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SOCIAL STATEMENT

ENVIRONMENTAL AUTHORISATION AMENDMENT APPLICATION FOR THE AMENDMENT OF THE FACILITY LAYOUT

ZEN WIND FARM, WESTERN CAPE PROVINCE

EA REFERENCE: 14/12/16/3/3/2/322

WESTERN CAPE PROVINCE

JULY 2023

By

Tony Barbour

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1. INTRODUCTION AND BACKGROUND

Environmental Authorisation (EA) was granted for the Zen Wind Farm (WEF) located in the Drakenstein Local Municipality (DLM) in the Western Cape Province.

- EA Reference number: 14/12/16/3/3/2/322.

This Social Statement considers an amended facility layout, including a reduction in the number of turbines from 27 to 17, changes to roads and internal cabling, and removal of the on-site substation/grid connection infrastructure within the authorised area. The Social Statement comments on the potential implications of these changes.

2. PROJECT DESCRIPTION AND LOCATION

The Zen Wind Farm site is located in a rural, agricultural, area, ~2.5 km south of the small town of Saron in the northern Drakenstein Local Municipality (LM). The constructed and operational Gouda Wind Farm is located adjacent to the site. The site is made up of four adjacent cadastral portions, forming part of one farming operation, Kleinberggrivier:

- » Portion 1 of the Farm Bonne Esperance 83.
- » Portion 2 of the Farm Bonne Esperance 83.
- » Portion 9 of the Farm No. 88.
- » Portion 0 of the Nayoth 458.

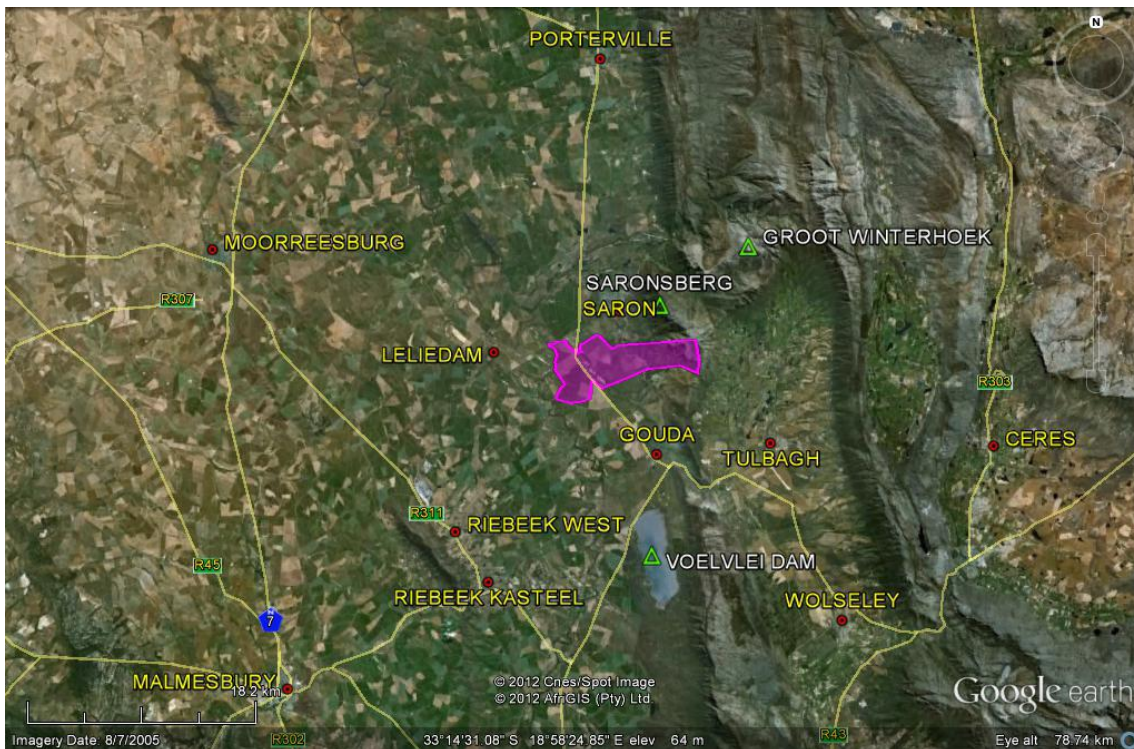


Figure 1: Location of Zen WEF (purple area)

Due to the proximity to the Bergriver Wind farm and the operational Gouda Wind Farm. Acciona Energy South Africa Global (Pty) Ltd (AESAG) acquired the project from the original developers and is developing a wind farm cluster. AESAG will adopt the latest wind turbine technology available to Acciona Energy for the project. The facility layout has been designed to optimise the energy yield and considers the latest technology. The

project will also utilise combined construction infrastructure (temporary facilities, laydown areas, batch plants to further reduce the overall impacts of the project and the adjacent Berg River Wind Farm. Both the Zen and the Berg River Wind Farm projects are designed to share infrastructure to optimise construction expenses and timeline.

The wind farm layout has been amended to optimise efficiency and the most recent layout has been designed considering latest technology available for implementation on this site. The amended and optimised wind farm layout includes a reduction in the number of authorised turbines (from 27 to 17 turbines), changes to roads and internal cabling, and removal of the on-site substation/grid connection infrastructure within the authorised area. The amended facility design ensures that sensitive areas are avoided while maximizing operational efficiency.

In this regard, the following is proposed:

- Reduction in the number of turbines from 27 to 17.
- Increase turbine capacity from 6 MW to up to 7.5 MW per turbine.
- Increase the internal roads width from 6m to ~8m. Optimise turbine/facility layout based on the energy yield, and revise the layout as required based on the revised turbine numbers and turbine specification.
- Optimise internal underground cabling (33kV) to enable a consolidated point of grid connection for the Zen/Berg River wind farm cluster on the Berg River site and remove the on-site substation and overhead power line connection from the project description.

The proposed amendments are not listed activities and do not trigger any new listed activity. No additional properties will be affected by the amendments as the proposed amendments are within the originally authorised development footprint.

In addition to the above, the final facility layout and the EMPr for the facility must be submitted and approved prior to commencement of construction, as per the requirements of the EA.

The Zen Wind Farm project site is proposed to accommodate the following infrastructure:

- 17 wind turbines at 7.5MW each with hub height up to 140m and tip height of up to 230m.
- Concrete turbine foundations and turbine hardstands.
- Internal access roads (up to 8m in width) linking wind turbines and other infrastructure to infrastructure on the Berg River Wind Farm site.

The Zen Wind Farm and Berg River Wind Farm will share the following infrastructure.

- Temporary facilities, laydown areas and batch plants.
- Onsite Substation and Switching Substation.
- Operation and Maintenance buildings including a gate house, security building, control centre, offices, warehouses, a workshop, and visitor's centre.

3. TERMS OF REFERENCE

The Terms of Reference (ToR) for the specialist statement for the Application for Amendment of the EA for the Zen Wind Farm to amend the facility layout includes:

- Description of the status (baseline) of the environment that was assessed during the initial assessment.
- Confirmation of the current status of the assessed environment.

- Description and assessment of any changes to the environment that has occurred since the initial EA was issued, if any.
- Indication if the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA/EMPr.
- Indication if there are any new assessments and/or guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration, and addressed in the specialist statement/ report.
- Description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
 - Similar developments within a 30km radius.
 - Identified cumulative impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.
- Measures to ensure avoidance, management and mitigation of impacts associated with such proposed changes, and any changes to the Environmental Management Programme (EMPr).

The assessment clarifies whether the proposed changes will:

- Increase the significance of impacts originally identified in the EIA report or lead to any additional impacts; or
- Have a zero or negligible effect on the significance of impacts identified in the EIA report; or
- Lead to a reduction in any of the identified impacts in the EIA report.

In addition, the study also confirms the following:

- the acceptability of the amended facility layout (for submission to and approval by DFFE)
- the amendments to those measures to ensure avoidance, management and mitigation of impacts associated with such proposed changes (if required), and confirm any changes to the Environmental Management Programme (EMPr).

4. APPROACH TO PREPARING SOCIAL STATEMENT

The approach to preparing the Social Statement is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (DEADP, 2007). These guidelines are based on international best practice. The approach to preparing the Social Statement included:

- A review of the findings of the SIA undertaken by Tony Barbour and Schalk van der Merwe in 2013 as part of the original EIA managed by Savannah Environmental (Barbour and van der Merwe, 2013).
- Review of key national policy and planning documents that are relevant to the renewable energy sector.
- Review of the latest policy and planning documents for the study area.
- Review of the baseline socio-economic data for the study area.
- Review of recent SIAs undertaken for similar projects to compare findings with SIA undertaken in 2013.

