at a glance

REIPPPP focus on Eastern Cape

Provincial Report Volume 2

December | 2021

The IPPPP partnership between

mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DBSA
DEVELOPMENT BANK OF SOUTHERN AFRICA
Building Africa's Prosperity

national treasury
Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

IPP Programme: 10 years of Empowering Energy

Overview of the Provincial Report

The Department of Mineral Resources and Energy's (DMRE) Independent Power Producers Procurement Programme (IPPPP) was established at the end of 2010 as one of the South African government's urgent interventions to enhance the country's power generation capacity.

The programme's primary mandate is to secure electrical energy from the private sector, drawing from both renewable and non-renewable energy sources. Energy policy and supply are not only about electrons, fuel and carbon technologies. In reality, it is rather a matter of socio-energy system design, as energy systems are deeply embedded in the broader patterns of socio-economic factors, political life and organisation. Consequently, the IPPPP has not only been designed to procure energy, but also to contribute to the broader national development objectives of job creation, social upliftment and the broadening of economic ownership.

The purpose of the Provincial Report is to provide a high level, "at a glance" overview of the Independent Power Producers Procurement Programme (IPPPP) activities per province. Due to the advanced implementation status of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) relative to other energy source-based programmes, it is largely focused on the REIPPPP.

The REIPPPP projects of the first bid windows (BW1, BW2, BW3, BW3.5, and BW4) were distributed across all nine provinces of South Africa. By nature, the distribution of IPPs depends on the location where renewable energy resources offer the most potential for any particular technology. As such, the geographic spread of various IPPs varies throughout the country according to the resource potential – e.g. the Eastern Cape offers some of the best wind conditions in the world for onshore wind-to-electricity generation, and likewise the Northern Cape for solar electricity generation. Overall, most renewable power plants are located in the rural areas of the Northern, Eastern and Western Cape.

Project distribution and numbers informed the development of four Provincial Report components. Individual report components are available for the Northern, Eastern and Western Cape provinces, where most projects are concentrated. The combined contribution across the remaining six provinces is incorporated into a single volume.

The **Provincial Report** is, therefore, available in **four volumes**:

- **Volume 1:** REIPPPP focus on the Northern Cape
- **Volume 2:** **REIPPPP focus on the Eastern Cape**
- **Volume 3:** REIPPPP focus on the Western Cape
- **Volume 4:** REIPPPP focus on the collective contribution from the Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga and North West Province.

Purpose and outline of this report

The purpose of this report is to provide a high level "at a glance" overview of the IPPPP activities in the **Eastern Cape** province, with the focus on the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) as the most advanced component of the IPPPP.

The IPPPP is anchored within the overall South African policy framework, notably the:

- Respective White Papers on Energy Policy (1998) and Renewable Energy (2003);
- The Electricity Regulation Act (2006) and National Environmental Management Act (1998);
- The South African National Development Plan (NDP);
- The Integrated Energy Plan (IEP); and
- The Integrated Resource Plan (IRP)[2] for Electricity.

The REIPPPP incorporates the different technologies identified in the IRP, including onshore wind, solar photovoltaic (PV), concentrated solar power (CSP), biomass, biogas, landfill gas and small hydro.

This report provides highlights of the IPP project portfolio procured to date under the REIPPPP's Bid Windows (BW) 1, 2, 3, 3.5[3], and 4 in the Eastern Cape.

The **first section** of the report highlights IPP commitments and contributions that are already being realised in the Eastern Cape province (as at December 2021). The **second section** gives a brief overview of the economic status and socio-economic features of the Eastern Cape, and contextualises the energy capacity and the economic contribution of the REIPPPP in the province relative to the total national programme. The **third section** gives more information on the REIPPPP at the municipal level where projects are located. The **Appendix** contains relevant notes and observations, definitions and an index of icons.

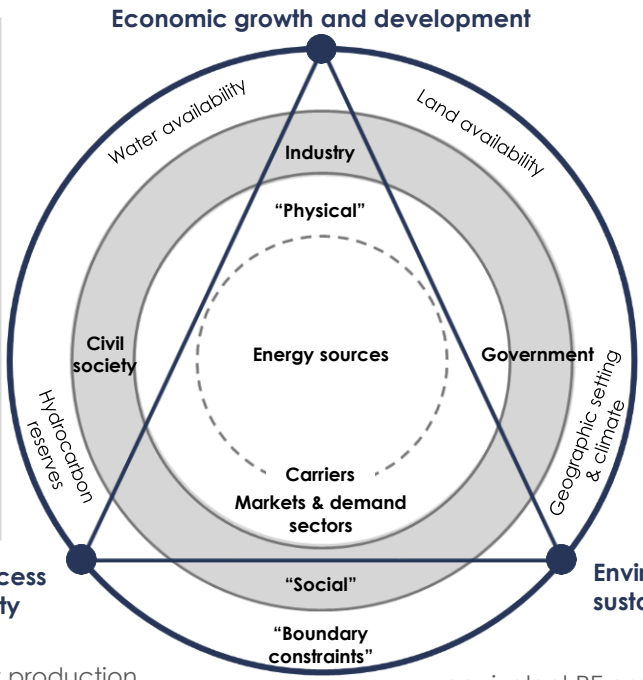
Key REIPPPP Energy Triangle[1] Facts: Eastern Cape (for period 11/2013 – 12/2021)

71 073 GWh
REIPPPP[2] Actual energy contributed to National Grid

21 604 GWh
Eastern Cape
(30%) contributed to the National Grid

of which
20 467 GWh
Wind (95%)

1 137 GWh
Solar PV (5%)



R 149.9 billion
REIPPPP Total payment to all IPPs

R 32.8 billion
Eastern Cape
(22%) total payments to IPP's

of which
R 29.7 billion
Wind (90%)

R 3.1 billion
Solar PV (10%)

ENERGY (P50)
Energy access and security

15%
of the Renewable Energy production in Eastern Cape is available during peak hours (as per Megaflex tariff)

Environmental sustainability

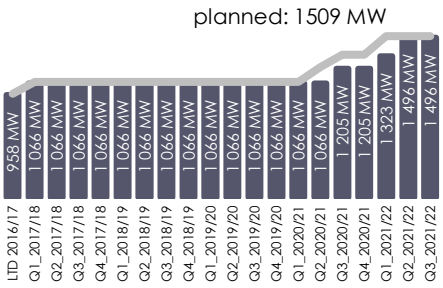
72.1 Mtons CO_2
equivalent RE emissions reduction achieved relative to Eskom generated power (21.9 Mtons CO_2 in Eastern Cape)

Note 1. Source: World Economic Forum – Global Energy Architecture Performance Index Report (2013). **Note 2.** The IRP 2019 was promulgated in October 2019 and replaced the IRP 2010 as the country's official electricity infrastructure plan. **Note 3.** No projects in the Eastern Cape.

