



**sanedi**

South African National Energy  
Development Institute

**Innovation for Life**



**ANNUAL  
REPORT  
2018/19**



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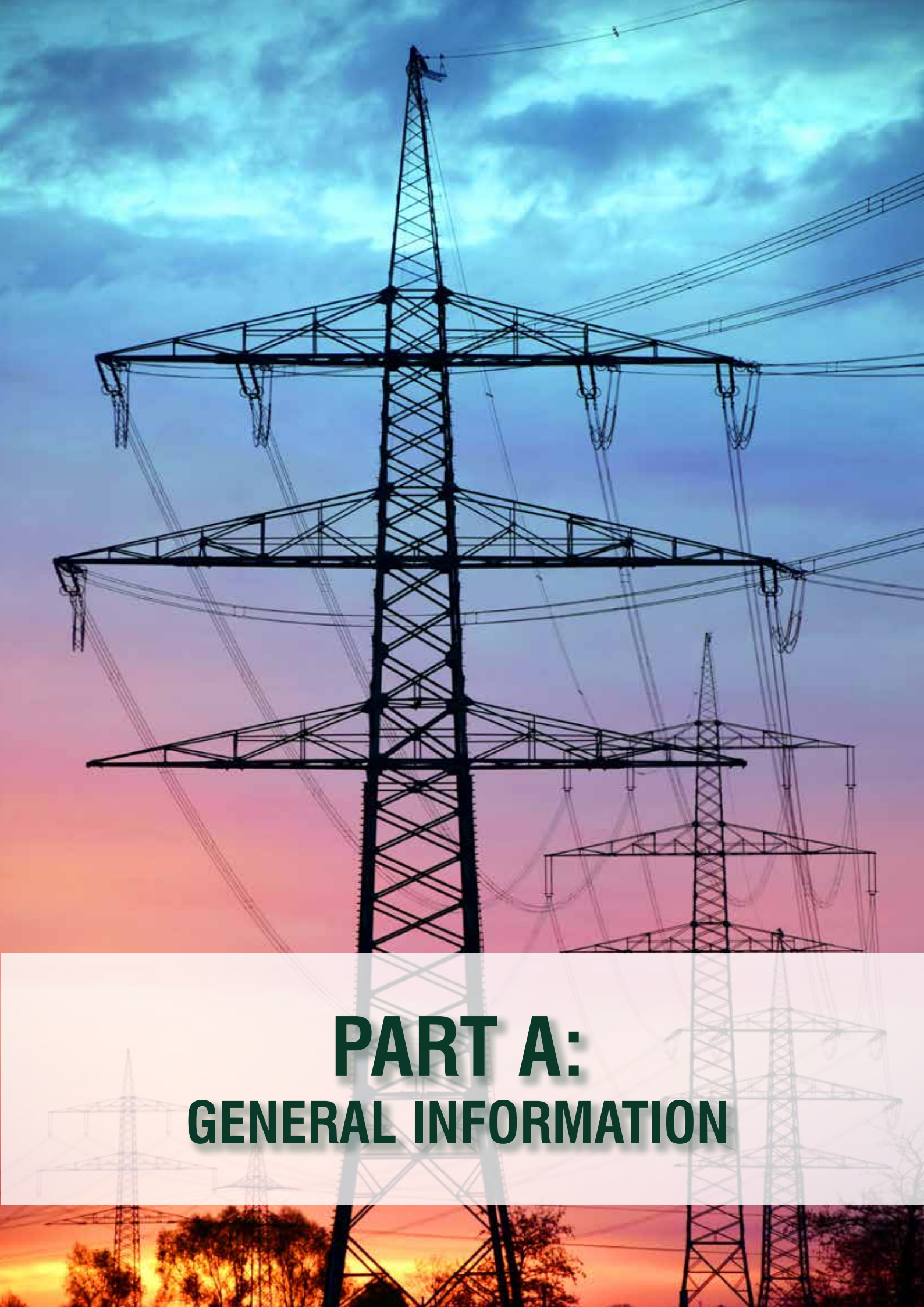
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# **PART A:** **GENERAL INFORMATION**



## 1. General Information

<b>Registered Name:</b>	South African National Energy Development Institute
<b>Physical Address:</b>	CEF House, Block C, Upper Grayston Office Park, 152 Ann Crescent, Strathavon, Sandton
<b>Postal Address:</b>	PO Box 9935, Sandton, 2146
<b>Telephone Number(s):</b>	011 038 4300
<b>Email Address:</b>	information@sanedi.org.za
<b>Website Address:</b>	www.sanedi.org.za
<b>External Auditors:</b>	The Auditor-General of South Africa
<b>Bankers:</b>	ABSA
<b>Company / Board Secretary:</b>	First Corporate Secretaries (Pty) Ltd







## 2. List of Abbreviations / Acronyms

<b>AFD</b>	Agence Française de Développement
<b>AGSA</b>	Auditor-General of South Africa
<b>APP</b>	Annual Performance Plan
<b>ASSA</b>	Academy of Science for South Africa
<b>BEE</b>	Black Economic Empowerment
<b>CCS</b>	Carbon Capture and Storage
<b>CCT</b>	Clean Coal Technologies
<b>CCUS</b>	Carbon Capture, Utilisation and Storage
<b>CEF</b>	CEF Group of Companies formerly known as Central Energy Fund
<b>CEM</b>	Clean Energy Ministerial
<b>CEO</b>	Chief Executive Officer
<b>CER</b>	Centre of Energy Research
<b>CESAR</b>	Centre for Energy Systems Analysis and Research
<b>CGS</b>	Council for Geosciences
<b>COP</b>	Conference of Parties of the United Nations Framework Convention for Climate Change
<b>CO2</b>	Carbon Dioxide
<b>CORDs</b>	Centres of Research and Development
<b>CPI</b>	Consumer Price Index
<b>CSI</b>	Corporate Social Investment
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>CSR</b>	Corporate Social Responsibility
<b>DANIDA</b>	Danish International Development Agency
<b>DEA</b>	Department of Environmental Affairs
<b>DFI</b>	Development Finance Institutes
<b>DKK</b>	Danish Krone
<b>DMRE</b>	Department of Mineral Resources and Energy (previously DoE)
<b>DoT</b>	Department of Transport
<b>DoE</b>	Department of Energy (now DMRE)
<b>DSI</b>	Department of Science and Innovation (previously DST)
<b>DSM</b>	Demand Side Management
<b>DEST</b>	Department of Education, Science & Technology
<b>DTU</b>	Technical University of Denmark
<b>DBREV</b>	Douglas Banks Renewable Energy Vision
<b>dti</b>	Department of Trade and Industry
<b>EDI</b>	Electricity Distribution Industry
<b>EE</b>	Energy Efficiency
<b>EEDSM</b>	Energy Efficiency and Demand Side Management
<b>EIUG</b>	Energy Intensive User Group
<b>EPWP</b>	Expanded Public Works Programme
<b>ERC</b>	Energy Research Centre
<b>ESI</b>	Electricity Supply Industry
<b>EU</b>	European Union
<b>EV</b>	Electric Vehicles
<b>EVIA</b>	Electric Vehicle Industry Association
<b>FMPPI</b>	Framework for Managing Programme Performance Information
<b>GAAP</b>	Generally Accepted Accounting Practice
<b>GDID</b>	Gauteng Department of Infrastructure Development



## 2. List of Abbreviations / Acronyms (continued)

<b>GEF</b>	Global Environment Facility
<b>GHG</b>	Greenhouse Gas
<b>GIZ</b>	German Agency for International Cooperation
<b>GRAP</b>	Generally Recognised Accounting Practice
<b>IAS</b>	International Accounting Standards
<b>IDC</b>	Industrial Development Corporation
<b>IEA</b>	International Energy Agency
<b>IEP</b>	Integrated Energy Plan
<b>IIA</b>	Institute of Internal Auditors
<b>IRENA</b>	International Renewable Energy Agency
<b>ISGAN</b>	International Smart Grid Action Network
<b>IT</b>	Information Technology
<b>kW</b>	Kilowatt
<b>LAN</b>	Local Area Network
<b>M&amp;V</b>	Monitoring and Verification
<b>MoU</b>	Memoranda of Understanding
<b>MTEC</b>	Medium Term Expenditure Committee
<b>MTEF</b>	Medium Term Expenditure Framework
<b>MTSF</b>	Medium Term Strategic Framework
<b>MW</b>	Megawatt
<b>NAAMSA</b>	National Association of Automobile Manufacturers of South Africa
<b>NBI</b>	National Business Initiative
<b>NDA</b>	National Development Agency
<b>Necsa</b>	South African Nuclear Energy Corporation
<b>NEEA</b>	National Energy Efficiency Agency
<b>NRF</b>	National Research Foundation
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>PAA</b>	Public Audit Act
<b>PASA</b>	Petroleum Agency of South Africa
<b>PCSP</b>	Pilot CO <sub>2</sub> Storage Project
<b>PDI</b>	Previously Disadvantaged Individual
<b>PFMA</b>	Public Finance Management Act
<b>PFT</b>	Project Facilitation Team
<b>PIU</b>	Project Implementation Unit
<b>PMO</b>	Project Management Office
<b>PPC</b>	Parliament Portfolio Committee
<b>PV</b>	Photovoltaics
<b>RE</b>	Renewable Energy
<b>RECORD</b>	Renewable Energy Centre for Research and Development
<b>REEEP</b>	Renewable Energy and Energy Efficiency Partnerships
<b>R&amp;D</b>	Research and Development
<b>SACCCS</b>	South African Centre for Carbon Capture and Storage
<b>SADC</b>	Southern African Development Community
<b>SAFECCS</b>	South Africa- Europe Cooperation on Carbon Capture and Storage
<b>SAGEN</b>	South Africa – German Energy Programme
<b>SANAS</b>	South African National Accreditation System
<b>SANEDI</b>	South African National Energy Development Institute



## 2. List of Abbreviations / Acronyms (continued)

<b>SANERI</b>	South African National Energy Research Institute
<b>SAPIA</b>	South African Petroleum Association of South Africa
<b>SAPVIA</b>	South African Photovoltaic Industry Association
<b>SARS</b>	South African Revenue Service
<b>SARETEC</b>	South African Renewable Energy Technology Centre
<b>SASGI</b>	South African Smart Grids Initiative
<b>SAWEA</b>	South African Wind Energy Association
<b>SAWEP</b>	South African Wind Energy Programme
<b>SCP</b>	Sustainable Consumption and Production
<b>SDG</b>	Sustainable Development Goals
<b>SETA</b>	Sector Education and Training Authorities
<b>SLA</b>	Service Level Agreement
<b>SMME / SME</b>	Small Medium and Micro Enterprises
<b>SMART</b>	Specific, Measurable, Achievable, Realistic and Time-bound
<b>SOLTRAIN</b>	Southern African Solar Thermal Training and Demonstration Initiative
<b>SOC</b>	State Owned Company
<b>SOE</b>	State Owned Entity
<b>SSA</b>	State Security Agency
<b>TAF</b>	Technical Assistance Facility
<b>TAI</b>	Tax Allowance Incentive
<b>the dti (see also dti)</b>	Department of Trade and Industry
<b>TIA</b>	Technology Innovation Agency
<b>TVET</b>	Technical and Vocational Education and Training
<b>UCT</b>	University of Cape Town
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNEP</b>	United Nations Environment Programme
<b>UNFCCC</b>	United Nations Framework Convention for Climate Change
<b>UNIDO</b>	United Nations Industrial Development Organisation
<b>USTDA</b>	United States Trade and Development Agency
<b>WB</b>	World Bank
<b>WASA</b>	Wind Atlas of South Africa
<b>WfE</b>	Working for Energy Programme
<b>WRI</b>	World Resource Institute
<b>WSP</b>	Workplace Skills Plan



# Nkululeko Buthelezi

Interim Chairperson: SANEDI Board



## 3. Foreword by the Interim Chairperson

As SANEDI is preparing its 2019 Annual Report, we as the Board Members have the opportunity to reflect on the two years we have journeyed with the organisation. We celebrate the important contributions SANEDI has made to South Africa as well as its energy landscape, and are pleased to share the 2019 Annual Report with our Stakeholders.

We are acutely aware of the many challenges ordinary South Africans are facing, many of which are aggravated, directly or indirectly, by the rising cost of electricity. We live in a time when adequate availability of clean, affordable energy is the lifeblood of the “New Dawn” our country is striving for with renewed intent. The lifeblood of a thriving economy and our ambitions to achieve universal access to electricity. SANEDI’s pursuit for innovative, relevant, clean energy solutions is driven by these ambitions for prosperity and equity as articulated in the National Development Plan (NDP).

The past few years have seen accelerated technology development across a broad spectrum of platforms, including solar PV and wind power, micro grids, artificial intelligence, smart infrastructure, electric vehicles and battery storage. This revolution of technology and platforms allows us to glimpse a future of democratisation of electricity, a move away from bulk delivery systems to a community-, home-, and business-based energy system. It’s an exciting time in the energy sector, with all these developments converging to enable an effective response to energy security, climate change challenges and ambitions for electricity for all as encapsulated in the Sustainable Development Goals (SDGs).

This global energy transformation holds the promise of faster economic growth, investment opportunities and greater employment, in line with President Ramaphosa’s Seven Point Plan. We are cognisant that the energy transformation will have a bearing on the conventional energy sector. This calls on us to also give due consideration to a just and inclusive transition in embracing these new opportunities.

Fortunately, South Africa can build on the experience and learnings of those in our global network who are already grappling with and making progress with these issues. SANEDI’s task is therefore to consider how best to adapt the solutions for our unique South African environment, while also considering how best to exploit the opportunities for local development. Our global network and partnerships are vital to this journey. SANEDI has partnered with a wide range of National and International partners, donor organisations, development partners, Government departments, academic and research institutions, among others, to leverage available financial and knowledge resources for the maximum benefit of the country.

We’re fully aware that energy research and development is standing alongside other National priorities for funding, and doing so in a challenging economy that places significant strain on the fiscus. It emphasises the importance of making our contribution optimally impactful. Among all SANEDI’s achievements that are covered comprehensively in this Annual Report, I wish to highlight a few that specifically drew my attention during this financial year.

The first is SANEDI’s world renowned Carbon Capture, Utilisation and Storage (CCUS) programme. This programme offers an important vehicle for the transition from fossil fuels to a cleaner energy system. One of our country’s realities is that our power sector and industries will continue to produce carbon emissions



for the foreseeable future. The CCUS programme is investigating options for mitigating the impact of carbon emissions from existing coal power plants, synthetic fuels, cement, iron and steel and other economically significant industries. In addition to the important progress made this year towards developing a demonstration plant for capture and storage in South Africa, the next priority is investigating opportunities to make productive use of captured carbon as an alternative to underground storage. Both carbon storage and utilisation would reduce the environmental impact of active industries, reduce the urgency for existing industries to transition from conventional energy sources and create new developmental and employment opportunities.

It is heartening that, during engagements with the new DMRE (DMRE, previously DoE), the Minister confirmed his interest in CCUS and is expectant of developments in this area. This confirms that SANEDI is developing real solutions of value to our economy and country.

During this past year, the World Bank (WB) concluded its extensive review of SANEDI's Governance framework, finding that SANEDI successfully qualifies to administer the WB grant for CCUS that was signed in February 2018. This renders the grant effective, enabling the next phase of CCUS development in our country.

The successful conclusion of the WB review also reflects on the consistent strengthening of the control, Governance and compliance environment at SANEDI, evidenced by two clean audits in most recent years. We are regretful that this year we achieved an unqualified audit by the Auditor General, though we believe we will again meet the highest standard in our next financial year.

Much of what SANEDI has done, has fallen under the radar, serving decision-making and implementation on a broader scale. We hope to change that with improved communication regarding our activities, allowing SANEDI and its important contribution to take centre stage more often. We have started this journey by hosting the first ever Energy Breakfast event on the fringes of the 2018 Mining Indaba held at the Cape Town International Convention Centre. The significance of this event was affirmed

by the widespread, positive coverage received across various radio, print and electronic media, highlighting many of SANEDI's activities and raising the profile of the organisation in the South African energy industry.

We are cognisant that, in line with the sector adapting to embrace the transformation, we too have to adjust to ensure we are efficient, effective and relevant, as well as strategically connected to the unfolding future of this sphere. This next year also marks the end of the current five-year planning cycle, and preparation for the next five-year planning window. The Board and Management team will be giving careful consideration to working out SANEDI's strategic position and delivery focus. The organisational review completed in 2018/19 will serve to inform an appropriate shaping of the organisational structure to respond more effectively to the evolving needs of the sector and the country in the next planning period.

We would like to thank our Stakeholders for their continued interest, trust, support and collaboration that have made it possible for SANEDI to contribute thought leadership and innovation to the sector. We are grateful to these partnerships for enabling us to make a meaningful impact. I would like to also take this opportunity to thank my fellow Board members for their concerted effort and insights throughout the past two years.

SANEDI's achievements would not have been attained without the efforts of the Management team and the unwavering commitment and dedication of the staff. I therefore also extend my sincere appreciation to the entire SANEDI team.

We look forward to this next year, growing our contribution through more considered and focused effort, closer partnerships and evermore effective utilisation of our scarce resources.

**Nkululeko Buthelezi**  
Interim Chairperson: SANEDI Board

30 August 2019



## Dr Thembakazi Mali

SANEDI: Interim Chief Executive Officer



### 4. Interim Chief Executive Officer's Overview

SANEDI's energy development agenda, in line with the South African Government's pursuit of eradicating poverty, is a key part of our country's energy journey. Its portfolio of initiatives is closely attuned to technological advancements, declining technology costs and continued innovation in the energy sector. These can enable South Africa to take full advantage of our energy resources and the associated infrastructure development as a vehicle for economic growth, industrialisation, poverty alleviation, education, employment creation and sustainable development.

To this end, successful collaboration between SANEDI and industry has allowed us to drive several research, development and pilot projects that will contribute to the National energy objectives. In this regard, the Institute has collaborated, facilitated and supported a number of National and Provincial departments to understand possible mitigation actions that would lead to a more efficient and swift deployment of Renewable Energy in the country, as well as sustainable and responsible use of our coal resources.

