.²⁵ According to the DoE IPP 2015 status report, about 43.8MW could be installed in South Africa. In other countries, the numbers of households that are installing solar rooftop systems give some indication of the trends: UK 125000 in one year, Bangladesh, 80 000 homes a month, and the USA total of 700 000 homes.²⁶

Lack of regulations to guide how homeowners might sell their electricity back into the grid is lacking and is one of the barriers to increased uptake at this time. In this vacuum, different municipalities have adopted different approaches. In NMB, residents are encouraged to install rooftop PV and to stay connected to the grid. The electricity that is fed into the grid allows the metre to run backwards, in effect the homeowner is “selling” electricity back into the grid at the same price they are buying it. Initially, there was no fixed fee per month to cover maintenance of the line but recently, NMBM have initiated a small monthly fee of approximately R30.

²⁴ <https://www.gtac.gov.za/Publications/GTAC%20%20Briefing%20Note%201.pdf>

²⁵ <http://pqrs.co.za/more-than-1000-pv-installations-in-south-africa-april-2015/>

²⁶ <http://www.fin24.com/Economy/Eskom/Solar-power-Limited-options-for-South-Africans-20150628>

In contrast, the City of Cape Town required homeowners who wanted to feed in to the grid to pay a fixed fee or R300 per month, and homeowners pay more to buy electricity and get paid less when they feed in to the grid. Given that solar PV systems are being financed entirely from private individuals, the City of Cape Town effectively operates a disincentive, and it is therefore likely that those that do install solar rooftop PV systems will then go off grid entirely.

In the future, the city will then be faced with having to buy electricity from Eskom at inflated prices and losing its wealthier electricity customers which means that the municipality will have less electricity revenue to cross subsidise its poorer citizens.

However, NMBM is creating an embedded power station of household and business rooftops, all remaining connected to the grid. This virtual power station is able to provide electricity into the grid at a much cheaper price than that bought off Eskom. This should enable NMBM to keep the costs of electricity down and in so doing, be better able to cross subsidise its poorer citizens.

In a case study of 5 commercial buildings in Cape Town, the installation of PV led to a 17% reduction in CO2 equivalent emissions, indicating that jobs in the rooftop installation of PV could further increase the number of climate jobs.

India is estimated to employ 72000 people in the off grid solar PV sector with about 53000 employed in the grid connected solar sector.

If Indian Government installs 100GW of solar PV by 2022, it could create 1.08 million jobs 75% in construction. However, if the India government prioritised rooftop PV over mega scale projects, the employment potential would increase to 131 million jobs (IRENA 2015). Theoretically, if applied to South Africa, this could potentially increase the number of jobs in the PV sector by approximately 30%.

Appendix G. The Job calculator

South African Renewable Energy job calculator

PLEASE NOTE THAT THIS IS WORK IN PROGRESS: it is currently only for electricity producing technologies that have been part of the government led REI4P (and the data can be refined as more information becomes available²⁷).

This is a simple tool, based on South African data taken from the renewable energy programme published information, together with a government localisation study (DoE 2014).

You can use this tool to estimate the potential number of jobs that could be created from different amounts of renewable energy. Job creation convention counts jobs in job years, and we have therefore used this convention (i.e. the number of jobs in one year. For example, twenty job years could be one person employed for twenty years or twenty people employed for one year).

The tool differentiates between construction jobs and operational direct jobs.

Construction jobs

A power station has a certain ability to generate electricity. This is measured in Megawatts (MW) and is used to calculate the number of construction jobs. Direct construction jobs are jobs directly attributable to the construction of a technology (e.g. Builders, bricklayers, welders etc.).

A renewable energy power plant takes about two years to build so the construction jobs given below are jobs that last for the time it takes to build the power plant, i.e. about two years.

²⁷The limitations of the model is that it seeks to use publicly available employment data provided by the DoE for the REI4P. At this time, we had sufficient data for one CSP plant, 2 solar PV plants and 6 wind plants. The reliability of the job calculations will be improved as more data becomes available.

Operational jobs

A power station generates electricity which is measured in Gigawatt hours per year. This electricity will be generated as long as the power plant is operational, i.e. more than 20 years. The operational jobs created will last as long as the power station generates electricity, for the REI4P, each power plant has a 20 year contract to deliver power. The project could continue to operate beyond 20 years and the jobs will then continue beyond that time.