5. SPECIALIST DETAILS

Tony Barbour is an independent specialist with 30 years of experience in the field of environmental management. In terms of SIA experience Tony Barbour has undertaken in the region of 300 SIAs, including ~ 150 SIAs for renewable energy facilities. Tony is the author of the Guidelines for Social Impact Assessments for EIA's adopted by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007. Annexure A contains a copy of Mr Barbour's CV.

6. DECLARATION OF INDEPENDENCE

This confirms that Tony Barbour, the specialist consultant responsible for undertaking the study and preparing the Social Statement, is independent and does not have any vested or financial interests in the proposed Zen Wind Farm being either approved or rejected. A signed declaration is contained in Annexure B.

7. OVERVIEW OF BASELINE CONDITIONS

The overview of socio-economic and social baseline conditions can be divided into two sections, firstly an overview of key policy and planning documents relevant to the renewable energy sector and the study area, and secondly an overview of municipal level socio-economic data for the study area.

7.1 Policy and planning documents

Section 3, Policy, and Planning Context (p23) of the SIA (Barbour and van der Merwe, 2013) provides an overview of the policy and planning documents that were relevant at the time of undertaking the study. The following documents were reviewed:

- National Integrated Resource Plan for Electricity (2010-2030).
- National White Paper on Renewable Energy (2003).
- Climate Change Strategy and Action Plan for the Western Cape (2008).
- White Paper on Sustainable Energy for the Western Cape (2008).
- The National Development Plan (2011).
- Western Cape Draft Strategic Plan (2010).
- The Drakenstein Municipality Integrated Development Plan (IDP) (2012-2017).
- Western Cape Amended Zoning Scheme Regulations for Commercial Renewable Energy Facilities (2011).
- Western Cape Provincial Spatial Development Framework (2009).
- Western Cape Regional methodology for Wind energy Site Selection (2007).
- Guideline for the Management of Development on Mountains, Hills and Ridges in the Western Cape (2003).
- Drakenstein Municipality Amended Spatial Development Framework (2010).

Given that the SIA was undertaken in 2013, there have been changes to some key national, specifically the Integrated Resource Plan (2010), and local planning documents, including relevant Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDF).

As part of the amendment process, the latest local policy documents have been reviewed, including:

- Integrated Resource Plan (IRP) for South Africa (2019).
- National Infrastructure Plan (NIP) (2012 and 2021).
- National Development Plan (2011).
- New Growth Plan (2012).
- The Western Cape Provincial Spatial Development Framework (2014).
- The Western Cape Infrastructure Framework (2013).
- The Drakenstein Municipality Integrated Development Plan (IDP) (2022-2025).

- The Drakenstein Municipality Spatial Development Framework (SDF) (2018/19).

A detailed annual review of the Independent Power Producers Procurement Programme (IPPPP) has also been undertaken each year by the Department of Energy, National Treasury and DBSA. The most recent was in December 2021. Annexure C contains a summary of documents reviewed.

7.2 Overview of local socio-economic conditions and land uses

Baseline socio-economic conditions

Section 3 of the SIA (2013) provides an overview of the local socio-economic environment and surrounding land uses. The SIA was undertaken in 2013 and the baseline socio-economic conditions were based on the 2001 Census data. The baseline socio-economic data therefore requires updating.

Annexure D contains a summary of the baseline socio-economic conditions for the Drakenstein Local Municipality (DLM) based on the latest available information including the 2016 Community Household Survey and Socio-Economic Profile for the DLM (2022).

Land uses

Based on a review of Google Earth images and the authors knowledge of the area the agricultural land uses in the study have not changed since the original SIA was undertaken in 2013. The dominant land uses in the study area include wheat and mixed farming (mainly wheat, sheep and beef cattle), but irrigated orchard and vineyard crops are also important, especially on farms along the Berg River and the Twenty Four Rivers area north of Saron. The only change in land uses has been the establishment of the Gouda Wind Farm which is now operational.

8. ASSESSMENT OF SOCIAL ISSUES

8.1 Introduction

Section 5, Key Findings and Assessment, (p46) of the SIA (Barbour and van Der Merwe, 2013) assesses:

- Fit with policy and planning.
- Construction phase impacts.
- Operational phase impacts.
- No-development option.
- Cumulative impacts-Sense of Place and Local Economy.
- Decommissioning phase impacts).

8.2 Construction Phase

The construction phase impacts identified in the 2013 Report are listed below. The significance ratings are summarized in Table 1.

Potential positive impacts

- Creation of employment and business opportunities, and opportunity for skills development and on-site training.

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities.
- Influx of job seekers.
- Loss of farm labour.
- Increased risks to stock, crops, grazing and farming infrastructure associated with the presence of construction workers.
- Impact of heavy vehicles on local roads.
- Loss of agricultural land associated with construction related activities.

Table 1: Summary of social impacts during construction phase (Zen WEF SIA 2013)

Impact	Significance No Enhancement / Mitigation	Significance With Enhancement /Mitigation
Creation of employment and business opportunities	Medium (+)	Medium (+)
Presence of construction workers and potential impacts on family structures and social networks	Low (-)	Low (-)
Influx of job seekers	Low (-)	Low (-)
Loss of farm labour	Low (-)	Low (-)
Risk of stock theft, poaching and damage to farm infrastructure	Medium (-)	Low (-)
Risk of veld fires	Medium (-)	Low (-)
Impact of heavy vehicles and construction activities	Low (-)	Low (-)
Loss of farmland	Medium (-)	Low (-)

Based on the experience of the author the findings of the SIA undertaken in 2013 remain valid for the reduced number of wind turbines. The enhancement and mitigation measures listed in the 2013 SIA also remain valid.

In addition, it is also recommended that following mitigation measures be included in the EMPr:

- Preparation and implementation of a Stakeholder Engagement Plan (SEP).
- Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP).

8.3 Operational Phase

The operational phase impacts identified in the 2013 Report are listed below. The significance ratings are summarized in Table 2.

Potential positive impacts

- Creation of employment and business opportunities. The operational phase will also create opportunities for skills development and training.
- Establishment of community trust.
- The establishment of infrastructure to generate renewable energy.

Potential negative impacts

- Potential impact on tourism.
- Influx of job seekers to the area.
- Loss of farm labour.
- Impact on farming operations.

Table 2: Summary of operational phase impacts (Zen WEF SIA 2013)

Impact	Significance No Enhancement / Mitigation	Significance With Enhancement /Mitigation
Creation of employment and business opportunities	Low (+)	Medium (+)
Establishment of Community Trust	Medium (+)	High (+)
Establishment of infrastructure for the generation of renewable energy	Medium (+)	Medium (+)
Influx of job seekers	Medium (-)	Low (-)
Loss of farm labour	Low (-)	Low (-)
Visual impact and impact on sense of place	Medium (-)	Medium (-)
Impact on tourism	Low (- and +)	Low (- and +)

Based on the experience of the author the findings of the SIA undertaken in 2013 remain valid for the reduced number of wind turbines. The enhancement and mitigation measures listed in the 2013 SIA also remain valid.

9. ASSESSMENT OF CUMULATIVE IMPACTS

The 2013 SIA assessed cumulative impact on sense of place and the local economy. The SIA did not assess potential impact on local services.

Cumulative impact on sense of place

The 2013 SIA noted that the establishment of a number of WEFs in the area does have the potential to have a negative cumulative impact on the areas sense of place and the landscape. However, the proposed Zen, Gouda and Bergriver WEFs are located adjacent to each other and, could, from a visual perspective, be viewed as a single large WEF as opposed to three separate WEFs. While this does not necessarily reduce the overall visual impact of these three facilities on the scenic character of the area, it does reduce the potential cumulative impact on the landscape. The significance is rated as **Medium Negative**. Effective mitigation is not possible.

Cumulative impact on local economy.

The proposed Zen WEF and establishment of the other renewable energy facilities in the DLM also have the potential to result in significant positive cumulative socio-economic impacts for the DLM and CWDM. The positive cumulative impacts include creation of employment, skills development and training opportunities (construction and operational phase), creation of downstream business opportunities and stimulation of the local property market. The significance of this impact is rated as **High Positive** with enhancement.

Cumulative impact on accommodation and services

The 2012 SIA (Barbour and van der Merwe, 2013) did not assess the potential cumulative impact associated with the establishment of a number of renewable energy projects in the area, specifically during the construction phase. Based on the experience of the authors the development of the Zen and Bergriver WEFs will have a limited impact on the accommodation and local services in the area. The significance with mitigation was rated as **Low Negative**.

In terms of enhancement and mitigation, the proponents should meet with representatives from the DLM to discuss and identify initiatives that can be supported by renewable energy companies in the area.