The previous year saw the finalisation of the Grant Agreement with the WB Carbon Capture and Storage Trust Fund for Phase 2 of the Pilot CO<sub>2</sub> Storage Project (PCSP). The purpose of the PCSP is to test CO<sub>2</sub> injection and sub-surface storage under South Africa Geological conditions and build capacity and expertise for

South Africa professionals to prepare for commercialisation. This year the Subsidiary Agreement was negotiated and signed between the Department of Mineral Resources and Energy (DMRE), previously Department of Energy (DoE)). This was the final condition to fulfil the conditions for the WB Grant agreement making the Grant Agreement effective.

The ideal site for the pilot project has been identified in the Bhongwana Basin in Kwa-Zulu Natal (KZN) Province. A Memorandum of Agreement (MoA) was signed with the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA) as a partner in the PCSP thus creating capacity in KZN as well as developing KZN industry participation in the PCSP.

A legacy programme for the PCSP will assist development in the area. We also renewed our Memorandum of Understanding (MoU) and Service Level Agreement (SLA) with the Council for Geoscience (CGS) as they are critical partners in obtaining detailed geological and geotechnical information for further exploration.

Renewables has been involved in some exciting projects and procurements that are making a difference to those involved. Among others, three of the highlights include the REEEP municipal water works project, the RECORD/SANEDI Department of Defence (DoD) MoA on Energy and the Solar RDI project. The project with the DoD, is partially supported by the Solar Thermal Demonstration and Training Initiative (SOLTRAIN), which is funded by the Austrian Development Agency and co-funded by the OPEC Fund for International Development (OFID). This project is not only about the installation of renewably heated hot water, but also about the training of



plumbers and artisans to install such solar water heating systems. This is the first of several collaborative pilot projects taking place between SANEDI and the DoD, after the signing of a 5-year Memorandum of Agreement mid-2018.

The REEEP Municipal Water Works Project has been implemented in two municipalities (IKheis and Nelson Mandela Bay) where energy efficient pumps and an energy Management system are installed on the existing water treatment plants for each. The Fishwater Flats wastewater treatment site in NMB, has new pump sets and an energy Management system which are in full operation. Data is being produced and recorded for analysis in the new financial year. The IKheis system will be fully operational in the new financial year. Related to this, REEEP hosted a training for municipal decision makers and energy managers to understand energy Management and efficiency in the municipal environment.

A three-year Funding Agreement between SANEDI and Solar Turtle SA (Pty) Ltd was signed to develop, pilot and commercialize three new next generation portable-sized solar powered energy kiosks called BabyTurtles. The small version will allow transportation of the BabyTurtle by the "Turtlepreneur" on a taxi, the medium version will be pulled or peddled to trading locations, and the larger trailer-based version will be used for slightly bigger events and will offer a wider range of products and services. The BabyTurtle concept is derived from the original modular solar energy solution called SolarTurtle, a unique award-winning container-based modular system that has a proven track record of promoting enterprise development in less-privileged communities through tailored Renewable Energy Technologies. The new BabyTurtle design will incorporate a new integrated battery charging station technology coupled with an upgraded Small, Medium and Micro-Enterprise (SMME) e-learning and Information and Communication Technologies (ICT) Management software platform.

One of SANEDI's primary goals is to provide high level research outputs for policy making decisions. In this regard, the Smart Grid team was invited to the Inter-Ministerial Task Team (IMTT) advisory panel on Electricity Reticulation and Distribution to share the results and lessons learned of the EU donor Smart Grid programme. The role of Smart Grids and the importance of advanced metering infrastructure (AMI) in solving the Eskom debt crisis was recognised by the panel and features as a key recommendation to Cabinet. As a result of these interactions, the SANEDI Smart Grid team have been requested to be seconded to National Treasury (NT) to work on the planning of a National Smart Meter roll-out programme, which is led by NT and COGTA.

The Working for Energy (WfE) programme has entered into an agreement with the Biofuels Business Incubator (BBI), an NPO of the Small Enterprise Development Agency (SEDA), under its business incubation programme. The objective of the project is to explore the application of producing biofuels from energy

crops at the Tompi Seleka College of Agriculture production plant in Marble Hall and using mobile waste food oils, targeting the agricultural applications. The partnership also looks at energy offsets using various tried and tested interventions already applied by SANEDI in other projects across the country. This work will also inform the approach to clean energy applications for productive use in rural settings.

The partnership between SANEDI and the University of South Africa (UNISA) through the EXXARO Chair, delivered the first of 20 biogas demonstration projects in public facilities, aiming at popularising the use of biogas systems using various waste streams while expanding the academic landscape in the field bioenergy.

A highlight for Energy Efficiency was the announcement by the Minister of Finance in his Budget Vote speech to Parliament in February 2019, that the Section 12L tax incentives will be extended from January 2020, to 31 December 2022, to align with Phase 1 of the Carbon Tax, due for implementation on 1 June 2019. This announcement created a renewed interest in the incentive and resulted in a significant increase in the number of applications for the tax incentive.

The third meeting of the BRICS Working Group on Energy Saving and Energy Efficiency took place in Cape Town in May 2018. SANEDI had the privilege of co-hosting the BRICS Youth Dialogue, an outreach programme held in parallel at the University of Western Cape. This event invited youths to engage with the topic: Energy Transitions – Implications for BRICS Countries and covered a variety of discussions related to the careful use of energy resources and applications of modern energy efficiency and environmentally friendly technologies. The level of attendance and engagement by our South African youth mirrors the growing awareness and discourse around clean energy among young people globally.

Lastly, SANEDI in general and EE in particular, has received widespread and positive coverage in various radio, print and electronic media, thus raising awareness of clean energy and the profile of SANEDI in the South African energy landscape.

Although the year had noteworthy triumphs, it was not without its challenges. The general decline in investment in Research and Development (R&D) and our heavy reliance on Public Sector income has had an impact on our financial performance. This has compelled us to increase our efforts in applying stringent cost containment measures through short to medium-term targeted interventions.

We have had some success in attracting funding from third parties, but there has been a significant decline in such funds as a result of policy changes by some International Governments and donors who are beginning to focus on countries less developed than South Africa in the developing world.



Our performance for the year under review reflects on the abundance of talent, resources, support and commitment shared by our partners, especially around contributing to an environmentally sustainable, climate change resilient, low carbon economy. In the year ahead, we are going to strengthen high yield strategic partnerships with a key focus of addressing the triple challenge of inequality, poverty and unemployment.

SANEDI, with the support of the Board, is undertaking an Organisational Review process to re-focus its strategic mandate to optimise its impact. To this end, proposed focal areas have been made with proposed concomitant structures. These recommendations will be implemented in the new financial year. As an organisation in transition, we shall continue to consolidate our gains and ensure that the envisaged improvements find expression in sustainability and relevance and also support the organisation's critical role in responding to the strategic outcome areas identified by Government.

Thank you to the DMRE and the SANEDI Board for their ongoing support and strategic direction as well as guidance. I would also like to express our heartfelt gratitude to our local and International collaboration partners, whose continued support has been invaluable. Lastly, a special thanks to the entire SANEDI team for their passion, commitment and hard work.

A handwritten signature in black ink, appearing to read 'Thembakazi Mali'.

**Dr Thembakazi Mali**

Interim Chief Executive Office: SANEDI

30 August 2019







## 5. Members of the Board

The Board was appointed on 1 December 2016 with the following Board Members appointed:



**Ms Nomawethu Qase**

M Phil (Energy Studies), Post Grad Dip Management, B Soc Sc (Hons)



**Mr Gerhard Fourie**

Diploma Mech Eng, B Com Economics, MBA



**Mr N Buthelezi**

Interim Chairperson: SANEDI Board

Dip Scientific Computing and Software Engineering, Dip Management, Adv Dip Project Management, Post Grad Dip Management, MBA



**Ms Phuthanang Motsielwa**

B Acc (CA)(SA)



**Ms Deborah Ramalope**

BSc (Hon), MSc, MBL



**Mr Mlondolzi Mkhize**

BA Soc Sc



**Mr Mmboneni Muofhe**

BSc (Hons), MSc, MBA



## 6. Statement of Responsibility and Confirmation of Accuracy for the Annual Report

To the best of my knowledge and belief, I confirm the following:

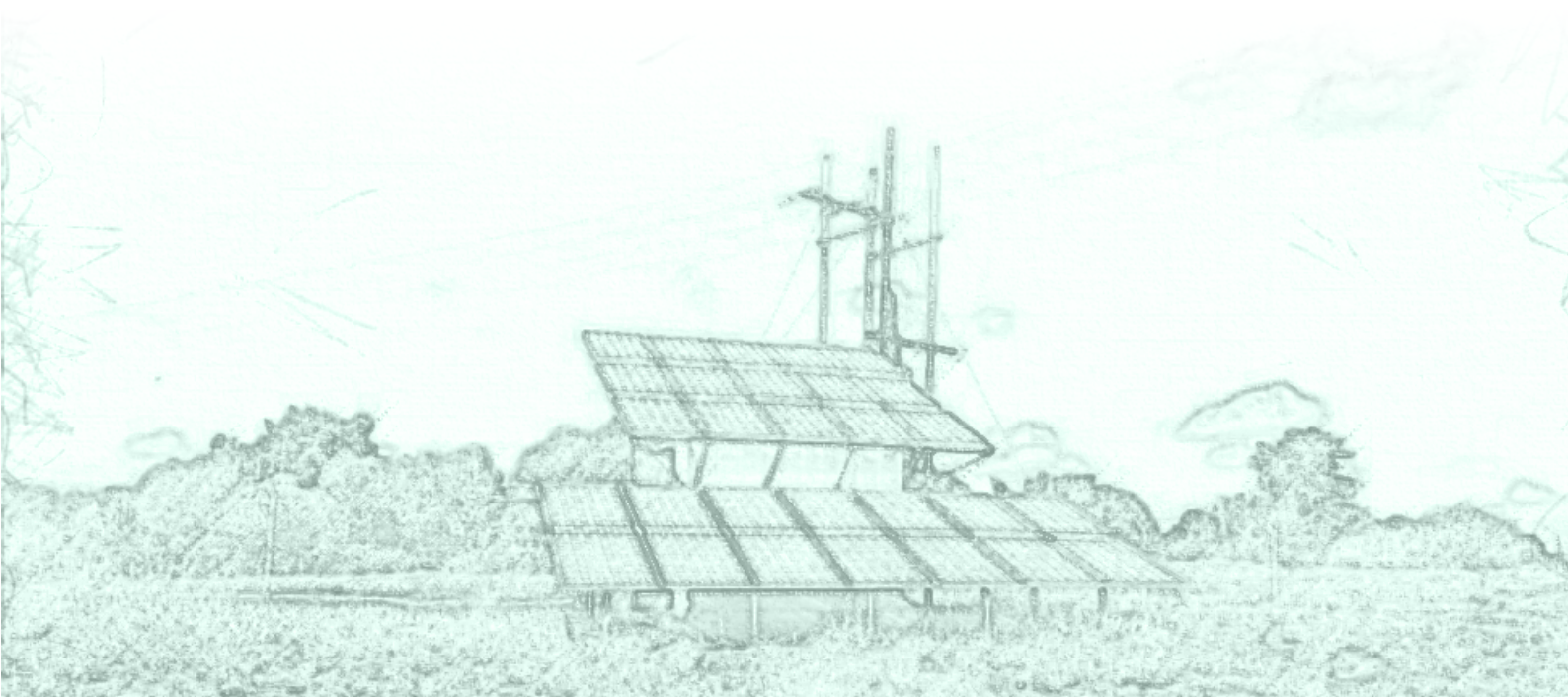
- All information and amounts disclosed in the Annual Report is consistent with the audited Annual Financial Statements (AFS).
- The Annual Report is complete, accurate and is free from any omissions.
- The Annual Report has been prepared in accordance with the guidelines on the Annual Report as issued by the National Treasury.
- The AFS (Part E) have been prepared in accordance with the standards applicable to the Public Entity.
- The Accounting Authority is responsible for the preparation of the AFS and the judgements made in this information.
- The Accounting Authority is responsible for establishing, and implementing a system of internal control that has been designed to provide reasonable assurance as to the integrity and reliability of the Performance information, the Human Resources information and the AFS.
- The external auditors are engaged to express an independent opinion on the AFS.

In our opinion, the Annual Report fairly reflects the operations, the Performance information, the Human Resources information and the financial affairs of the Public Entity for the financial year ended 31 March 2019.

Yours faithfully

**Dr Thembakazi Mali**  
Interim Chief Executive Office: SANEDI

30 August 2019





# 7. Strategic Overview

The key elements of SANEDI's Strategic Plan are captured in the Strategy Map below (Figure 1) as reflected in the 2018/19 Annual Performance Plan (APP).

Colours are used to indicate the programmes that contribute to each of the strategic objectives:

<b>Vision</b>	Leading smart responsive energy			
<b>Mission</b>	To provide energy knowledge-based solutions towards a sustainably responsive energy sector for improved quality of life for all in South Africa			
<b>Values</b>	Innovative (creative/proactive/taking charge/initiative/adaptive/entrepreneurial Integrity (honest/ethical/accountable/transparent/responsive/trustworthy/respectful) Scientific evidence driven (analytical/rational/objective/factual/attentive) Development oriented (educative/continuous learning/transformational) Consultative (collaborative/participative/team work/engaging) Productive (punctual/cost conscious/disciplined/compliant) Responsive (courteous/friendly/client need driven/client focused) Caring (compassionate/friendly/client need driven/client focused)			
<b>Goals</b>	A resilient, efficient, effective and enabling delivery environment that is aligned to/ complies with all statutory requirements			
<b>Strategic Objectives</b>	1.1 An effective and efficient internal control environment.	1.1 A team that is effectively staffed, competent, motivated and representative of the National demographics.	1.3 Effective risk Management.	1.4. Effective Stakeholder relations Management.
			2.1 Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development (including knowledge custodianship).	2.2 Accelerated clean energy transformation for sustainable economy.
				3.1 Accelerated adoption of Energy Efficiency solutions to optimise the use of finite resources.

Legend:	Programme 1	Programme 2	Programme 3
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Figure 1: SANEDI Strategy Map



## 8. Legislative and Other Mandates

SANEDI is a Schedule 3A SoE. SANEDI derives its mandate from the authority and obligations set out in the National Energy Act, 2008 (Act No. 34 of 2008) (NEA). Section 7 (2) of the NEA gave effect to SANEDI’s existence and provides for its primary mandate and specific responsibilities.