Highlights for the EC

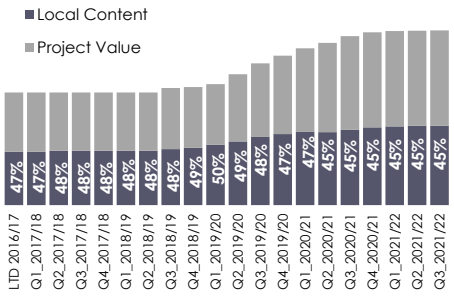
Key statistics | major achievements of the REIPPPP in the EC as at December 2021

megawatts operational (cumulative MW)



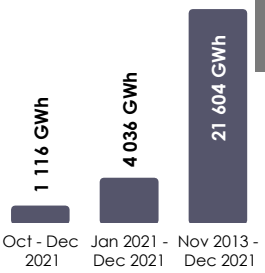
REIPPs in the Eastern Cape have consistently contributed new capacity to the network since the beginning of 2014. As at December 2021, 100% of IPPs scheduled[1] to be operational in the province have started commercial operations. The average lead time for these 17 projects to complete has been 2.3 years.

local content achieved in construction



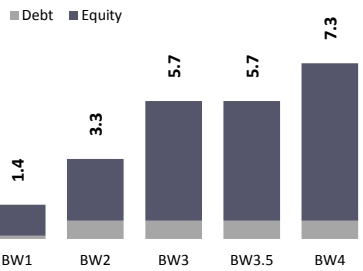
Local content is reported as a percentage of Total Project Value[2] achieved during construction. Local content achieved in the Eastern Cape up until this quarter was 45% of Total Project Value.

clean energy generated[3] (GWh)



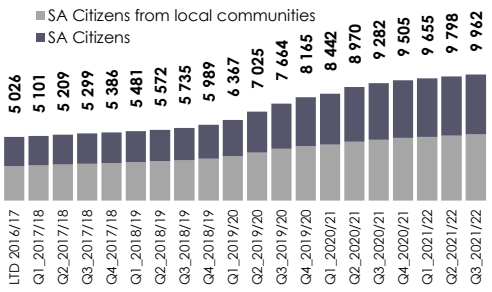
Although production is only ramping up as IPPs become operational, 21 604 GWh have already been generated by the Renewable Energy portfolio to date, thereby offsetting 21.9 Mton CO_2 emissions[4].

foreign investment attracted (cumulative R billion)



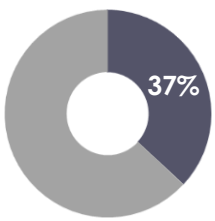
The total foreign equity and financing invested in REIPPs (BW1 - BW4) in the Eastern Cape to date is R7.3 billion. This is 17.3% of total foreign investment attracted into South Africa by the REIPPPP (R42.0 billion).

employment creation[3] (job years)[5]



Employment for South African citizens including people from communities local to the IPP operations in the Eastern Cape were 9 962 job years as at the end of December 2021.

equitable shareholding (%)[3]



Black South Africans hold **37%** of the shares across the complete supply chain (for the **17 projects** in BW1, BW2, BW3 and BW4). Local communities hold **14 %** equity in the IPPs of BW1 to BW4.

Note 1. 17 IPPs (out of 17 that were originally planned) have reached commercial operation date (COD) in the province by end December 2021. **Note 2.** Refer Appendix A for applicable definitions and terminology. **Note 3.** For actual achievements only data for projects that have completed financial close is reported - BW1, BW2, 16 of 17 BW3 projects, BW3.5 (no projects in EC) and BW4 projects. One project in BW3 (not in the EC) has not yet reached financial close. The project has become unviable due to complications with the fuel supply and the DMRE is currently following due process to give effect to the withdrawal of the project from the procurement process. **Note 4.** Carbon emission reductions reflect all energy generated in EC from inception to date. **Note 5.** Employment / Job creation measured in job years (equivalent of a full time employment opportunity for one person for one year).

Nojoli Wind Farm

Located in the Blue Crane Route Municipality, Eastern Cape

86.6 MW actual capacity

operational since 31 October 2016…

Generating

1 334 GWh

to date[1]

811

job years[2]

Employment opportunities for South African citizens during construction and operations until end December 2021

401 905

South African homes[3] can be powered annually

by electricity generated by this IPP to date[1]

1.4

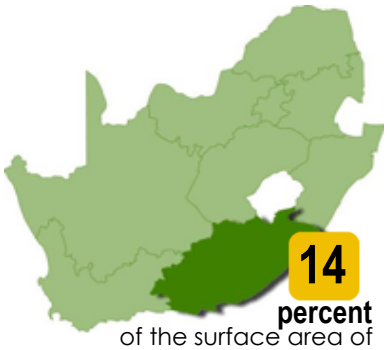
Million ton CO_2 offset

by electricity generated by this project to date[1]

Photo source: http://www.engineeringnews.co.za/article/enels-first-south-african-wind-farm-connected-to-the-grid-2016-10-03.
Note 1. Energy generated from 31 October 2016 until 31 December 2021. **Note 2.** Employment / job creation measured in job years (equivalent to a fulltime employment opportunity for one person for one year). **Note 3.** Average households powered to date is based on energy produced from 31 October 2016 until 31 December 2021 (using ~3319 kWh/a/hh).

Eastern Cape

Harnessing wind energy for sustainability



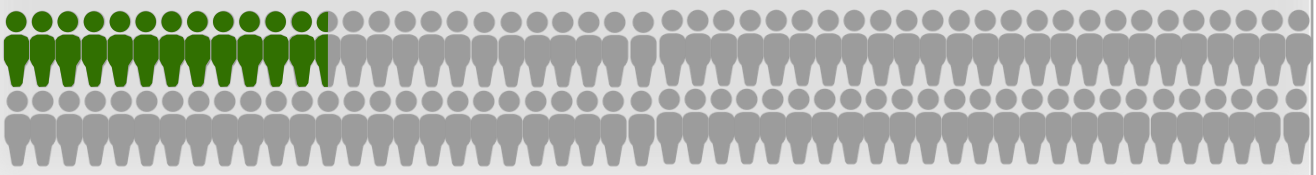
of the surface area of the country

Key provincial attributes

The Eastern Cape has the second largest **geographic footprint** of all provinces in South Africa, covering 14% of the country's surface area. The province is home to 7 million people or 12.6% of the total South African **population** of 55.7 million. This translates into an average **population density** of 41 people per km^2 in the province, which is only slightly below the national average of 46 people per km^2.

12.6 of every 100 South Africans live in the Eastern Cape

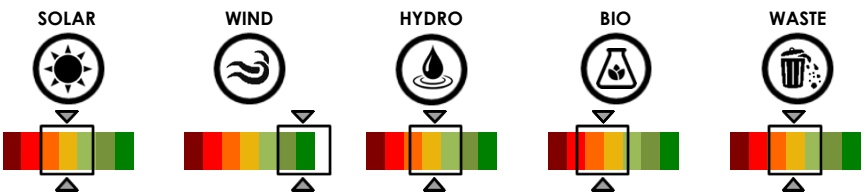
41 people per km^2 vs national average **46** people per km^2



The province offers remarkable biodiversity with 7 of the 8 biomes in South Africa found here. This wealth of natural resources has given rise to strong growth in tourism in the region over the last two decades. In recognition of this ecological advantage, the province has appropriately included sustainability and the development of a 'green economy' into the provincial strategies and development plans. In its Sustainable Energy Strategy[1] the province articulated the vision to provide the most enabling environment for sustainable energy investment and implementation in South Africa through encouraging sustainable, affordable and environmentally friendly energy production and efficient use and by creating an enabling environment for sustainable technology, skills and industry development.

