



**NCPT**

NORTHERN CAPE PROVINCIAL TREASURY

# **Policy Brief: The Green Economy in the Northern Cape: Focusing on Renewable Energy**

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## Table of Contents

1. Introduction and Background.....	1
2. Policy Framework for the Green Economy .....	1
3. Renewable Energy Projects in the Northern Cape .....	4
4. Conclusion and Recommendations.....	7
5. References .....	8

## 1. Introduction and Background

The Department of Environmental Affairs (DEA, n.d.) gives the definition of a green economy as a “system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities”. The two interlinked developmental outcomes of the green economy for the South African economy that the DEA identifies are increasing economic activity in the green sector leading to investment, jobs and competitiveness and a change in the economy as a whole to cleaner industries and sectors. The concept of the green economy has become common as a strategic priority for many governments and intergovernmental institutions over the past years. In South Africa, a lot has been done with regards to policies, research and development as well as implementation. With global warming and ever increasing pollution of the air, oceans and land, it is very important for South Africa and the Northern Cape to contribute to the green economy. This is not just beneficial for the province to promote environmental sustainability, there are also various economic opportunities in this sector. The green economy should assist the country in bridging the gap of depleting resources and support economic development that is better for the environment.

According to the Northern Cape Department of Environment and Nature Conservation (DENC, 2017), conditions in the Northern Cape to generate renewable energy from solar plants is some of the most favourable in the world. This policy brief investigates policies relating to the green economy in South Africa after which more information is provided on renewable energy projects in the Northern Cape. This is followed by a conclusion and recommendations.

## 2. Policy Framework for the Green Economy

Government institutions work together and have different responsibilities with respect to the green economy. The National Strategy for Sustainable Development and Action Plan (NSSD) lies with the DEA (2011). National Treasury considers environmental fiscal reform. This looks at how environmentally-related taxes and charges could help move towards achieving environmental goals and objectives in a cost effective and efficient manner; how environmentally-related taxes can contribute to revenue raising

requirements; and to provide a guiding framework and develop a process for considering the use and development of different market-based instruments and a consistent set of criteria for evaluating environmentally-related tax proposals (NT, 2006). Issues regarding water is the responsibility of the Department of Water Affairs, while the Department of Science and Technology (DST) is responsible for research and development and technology policy. Issues relating to fossil fuels and renewable resources are the responsibility of the Department of Energy (DoE). The Economic Development Department (EDD) makes provision for the green economy in the New Growth Path (NGP). Other departments (including those responsible for mining, agriculture, forestry, fisheries, transport, housing and local government) also contribute to green economy activities and thereby green jobs at sectoral level (Montmasson-Clair, 2012). Some of the main government policies regarding the green economy are further discussed below. This list is however not exhaustive.

- **National Development Plan Vision 2030 (NDP)**

In the chapter on Economy and employment (Chapter 3), the NDP (NPC, 2011) makes reference to the green economy in creating employment opportunities and how the green economy agenda will be used to promote industrialisation and energy efficiency. Chapter 5 (Ensuring environmental sustainability and an equitable transition to a low-carbon economy) also speaks of promoting the green economy.

- **National Strategy for Sustainable Development and Action Plan (NSSD 1), 2011–2014**

In this document (DEA, 2011), five strategic objectives were identified. These are *enhancing systems for integrated planning and implementation; sustaining our ecosystems and using natural resources efficiently; towards a green economy; building sustainable communities; and responding effectively to climate change*. Under the priority of *Towards a green economy*, the nine key focus areas that are to be implemented are listed as resource conservation and management; sustainable waste management practices; water management; environmental sustainability (comprising greening and legacy projects: major events and tourism; and research, awareness, training, skills development and knowledge management); green buildings and the built environment; sustainable transport and infrastructure; clean energy and energy efficiency;

agriculture, food production and forestry; and sustainable consumption and production.