## 9. Organisational Structure

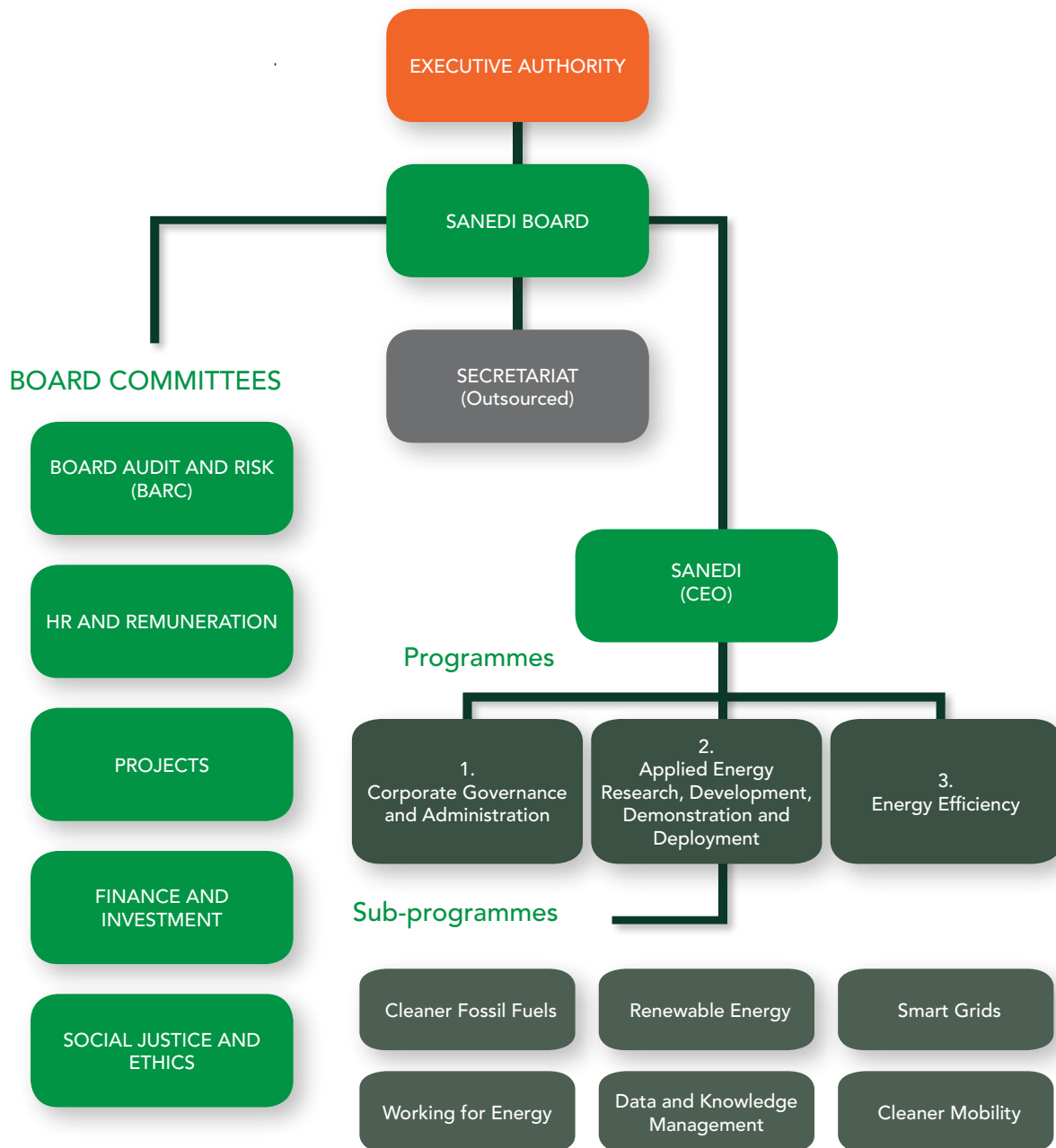
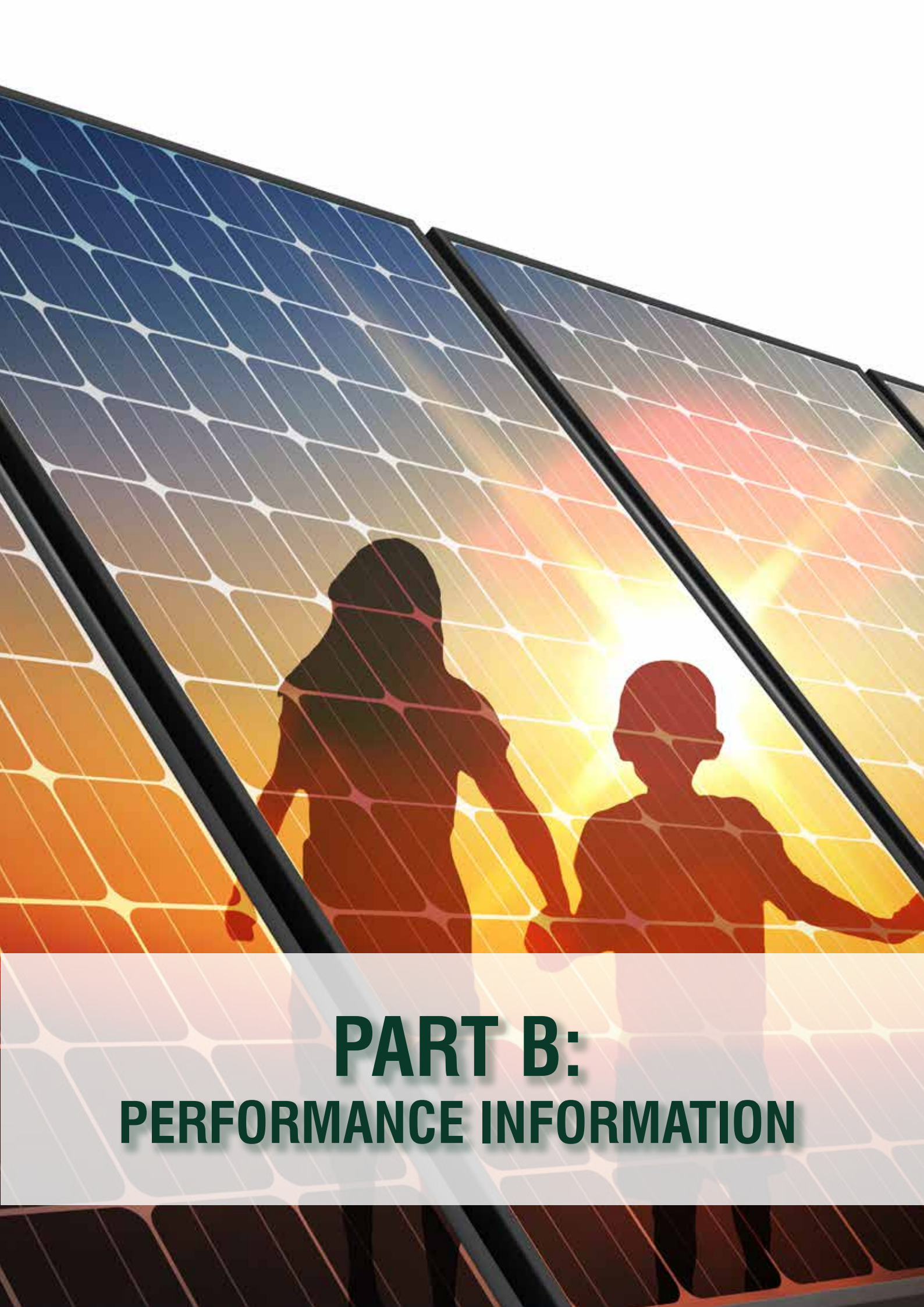


Figure 2: SANEDI Organisational Structure



# **PART B: PERFORMANCE INFORMATION**



## 10. Auditor's Report: Pre-determined Objectives:

The AGSA currently performs the necessary audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on the performance against pre-determined objectives is included in the report to management, with material findings being reported under the Predetermined Objectives heading in the Report on other legal and regulatory requirements section of the Auditor's Report.

Refer to page 95 of the Report for the Auditors Report, published as Part E: Financial Information.



# 11. Situational Analysis

## 11.1. Service Delivery Environment

Energy demand continues to increase globally, causing Greenhouse Gas (GHG) emissions from the energy sector to also increase. This trend is set to continue, driven primarily by economic growth and the rising population. According to the International Energy Agency (IEA), energy consumption globally grew by 2.3% in 2018 which is nearly twice the average growth rate since 2010<sup>1</sup>. IEA is of the view that this has been mainly due to a robust global economy as well as climate change conditions which have led either to higher heating or cooling needs in various parts of the world. As a result of higher energy consumption, global energy-related CO<sub>2</sub> emissions have increased to 33.1 Gigatonnes (Gt) CO<sub>2</sub>, which is an increase of 1.7%. Coal-fired power generation continues to be the single largest emitter, accounting for 30% of all energy-related CO<sub>2</sub> emissions<sup>2</sup>.

In December 2015, 196 countries (of which South Africa was one) adopted the Paris Agreement whereby the world agreed to chart a pathway to a low carbon energy system in mitigation against the impacts of climate change. The long-term goal of the Paris Agreement is to ensure that the increase in global average temperature kept well below 2°C and pursue efforts to limit the rise to 1.5°C as this would significantly reduce the risks and effects of climate change. The Paris Agreement’s 1.5°C temperature limit requires a rapid reduction in GHG emissions triggered by a phase-out of coal from the power sector by 2050, substantial reductions in the use of oil and natural gas over the same timeframe, mass deployment of solar and wind energy, and the reduction of emissions from cars, trucks and airplanes, so that CO<sub>2</sub> emissions reach net zero around 2050<sup>3</sup>.

### Increasing gap compared with the Paris Agreement?

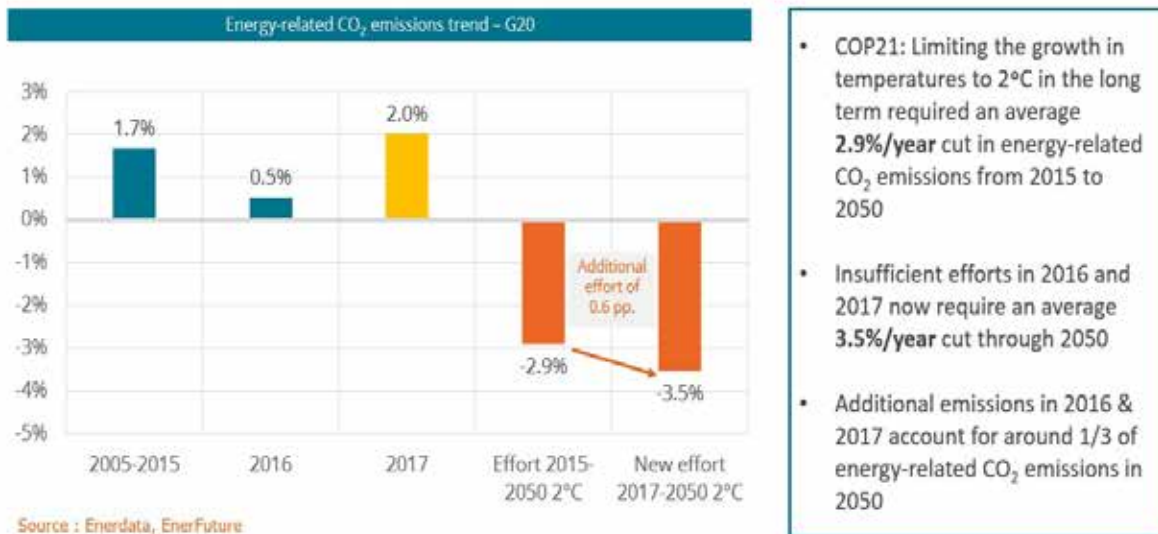


Figure 3: Illustration of energy-related CO<sub>2</sub> emissions trend of G20 countries in relation to Paris Agreement



1 International Energy Agency: Global Energy & CO<sub>2</sub> status report: The latest trends in energy and emissions in 2018  
 2 International Energy Agency: Global Energy & CO<sub>2</sub> status report: The latest trends in energy and emissions in 2018  
 3 Climate Transparency: Brown to Green: The G20 transition to a low-carbon economy 2018



The adoption of the Paris Agreement by South Africa was a strong political indication of the country’s commitment to a low carbon energy future. However this has not translated into significant reductions in carbon emissions by the country. According to the Brown to Green Report compiled by Climate Transparency, South Africa has the highest emission intensity in the power sector, which is approximately double the G20 average, with an increasing trend in recent years (2012-2017). This is due to its high dependency on coal and low share of renewables in power generation (4% compared to the 24% G20 average)<sup>4</sup>.

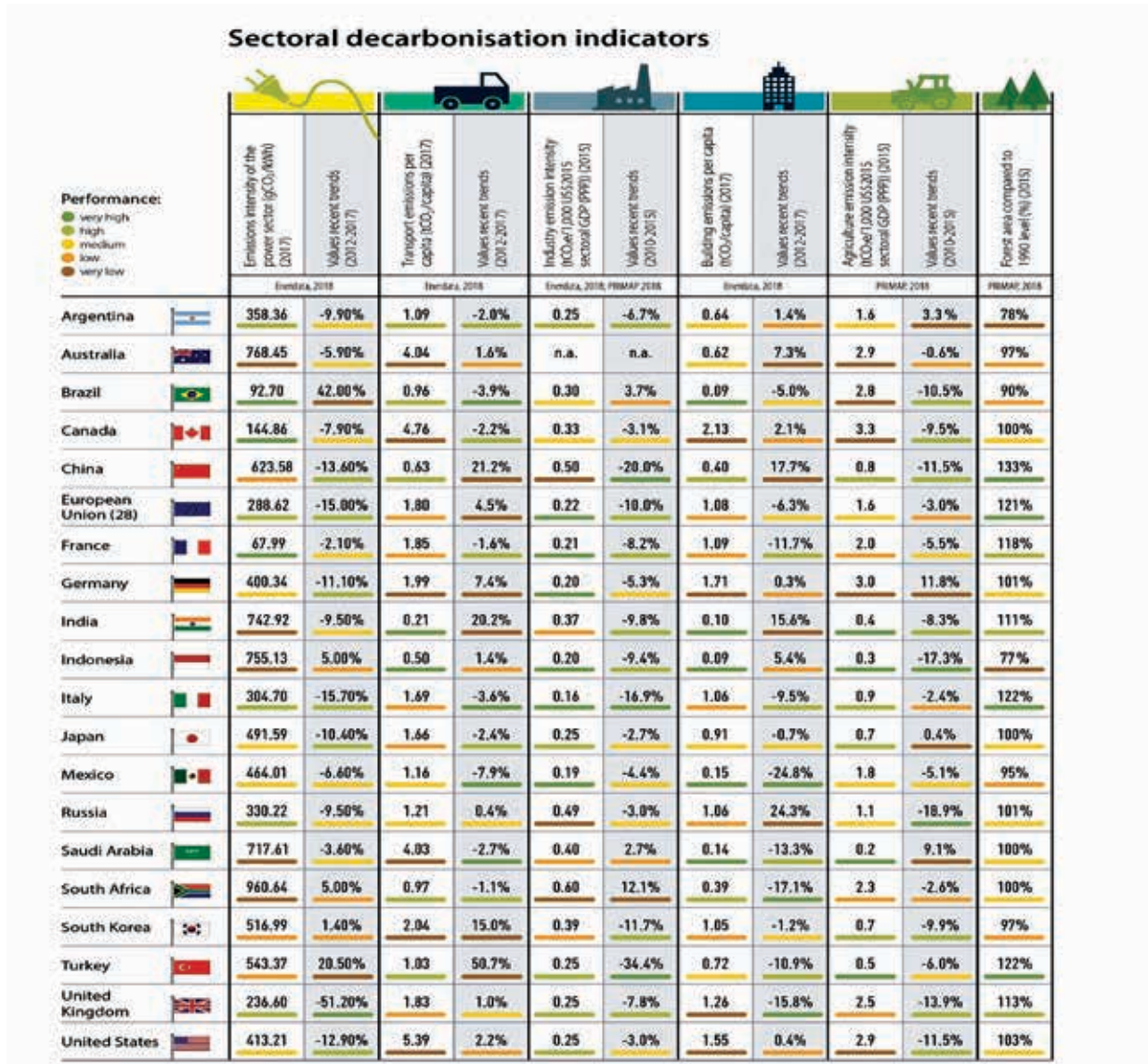


Figure 4: South Africa’s decarbonisation performance (as per sector) against other countries<sup>4</sup>

However, South Africa must be commended as it is addressing its high emission intensity in the power sector. This is evident in how the country’s policy direction and planning framework is aligned with targeting a diversified mix, less reliant on fossil fuels and is promoting Renewable Energy as well as the ambitious targets and policy package. According to the draft Integrated Resource Plan (IRP) 2019, which is yet to be formally adopted, South Africa plans to expand Renewable Energy from currently 3.3 GW to more than 25 GW of installed capacity by 2030. The South African President also pledged and committed the country to lower GHG emissions during the 24th Session of the Conference of the Parties to the United Nations Convention on Climate Change (UNFCCC COP 24) held in December 2018 in Poland. This will be dependent upon the International support provided in relation to the funding and technology that is required.

<sup>4</sup> Enerdata (2018): Global Energy and CO<sub>2</sub> data, <https://www.enerdata.net/research/energymarket-data-co2-emissions-database.html>





Reliable electricity is the backbone of any modern economy. It is even more important with the digital revolution. If African nations want to see their economies transform, the issue of electricity must be tackled head-on. While Africa as a continent is blessed with a wealth of natural resources such as wind, water, natural gas and plenty of sunshine, the electrification rate across the continent remains extremely poor. For the foreseeable future, electricity will be one of the major energy carriers used by society. The problem lies in the large amount of fossil energy (and emissions) associated with electricity generation to meet demands. The future of fossil energy power generation in a carbon-constrained world will depend on a compromise between growth in electricity demand and reduction in CO<sub>2</sub> emissions. Consumers, energy companies and Governments throughout the world are thus struggling with the compromise required when making energy-related decisions in this environment.

South Africa is, and has historically been, dependent on fossil fuels for energy. It relies on coal (for electricity generation) and imported oil (for vehicles, machinery and plant) as its key resources. This is supported by research which shows that for the country, approximately 90% of its primary energy is derived from fossil fuels of which 72% is coal<sup>5</sup>. Furthermore, coal provides 85% of electricity generation capacity and 92% of electricity production<sup>6</sup>. This reliance on fossil fuels has led to an approximate 400Mt CO<sub>2</sub> emissions per year<sup>7</sup>. South Africa's coal industry contributes significantly to employment opportunities, income generation as well as accounting for 6% of the country's total merchandised exports. Notwithstanding the recent advances made in renewable energies and energy efficiency measures, it is evident that fossil fuels will remain the main contributor to South Africa's energy economy for some decades to come.

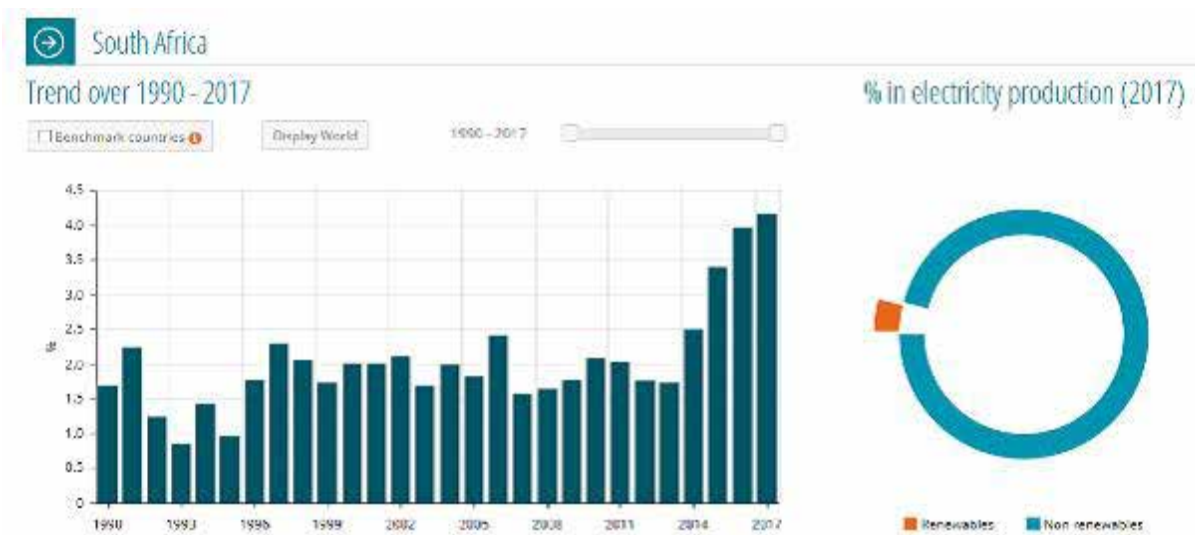


Figure 5: Renewables as a % of South Africa's electricity production<sup>8</sup>

The InterGovernmental Panel on Climate Change (IPCC) highlighted that achieving the ambitions of the Paris Agreement will require more than just an acceleration of efforts to reduce emissions, it may also require the deployment of technologies to actually remove carbon from the atmosphere<sup>9</sup>. It is in this regard that there is an agreement that achieving these targets cannot be achieved globally without Carbon Capture Storage (CCS). According to the IEA, that minimising the CO<sub>2</sub> concentration in the atmosphere would be cheaper if CCS was included in the portfolio of solutions aimed to mitigate CO<sub>2</sub> emissions. Moreover, the IEA has stated that attaining the Paris target (COP21) cannot be obtained without CCS. South Africa is currently looking into the feasibility of CCS in the country and the DMRE (previously Department of Energy (DoE)) has been assigned the responsibility of looking into the feasibility of CCS in the country.