In addition to a favourable enabling environment, the availability of land and renewable energy resources makes the province particularly suited for **electrical power generated from renewable energy**, especially from wind. Besides its excellent wind potential, the province has also identified potential for bio-fuels production and electrical power generation from small hydro, solar, biomass and possibly tidal or wave energy[2].

N1[3]



LEGEND

Resource potential

1 2 3 4 5 6 7

low high

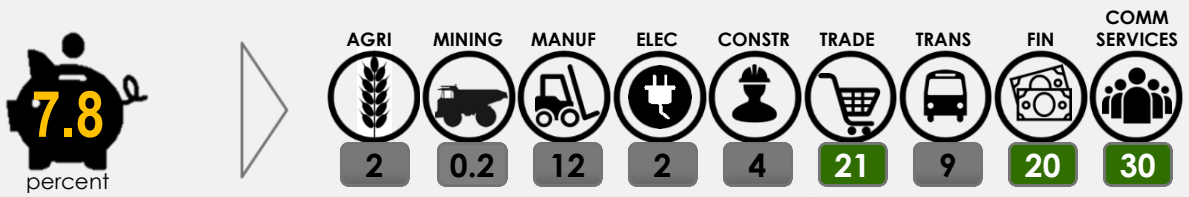
All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 1.** Adopted by the Eastern Cape Provincial Government in 2012. **Note 2.** With consideration of wind and solar resource maps (refer Appendix to this report), scales indicative only, based on the Eastern Cape Sustainable Energy Strategy. **Note 3.** Notation indicates additional notes and observations available in the Appendix (Reference Component) to this report.

Key economic attributes[1]

The Eastern Cape province contributes 7.8% to national GDP, which is below potential considering its geographic footprint, natural resource endowments and population size.

While government services is the dominant sector in the province's economy, financial services and trade and manufacturing also contribute significantly to total provincial output. The province has a relatively diverse economy, but economic activity is largely concentrated around the urban centers of Nelson Mandela Bay and Buffalo City. However, the province is exploring opportunities for economic development in the remainder of the province. In addition to this, electrical power generation presents an excellent opportunity to enhance economic activities in rural areas.

The province has two large airports, two prominent seaports and a relatively good road network along the coastal strip, but the condition of the road network in rural areas and the high voltage transmission network in the former Transkei remains poor. As a result, the accessibility of the interior is problematic and may impede the development of new power infrastructure under the IPPPP in rural areas. Transportation and regional development growth corridors have been identified, as well as plans to strengthen the transmission grid, but prioritised delivery on these plans will be critical to fully capture the opportunities offered by the REIPPPP.



Employment[1]

The province has a comparatively high official unemployment rate at 29.1% relative to the overall official unemployment rate for South Africa of 25.5%, but has decreased slightly from 29.4% in 2015. Nonetheless, approximately 4 out of 5 people in the province's economically active population are employed.

During 2016 the largest employer in the province was the community and social services sector which accounts for 30.2% of the labour market in the province. Thereafter, most employment opportunities were offered within the trade sector (20.6%), finance (20.0%), private households (29.6%), manufacturing (12.0%), agriculture (2.0%), construction (4.3%), transport (9.1%), electricity (2.1%) and mining (0.2%).

Job creation and skills development is one of the six main goals identified by the Sustainable Energy Strategy for the province. While the proportionate share of people employed in the utilities sector is low, investment in the electrical energy industry in the province as a result of the IPPPP **contributes direct and indirect employment** during construction and operation. The Strategy also recognised employment opportunities in manufacturing and supporting industries associated with the electrical energy industry and the development of new electricity generation capacity. The province is therefore proactively promoting renewable energy manufacturing and technology development opportunities and positioning the Coega industrial development zone (IDZ) as the 'green' technology hub in South Africa in this regard.

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates.

IPPPP in the Eastern Cape

Building energy ( ) supply capacity ( )

Projected at full operational capacity procured in BW1 to 4

ENERGY (P50) **5 115** gigawatt hours / a

5.2 M ton/a CO_2

CAPACITY **1 509** megawatts

24 percent of total capacity procured

The Eastern Cape has attracted almost a fifth of the IPPPP projects to date. The electrical energy that will become available from the investments in bid windows 1, 2, 3, 3.5, and 4 will equate to approximately 58% of the Eastern Cape's own needs.

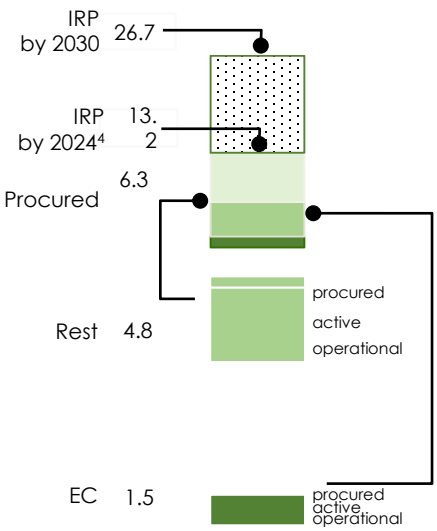
Capacity contribution

The Eastern Cape consumed **8 555 GWh electricity in 2020** or 4.0% of the national total (211 806 GWh)[1]. With the newly developed IPP capacity (procured in BW1 to BW4), the province will produce approximately 60% of its own electrical power needs from renewable energy sources (although in practice this energy will be fed into the national grid).

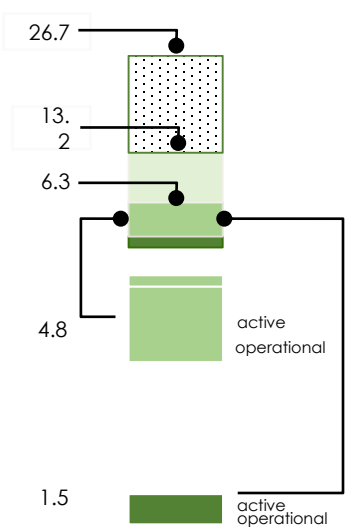
The IRP 2019 contains a target of 26.8 GW of renewable energy capacity by 2030, of which 13.2 GW needs to be procured by 2024[4]. At the national level, 6 323 MW has been procured from 92 IPPs under the REIPPPP in BW1-4. Of these, 85 IPPs are operational which have established 5 661 MW of capacity (against a contracted capacity 5 687 MW) and generated 71 073 GWh of electricity since inception. The Eastern Cape accounts for 1 509 MW (24%) of procured capacity, of which 1 496 MW (26% of national total) electrical energy capacity is operational, with 21 604 GWh (30%) electricity generated by the total provincial portfolio since inception.

Eastern Cape renewable energy projects in BW1 to BW4 will save a gross Eskom grid equivalent of 5.2 million tonnes CO_2 emissions[2] per annum.