Direct operational jobs are jobs directly attributable to the operation of a technology (e.g. plant operators) This tool calculates the number of operational job years for a particular amount of electricity generated per year.²⁸

Additional job estimate for indirect and induced jobs can be derived by using technical multipliers. Indirect jobs are jobs created from a manufacturing industry in South Africa, whereas induced jobs are jobs created because of the cash injection into the economy as a result of the operations of the plant, (e.g. hairdressers, local shops to serve people working in a factory or at the power plant). Here we provide the multipliers used by the DoE in its localisation study (DoE 2014), which can then calculate the number of additional jobs (measured in job years) as follows:

Indirect jobs: number of direct operational jobs x 0.84

Induced jobs: number of direct operational jobs x 1.2

Table 1 provides the calculated construction jobs, while Table 2 provide operational jobs.

How to use the Table 1 to estimate the potential numbers of construction jobs.

Example 1. If we have a wind farm of 455 MW, we can calculate the number of jobs as follows:
 $455 = 400 + 50 + 5 = (4 \times 100) + (5 \times 10) + 5$. Reading off the table we calculate the following:

$$\begin{aligned} &= (4 \times 870) + (5 \times 87) + 43.5 \\ &= 3480 + 435 + 43.5 \\ &= 3959 \text{ jobs} \end{aligned}$$

Example 2. If we build 100 MW of wind and 200 MW of solar PV and 25 MW of solar CSP:

100 MW wind = 870 jobs

200 MW solar PV = $2 \times 100 = 2 \times 1350 = 2700$ jobs

25 MW solar CSP = $(2 \times 10) + 5$ MW

$$= (2 \times 200) + 100 = 500 \text{ jobs}$$

Table 1: Estimation of construction job potential

		Construction jobs					Construction jobs		
Plant Capacity					Plant Capacity				
Number of MW	wind	solar CSP	solar PV		Number of MW	wind	Solar CSP	Solar PV	
1	8.7	20	13.5	10	87	200	135		
2	17.4	40	27	100	870	2000	1350		
3	26.1	60	40.5	1000	8700	20000	13500		
4	34.8	80	54	10000	87000	200000	135000		
5	43.5	100	67.5						
6	52.2	120	81						
7	60.9	140	94.5						
8	69.6	160	108						
9	78.3	180	121.5						

²⁸For this version of the job calculator, an average availability factor of 25% was used for all renewable technologies (calculated average for the REI4P).

How to use the Table 2 to estimate the potential number of operational jobs.

Example 3. A wind farm generates 500 GWh per year. The number of operational jobs (in job years) is as follows. From table 2:

$$500\text{GWh} = 5 \times 100 \text{ GWh} = 5 \times 480 \text{ jobs} = 2400 \text{ job years.}$$

Example 4. If we have 200 GWh of solar CSP and 700 GWh of solar pv, the number of job years created is as follows.

$$200\text{GWh solar CSP} = 2 \times 100 \text{ GWh} = 2 \times 320 \text{ jobs} = 640 \text{ jobs}$$

$$700 \text{ GWh solar PV} = 7 \times 100 \text{ GWh} = 7 \times 30 = 210 \text{ jobs}$$

The total of operational jobs created is 850 job years.

Table 2: Estimation of operational job potential

Electricity generation in GWh	Operational jobs			Electricity generation in GWh	Operational jobs		
	wind	solar CSP	solar PV		wind	Solar CSP	Solar PV
1	4.8	3.2	0.3	10	48	32	3
2	9.6	6.4	0.6	100	480	320	30
3	14.4	9.6	0.9	1000	4800	3200	300
4	19.2	12.8	1.2	10000	48000	32000	3000
5	24	16	1.5				
6	28.8	19.2	1.8				
7	33.6	22.4	2.1				
8	38.4	25.6	2.4				
9	43.2	28.8	2.7				

What happens if you don't know the amount of electricity being generated, but you know the capacity of the power plant in MW. Can you still calculate the number of jobs?

The answer is yes.