5 SANEDI 2018-19 Insights

6 SANEDI 2018-19 Insights

7 SANEDI 2018-19 Insights

8 Source: Enerdata

9 <https://www.iea.org/topics/carbon-capture-and-storage/>



The DMRE is working together with SANEDI, whereby SANEDI is charged with carrying out the technical development of CCS. South Africa's CCS initiative is supported by a comprehensive roadmap, targeting commercial roll-out by 2030.

The Industrial sector in South Africa is the largest consumer of energy, accounting for 37.3% of final energy consumption. Industrial energy use is predominantly thermal with process heating estimated to account for two thirds of energy end-use. Currently, this thermal energy is primarily supplied by fossil fuels, which contribute to GHG emissions.

In order for South Africa to achieve its emissions reduction target, it is critical to decarbonise the supply of process heat in combination with the decarbonisation of the electricity sector. The use of solar thermal systems to supply process heat for industry has the potential to reduce emissions, while improving industrial competitiveness and achieving a diversified energy mix. Solar thermal technologies have been considered for power generation in South Africa, but these technologies have not been widely used to supply Solar Heat for Industrial Processes (SHIP). South Africa has extensive solar resources which has led to widespread utilisation of solar power for electricity generation, but only a small niche market for large solar thermal applications. The most common type of large solar thermal installations in the country are for domestic hot water purposes with a share of 69% of the total installed capacity while the usage for SHIP accounts for only 7%<sup>10</sup>. The country has the most developed and well established economy on the African continent which results in a number of possible commercial users for SHIP for a number of different industries. However, despite these positive characteristics, the market for SHIP installations in South Africa is still very low and there is a low level of awareness amongst industry regarding the potential for SHIP deployment. The low market for SHIP in the country thus presents an obstacle for getting critical mass deployment of plants. It is in this regards that SANEDI, through the Solar Payback project aims to assist the country to realise its large SHIP potential through raising awareness of the technological and economic benefits of solar thermal technologies.

In the first five months of 2018, a total of 144 service delivery protests in South Africa were recorded<sup>11</sup>. South Africa faces considerable challenges in delivering sustainable and affordable water, sanitation and energy services to its people. Municipalities, which are largely responsible for delivering these services, are subject to environmental and economic pressures that include water scarcity, escalating electricity prices, insufficient power supply to meet demand and skills shortages.

Additionally, municipal water and wastewater treatment infrastructure is ageing and often inefficient. A paradigm shift in traditional models of municipal water and sanitation supply is necessary to ensure that South Africa meets its socio-economic goals while managing the environmental effects of increased demand for essential services. Innovative approaches to energy use in municipalities, specifically through increased EE and greater use of Renewable Energy (RE) (together, "cleaner energy"), hold the potential for more financially and environmentally sustainable delivery of water and wastewater services in South African municipalities. Cleaner energy provides municipalities with an opportunity to reduce costs in their waste and wastewater operations as well as contribute to climate change mitigation. This represents a key opportunity to create positive, measurable economic, social and environmental impact.

SANEDI has undertaken a project that focuses on identifying clean energy opportunities in municipal water and wastewater infrastructure in South Africa. It pursues a basis for market-based replication and scale up for municipalities Nationally and across the SADC region to aid in capacity building and water service delivery. However, it must be acknowledged that pursuing ambitious energy efficiency objectives will require targeted policy measures and fiscal incentives to trigger the necessary interest, initiatives and investment by local Government.

The rapid pace of urban population growth and urban sprawl<sup>12</sup> confirm urbanisation as one of the most significant trends of the century, positioning cities at the core of the development agenda. Unprecedented urban dynamics such as the demographic rise, urban sprawl, climate change and environmental issues, gender inequality and social segregation, economic downturns and other challenges. In parallel, urban citizens demand more accessible and qualitative public services and call for improved transparency and accountability on how resources are being used and for increased participation in decision-making. At the frontline, local Governments encounter difficulties to effectively adapt to changing urban realities and respond to citizens' demands and needs. Fragile institutional capacities and limited access to diversified and sustainable funding sources are the main reasons preventing local Governments from doing so.

As local Governments throughout the world seek innovative approaches to respond to the challenges of urbanisation and build more resilient and inclusive municipalities, SMART technologies offer new solutions to improve city Management and the quality of life.

10 Solar Payback: Solar Heat for Industry in South Africa

11 <https://www.iol.co.za/news/south-africa/144-service-delivery-protests-recorded-in-2018-so-far-15961274>

12 According to the UN Habitat World Cities 2016 Report (<http://wcr.unhabitat.org/wp-content/uploads/sites/16/2016/05/WCR-%20Full-Report-2016.pdf>)

13 [http://unctad.org/meetings/en/SessionalDocuments/CSTD\\_2015\\_Issuespaper\\_Theme1\\_SMARTCitiesandInfra\\_en.pdf](http://unctad.org/meetings/en/SessionalDocuments/CSTD_2015_Issuespaper_Theme1_SMARTCitiesandInfra_en.pdf)



As technological innovation evolves at a very rapid pace, it is difficult to capture precisely the extension of what SMART technologies are. At SANEDI, we understand that SMART technologies applied to the urban context encompass a new generation of ICT which allow local Governments to capture, store, analyse and share data regarding urban life promptly and transform it into actionable information to support decision-making by city administrators and Stakeholders. Technically speaking, SMART technologies applied to local public Management can be grouped in different digital layers<sup>13</sup>.

The **connectivity layer** is composed of internet and mobile broadband networks, facilitating the transportation of data and information from the sensor level to data aggregators and storage for further analysis and use by actuators and end-users.

The **sensor layer** is composed of devices such as sensors, smartphones, actuators remotely controllable devices, SMART meters, etc. that measure and collect data regarding different parameters. When devices inserted in various objects and equipment are connected between themselves and to the Internet, we refer to them as the Internet of Things (IoT). Mobile technology, in particular, represents vast opportunities for SMART city projects<sup>14</sup>. Thanks to higher availability and affordability of smartphones, they already account for more than 65% of internet connections in the developed world, and around 40% of connections in the developing world<sup>15</sup>.

The data analytics layer, which uses advanced cloud-based software analytics systems to process and analyse the enormous amounts of data collected in real time by the interconnected sensors and devices (Big Data). Data analytics comprise three levels: **Descriptive**, that uses business intelligence and data mining to understand better the current state, **Predictive**, that uses statistical models and forecasts to predict future states, and **Prescriptive** that uses optimisation and simulation to act upon the situation.

The automation layer enables automation and scalability for a large number of devices across multiple domains and verticals and allows city administrators and other actors to develop SMART services and applications.

The action field of SMART technologies is immensely vast and the opportunities presented by their use in municipal Management are being tested and proved each day in different cities around the world in a variety of sectors such as transportation, energy efficiency, waste and water Management, e-administration, health care, safety and security, education, etc. SMART technologies can improve Governance and increase efficiency in services Management through better use of resources and stronger citizen dialogue and participation.

14 According to the 2016 GSMA Mobility Economy Report

15 Source : <http://www.gsma.com/mobileeconomy/>

While there is extensive literature about the opportunities and challenges regarding the use of SMART technologies to improve cities' Management, its application in the South African context, to municipal finances hasn't been studied. The SANEDI Smart Grid programme needs to evolve in the next Medium-Term Strategic Framework (MTSF). It needs to show how municipalities and metros can use SMART technologies to improve budgetary constraints and find innovative sources of revenues to reinforce their investment capacities and offer better services to their citizens. It needs to research the best practices regarding how local Governments around the world have been using SMART technologies to improve municipal Management and services and how these initiatives could have a positive direct or indirect impact on the municipal/metro finances either by increasing revenue or reducing expenses.

Providing safe, clean, reliable and affordable energy to those who currently have no access to such is widely viewed as essential in order to move towards other developmental objectives. A considerable portion of South Africa's population is classified as energy poor. Using different approaches to quantify the extent of the energy poverty, it is estimated that between 40 and 49% of households are affected. In considering energy poverty, both electrified and non-electrified households are taken into account, with energy poverty as much a concern among electrified homes. This means that even where electricity is available to communities, many are unable to benefit from an improved quality of living because they cannot afford electricity use. Where access to affordable energy is lacking, other urgent human and societal needs also are often not met. In other words, it is possible to greatly improve the quality of life for many poor households by providing them access to an affordable source of energy. Innovative energy solutions that can help address these challenges are therefore urgently needed. As technology, mini-grid and hybrid solutions develop and mature, opportunities for innovative energy solutions that can make a meaningful contribution are becoming increasingly relevant to improved energy access. It is here that the SANEDI WfE programme has been investigating solutions suitable to South Africa.

According to the Department of Transport (DoT), emissions from the transport sector in South Africa account for 10.8% of the country's total GHG emissions. The DoT further states that road transport has been identified as the primary source of transport-related CO<sub>2</sub> emissions in South Africa, contributing 91.2% of total transport GHG emissions. The heavy reliance of the sector on fossil fuels contributes significantly to total GHG emissions for the country. This justifies a focus on immediate and targeted interventions around road transport to effect a significant reduction of emissions in the transport sector as a whole. Oil imports contribute significantly to the country's balance of payments deficit and without domestically produced crude oils, South Africa is heavily reliant on oil imports at a scale that contributes negatively to the country's balance of payments.



As in the rest of the world, traffic congestion and pollution have become some of the biggest challenges for cities throughout South Africa.

In recognition of these challenges and opportunities, the DoT recently approved the Green Transport Strategy for South Africa: (2018-2050) which illustrate the country’s willingness to pursue a National strategy for green transport. SANEDI’s Cleaner Mobility programme, with support from UNIDO, is actively engaging with the DoT as well as various cities, such as the City of Johannesburg, to explore and introduce cleaner mobility options.

Energy is the ‘oxygen’ of any country’s economy, it is the life-blood of growth. South Africa experienced a weak economic growth rate of 0, 8% in 2018, with the country actually going into a technical recession in the first two quarters of the year<sup>16</sup>. For a country that is experiencing weak economic growth, the severe power constraints and load shedding which grasped the country recently and the corresponding economic impact will further aggravate the situation. Power shortages in South Africa saw Eskom implement eight straight days of nationwide electricity cuts during the last quarter of the 2018/19 financial year. Cyclone Idai, which battered Mozambique, contributed to the prolonged load shedding as ESKOM supplements its electricity supply by importing around 9,000 GWh per year from the Cahora Bassa hydro-electric generation station in Mozambique. This illustrates how South Africa can be greatly affected by what happens in other countries on which we are reliant on for energy supply and how as a country we need to secure energy supply. It was estimated that the severe power cuts shaved 0.3 percentage points off South Africa’s first-quarter Growth Domestic Product (GDP) growth, in the beginning of 2019. Poor economic growth has knock-on implications for poverty reduction and possibly social stability in the longer term. Steady and reliable energy supplies are crucial to growth in developing and emerging economies such as our own. It is thus imperative that accelerated transformation towards a green sustainable economy is prioritised as this can contribute towards new avenues of economic prosperity.

Meeting South Africa’s climate change commitments and energy mix policy objectives as highlighted in the IRP will require a significant transformation of our electricity infrastructure. Strengthening and upgrading existing networks is of paramount importance to integrating an increasing amount of renewable energy generation, enhancing grid security, developing the internal energy market and realising energy saving and efficiency. To achieve these goals, it is not only necessary to build new lines and substations, but it is essential to make the overall electricity system smarter through the integration of ICT.

## 11.2. Organisational Environment

For an organisation to sustain long-term growth, it must understand what sets it apart from its competition. An organisation needs to identify why customers come to it for its product or service. It is with these thoughts in mind that the Board and Executive Management (EXCO) of SANEDI are looking at the organisation and asking what makes SANEDI relevant, differentiated and credible. Towards the end of the 2017/18 financial year, the Board and EXCO recognised that in light of the current economic conditions, the organisation has to learn how to achieve more with less. The organisation has to learn how to effectively and efficiently use the limited resources at its disposal to achieve performance targets and still make meaningful impact and contribution to the country. It is with these strategic issues in mind that the Board and EXCO identified a need to review the current organisational structure and look at ways in which it can be restructured.

It is envisioned that by reviewing the current organisation structure, this will provide opportunities to improve work organisation and allow for changes in roles and responsibilities which may enhance skills and career development while leading to better and more efficient use of staff resources as well as other resources. It is in response to this that the first quarter of the financial year under review, started with SANEDI going through an intense organisational review process.

The organisational review process took 12 weeks to complete and the aim was for a review to be conducted to assess the structures, processes and systems for suitability, efficacy and completeness. Upon review of the findings, the Board identified additional areas that needed to be covered in more depth such as how the organisation can become more self-sustaining, and refocus its scope of work in order to create a niche market for itself within the industry. The whole reasoning for requiring the above areas to be addressed is that insights will need to be considered in terms of how they will impact any proposed future organisational structure. This has thus delayed the finalisation of the organisational review and it will be completed in the first quarter of the upcoming financial year.

Due to the pending organisational review, the Board took a decision to place an embargo on the advertising of non-critical posts up until the final structure has been approved. While this has placed pressure on the organisation’s resources, SANEDI has strived to continue to achieve its Annual Performance Plan (APP) targets, engage with Stakeholders and contribute to the country’s National Development Plan (NDP) outcomes. For the period from July 2017, with the resignation of the Chief Executive Officer (CEO), SANEDI has had an interim CEO appointed as per Section 11 (3) of the National Energy Act, 34 of 2008.

16 <http://www.statssa.gov.za/?p=11969>



SANEDI is committed to resourcing the organisation appropriately to achieve its goals, and therefore will ensure that the organisational review is completed and implemented in the forthcoming financial year.

### 11.3 Key Policy Developments and Legislative Changes

While there have been no major changes to relevant policies or legislation that affected SANEDI's operations during the 2018/19 financial period, significant changes took place in the latter half of the year which the organisation will have to consider going forward.

In October 2018 the Minister of Transport launched and signed the country's first Green Transport Strategy (GTS). This was Government's response to the significant contribution that transport has to the National GHG emissions. The GTS aims to minimise the adverse impact that transport has on the environment, while addressing current and future transport demands. This is underpinned by sustainable development principles.

The strategy will promote green mobility to ensure that the transport sector supports the achievement of green economic growth targets and the protection of the environment. In the future, SANEDI will need to work closely with the DoT to find ways of ensuring that projects with lower GHG emissions are incorporated within our operations and Business Plans going forward.

In November 2018 the Finance Minister introduced the Carbon Tax Bill to Parliament for consideration. The bill is part of the country's commitment to the Paris Agreement on climate change. The Carbon Tax Act states that any person such as a partnership, trust, community, municipal entity or public listed entity that conducts an activity that results in the emission of GHG above the allowed threshold, will have to pay the Carbon tax and this tax will be in addition to Corporate tax. With the Act due to come into force in June 2019, SANEDI should expect to see a significant increase in the uptake of the 12L tax incentive.

The long-awaited IRP for electricity as South Africa's main energy priority is also one step to being finalised.

### 11.4. Strategic Outcome Oriented Goals

For the 2018/19 financial year SANEDI had the following outcome-orientated goals:

**Table 1: SANEDI strategic outcome orientated goals**

Goal <sup>17</sup>	Goal statement
<b>Goal 1. A resilient, effective and enabling delivery environment that is aligned to/complies with all statutory requirements.</b>	(a) An effective and efficient internal control environment (unqualified audits), and (b) a team that is adequately staffed, adequately skilled and trained and adequately representative of the National demographics (as defined in the relevant plans for SANEDI), effective risk Management and effective and comprehensive Stakeholder Management.
<b>Goal 2. Energy innovation, knowledge and skills for a less carbon intensive, more environmentally sustainable, affordable and efficient energy system.</b>	(a) Identify and develop suitable, innovative energy solutions, knowledge and skills towards a less carbon intensive, more environmentally sustainable, affordable and efficient energy system that can support the country's economic and socio-economic development objective.



## 12. Performance Information by Programme

### 12.1. Programme highlights for the year

SANEDI has completed another full year of activity in the energy sector. As illustrated in the organisational structure, SANEDI's activities are structured around three main programmes, namely:

- (a) Programme 1: Administration,
- (b) Programme 2: Applied Energy Research, Development and Innovation, and
- (c) Programme 3: Energy Efficiency.

Some of the year's highlights from SANEDI's two technical programmes (Programme 2 and Programme 3) are featured below. Subsequent sections (refer to sections 11.2 to 11.4) provide an overview of each programme and the respective performance information relevant to the financial year.

#### 12.1.1. Programme 2: Applied Energy Research, Development and Innovation

##### CLEANER FOSSIL FUEL

Notwithstanding the advances made in nuclear, renewable and energy efficient technologies, the world still relies on the energy derived from the exothermic chemical reactions of fossil fuels, fossil fuels that are rapidly approaching their peak of production. Fossil fuels, the use of which is impacting the global environment to the extent that the continued existence of Homo Sapiens may be in jeopardy.

Carbon is the element upon which all Earth life is based. It is the key component that composes approximately 50% of all dry biomass. Moreover, it has provided the fundamental source of energy that has driven the development of humankind. The dilemma now is that carbon is perceived as a threat to the environment and humankind's continued existence. South Africa's energy economy is currently dominated by fossil fuels with a pervasive production and distribution system, most of which has a remaining lengthy life-span. In order to comply with International agreements, South Africa has embarked on a de-carbonisation policy path. Notwithstanding the recent advances in energy efficient measures and the roll-out of renewables, South Africa will remain dependent on fossil fuels for the foreseen future even though to a decreasing extent. Notwithstanding environmental concerns, South Africa should be addressing the transition between fossil fuels and a renewable/nuclear future if only because of the finiteness of fossil fuels.

##### Carbon Capture and Storage

One of the technical options to mitigate CO<sub>2</sub> emissions into the atmosphere is Carbon Capture, Utilisation and Storage (CCUS). This technology involves capturing the CO<sub>2</sub> before it is emitted into the atmosphere and permanently storing it in a deep geological formation or using the CO<sub>2</sub>, with renewable energy, as a feedstock to manufacture products such as fuels and chemicals. There are many International operations that demonstrate that CO<sub>2</sub> can be stored permanently and safely on deep geological formations. Although some industries such as electricity generation may avail themselves of alternatives (such as renewables or nuclear), there are other industries (such as cement manufacture and iron and steel) for which there are no alternative currently viable technologies. The only current option for these latter industries is carbon capture and storage. As a transition measure in the energy de-carbonisation process, in May, 2012, Cabinet endorsed the South African Carbon Capture and Storage Road Map. The Road Map consists of five phases, the current phase being Phase III the Pilot CO<sub>2</sub> Storage Project.