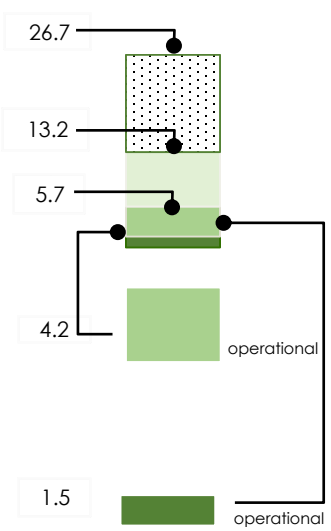
Procured[5]
Capacity (GW)[3]



Active (have reached FC)[6]
Capacity (GW)[3]



Operational
Capacity (GW)[3]



17 of the **92 projects procured** in bid windows 1 to 4 are in the EC

17 of the **91 active projects** are in the EC

17 of the **85 operational projects** are in the EC

Note 1. Stats SA P4141: Electricity generated and available for distribution (202106). **Note 2.** Calculated based on average Eskom equivalent emission factor of 1.015 kg CO_2-equivalent per kWh, expressed as Million tons per annum (Energy Research Centre, UCT). **Note 3.** Cumulative capacity towards IPPPP and IRP targets. **Note 4.** Breakdown of targets set out in Appendix notes. **Note 5.** Projects for BW1, 2, 3, 3.5, and 4. **Note 6.** One project in BW3 has not yet reached financial close. The project has become unviable due to complications with the fuel supply and the DMRE is currently following due process to give effect to the withdrawal of the project from the procurement process.

IPPPP in the Eastern Cape
Building energy supply capacity

Projected at full operational capacity procured in BW1 to 4

43 percent of total wind capacity procured in the REIPPPP

3 percent of total PV capacity procured in the REIPPPP

LEGEND
- Province
- Rest of programme
- Not operational yet at time of reporting
- Operational

The Eastern Cape has attracted 43% of the total wind capacity procured in BW1 to BW4 under the REIPPPP in South Africa, contributing 1 440 MW of the national total 3 357 MW wind power. Of the 17 renewable energy IPPs in the province, wind has the dominant share with 16 wind IPPs or 95% of total IPP capacity, with only one sizable solar PV project of 70 MW.

Technology contribution

	Procured (BW1 to BW4)		**Active**[2]		**Operational**[3]	
	17 projects	**1 509** megawatt	**17** projects	**1 509** megawatt	**17** projects	**1 496** megawatt
	of which:		of which:		of which:	
	no. projects	megawatts	no. projects	megawatts	no. projects	megawatts
Solar PV	0	0	0	0	0	0
Wind	1	+ 70	1	+ 70	1	+ 70
Solar CSP	16	+ 1 440	16	+ 1 440	16	+ 1 426
Hydro	0	+ 0	0	+ 0	0	+ 0
Biomass	0	+ 0	0	+ 0	0	+ 0
Landfill gas	0	+ 0	0	+ 0	0	+ 0

	% share[1] rest | EC		% share rest | EC		% share rest | EC	
Solar PV	100 | -		100 | -		100 | -	
Wind	97 | 3		97 | 3		97 | 3	
Solar CSP	57 | 43		57 | 43		51 | 49	
Hydro	100 | -		100 | -		100 | -	
Biomass	100 | -		100 | -		100 | -	
Landfill gas	100 | -		100 | -		100 | -	

Note 1. EC share (green bar/fill) vs. remainder of programme (other 8 provinces). **Note 2.** IPPs that have reached financial close.
Note 3. Operational capacity achieved (1 495.7 MW) has fallen 13.5 MW short of contracted capacity (1 509.2 MW).

Solar PV | Wind | Solar CSP | Hydro | Biomass | Landfill gas

Investment share of the IPPPP attracted into the Province

Projected for BW1, 2, 3, 3.5, and 4

36.2 Rand billion — Invested (programme total: R 209.6 billion)

7.0 Rand billion — Community net income

N3

The Eastern Cape has attracted 17.3% of the total IPPPP investments to date and has secured a substantial share of the equity for local communities with benefits materialising over the project life[1].

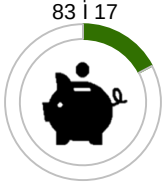
Investment share

The province attracted 17.3% of the total IPP investments in bid windows 1, 2, 3, 3.5, and 4. The combined IPP investment share of the province, across BW1 to BW4, would be equivalent to 11% of the Eastern Cape's annual gross domestic production (R339 billion[5]).

By December 2021, the **project value**[4] that had been realised in the EC totalled R22.1 billion.

Procured (BW1 to BW4)[2]

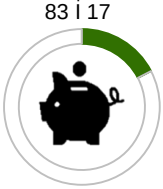
PROJECT COST
rest | EC[3]
83 I 17



R 36.2 billion

Active

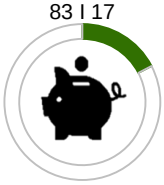
PROJECT COST
rest | EC[3]
83 I 17



R 36.2 billion

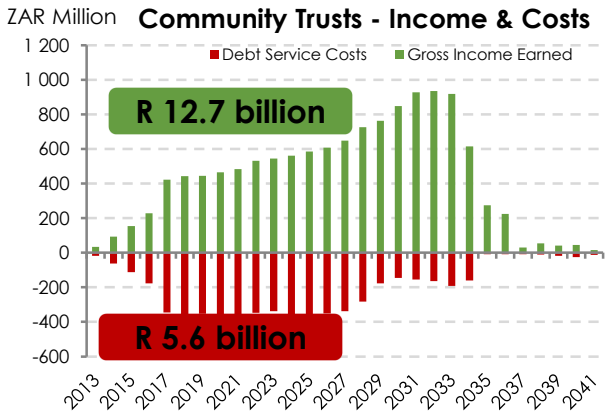
Achieved

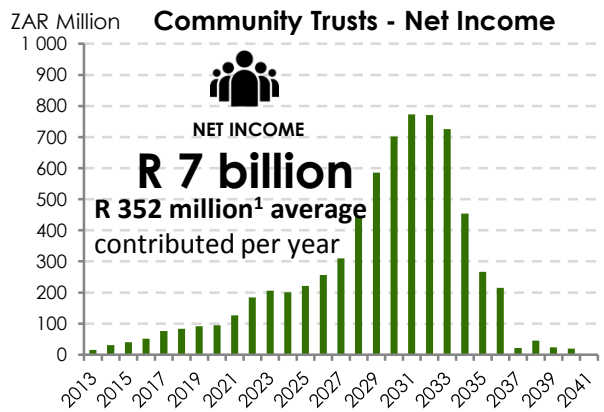
PROJECT VALUE ACHIEVED
rest | EC[3]
83 I 17



R 22.1 billion

A substantial portion of these investments have been structured and secured as local equity. Individual communities' dividends earned will depend on the terms of each transaction corresponding with the relevant equity share. The aggregate impact of BW1 to 4, 1S2 and 2S2 investments and earnings projected for local communities associated with the projects in the province (accrued over 20 years) present a net income of R7 billion.



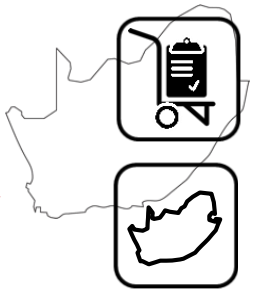


Note 1. Note that all financial values are reported for the **full expected project lifespan of 20 years.** The bulk of the money will only start flowing into the communities from 2028 due to debt repayment obligations in the preceding years. **Note 2.** One project in BW3 has not yet reached financial close. **Note 3.** Eastern Cape share (green bar/fill) vs. remainder of programme (other 8 provinces). **Note 4.** Project value indicative of progress against committed investment; refer definitions in Appendix A for Total Project Value and Total Project Costs. **Note 5.** IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimate.