- **Industrial Policy Action Plan (IPAP) 2018/19-2020/21**

IPAP 2018/19-2020/21 (dti, 2018) also makes reference to the green economy in various sections of the document, especially in its section on green industries. Here reference is made to *climate-compatible industrial development; systemised resource efficiency data collection and reporting; a national strategy to utilise appropriate measures and technology to ensure water security and support the development of a local base of technology and service providers in the sector; Industrial Water Efficiency Project; Industrial Energy Efficiency Project; and resource-efficient and cleaner production skills development under the key action programmes*. This is listed under the Key Action Programmes. This further shows government's commitment to ensuring a more environmentally sustainable path for the country.

- **New Growth Path (NGP)**

The New Growth Path (NGP) was introduced as a policy that will guide government's vision in achieving 5 million new jobs by 2020. The third of five job drivers identified in this document is *"Taking advantage of new opportunities in the knowledge and green economies"* (EDD, 2011a).

- **Green Economy Accord**

The green economy accord is the fourth accord of the NGP and it specifies the twelve commitments needed to foster green industrial development (EDD 2011b). These include the rollout of solar water heaters; investment in the green economy and economic development in the green economy by promoting localisation; youth employment; cooperatives and skills development; procuring renewable energy as part of the energy generation plan; promoting biofuels for vehicles; clean-coal initiatives to reduce coal-based technologies' emissions; promoting energy efficiency; recycling waste; improving the mass transport system; and shifting to rail for freight transport in order to reduce carbon-emissions on the roads.

### 3. Renewable Energy Projects in the Northern Cape

Electricity is vital for industries to perform their daily tasks and to grow. Renewable energy projects also have a role to play in increasing the energy supply of the country. Renewable energy is one of the nine key focus areas that were identified in the National Strategy for Sustainable Development and Action Plan. According to the Department of Energy (DoE, n.d.), coal provides for about 77 per cent of the primary energy needs of the country, and it is unlikely that this will change significantly in the next two decades.

With an increasing need for renewable sources of energy, government's commitment to the green economy, large open spaces in the province and high levels of solar radiation, it can be expected that the renewable energy sector has shown growth in the Northern Cape. The Northern Cape hosts 59 of the 112 Independent Power Producers (IPPs) in the country and more than 23 projects were already connected to the electricity grid at a capacity of over 1 500 MW at the time (DEDaT, 2018). According to the Northern Cape Department of Economic Development and Tourism (DEDaT), Concentrated Solar Panels (CSP), Photovoltaic (PV) and Offshore Wind can potentially be used to produce electricity in the province. DEDaT (2017) also indicated that a business plan was completed for a renewable energy incubator and this was submitted for the Enterprise Incubator Programme.

Energyblog (n.d.), identifies 95 renewable energy projects in South Africa, some in operation and others not. In the Northern Cape, 48 projects are identified. The status of these are awaiting construction (13), construction (1), fully operational (32), halted/aborted (1) and partially operational (1). 23 towns are identified as "nearest town". Table 1 below provides a table of the projects in the Northern Cape.