- **Pilot CO<sub>2</sub> Storage Project**

The purpose of the Pilot Storage Project is to:

- (a) Demonstrate safe and secure CO<sub>2</sub> handling, injection, storage and monitoring in South African conditions, in particular South African geology,
- (b) Increase the South African human and technical capacity for the development and operation of CO<sub>2</sub> handling, injection, storage and monitoring, and
- (c) Raise the awareness of the potential importance of carbon capture and storage to the South African public, and work with Government regarding the development of a South African legal and regulatory environment.

- **Site Characterisation**

Following the publication of the Atlas on Geological Storage of CO<sub>2</sub> in South Africa in 2010, two on-shore basins were identified as possible Pilot Storage Project Basins. Further analyses of existing data led to a focus on the Zululand Basin. Further data analyses, including digitising of previous analogue data and synthetic profiling led to the identification of UMhlabuyalingana and The Big Five Hlabisa Local Municipality areas in KZN.



With regards to the site characterisation of the two selected potential sites in KZN, Terms of References have been compiled to address the following:

- (a) Seismic Acquisition,
- (b) Seismic Processing,
- (c) Quality Control and Technical Audit,
- (d) Vertical Seismic Profiling, and
- (e) Drilling and Coring.

These terms of References have been reviewed during 2018/19 both Nationally and Internationally.

The purpose of the site characterisation is the determination of the feasibility of safe storage and the selection of one of the two sites to undertake the injection of CO<sub>2</sub>. Current assessment has indicated a possible storage of 17,000 tonnes of CO<sub>2</sub>. Following the characterisation and selection, the injection phase will commence and is supported by the WB.

#### ▪ Pilot Monitoring Project

A critical component of the Pilot Storage Project is the monitoring of surface CO<sub>2</sub> to identify the occurrence of any (unlikely) leaks from the storage site (at greater than 800 meters depth). Such measurements are usually undertaken at an injection site, at least 1-2 years prior any injection so as to build a baseline. The development of three measurement techniques and protocol development were undertaken at natural CO<sub>2</sub> releases in the Bongwana area. The following three solutions were investigated:

- (a) Atmospheric CO<sub>2</sub> concentrations,
- (b) Soil CO<sub>2</sub> concentrations, and
- (c) Surface and ground water concentrations.

The carbon concentration trends were measured over diurnal and annual time frames. The three solutions have been assessed by an independent evaluator. As an example, the concentration of CO<sub>2</sub> in the soil showed an annual variation, whereby the summer period showed maximum concentrations and vice-versa, the winter showed the low concentrations.

#### ▪ Stakeholder Engagement

Stakeholder Engagement is a critical component to the success of the Pilot Storage Project. The achievements during 2018/19 were a culmination of nearly seven years engagement. The major achievement for 2018/19 was the development of a MoA between SANEDI and the KZN Economic Development, Tourism and Environmental Affairs (EDTEA). The MoA designates EDTEA as a partner in the Pilot Storage Project as well as outlining a Legacy programme.

As part of the engagement process, and in order to provide comfort with regard to a planned carbon capture and storage project, KZN Traditional Leaders and Government officials visited the Boundary Dam project in Canada accompanied by SANEDI Interim Chairperson of the Board, PCSP Technical Manager and DMRE representative (the first carbon capture and storage plant in the world to be fitted to a coal fired electricity generation station). The members of the delegation gained first-hand experience into the characteristics of a commercial operation.

#### ▪ CO<sub>2</sub> Capture Pilot Project

The first stage of a carbon capture and storage plant is the capture of CO<sub>2</sub> from a flue gas that contains other gases such as nitrogen and oxygen. South Africa currently sports the largest CO<sub>2</sub> capture plants in the world, courtesy of the synthetic fuel industry. A typical carbon capture and storage plant in the world is approximately 3 million tonnes per annum, South Africa is currently capturing nearly 30 million tonnes per annum as part of the synfuel production.

A post combustion CO<sub>2</sub> capture plant is sensitive to the type of fossil fuel being burnt as well as the sorbent. Thus a pilot capture plant is being investigated, in conjunction with Eskom, for possible installation at the Kusile Power Station. The purpose of the pilot plant is to investigate the technology under South African conditions as well as build technical and human capacity. To this end, a ToR have been written for a capture technology assessment of the current world capture plants to ascertain which technology would be appropriate for South Africa.



Figure 6: South African Carbon Capture and Storage Road Map



The WB is giving financial support to this technical assessment study and also to the follow-up Front End Engineering Design of such a plant.

- **Carbon Capture, Utilisation and Storage Mainstream**

Concurrent with the Pilot Storage and the Pilot Capture Projects, SANEDI is also proactively investigating other matters that will help decide the future course for the commercialisation of carbon capture, utilisation and storage once the results of the two pilot projects are available. The two investigations that were undertaken during 2018/19 were mineralisation and industry requirements.

- **Mineralisation**

Mineralisation or mineral carbonation is the reaction between alkaline mine tailings and CO<sub>2</sub> to form a carbonate. This reaction is a slow naturally occurring process. By accelerating the process, it could lead to surface storage (low cost) as well as the production of feedstock for value added materials. The advantage of this process is that it does not require the capture component of carbon capture and storage. As an example of work underway in South Africa, De Beers is currently investigating the potential to carbonate olivine which is present in the kimberlites host rock that is mined to recover diamonds. De Beers has estimated that approximately 7.65 million tonnes per annum could be sequestered through carbonating kimberlite waste material.

Based on an investigation undertaken during 2018/19, mineralisation has a potential to be implemented in South Africa leading to low cost storage as well as the production of commercial products. The next phase would be to develop a road map, including an atlas of suitable material as well as a market analysis.

- **Industry Requirements**

A survey was undertaken during 2018/19 to ascertain what requirements would be required by industry to implement carbon capture and storage as an option to mitigate CO<sub>2</sub> emissions. The findings commenced by highlighting that, apart from Eskom and Sasol, industry has not seriously considered the implementation of carbon capture and storage. Little thought has been given to the drivers or requirements for implementation. However, the main outcomes that industry required were:

- (a) Regulations regarding mandatory emission limitations as well as regulations regarding the operation of such a plant, and
- (b) Cost reductions and financial support.

These findings are to be included in the planning of further Stakeholder engagement as well as regulatory development and cost reduction endeavours.

- **Capacity Building**

Capacity building takes the form of general Stakeholder engagement (including the pilot CO<sub>2</sub> storage project), and this is achieved by hosting and presenting at workshops EXPOs and Schools. Collaborative relations are fostered with key Stakeholders, in the year 2018/19 three MoU (South African National Biodiversity Institute (SANBI), The South African Agency for Science a Technology Advancement (SAASTA) and Eskom Expo for Young Scientist) were extended/signed in an endeavour to conduct more capacity building work and maximum outreach.

## RENEWABLE ENERGY

One of SANEDI's roles is to facilitate and co-ordinate renewable energy research, development and demonstration through local and International co-operation, technology transfer and information exchange, leading to the deployment and commercialisation of sustainable, efficient, reliable, cost-competitive and environmentally sound renewable energy technologies. SANEDI therefore seeks to make optimal use of local resources that diversify energy production and create an environmentally sound energy sector.

In order to accelerate the research path of scientific innovation to market viable alternatives and grow the pool of energy scientists, SANEDI has established Centres of Research and Development (CORDs) that focus on research, development and innovation space of the energy sector, promotion of technologies, skills development and collaboration.

One such centre is the Renewable Energy Centre of Research and Development (RECORD).

The contributions from these initiatives to the sector are steadily growing. A few of the activities from the year are highlighted here:

### RECORD

During the middle of 2018, SANEDI has entered into of a 5-year MoA with the South African National Defence Force (SANDF). Flowing from this agreement, SANEDI initiated the first of contemplated collaborative pilot projects at a military base in Limpopo, after the signing of the MoA.

The current flagship project of RECORD at SANEDI, in partnership with SOLTRAIN, involves the upgrading of hot water supplies to two bungalows at a SANDF base in Limpopo. The object of the project is that these will add habitable residences to the property portfolio of the SANDF. The project is being overseen and managed by SANEDI and is partially supported by the Solar Thermal Demonstration and Training Initiative (SOLTRAIN), which is funded by the Austrian Development Agency and co-funded by the OPEC Fund for International Development.





These Solar Water Heating (SWH) systems will reduce the use of electricity and/or backup diesel gensets, where these bungalows have defunct hot water geysers and thus enable the Defence Force to offer housing with functional hot water supplies for its members. Along this vein, RECORD has been delivering training programmes on renewable energy applications, EE and SWH system and also presenting clean energy awareness programmes at several military units, in order to prepare members for the upcoming projects.

A small-scale circulated water system pilot project entails the construction and operationalisation of two 1500 litre SWH systems to reticulate hot water to two accommodation bungalows used to accommodate military members, approximately half of which are female.

This project is not only about the installation of renewable energy heated hot water, but also about developing a requisite skills base through the training of the military operations and maintenance personnel as well as artisans to install, maintain and operate such solar water heating systems. To this end, four DoD members are being intensively trained to maintain these particular systems and they are shadowing the contractor during installation and maintenance thereof. In addition, in January 2019, 25 of the DoD's multi-skilled artisan members were trained through the SOLTRAIN accredited and assessed (exam) on the Thermosiphon SWH Theory Course delivered by SANEDI in partnership with the University of Stellenbosch (SU).

### **Solar RDI**

The Solar Technology Research, Development and Innovation (RDI) Programme (Solar RDI Programme) was initiated and funded by the Department of Science and Innovation (DSI) (previously Department of Science and Technology). SANEDI was appointed by the DSI (previously DST) to implement the Programme by, among other things, establishing the Programme Management Office (PMO), undertaking solar related studies, developing criteria for funding of proposals for development of solar technologies, and issuing Calls for Proposals, Funding and Monitoring of successful research, development and innovation projects.

The Solar RDI Programme is focused on five thematic areas, namely:

- (a) Supporting strategic planning in the energy sector,
- (b) Supporting seamless integration of solar energy technologies into the energy system,
- (c) Supporting further development of solar thermal technologies,
- (d) Supporting further development of photovoltaic (PV) technologies, and
- (e) Stimulating industrial manufacturing and supporting the use of solar technologies by industries.

During the period under review, most of the efforts were largely directed towards the monitoring and conclusion of Solar RDI projects that were initiated in the 2017/18 financial year such the Energy Research Programme (ERP) review and a project looking into the development of solar technology. During the current financial year an opportunity was created for a new and additional project which will look into further development of a solar technology. These deliverables are discussed briefly in the section that follows.

#### ▪ **Energy Research Programme (ERP)**

The ERP is funded by the DSI (previously DST) and is mainly focused on basic and applied research that is meant to ensure that South Africa stays abreast with the development of the latest research and technologies in the area of renewable and sustainable energy. The ERP is comprised of Renewable and Sustainable Energy (RSE) Hub and three RSE Spokes (i.e. Solar Thermal, Solar Photovoltaic and Wind). The RSE Hub is hosted by SU under the auspices of the Centre for Renewable and Sustainable Energy Studies (CRSES). The Solar Thermal (ST) Spoke is co-hosted by SU and the UP (UP), while the Solar Photovoltaic (PV) Spoke is co-hosted by the University of Fort Hare (UFH) and Nelson Mandela University (NMU).

Enterprise UP (EUP) was contracted by SANEDI in the 2017/18 financial year to conduct a review of the ERP. The results of the review indicate that a considerable number of postgraduate students were trained in RSE, and new technologies and spin-off companies were established. It is envisaged that findings emanating from this review would inform future strategic direction to be taken for the ERP.

As one of the above deliverables, SANEDI was required to undertake a workshop to capacitate its staff on the protection and Management of intellectual property outputs that typically emanates from an RSE Hub and Spokes.

- Upgrade to MLT Inverter Product range for Micro-Grid optimisation in a Controller Area Network (CAN)

During the 2017/18 financial year, SANEDI signed a Funding Agreement with MLT Inverters (Pty) Ltd, the only high-tech manufacturer of grid interactive battery-based inverters in Southern Africa. Prior to the implementation of this project, MLT Inverters did not have Controller Area Network (also called CAN bus) integration in its inverter product range. CAN bus acts as a central networking system that enables communication between microcontrollers and devices without a host computer or complex dedicated point-to-point wiring between them. In order to stay relevant, MLT Inverters needed to upgrade the communication interfaces and relevant software within its inverter product range. Such an upgrading, it was envisaged, would allow MLT inverters' products to stay relevant within the rapidly evolving mini-grid market.



A project to design and implement software and hardware upgrades of MLT's current inverter product range (Oasis, Nomad and PowerStar) to communicate among each other, and with the BMS controllers of third party lithium batteries via a shared CAN network was therefore initiated. The work culminated in the live demonstration of the MLT Inverters system at a rural commercial test site located in Kagga Kamma Nature Reserve, in the Western Cape.

## REEEP

- Climate Change, Clean Energy and Urban Water in Africa (Waterworks Project)

The water treatment and supply plants of municipalities are usually not receiving adequate attention from the energy consumption and efficiency perspectives, yet these plants consume a lot of energy, and if not given attention, they can compromise the ability of the municipality to provide access to portable water services to the residents.

For small towns the inefficiency of the water treatment and supply plants will have a great impact on the municipal electricity account to the utility.

During the financial year, Renewables has been involved in some exciting projects and procurements that are making a difference to those involved. Among others, was the REEEP municipal water works project which took place in two pilot municipalities, namely, Nelson Mandela Bay (NMBM) and !Kheis Local Municipality (KLM).

Subsequent to the energy audits reports undertaken by the National Cleaner Production Centre (NCPC) in the previous financial year, the project facilitated the procurement of energy efficient pumps and an energy Management system to be installed on the existing water treatment plants for each municipality. NMBM saw the procurement and installation of new pump sets and an energy Management system at their Fishwater Flats treatment site which means that the site has new pump sets and an energy Management system which are in full operation. Data is being produced and recorded for analysis in the new financial year. New pump sets and an energy Management system for !Kheis were also procured, however installation was delayed. This was due to delays in sourcing a principal agent/engineer to oversee the installation which has resulted in a delay in installation. Installation for !Kheis will only take place in the new financial year, estimated for April 2019. Related to this, REEEP hosted a training for municipal decision makers and energy managers to understand energy Management and efficiency in the municipal environment.

Preliminary results are indicating great energy and water savings due to these interventions. The outcomes of this project will give more impetus for municipalities to consider this water works efficiency as part of their service delivery initiatives.

## WASA

- South African Wind Energy Project 2

The South African Wind Energy Project Phase 2 (SAWEP 2) is funded by the Global Environment Facility (GEF) with the DMRE (Previously Department of Energy) as the Executing Entity/Implementing Partner and supported by the United Nations Development Program (UNDP) South Africa Country Office with SANEDI providing the Project Manager. The project objective is to overcome barriers to the attainment of South Africa's Integrated Resource Plan target for wind energy. In order to achieve this, the project focusses on four components: Component 1: Monitoring and Evaluation of the implementation of local content requirements, Component 2: Resource-mapping and wind corridor development support for policy-makers, Component 3: Support for the development of small-scale wind sector and Component 4: Training and human capital development for the wind energy sector. Each component is associated with specific outputs and a set of activities. The UNDP (providing SAWEP 2 procurement and financial services) and the CSIR signed Letter of Agreement end of previous financial year, on the Implementation of Small Wind Power Integration in the Upper Blinkwater Mini-grid pilot project. This was based on the recommendation of the SAWEP 2 small scale wind review, and analysis study with the Eastern Cape to be the anchor for several small scale wind (electric and water pumping) pilot projects, and facilitated by the SAWEP 2 Project Co-ordination Unit.

The Upper Blinkwater Mini-grid project is an initiative of the Eastern Cape Province of South Africa and the Lower Saxony State of Germany that have been engaged in a longstanding partnership. As part of this twinning arrangement, the UB Mini-grid pilot project has been initiated to electrify the small village of Upper Blinkwater in the Raymond Mhlaba Local Municipality. The mini-grid power system includes a 75 kWp photovoltaic (PV) system, 370 kWh battery storage, and a 20 kW backup diesel generator (400 l diesel storage), all with an integrated vending system, Smart Meters and demand side Management interface that is currently being implemented. The overall objective of the SAWEP 2 support through the Letter of Authority (LoA) between the UNDP and CSIR, involve the local-to-local knowledge transfer and the provision of technical support in the analysis and sizing of the local wind energy resources, to be followed by the sourcing, and installation of small wind turbines and integration with the existing solar-diesel based power system with expected diesel and battery life savings to be monitored.

The SAWEP 2 supports of the wind component of the Upper Blinkwater Mini-grid pilot project was presented and discussed at a Upper Blinkwater community meeting. The Upper Blinkwater Community welcomed the SAWEP 2 support of the Upper Blinkwater Mini-grid wind component project with the CSIR, that has started with the Light Detection and Ranging (LIDAR) measurements in confirming the wind potential, and best placement of the small-scale wind turbines.



In parallel, the CSIR and DLR teams are working on the Micro-grid characterisation and Wind power integration assessment that will be used to develop the ToR for the wind turbine Engineering, Procurement and Construction (EPC) contract.

The WASA 2 Final Wind Seminar took place on 10 April 2019 at the East London ICC. The event co-incided with the ten-year-anniversary of WASA and the seminar therefore also celebrated the ground-breaking achievements of the project over the years. It is envisioned that the seminar will culminate with the launch of the Wind Atlas and database, with Large-Scale High-Resolution Wind Resource Map and for the first time covering all nine provinces of South Africa.

▪ **Waste to energy demonstration plant**

NECSA was tasked with the development of a Waste2Energy demonstration pilot plant using Plasma technology. The aim was to develop the Proof of Concept (POC) and optimise the process. However, NECSA has been unable to successfully optimise the POC due to engineering design flaws.