Project cost

Community trust (local equity)

Economic development resulting from the IPPPP and the sizable wind component in particular



28.3 Rand billion — Procurement spend (programme total: **R 146.3 billion**)

11.0 Rand billion — Locally procured (programme total: **R 66.3 billion**)

Clean energy production supported by the procurement strategy of the REIPPPP is contributing directly to the Eastern Cape's provincial objective of building sustainable energy, stimulating a 'green' economy and achieving sustainable economic growth and development.

Procurement spend

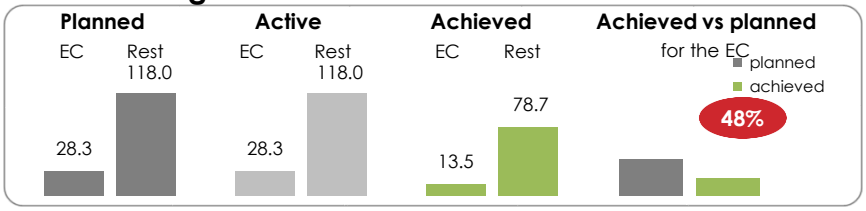
The committed procurement spend in the Eastern Cape, during both construction and operation, amounts to R 28.3 billion or 19% of the total committed procurement spend of the programme. Of this, R13.5 billion (48%) has already been spent.

Committed (BW1 to BW4)[2]

28.3
Rand billion
Procurement spend

rest | EC[3]
81 | 19

Achieved against committed

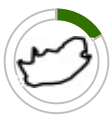


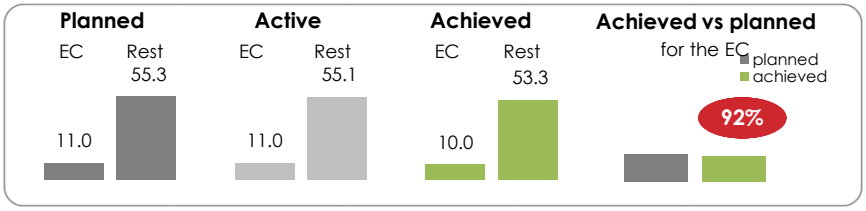
Localisation share

41% of the total project value[1] in the Eastern Cape has been allocated for local procurement, with the intent of stimulating the development of localised industries and the 'green' economy. By this reporting quarter, 91% of the committed local spend had already been realised.

11.0
Rand billion
Localisation spend

rest | EC[3]
83 | 17



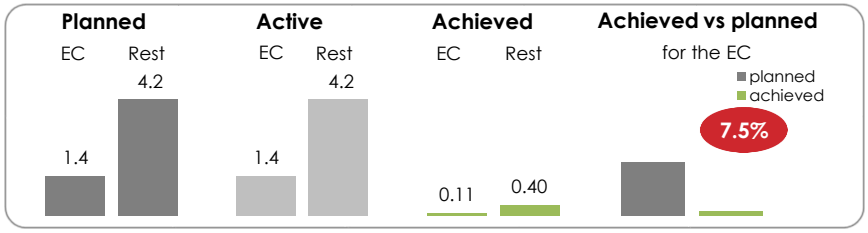


Enterprise development

The development of local enterprises will further be directly supported with an allocation earmarked for enterprise development over the projected portfolio development and operations horizon. The commitments made towards **local** enterprise development in the province for BW1 to BW4 is R1.4 billion. This contribution will accrue over the operational life of the projects which has only started. As a result, only a small percentage has been realised at this early stage of the 20-year portfolio operational life.

1.4
Rand billion
Enterprise development commitment (local)

rest | EC[3]
75 | 25



Note 1. Refer Total Project Value definition in Appendix (Definitions). **Note 2.** One project in BW3 has not yet reached financial close. **Note 3.** Eastern Cape share (green bar/fill) vs. remainder of programme (other 8 provinces).

Procurement | Localisation | Economic Development | Local community

Employment creation in the Eastern Cape by the IPPPP

Projected for BW1, 2, 3, 3.5, and 4

9 517 job years[1]

out of a programme total of 57 710 job years within **local communities**

The Eastern Cape benefits from the employment opportunities created during the construction and operation of IPPs. The province also captures a high share of the total employment created under the REIPPPP as a result of the large number of IPP projects that are located within the province.

Employment creation

As for the rest of the country, employment creation remains a top priority in the Eastern Cape. IPP investments in BW1 to BW4, within the province alone, will contribute new employment opportunities for **South African citizens**[2] estimated to 18 139 job years over the construction and projected operational life of the plants.

Approximately 17% of the total jobs created for SA citizens under the overall REIPPPP, in BW1 to BW4 (109 480 job years), will therefore be created by IPP projects located in the Eastern Cape province.

N4

Committed (BW1 to BW4)[4]

4 850

Construction job years of total 18 139 job years

rest | EC[3]

86 I 14

Achieved cumulative against planned (Job years)

Construction employment

156%

of planned job opportunities in the EC realised

Notably, 2 060 (42%) of these new employment opportunities will be retained within **local communities** (in the province) associated with the respective IPP plants. To date, the opportunities for people from local communities have significantly exceeded expectations, achieving **175.7% of what is planned in BW1-4**.

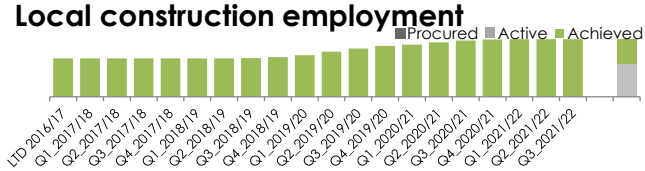
2 060

Job years

rest | EC[3]

85 I 15

Local construction employment



175.7%

of planned job opportunities in the EC realised

During the construction phase (2 – 4 years) the number of people employed on site typically spikes and then tapers off to a lower and more steady employment number over the extended 20 year operational life of a project. Although lower in numbers, these opportunities are both sustainable and in environmentally friendly firms, thereby contributing to the national objective of creating 'green' jobs, and will accrue over 20 years. At this early stage, already 2 388 job years have been created by the IPPs that started operation.

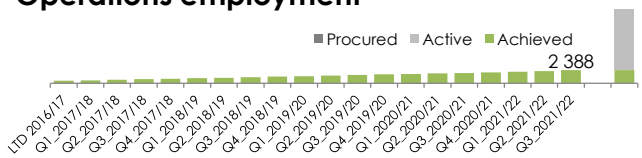
13 288

Operations job years of total 18 139job years

rest | EC[3]

82 I 18

Operations employment



18.0%

of planned job opportunities in the EC realised

Note 1. Job year = equivalent of a full time employment opportunity for one person for one year. **Note 2.** Employment numbers for South African citizens residing in the Eastern Cape shown. **Note 3.** Eastern Cape share (green bar/fill) vs. remainder of programme (other 8 provinces). **Note 4.** One project in BW3 has not yet reached financial close.

Employment Local community

Socio-economic benefits resulting from the IPPPP

Projected for BW1, 2, 3, 3.5, and 4

4.6 Rand billion committed SED in the local community

Approximately 23% of the total **socio-economic development (SED) contribution** leveraged by the IPPPP commitments in BW1 to BW4 have been in the Eastern Cape province.

Development share

The IPP projects in the Eastern Cape that have been procured in BW1 to BW4 have made a combined socio-economic development commitment[1] of R5.2 billion over the 20 year planned project operational life. This represents 23% of total SED commitments under the overall REIPPPP. Of this SED contribution, R4.6 billion has been committed to **local communities** located within the vicinity of the IPP projects in the Eastern Cape.