10. CONCLUSION

10.1 Status of baseline

Land uses

There has been a negligible change in the land uses and farming activities in the study area. The baseline has therefore not changed significantly at a site-specific level.

Socio-economic environment

The socio-economic baseline conditions in the DLM and local area have changed since 2013 when the SIA was undertaken. These changes include increase in population, changes in economic activities, specifically the impact on COVID-19 on the local economy (2019-2020/22). These changes do not however have a material bearing on the findings of the SIA undertaken in 2013 (Barbour and van der Merwe, 2013). Annexure D contains an updated summary of the socio-economic baseline conditions in the DLM.

Policy and planning documents

A number of the policy and planning documents referred to in the 2013 SIA (Barbour and van der Merwe, 2013) are outdated. Annexure C contains a summary of the latest key policy and planning documents.

10.2 Social issues and impact ratings

The social issues identified and associated impact ratings for the construction and operational phase contained in the 2013 SIA (Barbour and van der Merwe 2013) remain valid for the Zen WEF. The associated mitigation measures remain applicable.

10.3 Mitigation and enhancement measures

The mitigation and enhancement measures listed in the 2013 SIA (Barbour and van der Merwe 2013) remain valid for the Zen WEF.

10.4 Cumulative impacts

The potential cumulative impacts associated with the Zen WEF include cumulative impacts on the area's sense of place, cumulative impacts on services, specifically during the construction phase, and cumulative impacts on the local economy. The significance of the cumulative impacts on sense of place, local services and the local economy are rated as **Medium Negative, Low Negative and High Positive** respectively.

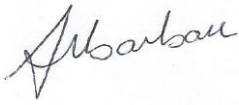
11. CONCLUDING STATEMENT

Based on the review of the 2013 SIA (Barbour and van der Merwe, 2013) and associated documentation, the proposed EA amendment application for the Zen WEF, including the reduction in turbine numbers, is acceptable and supported from a social and socio-economic perspective.

The conclusion drawn by the specialist is that the environment has not significantly changed since the undertaking of the EIA, and it can be concluded that the proposed amendments will not lead to any additional social impacts other than those identified and assessed within the SIA. The amendments will not increase the significance of the impacts originally identified and assessed in the SIA or lead to any additional impacts that cannot be mitigated to a low significance following the implementation of the recommended mitigation measures. The mitigation measures recommended in the SIA are adequate to manage the expected impacts as a result of the proposed amendments. In addition, as indicated above, it is recommended that the following mitigation measures be implemented.

- Preparation and implementation of a Stakeholder Engagement Plan (SEP).

- Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP).

A handwritten signature in black ink, appearing to read 'T. Barbour', written in a cursive style.

Tony Barbour
Tony Barbour Environmental Consulting
3 May 2023

ANNEXURE A

Tony Barbour

ENVIRONMENTAL CONSULTING AND RESEARCH

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Tony Barbour's experience as an environmental consultant includes working for ten years as a consultant in the private sector followed by four years at the University of Cape Town's Environmental Evaluation Unit. He has worked as an independent consultant since 2004, with a key focus on Social Impact Assessment. His other areas of interest include Strategic Environmental Assessment and review work.

EDUCATION

- BSc (Geology and Economics) Rhodes (1984);
- B Economics (Honours) Rhodes (1985);
- MSc (Environmental Science), University of Cape Town (1992)

EMPLOYMENT RECORD

- Independent Consultant: November 2004 – current;
- University of Cape Town: August 1996-October 2004: Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher;
- Private sector: 1991-August 2000: 1991-1996: Ninham Shand Consulting (Now Aurecon, Cape Town). Senior Environmental Scientist; 1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Cape Town.

LECTURING

- University of Cape Town: Resource Economics; SEA and EIA (1991-2004);
- University of Cape Town: Social Impact Assessment (2004-current);
- Cape Technikon: Resource Economics and Waste Management (1994-1998);
- Peninsula Technikon: Resource Economics and Waste Management (1996-1998).

RELEVANT EXPERIENCE AND EXPERTISE

Tony Barbour has undertaken in the region of 260 SIA's, including SIA's for renewable energy developments, infrastructure projects, dams, pipelines, and roads. In addition, he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa.

Tony was also the project manager for a study commissioned in 2005 by the then South African Department of Water Affairs and Forestry for the development of a Social Assessment and Development Framework. The aim of the framework was to enable the Department of Water Affairs and Forestry to identify, assess and manage social impacts associated with large infrastructure projects, such as dams. The study also included the development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation.

Countries with work experience include South Africa, Namibia, Angola, Botswana, Zambia, Lesotho, Swaziland, Ghana, Nigeria, Senegal, Mozambique, Mauritius, Kenya, Ethiopia, Oman, South Sudan, Sudan, Senegal, and Armenia.

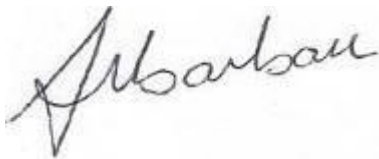
ANNEXURE B

The specialist declaration of independence in terms of the Regulations_

I, Tony Barbour _____, declare that --

General declaration:

I act as the independent specialist in this application;
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
I declare that there are no circumstances that may compromise my objectivity in performing such work;
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, Regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
all the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

Tony Barbour Environmental Consulting and Research

Name of company (if applicable):

9 July 2023

Date:

ANNEXURE C

POLICY AND PLANNING UP-DATE

NATIONAL POLICY ENVIRONMENT

National Energy Act (Act No 34 of 2008)

The National Energy Act was promulgated in 2008 (Act No 34 of 2008). One of the objectives of the Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including solar and wind:

“To ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy, in support of economic growth and poverty alleviation, taking into account environmental management requirements (...); to provide for (...) increased generation and consumption of renewable energies” (Preamble).

White Paper on Energy Policy of the Republic of South Africa

Investment in renewable energy initiatives, such as the proposed SEF, is supported by the White Paper on Energy Policy for South Africa (December 1998). In this regard, the document notes:

“Government policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential”.

“Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future”.

The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly **solar** and wind and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

Government policy on renewable energy is thus concerned with meeting the following challenges:

- Ensuring that economically feasible technologies and applications are implemented.
- Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential, and compared to investments in other energy supply options.
- Addressing constraints on the development of the renewable industry.

The White Paper also acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country's renewable energy resource base is extensive, and many appropriate applications exist.

White Paper on Renewable Energy

The White Paper on Renewable Energy (November 2003) (further referred to as the White Paper) supplements the *White Paper on Energy Policy*, which recognizes that the medium and long-term potential of renewable energy is significant. This Paper sets out

Government's vision, policy principles, strategic goals, and objectives for promoting and implementing renewable energy in South Africa.

The White Paper notes that while South Africa is well endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. As signatory to the Kyoto Protocol¹, Government is determined to make good the country's commitment to reducing greenhouse gas emissions. To this purpose, Government has committed itself to the development of a framework in which a national renewable energy framework can be established and operate.

South Africa is also a signatory of the Copenhagen Accord, a document that delegates at the 15th session of the Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change agreed to "take note of" at the final plenary on 18 December 2009. The accord endorses the continuation of the Kyoto Protocol and confirms that climate change is one of the greatest challenges facing the world. In terms of the accord South Africa committed itself to a reduction target of 34% compared to business as usual. In this regard, the IRP 2010 aims to allocate 43% of new energy generation facilities in South Africa to renewables.

Apart from the reduction of greenhouse gas emissions, the promotion of renewable energy sources is aimed at ensuring energy security through the diversification of supply (in this regard, also refer to the objectives of the National Energy Act).

Government's long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidised alternative to fossil fuels.

Integrated Resource Plan (2019)

South Africa's National Development Plan (NDP) 2030 offers a long-term plan for the country. It defines a desired destination where inequality and unemployment are reduced, and poverty is eliminated so that all South Africans can attain a decent standard of living. Electricity is one of the core elements of a decent standard of living. In formulating its vision for the energy sector, the NDP took as a point of departure the Integrated Resource Plan (IRP) 2010–2030 promulgated in March 2011. The IRP is an electricity infrastructure development plan based on least-cost electricity supply and demand balance, taking into account security of supply and the environment (minimize negative emissions and water usage).

On 27 August 2018, the then Minister of Energy published a draft IRP which was issued for public comment (Draft IRP). Following a lengthy public participation and consultation process the Integrated Resource Plan 2019 (IRP 2019) was gazetted by the Minister of Mineral Resources and Energy, Gwede Mantashe, on 18 October 2019, updating the energy forecast for South Africa from the current period to the year 2030. The IRP is an electricity capacity plan which aims to provide an indication of the country's electricity demand, how this demand will be supplied and what it will cost.