The project is hugely constrained by funding and NECSA was unable to secure funding to advance the engineering designs. In mitigation, SANEDI has approached universities engaged in waste to energy and technology research and the feedback received is that the engineering design must be done by a mechanical engineering design team. SANEDI will be engaging local universities to seek mechanical engineering competence to optimise the unit and complete any outstanding work. Some technologies entail certain technical and economic difficulties (incineration) or are still not proven at the commercial scale (gasification, pyrolysis). These applied research initiatives will substantially contribute to the research body of knowledge. Students will further be developed, and expertise gained. Centres of excellence can be established in waste to energy technology design, implementation and operation.

**Smart Grids**

Currently, most municipalities in South Africa are facing challenges related to ageing infrastructure (water and electricity), maintenance backlogs, service delivery, skills, capacity shortages, and revenue collection.

The effective deployment of Smart Grids in the Electricity Supply Industry (ESI) and Electricity Distribution Industry (EDI) has been recognised as a key enabler, offering the means for innovative strategies and technologies to accommodate changing system requirements, address operational challenges and help municipalities be economically sustainable.

SANEDI's Smart Grid Programme aims to contribute in four areas:

- (a) Provide a common vision for Smart Grids in South Africa,
- (b) Facilitate a Smart Grid knowledge-sharing forum for both the ESI and relevant Government departments,

- (c) Implement applied research pilots within municipalities to introduce various Smart Grid concepts, and
- (d) Provide strategic policy inputs, related to Smart Grids and the ESI.

▪ **EU donor funded Smart Grids Programme**

The programme entails the pilot implementation of Smart Grid solutions in ten municipalities, each designed to address specific municipal challenges and inform specific policy or regulatory questions that were identified by the DMRE. Ten municipalities were selected to participate in the EU Donor Funded Smart Grids Programme as applied research demonstration projects, aimed at understudying the benefits and implications of Smart Grid technologies within the distribution network. The ECD and SANEDI Smart Grids Team (SSGT) have strategically designed individual projects to provide input to National Policy & Regulation while also addressing burning technical issues affecting the performance of these entities.

As the EU Donor Funded Smart Grids Programme started in 2014 it is now coming to an end. Three projects have successfully been closed during the 2018/19 financial year, namely:

- (a) Nala Local Municipality Revenue Enhancement Project,
- (b) Nelson Mandela Bay Municipality Revenue Enhancement Project, and
- (c) Thabazimbi Local Municipality Revenue Enhancement Project.

**South African Smart Grids initiative (SASGI)**

SASGI is an industry forum established under the guidance of SANEDI and chaired by the DMRE (previously Department of Energy). The main objectives of SASGI are to facilitate co-operation, contribute to policy formulation, provide guidance in the establishment of standards and identify technology functionality and to provide leadership and the deployment of appropriate Smart Grid technologies.

During this financial year, SASGI held a key session which was attended by colleagues from National Treasury, Development Bank of Southern Africa, various municipalities and National departments. The session aimed to introduce the Smart City concept to attendees, present the smart city work being carried out at UP and to identify areas where UP can contribute to solving some of the National challenges.

▪ **Collaboration with the UP**

SANEDI Smart Grids and the UP held three training sessions in the 2018/19 financial year. The training sessions are in line with the objectives of the contractual agreement between the UP and SANEDI. During the year under review, 59 people including municipal officials, Government officials and service providers benefited from the training provided.



The aim of these training sessions was to introduce Smart Grid technologies and trends of power system operations and control to South African municipalities.

The following topics were covered in the 2018/19 financial year:

- Training 1: Smart metering audits and Installation practices training

The training focused on smart metering as a critical aspect of a Smart Grid. This course presented vital information to these focus group involved in the rolling out of smart metering projects to understand and mitigate the risks associated with such rollouts. The requirements for the planning and preparation, customer audits, understanding how to install the different metering systems and technologies and commissioning practices were addressed in this training session.

- Training 2: Managing Ageing Distribution Assets in South Africa

The objective of the training course was to expose attendees to the fundamentals of managing engineering assets (electricity) that make up our built environment encompassing equipment, industrial facilities, plants, systems and infrastructure.

- Training 3: Advance Metering Infrastructure for Revenue Enhancement in South Africa training

The main focus of this training course was to train decision-making officials on the basics of municipal revenue enhancement through the use of Smart Grids for short and long-term sustainability.

- Student development

Six engineering students were awarded bursaries at the UP within the Faculty of Engineering. The objective of this initiative was to invest in education and more so in the research fraternity, which was closely aligned to the purposes of the DMRE (previously Department of Energy (DoE)), and the goals of NDP in the space of education, innovation and training.

## ▪ **Smart Grids laboratory**

There is a need to have a Smart Grid lab focused on stimulating research in the Smart Grid areas, and driving solutions to local South African challenges. The fundamental components are smart metering and a cloud platform for data analysis. The Laboratory requires both hardware and software to be fully functional.

These types of laboratories enhance the education of our students by them gaining the experience of working on engineering projects that are often industry sponsored. A Smart Grids laboratory has been developed at the UP for the students for testing purposes.

## ▪ **National Treasury secondment from January**

As a result of the work done by the Smart Grid Programme with the DMRE (previously Department of Energy (DoE)) on the EU Donor Smart Grid Programme, the SANEDI Smart Grids team has been seconded to National Treasury for six months starting January 2019 to June 2019. The team would be working in collaboration with the National Treasury and the Department of Cooperative Governance and Traditional Affairs (CoGTA) on the development of a Smart meter National roll-out proposal.

## **DATA KNOWLEDGE MANAGEMENT**

The data and knowledge portfolio in SANEDI focuses on the collation, development and utilisation of credible, objective and high-quality data and information relating to the areas of SANEDI's responsibility. Most activities under the portfolio are consolidated under the Centre for Energy Systems Analysis and Research (CESAR), funded by the DSI (previously DST). The centre aims to be the authority in the field of energy data for the purpose of modelling and planning that can support alignment of National and local Government energy objectives.

## ▪ **Support to the DMRE (previously Department of Energy)**

During the financial year, the projects for the CESAR programme were scaled down due to limited funding. Much of the year was spent supporting DMRE on key projects in the Clean Energy space. SANEDI supported the DMRE in the development and submission of three proposals to the European Union (EU) for funding to the value of R 180 million (R60m per project). The first two proposals submitted were for the DMRE's Clean Energy division and focused on Energy Efficiency in Waste Water Treatment Plants and Energy Efficiency for public buildings. These two proposals were approved to the value of R120 million (R60 million per project). SANEDI will be allocated a portion of this funding to undertake specific activities in the projects. The projects kicked off on the 1st of April 2019. The second proposal was for Energy Policy Planning for Smart and Sustainable Municipalities, however it was not approved.

Support was provided to the DMRE (previously DoE) and DSI (previously DST), using Geographical Information Systems (GIS), to locate suitable sites for the deployment of Hydrogen Fuel Cells in South Africa. SANEDI played an instrumental role in supporting the decision-making process.

The GIS data, models and open energy database was updated during the year and SANEDI was credited for the transport model and dataset that were included in the Department of Environmental Affairs' Mitigation Potential Analysis.



For the DMRE's Standards & Labelling Programme (UNDP), SANEDI provided input in the development of the ToR and the evaluation of the appointed consultant who developed the database. The development of the database has been completed and is currently being tested. SANEDI together with UNDP, DMRE & USAID, Lawrence Berkeley National Laboratory (LBLN) hosted and attended a workshop on the 28th November 2018 on Energy Efficiency Modelling & Policy Impacts. USAID is working with LBNL to enhance energy efficiency in the developing world. In South Africa, the project's objectives are to:

- (a) Integrate LBNL developed tools and best practices for modelling energy savings from new energy efficiency standards into planning processes,
- (b) Achieve energy savings by helping the DMRE implement new standards that are close to International best practices, and
- (c) Build sustainable local capacity for assessing the impact of energy efficiency standards in a comprehensive energy planning process.

CESAR also initiated a project with the Energy Research Centre (ERC) called "*The analysis of transport related issues using ERC's linked SATIM-eSAGE modelling platform*". This project provided the foundation to the UNIDO Macro-Economic Study of Electric Vehicles and also provided insights into the DoT's Green Transport Strategy.

During the financial year CESAR produced the following five research papers:

- (a) An energy-economic critique of electric vehicle penetration in South Africa with emphasis on passenger vehicles,
- (b) Combined system-wide value of sectoral electrical demand flexibility in South Africa's integrated energy system: an application in SATIM,
- (c) TEMPO – Techno-Economic Mini-Grid Planning and Optimization: A flexible open-source model applied for rural electrification in South Africa using hybrid mini-grids including hydrogen storage,
- (d) Flexible demand in South Africa's Energy System, Addressing System Modelling Needs and Challenges, and
- (e) The Measurement and Verification of Energy Conservation A Coal-Fired Power Plant.

The papers have been submitted to scientific journals for peer review and possible publication.

In the upcoming financial year, CESAR will continue to support the DMRE on key projects such as the Standards & Labelling, Industrial Energy Efficiency, NAMA, and the two EU projects (Energy Efficiency, in Waste Water Treatment Plants and Energy Efficiency for Public Buildings). Other new projects that will commence in the new financial year are:

#### ▪ **Status & future trends of Energy Efficiency in South Africa**

This study seeks to address gaps that exist in understanding both the current state of energy efficiency in the transport, industry, commercial and residential sectors of South Africa and to improve estimates of impact of energy efficiency interventions over time in South Africa. This project will aim to address both energy and climate policy needs.

#### ▪ **Big Data Insights for households in South Africa**

This data is a valuable source of insights into energy behaviour and progress towards sustainable development goals, while for utilities it is instrumental for planning the expansion and maintenance of South Africa's power generation, transmission and distribution infrastructure. Legacy systems have made it difficult to access and manipulate the data in the past. Over the past 5 years, usage of the dataset has thus stagnated. In 2017 the ERC started building data analytics and visualisation tools to enable researchers with limited coding skills to quickly and easily explore the data. With the support of SANEDI, the project team will be able to conclude the project and successfully deliver the first big research dataset on residential energy consumption in Africa. The project has commenced in April 2019.

#### **WORKING FOR ENERGY**

The WfE Programme is concerned with development of clean energy systems for providing energy access to the rural and low-income urban communities. The programme is focusing on supplementary and complementary clean energy systems, and energy resources that enable communities to have access to clean, affordable and sustainable alternative energy forms, compared to conventional energy systems such as grid electricity based applications and biomass based heating applications.

Because the programme is implemented at community and their organisation levels, there is an appreciation of socio-cultural nuances and influences that affect the appreciation and uptake of clean alternative energy resources and systems from community to community. These issues compete or complement the technical and economic considerations in so far, the technology uptake and utilization is concerned.

The absence of supporting infrastructure and systems for these new technologies in such communities also provide opportunities for Small Enterprise Development (SED) to support these initiatives thereby improving uptake.

The WfE Programme seeks to link clean energy resources, technologies and developmental mandate of Government, namely access to basic energy, energy poverty alleviation, job creation and general improvement of the quality of life of the beneficiaries, by providing access to other community needs and optimizing available resources and human effort.



The intervention by the programme also provide several environmental benefits in reducing electricity consumption, and firewood usage thereby reducing the GHG of conventional fuels used by the beneficiary communities.

The programme identifies opportunities for the energy sector to contribute towards skills development, job creation and emancipation of women, youth and people with disabilities while contributing towards a cleaner environment. These are the tenets of the EPWP. To this end, as far as possible, the WfE projects are considered on the merits of contributing towards the EPWP targets of the energy sector and the Environment and Culture Sector of the EPWP Programme.

During Phase III of the EPWP, the scale of the energy sector to contribute towards the developmental mandate of the EPWP has been stymied by the lack of meaningful participation of the department in the EPWP structures over the current MTSF, thus not providing leadership and support to the initiative of the WfE Programme in the EPWP initiatives.

As part of its undertaking to facilitate the institutionalization of the EPWP within the energy sector, SANEDI has worked closely with the Department's Projects and Programmes branch to begin a process of alignment of the Departmental Service Delivery Programmes to the overall objectives of the EPWP thereby reporting on job creation, skills development and enterprise development created by the overall departments community projects administration. The department has been accompanying SANEDI in various structures of the EPWP, has begun to attend the engagements of the Environment and Culture Sector Co-ordinating Committee of the EPWP.

During the year under review, the WfE Programme focused on the expansion and deepening of the work in the renewable energy, energy savings and bioenergy space in new and existing communities respectively. During the year under review, the WfE Programme focused on concluding several research projects in order to initiate impact analyses and lessons learned studies on the implemented projects in the upcoming financial year. To this end, a number of projects have been completed and handed over, namely:

- **Kwa Maphumulo Early Childhood Greening Project**

SANEDI entered into a partnership agreement with the National Development Agency (NDA) for the greening of selected facilities to demonstrate the benefits of clean energy interventions on the operational efficiency of the ECDC and other community development facilities developed under their mandate across the country. The Kwa Maphumulo Early Childhood Greening Project is one of the two ECDCs completed in KZN. The project was handed over to the community by the Deputy Minister, Ambassador Thembisile Majola during the financial year.

- **Mhinga Early Childhood Development Greening Project**

The Mhinga Early Childhood Development Greening project in the Vhembe District Municipality Limpopo, was completed. The project aimed to demonstrate the possibility to create small community enterprises as the culmination of the WfE Programmes under the EPWP. The Community Based Organisation (CBO) was developed from the construction of the previous biogas project implemented in Gawula. The practitioners were trained through a partnership between SANEDI-University of Venda and UNIDO.

- **SARDA Biogas Project**

The South African Riders for Disability Association (SARDA) now called Equine Assisted Riding, Therapy and Healing (EARTH) Centre in Ruimsig was chosen as a beneficiary of the greening interventions through SANEDI, mainly as a result of the impact that the EARTH Centre has on society and the type and abundance of different feedstock produced at the Centre, being horse manure. This source became of interest for further research in respect of energy diversity in communities that may not have conventional cow, pig or poultry as feedstock for bioenergy production. To this end, SANEDI partnered with the University of South Africa (UNISA) through the EXXARO Chair for the advancement of the research in the micro digester space. The SARDA biogas project was completed and handed over to the beneficiaries. The project was intended to demonstrate the use of horse manure as another form of waste to energy available in the renewable energy mix. The outcome of this project is that it is feasible to use horse manure as feedstock, however the ingredients of the influent still need to be optimised in the field and the digestate analysed in the laboratories for application as fertilizer and soil conditioner.

From the research perspective, the main objective of the above projects was to spread the knowledge base of renewable technologies and deepen the understanding of various resources and technologies.

These projects are also intended to understand the consumer mindset and their perceived cost-benefits associated with the novelty of clean energy interventions. This work is ongoing and will be consolidated from a number of established projects over time with various universities.

The projects undertaken by the WfE Programme enable many students in various universities to continue to work on real life renewable energy projects in order to expand the knowledge base on renewable energy in South Africa. To this end, through the partnership agreements with the Universities of Venda, KZN and UNISA, the students benefit from various research undertaken during the implementation, operation and maintenance of the projects. It is also important to mention that beneficiary communities also benefit from the sustainability of these projects.



#### ▪ **Biofuels Business Incubator**

SANEDI is a Stakeholder in the Bioenergy Business Incubator (BBI), under the Small Enterprise Development Agency (SEDA), and has been serving on its Board. During the financial year, SANEDI acted as the Board Chair of the BBI due to the lapse in Governance challenges that arose in the previous financial year. At operational level, a partnership contract was concluded with the BBI to support the promotion of sustainable development of the small scale biofuels industry.

The project has two facets, namely to produce energy crops for the production of edible oils and other agricultural products, and the processing of used food oils for the production of biodiesel and other bioenergy products. The project is intended to incubate as many entrepreneurs as possible along the entire value chain of the edible cooking oils and biofuels production.

#### ▪ **Micro Digester Guidelines**

Based on the experiences developed over the years, SANEDI in partnership with the USAID funded SA-LED developed a Micro Digester Guideline for the future expansion of the micro biogas projects in South Africa.

The WfE acknowledges the emerging leadership role played by the Projects and Programmes Branch of the department during the year under review, and envisages greater internal support towards the branch in enhancing the contribution of the Sustainable Energy component of the Environment and Culture Sector in the Phase IV of the EPWP which commences in the next MTSF.

### **CLEANER MOBILITY**

The Cleaner Mobility (CM) Programme continues to undertake research and development in the South African transport sector. The key objective of the CM program is to develop the most efficient and applicable energy solutions for the South African transport sector.

#### ▪ **Green Transport Strategy**

The CM Programme through various studies and participation in working groups contributed to the finalisation of the Green Transport Strategy (GTS). In addition, the CM Programme, through United Nations Industrial Development Organisation's (UNIDO) Low Carbon Transport Project in South Africa (LCT-SA), supported the DoT in organising and hosting the event for the launch of the GTS by the DoT on the 17<sup>th</sup> October 2018.

#### ▪ **City of Johannesburg Electric Bus Feasibility Study**

The work done by the CM Programme during the financial year has resulted in the approval of the City of Johannesburg (CoJ) application for technical assistance for the CoJ Electric Bus feasibility study by the Financing Sustainable Cities Initiatives (FSCI).

The FSCI had initiated work for the first draft for the feasibility study, which was submitted to the CoJ and SANEDI in April 2019 for review and approval. The feasibility study undertaken by FSCI will form the basis for development of bankable business case for large rollout of electric busses on the CoJ network. In the upcoming financial year the CM Programme will continue to support the CoJ with the implementation of Electric Bus rollout projects. In addition, the programme will support Provincial Departments and the National Department of Transport initiatives aimed at transforming public transport from fossil fuel based to cleaner fuels transport system.

The major challenge for the CM Programme is limited funding which prohibits the programme to undertake key projects on its own. To address this challenge, the programme often partners with the industry in sourcing funding from donor agents and development finance institutes. This approach has proven less effective in mobilising much needed funds to undertake critical research and developmental work for clean transport solutions. However, the programme will continue with this approach of sourcing funding as funding from National Government is constrained by other factors such as poor economic performance.

#### **12.1.2. Programme 3: Energy Efficiency**

It is interesting to note that the International Energy Agency (IEA) reported higher global energy demand drove up global CO<sub>2</sub> emissions in 2018.