Committed (BW1 to BW4)[2]	Committed by active IPPs	Achieved / realised
SOCIO ECONOMIC DEVELOPMENT rest | EC[3] 77 | 23	SOCIO ECONOMIC DEVELOPMENT rest | EC[3] 77 | 23	SOCIO ECONOMIC DEVELOPMENT rest | EC[3] 77 | 23
2.0% of revenue	2.0% of revenue	1.3% of revenue
R5.2 billion	**R5.2 billion**	**R0.4 billion**
of which **local**:	of which **local**:	of which **local**:
R4.6 billion	**R4.6 billion**	**R0.38 billion**

In the Eastern Cape, the expenditure on SED and ED initiatives to date under the IPPPP have been focused on five categories, namely; education and skills development, social welfare, healthcare, general administration, and enterprise development:

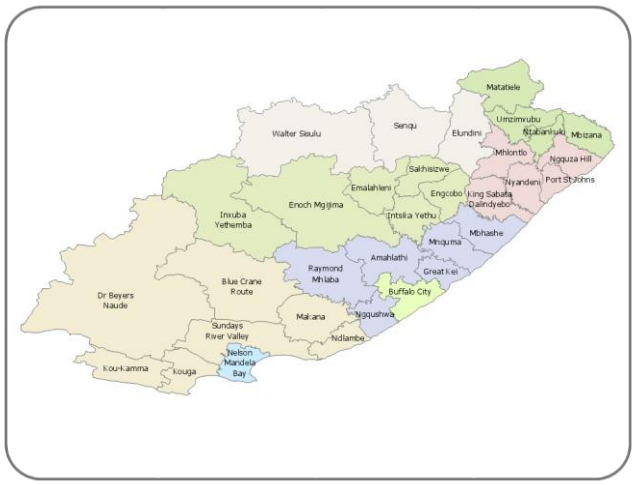
education and skills	social welfare	health care	general administration	enterprise development
43%	**18.2%**	**5.8%**	**12.7%**	**20.3%**

The prioritisation of education align well with the challenges faced by the Eastern Cape province. The targeted SED focus areas are therefore generally aligned with the provincial priorities, however alignment can further be improved and directed in subsequent bid rounds.

Note 1. SED commitments are made as a percentage of annual revenue. **Note 2.** One project in BW3 has not yet reached financial close. **Note 3.** Eastern Cape share (green bar/fill) vs. remainder of programme (other 8 provinces).

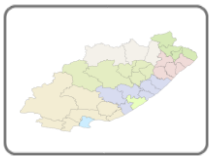
Socio economic development | Local community

The impact on local municipalities



IPP Project status	OW	PV	CSP	SH	LG	BM
No financial close yet						
Under construction						
Operational						
Came online last quarter						
Expected to come online next quarter						
Completed – no Grid connection						

OW – Onshore wind; PV – Solar photovoltaic; CSP – Concentrated solar power; SH - Small hydro; LG – Landfill gas; BM - Biomass



District • **Amathole**
Local municipality • **Great Kei**

Surface area
footprint in Province

1.0 percent

GDP[1]
Contribution to GDP in Province

1 percent

Population
home to

0.4 % of the **Provincial population**

18 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 21 MW
of which

R 432 million[2]
1.2% of total for province

R 18 million[2]
0.4% of total for province

R 213 million[2,3]
3.0% of total for province

328 job years[2]
1.8% of total for province

District • **Amathole**
Local municipality • **Ngqushwa**

Surface area
footprint in Province

1.3 percent

GDP[1]
Contribution to GDP in Province

1 percent

Population
home to

1 % of the **Provincial population**

30 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 33 MW
of which

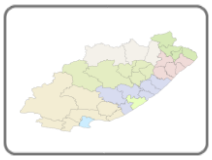
R 1 030 million[2]
2.8% of total for province

R 86 million[2]
1.6% of total for province

R 30 million[2,3]
0.4% of total for province

260 job years[2]
1.4% of total for province

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 2.** IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years). **Note 3.** Reflects the cumulative, net positive, cash flows over the 20 year production phase.



District • **Chris Hani**
Local municipality • **Enoch Mgijima**

Surface area
footprint in Province

8.0 percent

GDP[1]
Contribution to GDP in Province

3.8 percent

Population
home to

3.8 % of the **Provincial population**

20 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 98 MW
of which

R 2 290 million[2]
6.3% of total for province

R 171 million[2]
3.3% of total for province

R 735 million[2,3]
10.4% of total for province

242 job years[2]
1.3% of total for province

District • **Joe Gqabi**
Local municipality • **Walter Sisulu**

Surface area
footprint in Province

7.9 percent

GDP[1]
Contribution to GDP in Province

1.7 percent

Population
home to

1 % of the **Provincial population**

6 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 70 MW
of which

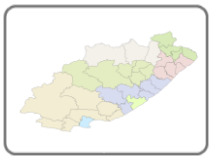
R 2 274 million[2]
6.3% of total for province

R 105 million[2]
2.0% of total for province

R 397 million[2,3]
5.7% of total for province

422 job years[2]
2.3% of total for province

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 2.** IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years). **Note 3.** Reflects the cumulative, net positive, cash flows over the 20 year production phase.



District • Sarah Baartman
Local municipality • Blue Crane Route

Surface area
footprint in Province

6.6 percent

GDP[1]
Contribution to GDP in Province

1 percent

Population
home to

1 % of the **Provincial population**

3 people per km²

Employment

4 out of **five**

EAP are **employed**

5 projects | 616 MW
of which

R 14 407 million[2]
39.7% of total for province

R 2 438 million[2]
46.5% of total for province

R 759 million [2,3]
10.8% of total for province

9 370 job years[2]
51.7% of total for province

District • Sarah Baartman
Local municipality • Kouga

Surface area
footprint in Province

1.6 percent

GDP[1]
Contribution to GDP in Province

3 percent

Population
home to

2 % of the **Provincial population**

42 people per km²

Employment

4 out of **five**

EAP are **employed**

4 projects | 468 MW
of which

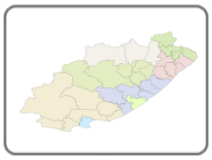
R 10 477 million[2]
28.9% of total for province

R 2 106 million[2]
40.2% of total for province

R 3 433 million[2,3]
48.8% of total for province

6 122 job years[2]
33.8% of total for province

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 2.** IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years). **Note 3.** Reflects the cumulative, net positive, cash flows over the 20 year production phase.



District • Sarah Baartman
Local municipality • Kou-Kamma

Surface area
footprint in Province

2.2 percent

GDP[1]
Contribution to GDP in Province

1 percent

Population
home to

1 % of the **Provincial population**

12 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 95 MW
of which

R 2 904 million[2]
8.0% of total for province

R 214 million [2]
4.1% of total for province

R 322 million [2,3]
4.6% of total for province

475 job years [2]
2.6% of total for province

District • Sarah Baartman
Local municipality • Makana

Surface area
footprint in Province

2.6 percent

GDP[1]
Contribution to GDP in Province

2 percent

Population
home to

1 % of the **Provincial population**

20 people per km²

Employment

4 out of **five**

EAP are **employed**

1 project | 23 MW
of which

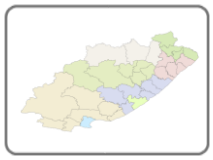
R 553 million [2]
1.5% of total for province

R 25 million [2]
0.5% of total for province

R 279 million [2,3]
4.0% of total for province

310 job years [2]
1.7% of total for province

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 2.** IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years). **Note 3.** Reflects the cumulative, net positive, cash flows over the 20 year production phase.