Example 5. If your renewable power plant is 150 MW, it will generate $150 \times 24 \times 365 \times 0.25^{29} = 328\,500$ MW hours in a year. That is 328.5 GWh in a year.

In order to calculate the total number of job years over the life span of the renewable energy plant, you add the number of construction jobs plus the number of operational jobs for each year of operation.

Example 6. If the renewable plant in example 5 is a solar PV plant, for the time of construction, Table 1 estimates that 2025 jobs would be created. Once operational, according to Table 2, it will create 38 jobs for each year of operation – 760 job years over its twenty year life.

If we wanted to estimate how many indirect and induced jobs might be created in associated services and industries, we would calculate $38 \times .84 = 32$ and $38 \times 1.2 = 45$ additional jobs, respectively, for each year of operation.

²⁹For the purposes of this review, we are assuming 25% plant availability as an avg across all technologies. This will change as more accurate operational data becomes available.

16. References and additional readings

Agama Energy (2003), "The employment potential of renewable energy in South Africa", paper produced for the Sustainable Energy and Climate Change Partnership, Earthlife Africa, Johannesburg (p2).

AIDC 2011. One Million Climate Jobs. A just transition to a low carbon economy to combat unemployment and climate change. (Booklet) pg. 9

Amnesty International. 2016. "Smoke and Mirrors: Lonmin's failure to address housing conditions at Marikana. Amnesty. www.amnesty.org.za accessed 30 August 2016

Audat, T. 2012. "Progress with the REIPPP Programme". *Parliament Briefing on at the Department of Energy*. 7 June 2012.

Baloyi P. 2014. "Local faster manufacturing in Decline" *Engineering News* volume 34 no 23. June 20-26 2014 pp 48-49

Baloyi P. 2014b. "Company manufactures fasters for renewable energy sector". *Engineering News* volume 34 no 23. June 20-26 2014 pp 48-49

Burton J. 2011. One million climate jobs – renewable energy jobs 2011 pg. 27

CER (Centre for Environmental Rights) 2014. Eskom's application to delay compliance with emissions standards opposed by civil society groups. www.CER.org.za accessed 15 August 2016

Centre for Applied Legal Studies 2016. The Social and labour plan series. Phase 1. Systems Design. Trends Analysis Report.

Creamer T. 2011. SA finally sets renewables bidding process in motion. *Engineering News* July 31, 2011. <http://www.engineeringnews.co.za/article/sa-finally-sets-renewables-bidding-process-in-motion-2011-07-31/> accessed 15 August 2016.

Creamer T. 2012. SA's Renewables procurement programme to be enlarged by a further 3200 MW. *Engineering News* October 2012. <http://www.engineeringnews.co.za/article/sas-renewables-procurement-programme-to-be-enlarged-by-a-further-3-200-mw-2012-10-09>. Accessed 14 May 2014.

Creamer T. (Ed.) 2014. "Ready to Bid". *Engineering News* volume 34 no 20. May30-June5 2014 pg. 8.

Creamer T. (Ed.) 2014a. "SA moves on solar atlas as project momentum builds". *Engineering News* volume 34 no 20. May30-June5 2014 pg. 8.

DEDEA 2016.

<http://www.dedea.gov.za/research/Research/Eastern%20Cape%20Socio%20Economic%20Review%20and%20Outlook%202014.pdf> renewable energy sector increasing in ELIDZ 6 march 2016. SABC news www.sabc.co.za accessed 20 September 2016.

Dept. of Energy. 2015. The State of Renewable Energy in South Africa.

Dept. of Energy and National Treasury. 2015a. Independent Power Producers Procurement Programme (IPPPP). An overview. As at 31 March 2015

Department of Energy. 2014. Socio-economic deep dive. Draft final report (updated version August 2014)

Department of Economic Development, Environmental Affairs and Tourism, GIZ (German Cooperation). 2013. Mapping of Provincial and Municipal Permitting and Authorization Processes for IPP projects in the Eastern Cape, November 2013, published by the province of the Eastern Cape, Economic Development Environmental Affairs and Tourism, with GIZ (German Cooperation).

Department of Energy, Republic of South Africa. 2011a. "Integrated Resource Plan for Electricity 2010-2030: Revision 2 Final Report" March 2011.