The IEA highlighted that energy demand worldwide grew by 2.3% in 2018, its fastest pace this decade, thanks to a strong global economy and higher demand for heating and cooling. As a result, global energy-related CO<sub>2</sub> emissions rose by 1.7% to 33 Gigatonnes (Gt), with coal use in power generation alone, surpassing 10Gt and accounting for a third of total emissions.

Although these statistics do not necessarily reflect the situation relating to growth in South Africa, it remains imperative for us to pursue those activities that improve energy efficiency and reduce carbon emissions.

Other areas of importance highlighted by the IEA in their 'the energy mix' bulletin, include the need to encourage investment in energy efficiency at scale and the accelerated trajectory towards digitalisation of energy efficiency that emphasises how better sensors, real-time data analytics and other innovations enable greater efficiencies and optimize the way energy is consumed globally.

It is therefore satisfying to reflect on SANEDI's Energy Efficiency programme's key activities over the past year, fully realizing that the majority of activities did indeed address improvements in energy efficiency in South Africa and a subsequent reduction in CO<sub>2</sub> emissions.



Examples of this contribution towards the South African energy industry, include amongst other things, exceeding the specified target for implementing energy efficiency solutions, such as the Section 12I and 12L energy efficiency tax incentives. Fifty-nine such solutions were set as a target for the financial year and 79 solutions were ultimately finalized and implemented. SANEDI were able to process these applications for the tax incentive in a timeous manner, resulting in the achievement of 3.421 TWh of savings in industrial and commercial energy use. This reflects a phenomenal energy saving for the country, significantly exceeding the National annual target specified in the post-2015 National Energy Efficiency Strategy. This achievement was acknowledged in the last quarter, by the Minister of Finance announcement in his Budget Vote speech to Parliament in February 2019, that the Section 12L tax incentives will be extended from January 2020, to 31 December 2022, to align with Phase 1 of the Carbon Tax. This announcement created a renewed interest in the incentive and resulted in a significant increase in the number of applications received for the tax incentive.

Furthermore, the Cool Surfaces project progressed well, with the finalization of the iKheis Cool Coating Research report into the initial pilot project within the iKheis community in the Northern Cape, highlighting the benefits of this technology in especially, hot climatic zones. Tshwane Metropolitan Municipality have also expressed a willingness to work with SANEDI on a large-scale roll-out of the cool surface paint-technology in an informal settlement in the Nelmapius-area of the metro. This has attracted a large amount of interest from the community, community leaders and Tshwane officials and implementation will take place in the 2019/ 20 financial year. Training in the use of this technology also attracted a lot of interest, especially within the broader renewable energy and energy intervention between SANEDI and the SANDF, resulting in the targeted number of recipients for this training being exceeded by more than double the amount of attendees.

Further positive developments include participating on a high-level panel on EE at the annual African Energy Indaba, as well as presentations at the first ever SANEDI-hosted quarterly Energy Breakfast event on the fringes of the 2018 Mining Indaba at the Cape Town International Convention Centre.

This was backed up with widespread and positive coverage in various radio, print and electronic media of the EE and other activities within SANEDI, thus raising the profile of SANEDI in the South African energy industry.

## 12.2. Programme 1: Administration

### 12.2.1. Purpose

The purpose of Programme 1 is to create a resilient, efficient, effective and enabling delivery environment for SANEDI that is fully compliant with all statutory requirements. The administration programme incorporates the following functions:

- (a) Human Resources,
- (b) Information and Communication Technology (ICT),
- (c) Corporate Services,
- (d) Finance,
- (e) Procurement, and
- (f) Communications.

### 12.2.2. Sub-programmes

The Administration programme is comprised of the following sub-programmes as defined in the 2018/19 APP:

- (a) Human Resources - which deals with all staff related matters including recruitment, payroll administration, skills development and employee wellness,
- (b) Finance - which deals with procurement, financial administration and reporting,
- (c) Corporate Services - which incorporates all activities related to the Board and Board Committees, Secretariat services, Strategic Planning and Logistics,
- (d) Information and Communication Technology, and
- (e) Communications – responsible for all Stakeholder engagement activities, annual surveys, public awareness campaigns and media intelligence.

### 12.2.3. Programme 1 Strategic outcome-orientated goals

A strategic objective was formulated for each programme:

Strategic Outcome-orientated goal	Goal statement
An effective and efficient internal control environment.	<ul style="list-style-type: none"> <li>(a) An effective and efficient internal control environment (unqualified audits),</li> <li>(b) A team that is adequately staffed, adequately skilled and trained and adequately representative of the National demographics (as defined in the relevant plans for SANEDI), and</li> <li>(c) Effective risk management and effective and comprehensive Stakeholder management.</li> </ul>





#### 12.2.4. Strategic objectives, performance indicators planned targets and actual achievements

The first four columns are as reflected in the approved 2018/19 APP. Achievement against these targets is reflected in the last three columns.

Strategic objectives	Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 1: Administration</b>						
1. An effective and efficient internal control environment.	Unqualified audits.	Unqualified audit for 2017/18.	Unqualified audit 2018/19.	Achieved.	N/A	N/A
2. A team that is adequately staffed, adequately skilled and trained and adequately representative of the National demographics.	Vacancy rate of funded positions.	Maximum 5% vacancy rate of funded positions maintained.	Maintain a maximum 5% vacancy rate of funded positions	Not achieved.	Maintained a maximum of 5.3% vacancy rate of funded positions.	Due to the pending organisational review, SANEDI has frozen the advertising of non-critical posts resulting in 3 funded posts not advertised.
2. A team that is adequately staffed, adequately skilled and trained and adequately representative of the National demographics.	Percentage of personnel trained as per Workplace Skills Plan (WSP).	95% of Personnel trained as per Workplace Skills Plan (WSP).	80% Personnel trained as per Workplace Skills Plan (WSP).	Achieved	N/A	N/A
2. A team that is adequately staffed, adequately skilled and trained and adequately representative of the National demographics.	Percentage deviation from employment equity targets maintained within acceptable range.	Less than 5% deviation from the SANEDI approved employment equity targets achieved.	Less than 5% deviation from the SANEDI approved employment equity targets.	Achieved Maintained less than 5% deviation from the approved employment equity targets.	N/A	N/A



12.2.4. Strategic objectives, performance indicators planned targets and actual achievements (continued)

The first four columns are as reflected in the approved 2018/19 APP. Achievement against these targets is reflected in the last three columns.

Strategic objectives	Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 1: Administration</b>						
3. Effective risk Management on risk areas affecting SANEDI.	Percentage critical strategic and operational risks are identified and mitigated.	100% Critical strategic and operational risks factors were identified and mitigated.	All (100%) critical strategic and operational risks factors are identified and mitigated	Achieved 100% All critical strategic risk factors have been identified and mitigated as per risk register.	N/A	N/A
4. Effective and comprehensive Stakeholder management.	Percentage implementation of Stakeholder Engagement Plan (SEP)	75% Implementation of Stakeholder Engagement Plan (SEP).	75% Implementation of Stakeholder Engagement Plan (SEP).	Achieved 75% Of CESEP has been implemented.	N/A	N/A
5. An effective and efficient internal control environment.	Percentage implementation of corporate ICT plan.	New Indicator.	80% Implementation of corporate ICT plan.	Achieved 98% Of the corporate ICT plan implemented.	SANEDI has implemented nearly 100% of the ICT plan instead of 80%.	SANEDI was able to efficiently negotiate license renewals for some of its applications and completed 100% of the planned work and updates.



## 12.3. Programme 2: Applied Energy Research, Development and Innovation

### 12.3.1. Purpose

The purpose of the Applied Energy Research, Development and Innovation Programme is two-fold:

- (a) Knowledge creation that can support energy-related planning and decision-making. As such, the programme is concerned with developing a portfolio of assessed and demonstrated energy solutions as well as data assets that can support high confidence energy planning, decision-making and policy development, and
- (b) Accelerating the transformation of the energy market and landscape in the country. This entails building capacity (skills and competencies) and implementing market and/or industry development initiatives that will contribute to the green economy.

### 12.3.2. Sub-programmes

The Programme consists of five active sub-programmes:

**Table 3: Programme 2 sub-programmes**

Sub-programme	Purpose
Cleaner Fossil Fuel	Alternative low carbon energy and mitigation options to limit serious, negative environmental impacts from conventional energy sources.
Renewable Energy	Support the accelerated and informed development of South Africa's clean energy portfolio and RE sector.
Smart Grids	Demonstrate and assess intelligent energy system infrastructure as an enabler for municipal sustainability.
Data and knowledge Management	Collation, development and utilisation of credible, objective and high quality data and information relating to the areas of SANEDI's responsibility.
Cleaner Mobility	Developing CM solutions for urban transportation.
Working for Energy	Demonstrating innovative, sustainable energy solutions for rural and low income urban areas.

### 12.3.3. Programme 2: Strategic outcome-orientated goals

Strategic Outcome-orientated goal	Goal statement
Energy innovation, knowledge and skills for a less carbon intensive, more environmentally sustainable, affordable and efficient energy system.	(a) Identify and develop suitable, innovative energy solutions (150 projects), knowledge (9 datasets) and skills (1,000 researchers and trainees supported) towards a less carbon intensive, more environmentally sustainable, affordable and efficient energy system that can support the country's economic and socio-economic development objectives.



12.3.4. Strategic objectives, performance indicators planned targets and actual achievements

The first three columns are as reflected in the approved 2017/18 APP. Achievement against these targets is reflected in the last three columns.

**CLEANER FOSSIL FUEL**

Performance Indicator		Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>						
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>						
2.1.1	Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Achieved  Business case for the continuation of CCS in South Africa reviewed, Review of carbon utilisation technologies and recommendations conducted, Status report on the phase PMP- Bongwana project submitted	3  Energy solutions assessed	Achieved  3 Energy solutions assessed: (a) Surface & Groundwater, (b) Soil CO <sub>2</sub> and (c) Atmospheric CO <sub>2</sub> .	N/A	N/A
2.1.2	Number of annual Energy Industry status reports (Insights, Trends, International and National collaboration decisions, interfacing and forums).	Achieved  1 CFF component developed for SANED's annual Insight publication	1 Annual Energy Industry status report	Achieved  1 Annual Energy Industry status report.  CFF input into annual energy industry status report submitted	N/A	N/A
2.1.3	Minimum number of energy-related datasets maintained per annum.	Achieved  1 Geological data inventory expanded and updated	1 Energy related dataset maintained	Achieved  1 Energy related dataset maintained.	N/A	N/A
2.1.4	Number of Research Reports provided.	New Indicator	1 Research report provided	Achieved  2 Research reports submitted: Carbon Mineralisation for CO <sub>2</sub> emissions Research Report CCS Implementation	N/A	N/A



**CLEANER FOSSIL FUEL**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.4	Number of recipients of energy-related training facilitated.	150 Recipients of training offered or facilitated by SANEDI	Achieved 624 Recipients received energy related training.	474 More recipients were trained.	SANEDI always takes the opportunity to train as many people as it can reach.
2.2.5	Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	2 Energy-related research students/ contracted researchers supported.	Not achieved	No students or contracted researchers were supported	The SANEDI EXCO requested that the bursary policy be updated into a generic SANEDI External Bursary Policy document. SACCCS could not recruit any new research students due to a lack of approved bursary policy.



12.3.4. Strategic objectives, performance indicators planned targets and actual achievements (continued)

**RENEWABLE ENERGY**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>					
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.1	Number of energy solutions assessed (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	3 Energy solution assessed.	Achieved  3 Energy solutions assessed namely: (a) Potential of Solar Heat for Industrial Processes, (b) SAWEP 2 study report on the specifications of Small Scale Wind Energy Pilot, and (c) Draft Energy Research Review submitted to DSI (previously DST).	N/A	N/A
2.1.2	Number of annual Energy Industry status reports (Insights, Trends, International and National collaboration decisions, interfacing and forums).	1 Annual Energy Industry status report	Achieved 1 Annual Energy Industry status report RE component of annual Insight publication submitted	N/A	N/A
2.1.3	Minimum number of energy-related datasets maintained per annum.	3 Energy related dataset maintained	Not achieved 2 Dataset maintained namely: WASA wind dataset Servelec Database maintained (NIMBM)	2 out 3 datasets were maintained.	The Servelec Database for IKheis was only finalised at the end of the financial year, due to delays in appointing a service provider to install the equipment.



Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy						
Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations	
2.2.1	Number of policy support instruments (Industry roadmaps, sector development plans and industry support tools, etc.)	Not achieved  (a) REMAP SA country study to inform sector development, Status review and analysis of wind education and training in SA to inform buildings and capacity needs in the country.  (b) Industrial manufacturing feasibility study for solar RD&I roadmap (no.1), Municipal, and  (c) Wastewater project Capacity Building plan.	4 Policy support instruments developed.	Achieved 4 Policy support instruments (a) Policy Brief on Promoting Market-Based Deployment of Clean Energy Technologies and Services in Municipal Waterworks,  (b) Solar Heat for Industry Processes South Africa,  (c) Best Practice Guide on Climate Change, Clean Energy, and Urban Water in Africa, and  (d) Phase of the Wind and Solar PV Strategic Environmental Assessment for the Efficient and Effective Rollout of Wind and Solar PV Energy in South Africa.	N/A	N/A
2.2.2	Number of energy-related knowledge sharing events / platforms engaged in (Own hosted, attended, knowledge presented, supported)	Achieved  1 SOLTRAIN and 2 SAREC knowledge sharing events held.	1 Energy-related knowledge sharing events/platforms engaged in (own hosted, attended, knowledge presented, and support).	Achieved  1 Solar Payback Policy Workshop held.	N/A	N/A



12.3.4. Strategic objectives, performance indicators planned targets and actual achievements (continued)

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.3	<p>Number of commercially viable cleantech solutions progressed to active business incubation and/or deployment.</p> <p>Not achieved</p> <p>The Programme Manager was only seconded from Mintek in the last quarter. Efforts were focused on the inauguration and approval of the requisite Governance structures (Project Steering Committee and Technical Advisory Group) and regulatory framework documents (e.g. ToRs).</p>	<p>1 Commercially viable clean-tech solutions progressed to active business incubation and/or deployment</p>	<p>Achieved</p> <p>1 Commercially viable cleantech solution progressed to active business incubation.</p>	N/A	N/A
2.2.4	<p>Number of recipients of energy-related training facilitated.</p> <p>Achieved</p> <p>225 Trainees were trained as a result of RECORD bursaries and SWITCH training. Trained 19 municipal officials on Municipal Wastewater capacity.</p>	<p>86 Recipients of energy-related training facilitated.</p>	<p>Achieved</p> <p>107 Recipients received energy-related training.</p>	<p>21 More than planned recipients received energy-related training.</p>	<p>SANEDI aims to reach and train as many people as possible and the DoD demonstrated a lot of interest.</p>
2.2.5	<p>Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).</p> <p>Achieved</p> <p>1 Douglas Banks bursary awarded for full time energy study.</p>	<p>1 Energy-related research students/contracted researchers supported</p>	<p>Achieved</p> <p>1 Energy-related research students was supported.</p>	N/A	N/A





**SMART GRIDS**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>					
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.1	Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	4 Energy solution assessed.	Achieved  4 Energy solutions assessed: (a) Design Consideration of South African residential distribution systems containing embedded generation, (b) Naledi Local Municipality revenue enhancement case study, (c) Thabazimbi Local Municipality case study, and (d) Review of planning methodologies used to determine optimal generation of capacity mix.	N/A	N/A
2.1.2	Number of annual Energy Industry status reports (Insights, Trends, International and National collaboration decisions, interfacing and forums).	1 Annual Energy Industry report	Achieved  (a) 1 Energy Industry status reports, and (b) Smart Grid component of annual Insight publication submitted.	N/A	N/A



**SMART GRIDS (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.1	Number of policy support instruments. (Industry roadmaps, sector development plans and industry support tools, etc.).	Achieved (a) The Smart Grid 2030 Vision document was developed and submitted to the DMRE, and (b) 1 EU Donor Funded Smart Grid Programme Lessons Learnt report submitted	1 Policy support instrument	Achieved  1 policy support instrument on Smart Grids policy support on The South African Distribution Industry	N/A
2.2.2	Number of energy-related knowledge sharing events / platforms engaged in (Own hosted, attended, knowledge presented, supported).	Achieved  3 SASGI knowledge sharing events and 2 SASGI industry workshops on Smart Grids were held.	5 Energy-related knowledge sharing events held	Achieved  5 (SASGI) Energy-related knowledge sharing events held.	N/A
2.2.4	Number of recipients of energy-related training facilitated.	Achieved 40 Recipients were trained on Smart Grids fundamentals	60 Recipients of energy-related training facilitated	Achieved  60 Recipients received energy-related training	N/A
2.2.5	Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	Achieved 4 Bursaries were awarded	4 Energy-related research students or contracted researchers supported.	Achieved  6 Energy-related research students were supported.	While 2 additional students received bursaries, there was no negative impact on the budget and it is always favourable to support more students.



**DATA AND KNOWLEDGE MANAGEMENT**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>					
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.3 Minimum number of energy-related datasets maintained per annum.	Achieved  Functional, accurate, integrated and user friendly data repository maintained.	3 Energy-related datasets maintained.	Achieved  3 Energy-related datasets maintained, namely: (a) SATIM Database on Transport Updated, (b) Energy-Economic model Development & Database, and (c) GIS dataset for the hydrogen fuel cell deployment for map creation was updated.	N/A	N/A



**DATA AND KNOWLEDGE MANAGEMENT (continued)**

Performance Indicator		Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>						
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>						
2.1.4	Number of Research Reports provided.	<p>Achieved</p> <p>(a) 1 SATIM model has been updated. 1 Python model has been developed, and</p> <p>(b) 3 Research papers compiled for publication, One energy model developed or updated in response to a policy question.</p>	3 Research reports.	<p>Achieved</p> <p>5 research reports provided namely:</p> <p>(a) An energy-economic critique of electric vehicle penetration in South Africa with emphasis on passenger vehicles,</p> <p>(b) Combined system-wide value of sectoral electrical demand flexibility in South Africa's integrated energy system: an application in SATIM,</p> <p>(c) TEMPO – Techno-Economic Minigrad Planning and Optimization: A flexible open-source model applied for rural electrification in South Africa using hybrid mini-grids including hydrogen storage,</p> <p>(d) Flexible Demand in South Africa's Energy System – Addressing System Modelling Needs and Challenges, and</p> <p>(e) The Measurement &amp; Verification of Energy Conservation A Coal-Fired Power Plant.</p>	2 Additional Research Reports were submitted.	Research papers were compiled faster than anticipated thus creating an opportunity to expand the research topics.