**Table 1: Renewable Energy Projects in the Northern Cape**

Name	Technology	Capacity (MW)	Programme	Nearest Town	Status
Adams Solar PV 2	Solar Photovoltaic (PV)	82.5	REIPPP Window 3	Hotazel	Fully operational
Aggeneys Solar Project	Solar Photovoltaic (PV)	40	REIPPP Window 4	Aggeneys	Awaiting construction
Aries Solar	Solar Photovoltaic (PV)	9.7	REIPPP Window 1	Kenhardt	Fully operational
Bokpoort CSP Project	Concentrated Solar Thermal (CSP)	50	REIPPP Window 2	Groblershoop	Fully operational
Copperton Windfarm	Onshore Wind	102	REIPPP Window 4	Copperton	Awaiting construction
De Aar Solar Power	Solar Photovoltaic (PV)	50	REIPPP Window 1	De Aar	Fully operational
Droogfontein 2 Solar	Solar Photovoltaic (PV)	75	REIPPP Window 4	Kimberley	Awaiting construction
Droogfontein Solar Power	Solar Photovoltaic (PV)	50	REIPPP Window 1	Kimberley	Fully operational
Dyason's Klip 1	Solar Photovoltaic (PV)	75	REIPPP Window 4	Upington	Awaiting construction
Dyason's Klip 2	Solar Photovoltaic (PV)	75	REIPPP Window 4	Upington	Awaiting construction
Eskom CSP	Concentrated Solar Thermal (CSP)	100	Other	Upington	Halted/aborted
Garob Wind Farm	Onshore Wind	136	REIPPP Window 4	Copperton	Awaiting construction
Greefspan PV Power Plant	Solar Photovoltaic (PV)	10	REIPPP Window 1	Douglas	Fully operational
Greefspan PV Power Plant No. 2 Solar Park	Solar Photovoltaic (PV)	55	REIPPP Window 4	Douglas	Awaiting construction
Herbert PV Power Plant	Solar Photovoltaic (PV)	19.9	REIPPP Window 1	Douglas	Fully operational
Ilanga CSP 1 (Karoshoek Consortium)	Concentrated Solar Thermal (CSP)	100	REIPPP Window 3	Kimberley	Fully operational
Jasper Power Company	Solar Photovoltaic (PV)	96	REIPPP Window 2	Postmasburg	Fully operational
Kalkbult	Solar Photovoltaic (PV)	72.5	REIPPP Window 1	De Aar	Fully operational
Kangnas Wind Farm	Onshore Wind	137	REIPPP Window 4	Springbok	Construction
Karusa Wind Farm	Onshore Wind	140	REIPPP Window 4	Sutherland	Awaiting construction
Kathu Solar Energy Facility	Solar Photovoltaic (PV)	75	REIPPP Window 1	Kathu	Fully operational
Kathu Solar Park	Concentrated Solar Thermal (CSP)	100	REIPPP Window 3	Kuruman	Partially operational
KaXu Solar One	Concentrated Solar Thermal (CSP)	100	REIPPP Window 1	Pofadder	Fully operational
Khi Solar One	Concentrated Solar Thermal (CSP)	50	REIPPP Window 1	Upington	Fully operational
Khobab Wind Farm	Onshore Wind	138	REIPPP Window 3	Loeriesfontein	Fully operational
Konkoonsies II Solar Facility	Solar Photovoltaic (PV)	75	REIPPP Window 4	Pofadder	Awaiting construction
Konkoonsies Solar	Solar Photovoltaic (PV)	9.7	REIPPP Window 1	Pofadder	Fully operational
Lesedi Power Company	Solar Photovoltaic (PV)	64	REIPPP Window 1	Postmasburg	Fully operational
Linde	Solar Photovoltaic (PV)	36.8	REIPPP Window 2	Hanover	Fully operational
Loeriesfontein 2 Wind Farm	Onshore Wind	138	REIPPP Window 3	Loeriesfontein	Fully operational
Longyuan Mulilo De Aar 2 North Wind Energy Facility	Onshore Wind	139	REIPPP Window 3	De Aar	Fully operational
Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility	Onshore Wind	96	REIPPP Window 3	De Aar	Fully operational
Mulilo Prieska PV	Solar Photovoltaic (PV)	75	REIPPP Window 3	Prieska	Fully operational
Mulilo Renewable Energy Solar PV De Aar	Solar Photovoltaic (PV)	10	REIPPP Window 1	De Aar	Fully operational
Mulilo Renewable Energy Solar PV Prieska	Solar Photovoltaic (PV)	20	REIPPP Window 1	Prieska	Fully operational
Mulilo Sonnedix Prieska PV	Solar Photovoltaic (PV)	75	REIPPP Window 3	Prieska	Fully operational
Neusberg Hydro Electric Project A	Small Hydro	10	REIPPP Window 2	Kakamas	Fully operational
Noblesfontein	Onshore Wind	72.8	REIPPP Window 1	Noblesfontein	Fully operational
Noupoort Mainstream Wind	Onshore Wind	79	REIPPP Window 3	Noupoort	Fully operational
Redstone CSP	Concentrated Solar Thermal (CSP)	100	REIPPP Window 3	Postmasburg	Awaiting construction
Sirius Solar PV Project One	Solar Photovoltaic (PV)	75	REIPPP Window 4	Upington	Awaiting construction
Sishen Solar Facility	Solar Photovoltaic (PV)	74	REIPPP Window 2	Sishen	Fully operational
Solar Capital De Aar (Pty) Ltd	Solar Photovoltaic (PV)	75	REIPPP Window 1	De Aar	Fully operational
Solar Capital De Aar 3	Solar Photovoltaic (PV)	75	REIPPP Window 1	De Aar	Fully operational
Solar Capital Orange	Solar Photovoltaic (PV)	75	REIPPP Window 4	Loeriesfontein	Awaiting construction
The Soetwater Wind Farm	Onshore Wind	139	REIPPP Window 4	Laingsburg	Awaiting construction
Upington Solar PV	Solar Photovoltaic (PV)	8.9	REIPPP Window 2	Upington	Fully operational
Xina CSP South Africa	Concentrated Solar Thermal (CSP)	100	REIPPP Window 3	Pofadder	Fully operational