Department of Energy, Republic of South Africa. 2012a. "Annual Report 2011-2012" Online at: <http://www.pmg.org.za/report/20121130-department-energy-their-annual-report-and-financial-statements-201112>

Department of Energy, Republic of South Africa. 2012b. "Facts sheet: Window 1, REIPPP Economic Development Benefits". November 2012.

Department of Energy, Republic of South Africa. 2012c. "Preferred Bidders - Window 2" Online at: <http://www.ipprenewables.co.za/#page/1209>

Department of Energy, Republic of South Africa. 2012d. "Renewable Energy Independent Power Producer Procurement Programme: Milestones" Online at: <http://www.ipprenewables.co.za/#index.php>

Department of Energy, Republic of South Africa. 2013. "Integrated Resource Plan for Electricity (IRP) 2010-2030. Update Report 2013".

Department of Energy DoE 2013 <http://www.ipprenewables.co.za/page/2160#page/303> accessed 23rd August 2016

Department of Energy, Republic of South Africa. 2013b "Renewable Energy IPP Procurement Programme Bid Window 3 preferred Bidders Announcement. Presentation to National Parliament of South Africa. 4 November 2013.

Department of Environment Affairs, Republic of South Africa. 2011. "Defining South Africa's Peak, Plateau and Decline Greenhouse Gas Emission Trajectory - draft for discussion only" 2011.

Department of Environment Affairs, Republic of South Africa. 2012. "National Climate Change Response White Paper" 2012.

DeWet P. 2016. MPs given a negative on nuclear. Mail and Guardian. 8 Sept 2016. www.mg.co.za Accessed 15 September 2016.

Eberhard A., Kolker J., & Leigland J. 2014 "South African's Renewable Energy IPP Procurement Program: Success factors and Lessons. Public-Private Infrastructure Advisory Facility (PPIAF), World Bank Group.

Electric Power Research Institute (EPRI), 2010. Addressing Solar Photovoltaic Maintenance and Operations Challenges: A Survey of Current Knowledge and Practice, <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=00000000001021496&Mode=download>

Farrell L., Hamann R. and Mackres E. 2012. "A clash of cultures (and lawyers): Anglo Platinum and mine-affected communities in Limpopo Province, South Africa". Resources Policy 37 (2012) 194-204. www.elsevier.com/locate/resourpol

Fripp C. 2016. High Court rules Eskom price hike was "unfair and unlawful" www.htxt.co.za accessed 30 August 2016.

Green Business Journal 2014. "An update on the Renewable Energy Independent Power Producer Procurement Programme". <http://www.greenbusinessjournal.co.za/articles/an-update-on-the-renewable-energy-independent-power-producer-procurement-programme-10254.html> accessed on 29 July 2014.

Green Times 2014. "Incentive plan for Atlantis kicks off with wind tower factory" <http://thegreentimes.co.za/incentive-plan-for-atlantis-kicks-off-wind-tower-factory/> accessed 29 July 2014.

IRENA 2015. , Renewable Energy and Jobs. Annual Review 2015. International Renewable Energy Agency (IRENA) pg. 11

Inter-governmental Panel On Climate Change (IPCC), Working Group II, Final draft, *Treatment of Uncertainties in IPCC Assessment Reports: a Brief History Fifth Assessment Report* , United Nations Environment Program and World Meteorological Institute, Geneva, 2014, pp. 22. Available at ipcc-wg2.gov/AR5/images/uploads/WGIAR5-Chap1_FGDall.pdf

IDC 2016. <http://www.idc.co.za/home/media-room/energy-news/678-idc-funded-coega-development-zone-projects-operational.html> 14 march 2014. Accessed 20 September 2016

Infrastructurene.ws 2010. "Medupi Power Station R77.1bn over budget". <http://www.infrastructurene.ws/2012/09/10/medupi-power-station-r77-1bn-over-budget/> accessed 15 May 2014.