District • **Nelson Mandela Bay**
Local municipality • **Nelson Mandela Bay**

Surface area

footprint in Province

1.2 percent

GDP[1]

Contribution to GDP in Province

34 percent

Population

home to

18 % of the **Provincial population**

646 people per km²

Employment

4 out of **five**

EAP are **employed**

2 projects | 87 MW

of which

R 1 878 million[2]

5.2% of total for province

R 75 million[2]

1.4% of total for province

R 866 million[2,3]

12.3% of total for province

610 job years[2]

3.4% of total for province

Note 1. All economic data = IHS Global Insight Regional eXplorer 744 (2.5q), 2016 Estimates. **Note 2.** IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years). **Note 3.** Reflects the cumulative, net positive, cash flows over the 20 year production phase.

Appendix A

Reference component

Notes and observations

N1. Wind and solar resource maps indicating the natural resources for the Province.

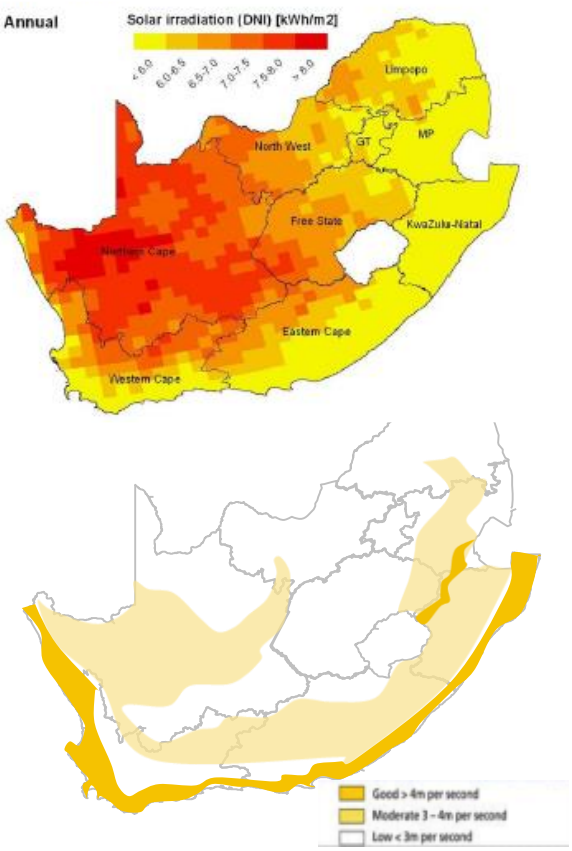


Fig. 1: National resource maps, SIP 8 Business plan

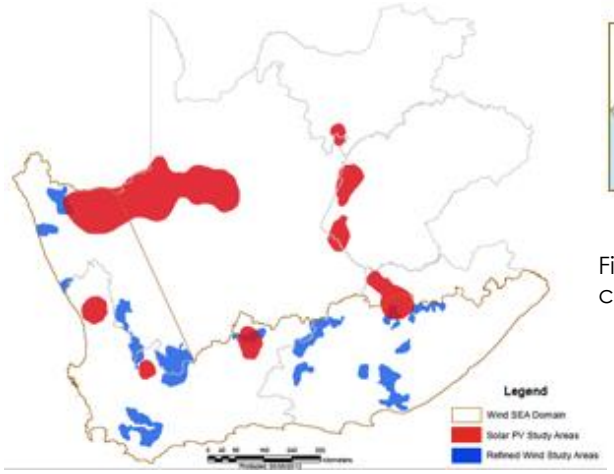


Fig. 2: CSIR high yield zones (http://www.safiri.co.za/ec/corridor_planning_&_development.html)

Fig. 3: EC Provincial regional development corridors

Notes and observations (cont.)

N2. National targets for renewable energy have been set in the Integrated Resource Plan (2019) as:

- Total renewable energy capacity developed by 2030: 26 804 MW[1]
- Total renewable energy procured by 2024: 13 204 MW.

Ministerial determinations give effect to the capacity allocations stipulated in the IRP. All Ministerial determinations made within the ambit of the IRP 2010 for electrical capacity, that has not already been contracted before the promulgation of the IRP 2019, has been nullified.

The second determination made under the IRP 2019 includes the procurement of 6 800 MW from solar and wind.

N3. Spend patterns will vary notably between the construction and production phases. Project construction expenditure will be characterised by short periods (2 – 4 years) of variable, but typically high spend that will taper off, commensurate with the coordination, delivery and completion of plant construction on site.

The spend and labour requirements of the operations period are expected to have a more steady pattern related to production and maintenance of the plant, sustained over 20 years. The spend pattern for the construction phase is illustrated (Fig 2) using indicative data.

N4. Employment over time. As for N3 (spend), the labour needs will be more intense (i.e. more people for shorter durations of time) during construction phase, tapering off as the construction of the plant is completed.

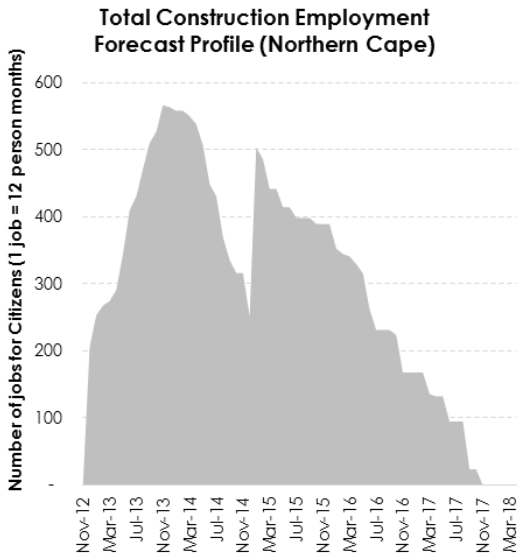


Fig 2. Construction employment forecast (example from Northern Cape Province)

Labour requirements during the production phase will be limited, however is likely to offer more sustainable employment opportunities over the 20 years of operation.

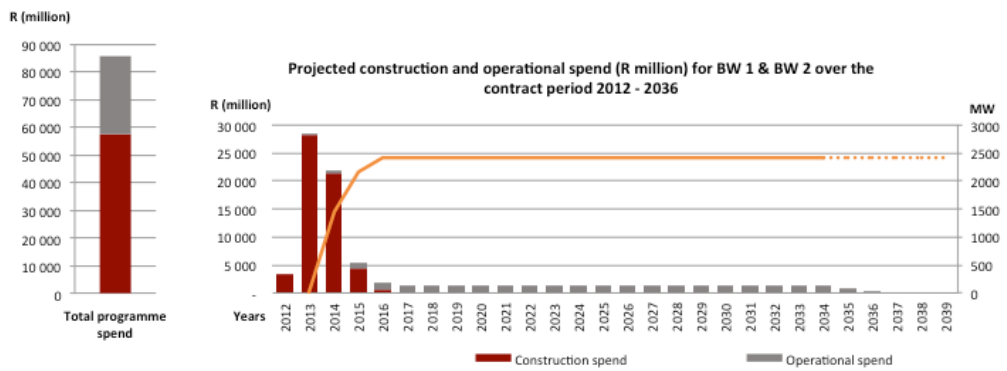


Fig 1. Operational and construction spend patterns

Note 1. 8 288 MW solar, 17 742 MW wind, 600 MW CSP and 174 MW from other technologies such as landfill gas, small hydro and biomass, including already contracted / installed.