¹ The Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change (UNFCCC), aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The Protocol was initially adopted on 11 December 1997 in Kyoto, Japan and entered into force on 16 February 2005. As of November 2009, 187 states have signed and ratified the protocol (Wikipedia).

The IRP notes that South Africa is a signatory to the Paris Agreement on Climate Change and has ratified the agreement. The energy sector contributes close to 80% towards the country's total Green House Gas (GHG) emissions of which 50% are from electricity generation and liquid fuel production alone. A transmission from a fossil fuel-based energy sources is therefore critical to reducing GHG emissions. In September 2021 South Africa released its latest emission targets, indicating that it intended to limit Green House Gas (GHG) emissions to 398-510 MrCo₂e by 2025, and 350-420 MrCo₂e by 2030. These emissions are significantly lower than 2016 emission targets and will see South Africa's emissions decline in absolute terms from 2025, a decade earlier than planned (World Resource Institute, 2021).

The IRP (2019) notes that 39 730 MW of new generation capacity must be developed. Of the 39 730 MW determined, about 18 000 MW has been committed to date. This new capacity is made up of 6 422 MW under the REIPPP with a total of 3 876 MW operational on the grid. Under the Eskom build programme, the following capacity has been commissioned: 1 332MW of Ingula pumped storage, 1 588MW of Medupi, 800MW of Kusile and 100MW of Sere Wind Farm. In addition, IPPs have commissioned 1 005MW from two Open Cycle Gas Turbine (OCGT) peaking plants. 1 005 MW from OCGT for peaking has also been commissioned (IRP 2019, page 14).

In terms of IRP (2019) provision has been made for the following new additional capacity by 2030:

- 1 500MW of coal.
- 2 500MW of hydro.
- 6 000MW of solar PV.
- 14 400MW of wind.
- 1 860MW of nuclear.
- 2 088MW for storage.
- 3 000MW of gas/diesel.
- 4 000MW from other distributed generation, co-generation, biomass and landfill technologies.

Figure 1 provides a summary of the allocations and commitments between the various energy sectors.

	Coal	Coal (Decommissioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)	
Current Base	37,149		1 860	2,100	2 912	1 474	1 980	300	3 830	499	
2019	2,155	-2,373					244	300		Allocation to the extent of the short term capacity and energy gap.	
2020	1,433	-557				114	300				
2021	1,433	-1403				300	818				
2022	711	-844			513	400	1,000	1,600			
2023	750	-555				1000	1,600		500		
2024			1,860				1,600		1000		500
2025						1000	1,600				500
2026		-1,219					1,600				500
2027	750	-847					1,600	2000			500
2028		-475				1000	1,600				500
2029		-1,694			1575	1000	1,600			500	
2030		-1,050		2,500		1000	1,600			500	
TOTAL INSTALLED CAPACITY by 2030 (MW)	33,364		1,860	4,600	5,000	8,288	17,742	600	6,380		
% Total Installed Capacity (% of MW)	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1		
% Annual Energy Contribution (% of MWh)	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3		

<ul style="list-style-type: none"> Installed Capacity Committed/Already Contracted Capacity Capacity Decommissioned New Additional Capacity Extension of Koeberg Plant Design Life Includes Distributed Generation Capacity for own use 	<ul style="list-style-type: none"> 2030 Coal Installed Capacity is less capacity decommissioned between years 2020 and 2030. Koeberg power station rated/installed capacity will revert to 1,926MW (original design capacity) following design life extension work. Other/ Distributed generation includes all generation facilities in circumstances in which the facility is operated solely to supply electricity to an end-use customer within the same property with the facility. Short term capacity gap is estimated at 2,000MW.
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Figure 1: Summary of energy allocations and commitments based on the 2019 IRP

As indicated above, the changes from the Draft IRP capacity allocations see an increase in solar PV and wind, and a significant decrease in gas and diesel; and new inclusions include nuclear and storage.

In terms of renewable energy five bidding rounds have been completed for renewable energy projects under the RE IPP Procurement Programme. The most dominant technology in the IRP2019 is renewable energy from wind and solar PV technologies, with wind being identified as the stronger of the two technologies. There is a consistent annual allocation of 1 600MW for wind technology commencing in the year 2022 up to 2030. The solar PV allocation of 1 000MWs per year is incremental over the period 2022 to 2030, with no allocation in the years 2024 (being the year the Koeberg nuclear extension is expected to be commissioned) and the years 2026 and 2027 (presumably since 2 000MW of gas is expected in the year 2027). The IRP 2019 states that although there are annual build limits, in the long run such limits will be reviewed to take into account demand and supply requirements.

National Development Plan

The National Development Plan (NDP) contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

New Growth Path Framework

Government released the New Economic Growth Path Framework on 23 November 2010. The aim of the framework is to enhance growth, employment creation and equity. The policy's principal target is to create five million jobs over the next 10 years and reflects government's commitment to prioritising employment creation in all economic policies. The framework identifies strategies that will enable South Africa to grow in a more equitable and inclusive manner while attaining South Africa's developmental agenda. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard the framework identifies investments in five key areas namely: **energy**, transport, communication, water and housing.

The New Growth Path also identifies five other priority areas as part of the programme to create jobs, through a series of partnerships between the State and the private sector. The Green Economy is one of the five priority areas, including expansions in construction and the production of technologies for solar, wind and biofuels. In this regard clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.

National Infrastructure Plan

Government adopted a National Infrastructure Plan (NIP) in 2012. The aim of the plan is to transform the economic landscape while simultaneously creating significant numbers of new jobs and strengthening the delivery of basic services. The aim of the NIP is support investments is to improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. The plan also notes that investment in the construction of ports, roads, railway systems, **electricity plants**, hospitals, schools, and dams will contribute to improved economic growth.

As part of the National Infrastructure Plan, Cabinet established the Presidential Infrastructure Coordinating Committee (PICC). The Committee identified and developed 18 strategic integrated projects (SIPs). The SIPs cover social and economic infrastructure across all nine provinces (with an emphasis on lagging regions) and included three energy SIPs, namely SIP 8, 9 and 10.

- SIP 8: Green energy in support of the South African economy.
- SIP 9: Electricity generation to support socio-economic development.
- SIP 10: Electricity transmission and distribution for all.

The NIP 2050 was gazetted for public comment on 10 August 2021². The first phase of the NIP 2050 focuses on four critical network sectors that provide a platform, namely, energy, freight transport, water, and digital infrastructure. In line with the NDP, the vision for the energy sector is to promote:

- Economic growth and development through adequate investment in energy infrastructure" (generation, transmission, and distribution) and reliable and efficient energy service at competitive rates, while supporting economic growth through job creation by stimulating supply chains.
- Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.
- Environmental sustainability through efforts to reduce pollution, reduce water usage and mitigate the effects of climate change.

² Gazette No. 44951

The NIP 2050 notes that by 2030, the NDP set a target that more than 90% of the population should enjoy access to grid connected or off-grid electricity by 2030. To realise this vision, South Africa's energy system will be supported by effective policies, institutions, governance systems, regulation and, where appropriate, competitive markets. In terms of energy mix, NIP 2050 notes that coal will contribute significantly less to primary-energy needs in the future, while gas will have an important enabling role, energy supply will be **increasingly dominated by renewable energy resources—especially wind and solar which are least cost and where South Africa has a comparative advantage.**

NIP 2050 also notes that South Africa is signatory of the Paris Agreement which aims to achieve Net Zero greenhouse gas emissions by 2050. To achieve this will require a shift to a least cost energy path that is increasingly reliant on renewables. For South Africa this is imperative for the following reasons:

- SA cannot afford to overspend while dramatically expanding capacity
- Renewables can be built quickly and in modular form thereby avoiding many of the challenges associated with mega projects.
- Trade partners are expected to increasingly impose border carbon taxes harming SA exports.
- SA will need to commit to emission reductions as a global citizen.

PROVINCIAL AND LOCAL POLICY ENVIRONMENT

Western Cape Province Provincial Growth and Development Strategy

The 2014 PSDF is based on a set of 5 guiding principles, namely:

- Spatial justice.
- Sustainability and resilience.
- Spatial efficiency.
- Accessibility.
- Quality and Livability.