Source: *Energyblog. N.d. (b).*

The following section provides more information on some of the projects in the province.

- **Kathu Solar Park**

It is estimated that the project will save six million tons of CO<sub>2</sub> over 20 years. Its economic commitment is stated to be a R12 billion investment and over 42.5 per cent local content. It is indicated that there are 500 jobs created for South African citizens during construction (to peak with 1 200 jobs during construction) and 81 jobs during the operation of the park. The Kathu Solar Park Trust is being set up. This will share project revenue with disadvantaged communities (Kathu Solar Park, n.d.). According to Enegyblog (n.d.), the project's capacity is 100 MW and it is partially operational.

- **Redstone CSP**

The 100 MW project has 12 hours of full-load energy storage and will be able to deliver an electricity supply to more than 200 000 South African homes during peak demand periods. Just like most solar projects, this project will have both economic and social benefits to the community. There will be no emissions or hazardous waste and storage enables the plant to reliably generate electricity (during the day and night). It is also indicated that 4 000 direct, indirect and induced jobs will be created. 4 000 jobs are set to be created during the construction phase, including craft workers on site and jobs related to the supply of equipment, manufacturing, engineering, transportation and other services. In operation there are said to be 60 to 70 full-time permanent jobs (Solar Reserve, 2018).

- **Copperton Wind Farm**

The Copperton Wind Farm is set to have a 102 MW capacity with 34 turbines. It is expected that 375 GWh of clean, green energy will be generated annually over 20 years of operation. When comparing the process to coal-fired generation, it is expected that each year of wind energy generation will save 38 000 tonnes of CO<sub>2</sub> equivalent emissions and 2.5 million litres of water (Copperton Wind Farm, 2019).



## 4. Conclusion and Recommendations

One can see from the discussions above government's commitment to the green economy and how renewable energy plays a role in energy generation as well as job creation. There are already a number of renewable energy projects in the province. The province should continue providing support to the renewable energy sector to ensure that it continues growing in order to play its part in stimulating both the national and provincial economy and in a way that is better for the environment.

Interventions that the province can consider to tap into the economic growth and job creation potential of this sector include the following:

- The province can create awareness to scholars as to the job opportunities that they can study for within this sector to improve their employability after gaining a tertiary education.
- The province can consider providing training sessions to people in the areas where these projects are situated so as to improve their skill levels to that which is required from the projects. This will improve people's employability and ensure that there isn't a mismatch of skills demanded and supplied.
- A skills demand and supply study of the renewable energy sector in the province can be conducted to enable the province to ensure that there isn't a skills mismatch.
- Government should consider directing more resources to this sector, but thorough oversight should be done to ensure that the objectives set out are achieved.
- Including or emphasising renewable energy (like solar geysers and solar panels for electricity generation) in government construction projects can also be considered.
- For promoting economic opportunities, more research needs to be done to see how the province can produce inputs into this sector in both the building (or establishment) phase as well as the operational phase and maintenance.
- Further research on the other facets of the green economy can assist the province to determine in which areas we are already playing a role and where we can increase our footprint or access new opportunities.

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