Justica Ambiental. 2015. The Economics of Coal. Where are its benefits? 2015 pg3

Jordan, B. 2016. Cape solar shocker: Global Energy firm quits SA over 'wavering government'. Timeslive.co.za. <http://www.timeslive.co.za/thetimes/2016/08/12/Cape-solar-shocker-Global-energy-firm-quits-SA-over-%E2%80%98wavering%E2%80%99-government> accessed 17 October 2016

Maia, J., Giordano T., Kelder, N., Bardien, G., Bodibe, M., Du Plooy, P., Jafta, X., Jarvis, D., Kruger-Cloete, E., Kuhn, G., Lepelle, R., Makaulule. L., Mosoma, K., Neoh, S., Netshitomboni, N., Ngozo, T., Swanepoel, J. (2011): Green Jobs: An estimate of the direct employment potential of a greening Aouth African economy. Industrial Development Corporation, Development Bank of Southern Africa, Trade and Industrial Policy Strategies."

Matthews C. 2016. Nuclear power call is based on outdated plans, warns Yelland. Business Day live. www.Bdlive.co.za accessed 20th September 2016

McDaid L., Pienaar G., DuBois N. and Fischer R. 2012. "Policy Assessment Framework: Policy – Entry of Renewable Energy Generators into the National Grid" *Electricity Governance Initiative South Africa*, 2012.

McDaid, L. and Wood, D. 2013. Open Climate Network Case Studies in Climate/Low Carbon Policy Implementation: South Africa's Renewable Energy Independent Power Producer Program. Electricity Governance Initiative South Africa.

Mulcahy, M. 2012. "Review of the competitive bid for PV in South Africa – Is South Africa maximizing job creation and value for money from its photovoltaic industry?" MPhil Thesis. 2012.

National Renewable Energy Laboratory (NREL), 2004. *The Potential Economic Impact of Constructing and Operating Solar Power Generating Facilities in Nevada*, <http://www.nrel.gov/csp/pdfs/35037.pdf>

Paton C. 2016. "Brian Molefe hardens stance against independent power producers". Business Day live 29th August 2016.. accessed 30th August 2016

Poschen, Peter, 2015, Decent Work, Green Jobs and the Sustainable Economy (Sheffield, United Kingdom: Greenleaf). Note 1: Finance & Development, Quarterly publication of the IMF, December 2015 • Volume 52 • Number 4, p16 and Graphic credits. This page: sourced from Africa Economic Outlook 2014, special theme: Global Value Chains and Africa's Industrialisation; previous page: http://www.123rf.com/photo_19703996_global-development-and-the-green-economy-as-a-business-concept-with-a-map-of-the-world-made-of-an-o.html

Proctor, C. 2016. "Denver solar equipment manufacturing plant to close, ending hundreds of jobs". The Denver Business Journal. http://www.bizjournals.com/denver/blog/earth_to_power/2016/08/denver-solar-equipment-manufacturing-plant-to.html accessed 17th October 2016

REN21 2015. Renewables 2015. Global Status Report, Annual reporting on renewables: ten years of excellence REN21 Pg 33

SANEWS 2016. <http://www.sanews.gov.za/business/renewable-energy-flourishing-east-london> 7th March 2016. Accessed 20 September 2016. need date of article and date accessed

SAWEA/SAPVIA 2016. Roundtable conversation series – economic development in REIPPPP: Managing community unrest resulting from political lobbying from municipal elections 2016. Roundtable report – SAWEA/SAPVIA 2016

Tait, L., Wlokas, H., and Garside, B. 2013. Making Communities Count. Maximising local benefit potential in South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). International Institute for Environment and Development, London.

Wiesegart, Dr. Kurt et al. 2011. "Options for the Establishment of a South African Wind Energy Centre (SAWEC): with Lessons Learnt from China and Germany" Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Centre for Renewable and Sustainable Energy Studies (CRSES), Stellenbosch University. June 2011.

Weischer et al. 2011. "Grounding Green Power: Bottom-Up Perspectives on Smart Renewable Energy Policy in Developing Countries" *World Resources Institute*. 2011.

Williams A. 2014. <http://www.heraldlive.co.za/another-solar-power-project-adds-muscle-coega-idz/> 13 August 2014 . Accessed 20 September 2016.

Wood, D., Martin, S., Jairaj, B., Dixit, S., and Tawney, L. 2014. "10 Questions to Ask About Scaling On-Grid Renewable Energy." Working Paper. Washington, D.C.: World Resources Institute. Available online at wri.org/publication/10-questions-scaling-on-grid-renewable-energy. World Resources Institute 2014.

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