Key spatial challenges are outlined in Chapter 2 of the PSDF. Energy security and climate change response are identified as key high-level future risk factors. With regard to energy use, the PSDF notes that the Cape Metro (albeit the province's most efficient user) and West Coast regions are the WCP's main energy users. It further notes that the WCP's electricity is primarily drawn from the national grid, which is dominated by coal-based power stations, and that the WCP currently has a small emergent renewable energy sector in the form of wind and solar generation facilities located in its more rural, sparsely populated areas. With regard to renewable energy, the following policy provisions are of relevance:

- Policy R.4.6: *Pursue energy diversification and energy efficiency in order for the Western Cape to transition to a low carbon, sustainable energy future, and delink economic growth from energy use.*
- R.4.7: *Support emergent Independent Power Producers (IPPs) and sustainable energy producers (wind, solar, biomass and waste conversion initiatives) in suitable rural locations (as per recommendations of the Strategic Environmental Assessments for wind energy (DEA&DP) and renewable energy (DEA)³.*

Climate change

³ See notes under Regional Methodology Review below.

Water scarcity is identified as probably the key risk associated with climate change. Policy provisions are made with regard to climate change adaptation and mitigation. Concerning renewable energy, the following is of relevance:

- R.4.16: *Encourage and support renewable energy generation at scale.*

Western Cape Infrastructure Framework

The Western Cape Infrastructure Framework (WCIF) (2013) was developed by the WCP Provincial Department of Transport and Public Works in terms of the Provincial Government's mandate to coordinate provincial planning under Schedule 5A of the Constitution. The objective of the WCIF is to align the planning, delivery and management of infrastructure to the strategic agenda and vision for the province, as outlined in the 2009-2014 Draft Provincial Strategic Plan. The One Cape 2040 and 2013 Green is Smart strategy were other key informants.

The document notes that given the status quo of infrastructure in the province, and the changing and uncertain world facing the Western Cape over the 2-3 decades a new approach to infrastructure is needed. Namely one that satisfies current needs and backlogs, maintains the existing infrastructure, and plans proactively for a desired future outcome. The 2040 vision requires a number of transitions to shift fundamentally the way in which infrastructure is provided and the type of infrastructure provided in WCP.

The WCIF addresses new infrastructure development under five major 'systems' (themes), and outlines priorities for each. Energy is one of the 'systems' identified. The document notes that a provincial demand increase of 3% per year is anticipated for the period 2012-2040. Key priorities are in matching energy generation/ sourcing with the demand needed for WCP economic growth. Additionally, the energy focus should be on lowering the provincial carbon footprint, with an emphasis on renewable and locally generated energy.

Three key transitions are identified for the WCP Energy 'system' infrastructure, namely:

- Shifting transport patterns to reduce reliance on liquid fuels.
- Promoting natural gas as a transition fuel by introducing gas processing and transport infrastructure.
- Promoting the development of renewable energy plants in the province and associated manufacturing capacity.

Drakenstein Integrated Development Plan

The Municipality has identified seven (7) Key Performance Areas (KPA's) and fifty-four (54) Pre-determined Objectives (PDO's). From these 54 PDO's, projects, programmes and key initiatives have been developed.

The seven KPA's are:

- KPA 1: Good Governance
- KPA 2: Financial Sustainability
- KPA 3: Institutional Transformation
- KPA 4: Physical Infrastructure & Services
- KPA 5: Planning and Economic Development
- KPA 6: Safety and Environmental Management
- KPA 7: Social and Community Development

KPA 4 and 5 are of specific relevance to the proposed development. Of interest, despite the existence of the Gouda WEF, and approved Zen and Berg River WEFs, the IDP does not refer to renewable and or green energy.

Drakenstein Spatial Development Framework

Vision: "The Drakenstein Municipality located at the heart of the Winelands, and building on its assets - its dramatic scenic landscape, precious natural and cultural heritage, quality educational institutions and sporting facilities, thriving agricultural economy and unrivalled access to the regional access and logistics networks - will be a place of excellence for all its residents"

The SDF identifies a number of Catalytic Zones. Of relevance is the Drakenstein's Hinterland (& Hamlets), including Hermon, Gouda and Saron, and the associated farms and natural areas. The SDF promotes agriculture, agri-processing, tourism, operating as local service centres as core economic drivers for the rural areas.

The SDF identifies Gouda as a nodal link to Witzenberg Municipality. Gouda is strategically located at the intersection of the R46 to Tulbagh (via the Nuwekloof Pass) and the R44 to Saron and Porterville. This strategic location should be capitalized on through pursuing a freight logistics hub with weighbridge, service station and truckstop. With an Agri-Park being proposed for Ceres in the Witzenberg Municipality by the Department of Rural Development and Land Reform, this logistics hub could serve as a major economic injection for the Gouda area.

The SDF also notes that the development of an agri-processing hub in the Drakenstein Municipality should be linked to renewable energy projects. The SDF makes specific reference to green and renewable energy and notes that the development of off-grid development and the use of renewable energy should be supported. In terms of new development required, the SDF notes that the green economy should be promoted through new renewable energy initiatives, "green" building standards and other sustainability incentives.

The SDF also recognises the importance and value of the rural areas, and notes that retained rural areas include undeveloped (wilderness), rural and agricultural areas that must be retained, protected and/or improved (e.g. alien clearing). The protection of these areas is critical to ensure that the ecosystems which support life in the Drakenstein valley function optimally and that agriculture as the basis of the local economy retains its viability. Lack of desirability for the development of residential estates in rural areas outside the urban edge. Of relevance the SDSF notes that measures should be taken to avoid infrastructure projects which create visual and physical barrier, ensure sensitive siting of infrastructure, especially renewable energy installations.

OVERVIEW RENEWABLE ENERGY SECTOR IN SOUTH AFRICA

The section below provides an overview of the potential benefits associated with the renewable energy sector in South Africa based on the information contained in the Independent Power Producers Procurement Programme (IPPPP): An Overview (December 2021), Department of Energy, National Treasury and DBSA.

Independent Power Producers Procurement Programme (IPPPP): An Overview

The document presents an overview of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) undertaken by the Department of Energy, National Treasury, and the Development Bank of South Africa in December 2021. The programme's primary mandate is to secure electrical energy from the private sector for renewable and non-renewable energy sources. With regard to renewables, the programme is designed to reduce the country's reliance on fossil fuels, stimulate an indigenous renewable energy industry and contribute to socio-economic development and environmentally sustainable growth. The IPPPP has been designed not only to procure energy but has also been structured to contribute to the broader national development objectives of job creation, social upliftment and broadening of economic ownership.

The Integrated Resource Plan for electricity (IRP) provides South Africa's long-term plan for electricity generation. It primarily aims to ensure security of electricity supply, minimise the cost of that supply, limit water usage and reduce greenhouse gas (GHG) emissions, while allowing for policy adjustment in support of broader socio-economic developmental imperatives. The IRP 2019 was promulgated in October 2019 and replaced the IRP 2010 as the country's official electricity infrastructure plan.

It calls for 37 696MW of new and committed capacity to be added between 2019 and 2030 from a diverse mix of energy sources and technologies as ageing coal plants are decommissioned and the country transitions to a larger share of renewable energy. By 2030, the electricity generation mix is set to comprise of 33 364MW (42.6%) coal, 17 742MW (22.7%) wind, 8 288MW (10.6%) solar photovoltaic (PV), 6 830MW (8.7%) gas or diesel, 5 000MW (6.4%) energy storage, 4 600MW (5.9%) hydro, 1 860MW (2.4%) nuclear and 600MW (0.8%) concentrating solar power (CSP). Additionally, a short-term gap of at least 2000MW is to be filled between 2019 and 2022, thereby further raising new capacity requirements, while distributed or embedded generation for own-use is positioned to add 4 000MW between 2023 and 2030. The IRP is intended to be frequently updated, which could impact future capacity allocations from various energy sources and technologies.

Energy supply

By the end of December 2021, the REIPPPP had made the following significant impacts.

- 6 323 MW of electricity had been procured from 92 RE Independent Power Producers (IPPs) in BW1-4.
- 5 661 MW of electricity generation capacity from 85 IPP projects has been connected to the national grid.
- 71 073GWh of energy has been generated by renewable energy sources procured under the REIPPPP since the first project became operational in November 2013.

Renewable energy IPPs have proved to be very reliable. Of the 85 projects that have reached COD, 77 projects have been operational for longer than a year. The energy generated over the past 12-month period for these 77 projects is 14 117GWh, which is 95% of their annual energy contribution projections (P50) of 14 924GWh over a 12-month delivery period. Thirty-one (31) of the 77 projects (40%) have individually exceeded their P50 projections.

Comparatively, the following statistics were presented at the REIPPPP Bid Window 6 Bidders Conference on 7 July 2022 by the IPP Office based on data as of March 2022 following seven bid rounds (IPP Office, 2022⁴):

- 92 IPPs have been selected as preferred bidders.
- 6 323 MW of electricity capacity procured.
- 5 826 MW already operational from 87 IPPs.
- 74 805 GWh energy generated by Renewable Energy sources.