Contract definitions and terminology

As per the definitions in the REIPPPP Implementation Agreements (IA) and Power Purchase Agreement (PPA):

- **"Capital Expenditure"** means any expenditure treated as capital expenditure under Generally Accepted Accounting Practice (GAAP).

- **"Commercial Energy Rate"** means the rate per MWh applicable to Commercial Energy.

- **"Commercial Operation Date (COD)"** means the date specified in the Notice of Commencement of Facility i.e. it is the date on which the Independent Engineer ascertains that the Facility is completed, connected to the Grid and able to generate power.

- **"Contracted Capacity"** means the anticipated Capacity of the Facility at the Delivery Point and expressed as AC power capacity, net of auto-consumption and the electrical losses up to the Delivery Point.

- **"Contract Quarter"** means the periods:

  (a) 1 April to 30 June;

  (b) 1 July to 30 September;

  (c) 1 October to 31 December; and

  (d) 1 January to 31 March,

  during the Term. Should the Effective Date fall within any of the periods referred to above (and not commence on 1 April, 1 July, 1 October or 1 January), then the first Contract Quarter shall commence on the Effective Date and shall be the remaining portion of the Contract Quarter in which the Effective Date falls, plus the next Contract Quarter.

- **"Contract Year"** means each twelve (12) Contract Month period commencing at 00:00 hours on 1 May and ending at 24:00 hours on 30 June of the following year provided that:

  (a) the first Contract Year shall commence at 00:00 hours on the first day after the Effective Date and shall end at 24:00 hours on 30 June of the following year; and

  (b) the final Contract Year shall end at 24:00 hours on the Termination Date.

- **"CPI"** means the weighted average consumer price index (Dec 2012 = 100) as published by Statistics South Africa (or its equivalent successor entity), which is referred to as "Headline CPI – All urban areas" in Statistical Release P0141 from time to time (or equivalent successor index).

- **"Deemed Energy"** means that Energy Output that would otherwise be available to the Buyer, but for a System Event or a Compensation Event, as determined in accordance with Schedule 6 (Deemed Energy Payment).

- **"Deemed Energy Payment"** means an amount (excluding VAT) that shall be due and payable by the Buyer to the Seller for the Deemed Energy during a specified period pursuant to the provisions of clause 14 (Consequences of a System Event), which payment shall be calculated in accordance with Schedule 6 (Deemed Energy Payment) with reference to the Commercial Energy Rate, and dependent on the period in respect of which such payment is due and payable.

- **"Direct Agreement"** means the direct agreement entered into (or to be entered into) between the Buyer, the Seller, the Department and the Lenders (or their agent) in relation to the PPA and the Implementation Agreement.

- **"Employment numbers"** are expressed as a percentage of the sum of StatsSA reported employed and unemployed numbers.

- **"GAAP"** means generally accepted accounting practice in the Republic of South Africa as approved from time to time by the South African Accounting Practices Board.

- **"Implementation Agreement"** means the implementation agreement to be entered into between the Seller and the Department.

- **"Job years" -** Employment/Job creation is reported in job years i.e. the equivalent of a full time employment opportunity for one person for one year).

- **"Local Content"** means the portion of the Total Project Value that is in respect of South African Products.

- **"NERSA" –** refers to the National Energy Regulator of South Africa, established pursuant to Section 3 of the National Energy Regulator Act, 40 of 2004.

- **"Operating Expenditure"** means any expenditure treated as operating expenditure under GAAP.

- **"Operating Period"** means the period from the later of the Commercial Operation Date and the Scheduled COD to the Termination Date Construction Period.

- **"Overnight Cost"** refers to the cost of a construction project if no interest was incurred during construction, as if the project was completed "overnight" (see also Total Project Cost, definition B).

- **"PPA"** means the power purchase agreement to be entered into between a Project Company, as the Seller, and the Buyer pursuant to the IPP Procurement Programme.

- **"P50 / P90"** – refers to probabilities for annual energy production which are expressed as P values. A P50 figure is the level of generation that is forecasted to be exceeded in 50% of years over a 10 year (or sometimes 20 year) period. Similarly, a P90 figure is the level of generation that is forecasted to be exceeded in 90% of years over a 10 year period – in other words, the risk that an annual energy production of P90 is not reached is 10%.

- **"Total Amount of Procurement Spend"** means the monetary spend on the procurement of goods and services for purposes of undertaking the Project Activities (without double counting), excluding costs of imported goods and services, taxation, salaries and wages.

- **"Total Project Cost"** means:

  (a) for the purposes of calculating the Development Fee, an amount equal to the aggregate of the total Debt and Equity which is, as at the Signature Date, forecast in the Financial Model to be contributed up to the Commercial Operation Date; and

  (b) for all other purposes, the total capital expenditure to be incurred up to the commercial operations date in the design, construction, development, installation and/or commissioning of a project, which is equal to the total debt and equity related to a project as reported at commercial close.

- **"Total Project Value"** means the total project cost that involves the capital costs and costs of services procured for the construction of a project, but excludes finance charges, land costs, mobilisation fees to the operations contractor and the costs payable to the distributor, national transmission company and/or a contractor for the distribution or transmission connection works.

Glossary of icons

These icons are used in the document to represent the following concepts:


percent

Gross Domestic Product (percentage indicating the contribution share)

9 broad economic sectors as defined in the International Standard Industrial Classification (ISIC) and reported on by StatsSA

AGRI

Agriculture

MINING

Mining

MANUF

Manufacturing

ELEC

Electricity

CONSTR

Construction

TRADE

Trade (wholesale and retail)

TRANS

Transport

FIN

Finance

COMM SERVICES

Community services

ENERGY (P50)

Energy (kWh, MWh or GWh) production / generation projected with a 50% probability that it will be achievable for the established capacity

CAPACITY

Generation capacity (kW, MW or GW) i.e. the rated output capability of the power plants

Renewable energy source | technology type:

SOLAR

Solar PV (photovoltaic)

Solar CSP (Concentrated Solar Power)

WIND

Wind generation

HYDRO

Small hydro

BIO

Biomass

WASTE

Landfill gas / waste to energy

Performance Measures

Total project costs

Community trust (community equity / shareholding)

Procurement spend

Localisation / local content

Glossary of icons (continued)

These icons are used in the document to represent the following concepts:


Socio-economic development


Employment / Job creation measured in job years (equivalent of a full time employment opportunity for one person for one year).


Enterprise development


Black South African citizen


Women


Youth


People with disabilities


Construction phase


Operations phase

Key learnings


Looking forward / next focus


Risks


Price


Revenue


Local community share (used to indicate where a measure pertains to a community local to where the IPPs are)


Small RE projects

Colour convention used

Colours used to denote technologies

Solar PV

CSP

Wind

Landfill, hydro, biomass, biogas (when treated as a group e.g. IRP)

Hydro

Landfill

Biogas

Biomass

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