Energy costs

In line with international experience, the price of renewable energy is increasingly cost competitive when compared with conventional power sources. The REIPPPP has effectively captured this global downward trend with prices decreasing in every bid window. Energy procured by the REIPPPP is progressively more cost effective and has approached a point where the wholesale pricing for new coal-and renewable-generated energy intersect.

Through the competitive bidding process, the IPPPPP effectively leveraged rapid, global technology developments and price trends, buying clean energy at lower and lower rates with every bid cycle, resulting in SA getting the benefit of renewable energy at some of the lowest tariffs in the world. The price for wind power has dropped by 50% to R0.94/kWh, while solar PV has dropped with 75% to R1.14/kWh between BW1 and BW4.

Prices contracted under the REIPPPP for all technologies are well below the published REFIT prices. The REIPPPP has effectively translated policy and planning into delivery of clean energy at very competitive prices. As such it is contributing to the national aspirations of secure, affordable energy, lower carbon intensity and a transformed 'green' economy. with the BW4 price directly comparable with the per kWh price of new coal generation. Solar PV has dropped most significantly with a price decrease of 75% to R1.10/kWh between BW1 and BW4. This compares with the industry estimates in April 2020 of R1.45/kWh for Medupi. Considering the on-going delays incompletion, indications are that these costs may even be significantly higher.

Investment

The document notes that the REIPPPP has attracted significant investment in the development of the REIPPs into the country. The total investment (total project costs⁵), including interest during construction, of projects under construction and projects in the process of closure is R209.6 billion (this includes total debt and equity of R209 billion, as well as early revenue and VAT facility of R0.5 billion).

The REIPPPP has attracted R42 billion in foreign investment and financing in the seven bid windows (BW1 – BW4). This is almost double the inward FDI attracted into South Africa during 2015 (R22.6 billion). The document notes that the share of foreign investment and equity showed an increase in the most recent bid window (2S2), suggesting that the REIPPPP continued to generate investor confidence despite the poor economic conditions in South Africa in recent years.

Comparatively, based on the information presented at the REIPPPP Bid Window 6 Bidders Conference on 7 July 2022 by the IPP Office (IPP Office, 2022), approximately R209.6 billion investment has been attracted for energy infrastructure in all bid windows; and as

⁴ IPP Office (2022). RENEWABLE ENERGY INDEPENDENT POWER PRODUCER PROCUREMENT PROGRAMME (REIPPPP) BID WINDOW 6 BIDDERS' CONFERENCE, 7 JULY 2022 [online]. Accessed July 2022. <https://www.ipp-renewables.co.za/PressCentre/GetPressRelease?fileid=16a21004-f9fd-ec11-9578-2c59e59ac9cd&fileName=BW6%20Bidders%20Conference%20Consolidated.pdf>.

⁵ Total project costs means the total capital expenditure to be incurred up to the commercial operations date in the design, construction, development, installation, and or commissioning of the project)

at March 2022 an actual R1.9 billion contribution was realised for socio-economic development.

South African citizen shareholding

The importance of retaining local shareholding in IPPs is key condition of the procurement requirements. The RFP notes that bidders are required to have South African Equity Participation of 40% in order to be evaluated. South African (local) equity shareholding across BW1-4 equates to 52% (R31.4 billion) of the total equity shareholding (R61.0 billion) was held by South African's across BW1 to BW4, 1S2 and 2S2. This equates to substantially more than the 40% requirement. Foreign equity amounts to R29.6 billion and contributes 49% of total equity.

The REIPPPP also contributes to Broad Based Black Economic Empowerment (BBBEE) and the creation of black industrialists. In this regard, Black South Africans own, on average, 34% of projects that have reached financial close (BW1-BW4), which is 4% higher than the 30% target. This includes black people in local communities that have ownership in the IPP projects that operate in or near their communities and represents the majority share of total South African Entity Participation.

On average, black local communities own 9% of projects that have reached financial close. This is well above the 5% target. In addition, an average of 21% shareholding by black people in engineering, procurement, and construction (EPC) contractors has been attained for projects that have reached financial closure. This is higher than 20% target. The shareholding by black people in operating companies of IPPs has averaged 30% (against the targeted 20%) for the 85 projects in operation (i.e. in BW1-4).

The target for shareholding by black people in top management has been set at 40%, with an average 68% achieved to date. The target has therefore been significantly exceeded.

Community shareholding and community trusts

The regulations require a minimum ownership of 2.5% by local communities in IPP projects as a procurement condition. This is to ensure that a substantial portion of the investments has been structured and secured as local community equity. An individual community's dividends earned will depend on the terms of each transaction corresponding with the relevant equity share. To date all shareholding for local communities have been structured through the establishment of community trusts. For projects in BW1 to BW4, qualifying communities will receive R25.5 billion net income over the life of the projects (20 years). The report notes that the bulk of the money will however only start flowing into the communities from 2028 due to repayment obligations in the preceding years (repayment obligations are mostly to development funding institutions). However, despite the delay this represents a significant injection of capital into mainly rural areas of South Africa. If the net projected income for the first seven bid windows (BW1-BW4) was structured as equal payments overtime, it would represent an annual net income of R1.27 billion per year.

Income to all shareholders only commences with operation of the facility. Revenue generated to date by the 85 operational IPPs amounts to R149.9 billion.

Procurement spend

In addition to the financial investments into the economy and favourable equity structures aimed at supporting BEE, the REIPPPP also targets broader economic and socio-economic investment. This is through procurement spend and local content.

The total projected procurement spend for BW1 to BW4 during the construction phase was R71.1 billion, while the projected operations procurement spend over the 20 years operational life is estimated at 75.2 billion. The combined (construction and operations) procurement value is projected as R146.3 billion of which R92.1 billion has been spent to

date. For construction, of the R71.1 billion already spent to date, R71 billion is from the 85 projects which have already been completed. These 85 projects had planned to spend R64.2 billion. The actual procurement construction costs have therefore exceeded the planned costs by 11% for completed projects.

Preferential procurement

The share of procurement that is sourced from Broad Based Black Economic Empowered (BBBEE) suppliers, Qualifying Small Enterprises (QSE), Exempted Micro Enterprises (EME) and women owned vendors are tracked against commitments and targeted percentages. The IA target requirement for BBBEE is 60% of total procurement spend. However, the actual share of procurement spend by IPPs from BBBEE suppliers for construction and operations combined is currently reported as 83%, which is significantly higher than the target of 60%, but also the 71% that had been committed by IPPs. BBBEE, as a share of procurement spend for projects in construction, is also reported as 84% with operations slightly lower at 74%.

The majority of the procurement spend to date has been for construction purposes. Of the R76 billion spent on procurement during construction, R64.3 billion has reportedly been procured from BBBEE suppliers, achieving 84.6% of total procured. Actual BBBEE spend during construction for BW1 and BW2 alone was R25.5 billion, 81% more than the 14.1 billion planned by the IPPs. The R64.3 billion spent on BBBEE during construction is 30% more than the R49.7 billion that had originally been anticipated by all IPPs procured in BW1-4.

Total procurement spend by IPPs from QSE and EMEs has amounted to R28.1 billion (construction and operations) to date, which exceeds commitments by 250% and is 30% of total procurement spend to date (while the required target is 10%). QSE and EME's procurement spend for construction was 31% of construction procurement to date and 26% of operational procurement, exceeding the 10% targets set. QSE and EME share of construction procurement spend totals R23.8 billion, which is 5.4 times the planned spend for construction of R4.4 billion during this procurement phase.

In terms of procurement from women-owned vendors to date, 5% of total construction procurement spend has been from woman-owned vendors (against a targeted 5%), and 6% of operational procurement spend has been realised from woman-owned vendors to date, thereby exceeding the targeted 5%. In terms of construction spend, R 4.1 billion was undertaken by women-owned vendors, which is almost double the R 1.8 billion expected to be spent for the construction of projects that have reached financial close.

The REIPPPP has therefore created significant employment opportunities for black South African citizens and local communities beyond planned targets. This highlights the importance of the programme in terms of employment equity and the creation of more equal societies.

Local Content⁶

The report notes that the REIPPPP programme represents the country's most comprehensive strategy to date in achieving the transition to a greener economy. Local content minimum thresholds and targets were set higher for each subsequent bid window. The report notes that for a programme of this magnitude, with construction procurement spend alone estimated at R71.1 billion, the result is a substantial stimulus for establishing local manufacturing capacity. The local content strategy has created the required incentives for a number of international technology and component manufactures to establish local manufacturing facilities.

⁶ Local content is expressed as a % of the total project value and not procurement or total project costs.

The documents notes that for the portfolio as a whole, the expectation would reasonably be for local content spend to fall between 25% and 65% of the total project value (considering the range of targets and minimum requirements). Local content commitments by IPPs amount to R66.3 billion or 45% of total project value (R148.2 billion for all bid windows).

Actual local content spend reported for IPPs that have started construction amounts to R63.3 billion against a corresponding project value (as realised to date) of R127.2 billion. This means that 50% of the project value has been locally procured, exceeding the 45% commitment from IPPs and the thresholds for BW1 – BW4 (25-45%).

To date, the R63.3 billion local content spend reported by active IPPs is already 96% of the R66 billion local content expected. This is with 6 projects still in construction, and 85 of the 91 active projects having reached COD (i.e. 93% of the active portfolio complete). For the 85 projects that have reached COD, local content spend has been R 58.72 billion of a committed R58.67 billion, which is 0.1 more than the planned local spend.

Leveraging employment opportunities

To date, a total of 63 291 job years⁷ have been created for South African citizens, of which 48 110 job years were in construction and 15 182 in operations. These job years should rise further past the planned target as more projects enter the construction phase. Employment opportunities across BW1-4 are 143% of the planned number during the construction phase (i.e. 33 707 job years), with 6 projects still in construction and employing people. The number of employment opportunities is therefore likely to continue to grow beyond the original expectations.

By the end of December 2021, 85 projects had successfully completed construction and moved into operation. These projects created 44 172 job years of employment, compared to the anticipated 30 488. This was 45% more than planned.

The report notes that employment thresholds and targets were consistently exceeded across the entire portfolio. The average share of South African citizens of total South Africa based employees for BW1 – BW4 was 91% during construction (against a target of 80%), while it was 96% during operations for BW1 – BW4 (against a target of 80%). The report notes that the construction phase offers a high number of opportunities over shorter durations, while the operations phase requires fewer people, but over an extended operating period.

To date, 48 110 job years for SA citizens were achieved during construction, which is 43% above the planned 33 707 job years for active projects. These job years are expected to rise further since 6 projects are still in construction.

In terms of benefits for local communities, significantly more people from local communities were employed during construction than was initially planned. For active projects, the expectation for local community participation was 13 284 job years. To date 25 272 job years have been realised (i.e. 90% more than initially planned), with 6 projects still in, or entering, construction. The number of black SA citizens employed during construction also exceeded the planned numbers by 74%.

Black South African citizens, youths and rural or local communities have been the major beneficiaries during the construction phases, as they respectively represent 81%, 44% and 48% of total job opportunities created by IPPs to date. However, woman and disabled people could still be significantly empowered as they represent a mere 10% and 0.4% of

⁷ The equivalent of a full-time employment opportunity for one person for one year

total jobs created to date, respectively. Nonetheless, the fact that the REIPPPP has raised employment opportunities for black South African citizens and local communities beyond planned targets, indicates the importance of the programme to employment equity and the drive towards more equal societies.

The share of black citizens employed during construction (81%) and the early stages of operations (85%) has significantly exceeded the 50% target and the 30% minimum threshold. Likewise, the share of skilled black citizens (as a percentage of skilled employees) for both construction (71%) and operations (82%) has also exceeded the 30% target and minimum threshold of 18%. The share of local community members as a share of SA-based employees was 48% and 70% for construction and operations respectively – significantly exceeding the minimum threshold of 12% and the target of 20%.

Socio-economic development (SED) contributions

An important focus of the REIPPPP is to ensure that the build programme secures sustainable value for the country and enables local communities to benefit directly from the investments attracted into the area. In this regard, IPPs are required to contribute a percentage of projected revenues accrued over the 20-year project operational life toward SED initiatives. These contributions accrue over the 20-year project operation life and are used to invest in housing and infrastructure as well as healthcare, education, and skills development.

The minimum compliance threshold for SED contributions is 1% of the revenue with 1.5% the targeted level over the 20-year project operational life. For the current portfolio of projects, the average commitment level is 2%, which is 101% higher than the minimum threshold level. To date (across BW1-4) a total contribution of R22.8 billion has been committed to SED initiatives. Assuming an even, annual revenue spread, the average contribution per year would be R1.1 billion. Of the total commitment, R18.5 billion is specifically allocated for local communities where the IPPs operate. With every new IPP on the grid, revenues and the respective SED contributions will increase.

As a percentage of revenue, SED obligations become effective only when operations commence, and revenue is generated. Of the 91 IPPs that have reached financial close (BW1-BW4), 85 are operational. The SED contributions associated with these 85 projects has amounted to R 1.8 billion to date.

In terms of ED and SED spend, education, social welfare, and health care initiatives have a SED focus. SED spend on education has been almost double the expenditure on enterprise development. This is despite enterprise development being a stand-alone commitment category in terms of the IA. This is, in part, due to the fact that some early childhood development programmes have also been incorporated in educational programmes. IPPs have supported 1 388 education institutions with a total of R437 million in contributions, from 2015 to the end of June 2021. A total of 1 276 bursaries, amounting to R210.8 million, have been awarded by 67 IPPs from 2015 until the end of June 2021. The largest portion of the bursaries were awarded to African and Coloured students (97.4%), with women and girls receiving 56.3% of total bursaries. The Northern Cape province benefitted most from the bursaries awarded, with 57.2%, followed by the Eastern Cape (20.2%) and Western Cape (14.1%). Enterprise development and social welfare are the focus areas that have received the second highest share of the contributions to date.

Enterprise development contributions

The target for IPPs to spend on enterprise development is 0.6% of revenues over the 20-year project operational life. However, for the current portfolio, IPPs have committed an average of 0.63% or 0.03% more than the target. Enterprise development contributions committed for BW1-4, amount to R7.2 billion. Assuming an equal distribution of revenue over the 20-year project operational life, enterprise development contributions would be R358 million per annum. Of the total commitment, R5.6 billion is specifically committed

directly within the local communities where the IPPs operate, contributing significantly to local enterprise development.

Of the total commitment, R5.6 billion is specifically committed directly within the local communities where the IPPs operate, contributing significantly to local enterprise development. A total contribution of R504.1 million has already been made to the local communities (i.e. 94% of the total R537.9 million enterprise development contributions made to date).

Contribution to cleaner energy and water savings

As part of the global commitment, South Africa is targeting an emissions trajectory that peaks at 34% below a “business as usual” case in 2020, 42% below in 2025 and from 2035 declines in absolute terms. The REIPPPP contributes constructively to economic stability, energy security and environmental sustainability.

The emission reductions for the programme during the preceding 12 months (June 2019-June 2020) is calculated as 15.1 million tonnes CO₂ (MtonCO₂) based on the 14 835 GWh energy that has been generated and supplied to the grid over this period. This represents 75% of the total projected annual emission reductions (20.5MtonCO₂) achieved with only partial operations. A total of 72.1 Mton CO₂ equivalent reduction has been realised from programme inception to date.

The March 2019 Report also notes that since operation, the IPPs have saved 42.8 million kilolitres of water related to fossil fuel power generation. This saving will have increased with the increase in energy generated by renewable energy since 2019. The REIPPPP therefore contributes significantly towards meeting South Africa’s GHG emission targets and, at the same time, supporting energy security, economic stability, and environmental sustainability.

ANNEXURE D

SOCIO-ECONOMIC OVERVIEW

Population and Household Profile:

The population of Drakenstein in 2018/19 was 284 475 made up of 72 210 households. Coloured households made up 55.25% of the total households, followed by Black African (23.6%), Whites (20.78%) and Indians/Asians (0.32%). The main language spoken in the Drakenstein LM was Afrikaans. As indicated in Figure 1, the population in 2022 had increased to 305 281, with a total number of households of 76 195 (See Figure 1)

Unemployment

Drakenstein estimated at 10.1 per cent in 2021) had the second highest unemployment rate in the Cape Winelands District and is above the District (15.4 per cent) rate, but significantly below the Western Cape (25.1 per cent) unemployment rate. Unemployment has been on an upward trend from 2015 (12,1 per cent) to 2021(19.5 per cent) largely driven by the job losses as a result of the drought, loadshedding and economic recession over this period. The "not economically active" population has also increased from 2020 to 2021 as job losses and an insufficient supply of jobs have led to an increasing number of discouraged work-seekers. Unfortunately, most job losses affected low skilled and informal workers who are more vulnerable to living in poverty during times of economic decline.

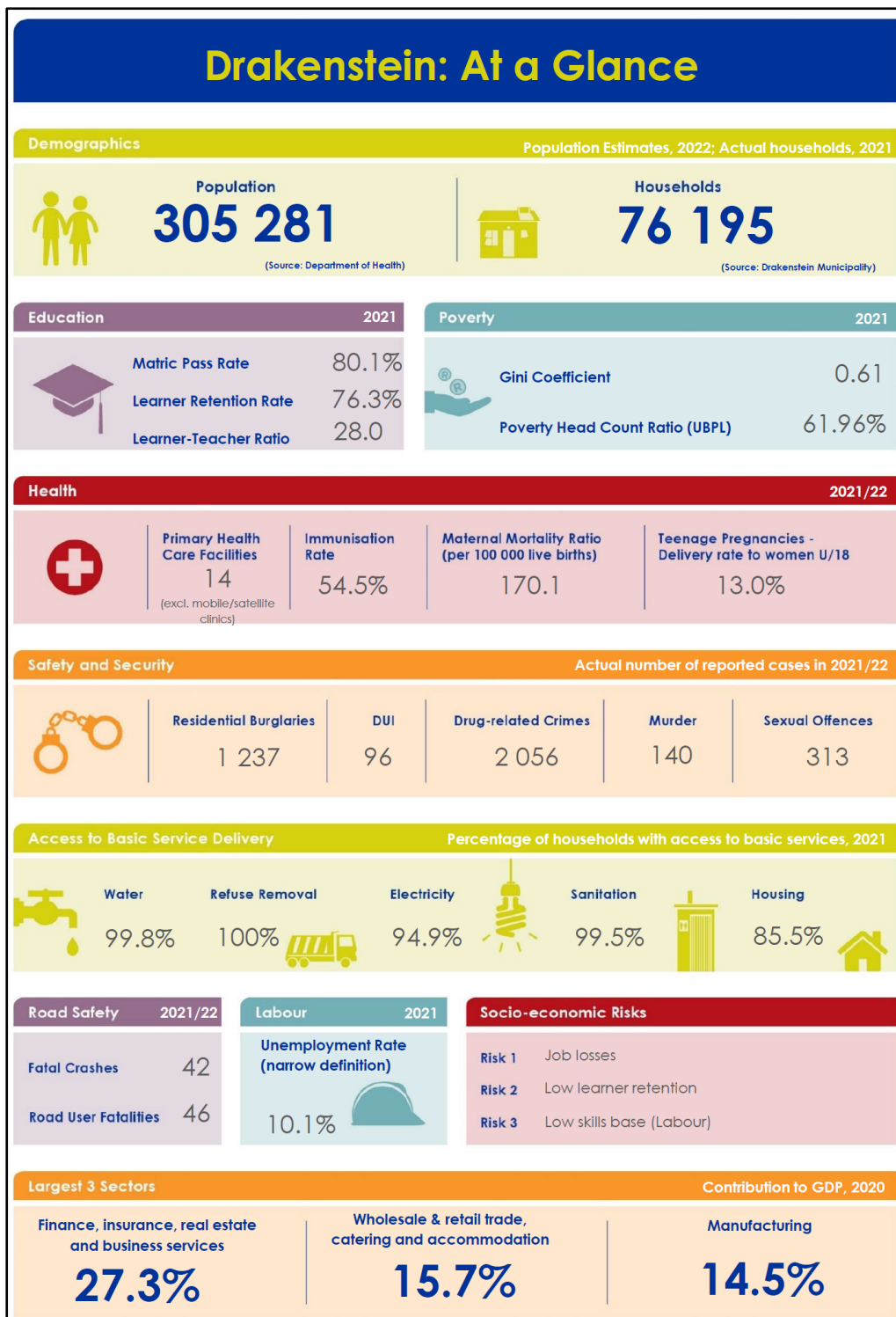


Figure 1: Overview of Drakenstein LM

Municipal Services

Figure 2 provides a summary of municipal services.

Water

Despite a significant increase in the total number of households since 2011, 99.5% of households in the DLM were provided with potable water.

Electricity

97.3% of households had access to electricity in 2022, compared to 95.0 per cent in 2011.

Refuse services.

81.8% of households had access to weekly refuse removal services.

Sanitation

96.6% of households had access to a flush toilet connected to a sewerage system.

Housing

85.5% of households resided in formal dwellings, while 7.9% resided in informal structures not in backyards.

Education

The Community Survey 2016 indicated a 6.3% increase in the percentage of persons aged twenty and above who have completed secondary school, while those attaining a higher educational qualification has declined by 0.9% in 2016. The percentage of persons in this age group who have no schooling has reduced by 1.1% from 3.2% in 2011 to 2.1% in 2016.

Literacy Levels

Literacy is defined as the ability to read and write, but it is more strictly defined as the successful completion of a minimum of 7 years of schooling, The literacy rate is calculated as the proportion of those 14 years and older who have successfully completed a minimum of 7 years of formal education. The literacy rate in Drakenstein was recorded at 44.8 per cent in 2011, which is higher than the average literacy rates of the Cape Winelands District (81.7 per cent) and the rest of South African (80.9 per cent) but is lower than the Western Cape (87.2 per cent).

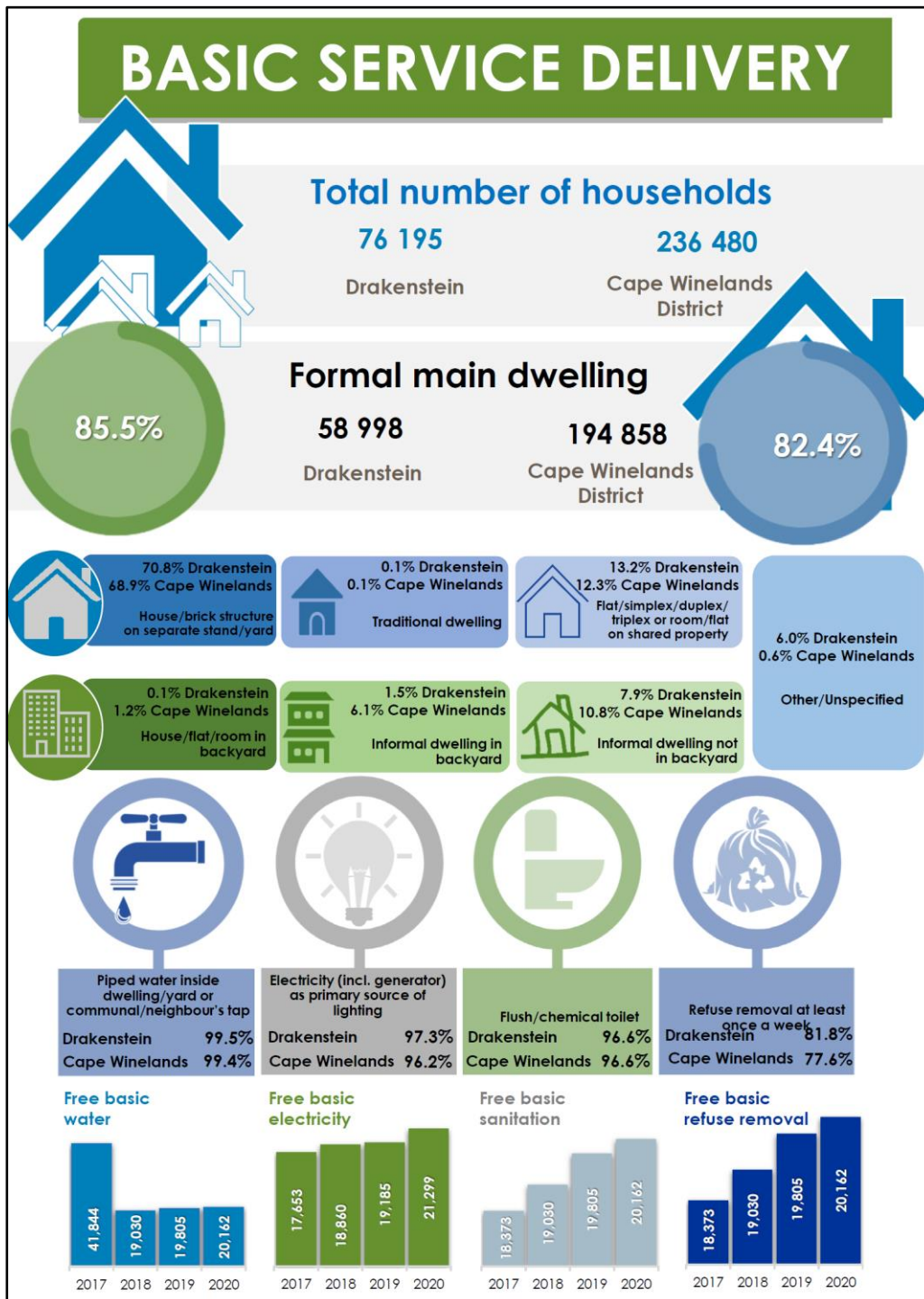


Figure 2: Summary of municipal services