**DATA AND KNOWLEDGE MANAGEMENT (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.1	Number of policy support instruments (Industry roadmaps, sector development plans and industry support tools, etc.).	1 Policy support instruments developed.	Achieved (a) Data Explorer web interactive developed, and (b) Vehicle Parc Calculator developed which is web interactive.	N/A	N/A
			(a) 1 Policy support instrument developed, and (b) 1 Map book showcasing unelectrified rural areas to deploy hydrogen fuels & EE technologies supporting DMIRE was developed.		
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.2	Number of energy-related knowledge sharing events / platforms engaged in (Own hosted, attended, knowledge presented, supported).	1 Energy-related knowledge sharing event/platform hosted or engaged in.	Achieved 1 Hydrogen Stakeholder workshop held.	2 More workshops were held	Data Knowledge Management undertook various engagements and partnerships during the financial year which led to more platforms created to engage and share knowledge.
			3 Energy-related knowledge sharing events held: (a) NRS Workshop, (b) EE Modeling and Policy Impact Workshop, and (b) ERC and SANEDI Transport Modelling Workshop.		
2.2.4	Number of recipients of energy-related training facilitated.	3 Recipients provided with energy-related training.	Achieved 2 Students have been supported.	2 Additional recipients received energy-related training and an additional 3 students were provided with bursaries.	Instead of just providing training, SANEDI supported 3 students financially as well during the year and the Institute always aims to reach/train as many people as it can.
			5 Recipients received energy-related training, and 3 Students were also provided with bursaries.		



**CLEANER MOBILITY**

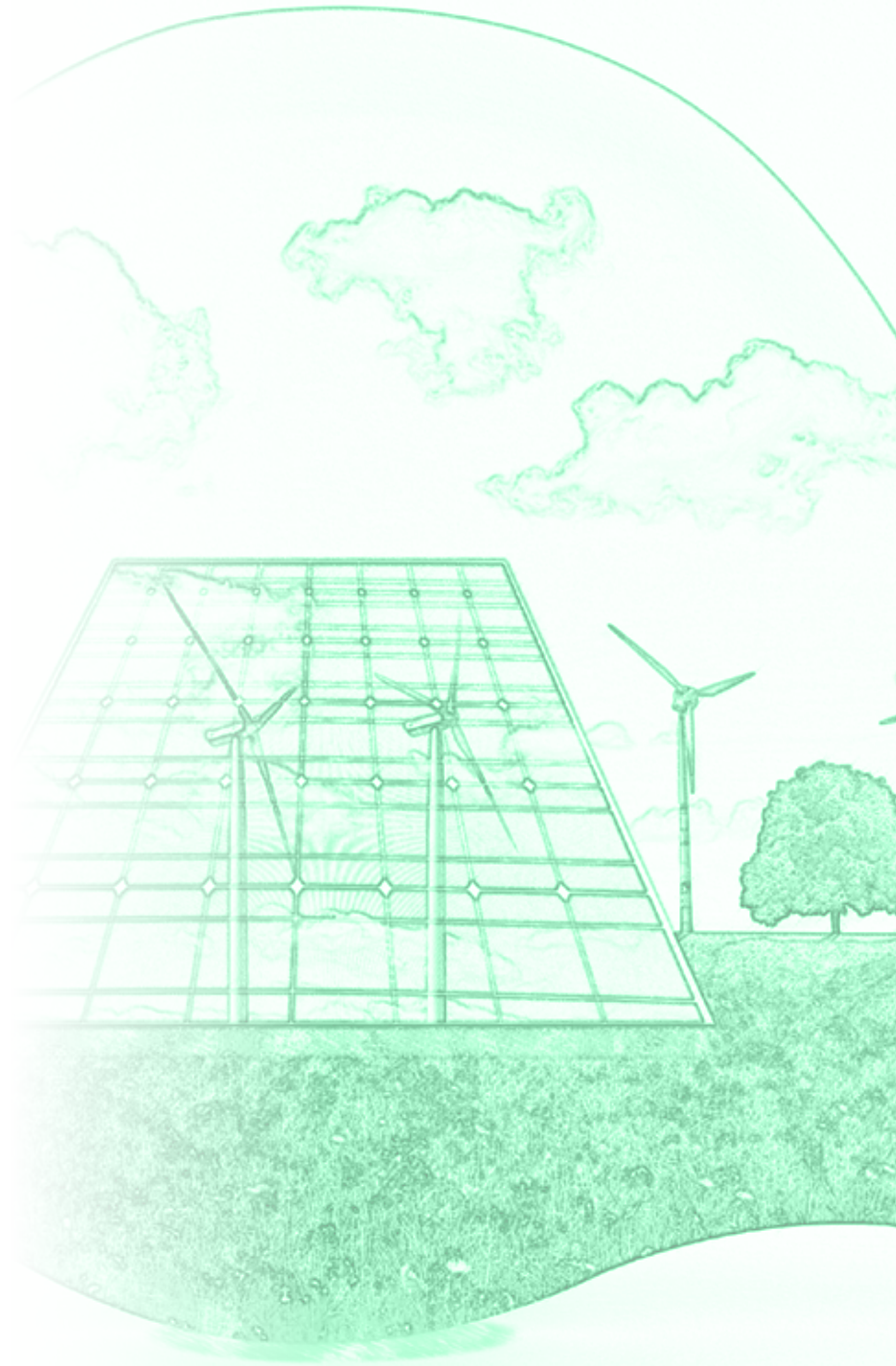
Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>					
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.1	Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Not Achieved	Not Achieved 4 Energy solutions assessed: (a) Green Technologies Dialogue Report, (b) Study report to contribute to the development of DoT's Green Transport Strategy, (c) Initial feasibility study in collaboration with (DBSA, Col, Tshwane and eThekweni Municipality) for rollout of electric buses in 3 Metros, and (d) National Cycling Strategy.	1 Out of 5 energy solutions was not assessed.	One of our partners (Col) has requested an extension in order to undertake further consultation with internal Stakeholders.
2.1.2	Number of annual Energy Industry status reports (insights, Trends, International and National collaboration decisions, interfacing and forums).	Achieved The CM insight developed which contributed to SANEDI annual Insight publication.	Achieved 2 Annual Energy Industry status reports submitted: (a) CM component into SANEDI annual Insight publication, and (b) The Annual EVIA publication: Electro Mobility Africa was published. SANEDI works in partnership with UNIDO in the publication.	1 Additional report was submitted.	The CM Program in collaboration with LCT-SA supported EVIA with its annual publication as EVIA was not formally constituted at the time of publication. The CM currently chairs EVIA and will continue until EVIA is formally constituted.
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.2	Number of energy-related knowledge sharing events / platforms engaged in (Own hosted, attended, knowledge presented, supported).	Achieved 1 EVIA Stakeholder platform event hosted.	Achieved 2 Energy-related knowledge sharing events (a) USIA workshop, and (b) Policy workshop on Eco mobility and NMT	1 Additional workshop was held.	N/A



**DATA AND KNOWLEDGE MANAGEMENT (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.4	Number of recipients of energy-related training facilitated.	6 Recipients of energy-related training.	Achieved  57 Recipients of energy-related training.	51 More recipients were trained.	As an initiative to expose as many people to CM, SANEDI facilitated the attendance of delegates to the annual conference which is why more people were reached.

**WORKING FOR ENERGY**





Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 2: Applied Energy Research, Development and Innovation</b>					
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.1	Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	2 Energy solutions assessed	Achieved 2 Energy solutions assessed (a) 1 Study report in the form of a dissertation on: An Investigation Into Biogas As An Energy Solution In Rural South African Households, and (b) SANEDI-UNIVEN report for the Chavani Project.	N/A	N/A
2.1.2	Number of annual Energy Industry status reports (Insights, Trends, International and National collaboration decisions, interfacing and forums).	1 Annual Energy Industry status report	Achieved 2 Energy Industry status reports (a) WfE component of annual Insight publication submitted, and (b) DEA Supplement 2018 Insights & Trends.	1 Contribution was also made to the DEA Insights & Trends report.	SANEDI was requested to provide contribution to the DEA report.
<b>Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.</b>					
2.1.4	Number of Research Reports provided.	1 Research Report provided.	Achieved 1 Research Report provided Assessment of Viability and Implementation Options for Renewable Energy in Rural and Low-Income Urban Areas in South Africa.	N/A	N/A





**WORKING FOR ENERGY (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement	Deviation from planned target	Comment on deviations
<b>Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy</b>					
2.2.1 Number of policy support instruments. (Industry roadmaps, sector development plans and industry support tools, etc.).	WfE did not have 2017/18 APP targets due to budget constraints.	1 Policy support instrument	Achieved 1 Policy support instrument Micro Digester Working Group guideline document	N/A	N/A
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in (own hosted, attended, knowledge presented, supported).	WfE did not have 2017/18 APP targets due to budget constraints.	4 Energy-related knowledge sharing events held	Not Achieved	2 Energy-related knowledge sharing events were held.	WfE needs to review the way energy-related events are conducted in order to achieve the greatest impact possible.
2.2.4 Number of recipients of energy-related training facilitated.	WfE did not have 2017/18 APP targets due to budget constraints.	15 Recipients of energy related training	Not Achieved	No energy related training was conducted.	Delayed negotiation between SANEDI and the UKZN on the newly introduced administration fee charge. Negotiations have been successfully concluded resulting in a contract amendment being signed between the institutions reflecting the new terms.
2.2.5 Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	WfE did not have 2017/18 APP targets due to budget constraints.	6 Energy-related research students or contracted researchers supported.	Not achieved	No energy-related research students were supported or contracted	No clear evidence of how students and researchers are supported by the WfE programme. In the future need to sign contract or obtain letters from University demonstrating support and how it is provided.



## 12.4. Programme 3: Energy Efficiency (EE)

### 12.4.1. Purpose

The purpose of SANEDI’s Energy Efficiency (EE) programme is to accelerate a shift towards a resource and particularly, an energy (including gas, liquid fuels, electricity and water) efficient society.

The programme does so by:

- (a) Supporting the implementation of EE interventions with technical assistance,
- (b) Knowledge creation that can support EE-related planning and decision-making. As such, the programme is concerned with developing a portfolio of assessed and demonstrated EE solutions as well as data assets that can support high confidence EE planning, decision-making and policy development in the country, and
- (c) Accelerating the transformation of the EE market and landscape in the country. This entails building capacity (skills and competencies) and implementing market and/or industry development initiatives that will contribute to a culture of greater efficiency.

### 12.4.2. Sub-programmes

The EE programme does not have any sub-programmes defined.

### 12.4.3. Programme 3: Strategic outcome-orientated goals

Strategic Outcome-orientated goal	Goal statement
Energy innovation, knowledge and skills for a less carbon intensive, more environmentally sustainable, affordable and efficient energy system.	(a) Identify and develop suitable, innovative energy solutions (150 projects), knowledge (9 datasets) and skills (1,000 researchers and trainees supported) towards a less carbon intensive, more environmentally sustainable, affordable and efficient energy system that can support the country’s economic and socio-economic development objectives.





## ENERGY EFFICIENCY (EE)

### 12.4.4. Strategic objectives, performance indicators planned targets and actual achievements

The first three columns are as reflected in the approved 2018/19 APP. Achievement against these targets is reflected in the last three columns.

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 3: Energy Efficiency</b>					
<b>Strategic Objective 3.1: Accelerated adoption of EE solutions to optimise the use of finite resources development information and advice to inform high confidence energy planning, decision-making and policy development</b>					
3.1.1	Number of EE solutions assessed (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	33 New/additional EE solutions were supported.	1 EE solution assessed.	Achieved 1 EE solution assessed:- Report on the IEA Annual Global Energy Efficiency Conference, with recommendations for South Africa	N/A
3.1.2	Number of EE solutions implemented (12L, 12L, AFD support projects, cool roofs).	No assessment conducted	59 EE solutions implemented.	79 EE solutions were implemented.	20 More solutions were implemented than planned.  On the Section 12L tax incentives, there was a significant upturn in the number of applications towards the end of the financial year.
3.1.3	Number of annual EE Industry status reports. (Insights, trends, international and National collaboration decisions, interfacing and forums).	EE sector contribution developed for annual SANEDI Insight publication	1 EE contribution to annual SANEDI Insight publication	Achieved 1 EE sector contribution developed for annual SANEDI Insight publication	N/A



**ENERGY EFFICIENCY (EE) (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 3: Energy Efficiency</b>					
<b>Strategic Objective 3.1: Accelerated adoption of EE solutions to optimise the use of finite resources development information and advice to inform high confidence energy planning, decision-making and policy development</b>					
3.1.4	Number of EE datasets maintained.	The following datasets were maintained: (a) 12 I database, ESCO Register, (b) 12 L database, BigEE database, (c) Cool surface product database, and (d) CRRRC knowledge sharing platform.	6 EE-related datasets maintained	6 EE-related datasets maintained namely: (a) Section 12L database, (b) Section 12I database, (c) National ESCO Register, (d) Co,ol Surfaces Product database, (e) BigEE database, (limited), and (f) CRRRC knowledge sharing platform.	N/A
3.1.5	Number of EE Research Reports provided.	New Indicator	1 EE Research Report provided	1 EE Research Report provided:- iKheis Cool Surfaces Project	N/A
3.1.6	Number of industry knowledge sharing events or platforms hosted to promote EE-related market /industry development.	9 12L and 12 I roadshows held, 2 cool surfaces industry association meetings held.	11 Industry knowledge sharing events or platforms hosted or attended.	13 Industry knowledge sharing events held.	2 More events were held. Due to unexpected demand for information on EE related matters 2 additional knowledge sharing events were held.
3.1.7	Number of recipients of energy-related training facilitated.	Training not provided due to budget constraints	100 Recipients of energy-related training.	282 Recipients received energy-related training.	Target exceeded, due to more-than-expected interest in the cool surfaces possibilities in the SANDF.



**ENERGY EFFICIENCY (EE) (continued)**

Performance Indicator	Actual Achievement 2017/18	Planned Target 2018/19	Actual Achievement 2018/19	Deviation from planned target	Comment on deviations
<b>Programme 3: Energy Efficiency</b>					
<b>Strategic Objective 3.1: Accelerated adoption of EE solutions to optimise the use of finite resources development information and advice to inform high confidence energy planning, decision-making and policy development</b>					
3.1.8	Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	13 Energy-related research students or contracted researchers supported.	Support provided to 13 researchers through the EEDSM Hub.	Not achieved	DSI (previously DST) had to prioritise for other projects.
				DSI (previously DST) funding for this activity was withdrawn.	



# **PART C: GOVERNANCE**



## 13. Introduction

South African SOEs form a significant portion of vital industries that drive the economy. They provide key economic inputs such as electricity, transportation and telecommunications. Without these key SOEs, the resources, tourism, information technology and manufacturing sectors inter alia could not function effectively. These sectors are principal drivers of the formal sector economy, and provide for the bulk of economic growth.

Corporate Governance embodies the processes and systems by which public entities are directed, controlled and held to account. The status of South Africa’s SOEs and their proper Governance and control has become the subject of lively debate within Government and civil society. It is in this context that proper Governance and control of SANEDI has become an important component of the Board’s oversight function. Parliament, the Executive Authority and the Accounting Authority of the Public Entity are responsible for Corporate Governance. As a Public Entity in terms of the PFMA, SANEDI is committed to good Corporate Governance.

In addition to legislative requirements based on SANEDI’s enabling legislation and the Companies Act (Act no. 71 of 2008), Corporate Governance is applied through the precepts of the Public Finance Management Act, 1999 (Act No. 1 of 1999) (PFMA), and the Protocol on Corporate Governance in the Public Sector which run in tandem with the principles contained in the King Report on Corporate Governance.

## 14. Portfolio Committees

The Parliamentary Portfolio Committee (PPC) on Energy has oversight of SANEDI. During the 2018/19 financial year, SANEDI had no interaction with the PPC.

## 15. Executive Authority

The Executive Authority (EA) of SANEDI is the DMRE (previously DoE). As per the compliance requirements, SANEDI submitted the following reports to the EA on the indicated dates:

Report	Date of submission	Issues raised by the EA (where relevant)
First quarter performance report for the period 1 April to 30 June 2018	31 July 2018	None
Annual Report for 2017/18	31 August 2018	SANEDI’s Annual Report for 2017/18 was approved by the Minister of Energy in September 2018 and tabled in Parliament on 26 September 2018.
First draft APP for 2019/20	31 August 2018	None
Second quarter performance report for the period 1 July to 30 September 2018	30 October 2018	None
Second draft APP for 2019/20	31 August 2018	None
Third quarter performance report for the period 1 October to 31 December 2018	31 January 2019	None
Final draft APP for 2019/20	31 January 2019	The APP for 2019/20 has been submitted to the Minister of Energy and currently awaiting approval.
Fourth quarter performance report for the period 1 January to 31 March 2019	30 April 2019	None



## 16. The Accounting Authority / Board

### 16.1. Introduction

The Board is the governing body and accounting authority of the SOEs. All SOEs should be headed and controlled by an effective and efficient Board, comprising of the appropriate mix of Board members representing the necessary skills to strategically guide the SOE. The Board has absolute responsibility for the performance of the SOE and is fully accountable to the SOE for such performance. Governance principles regarding the role and responsibility of SOE Boards are contained in the PFMA and the Protocol on Corporate Governance. The Board is also responsible for providing the SOE with strategic direction. The SANEDI Board is appointed by the DMRE (previously DoE), in consultation with the Minister of Science and Innovation (previously DST).

The Board meets at least once every quarter and twice more in the year to review and approve critical compliance submissions including the Annual Report, Annual Financial Statements, Annual Performance Plan and five-year Strategic Plan, as relevant. Further meetings may be called by the Chairperson of the Board as deemed necessary.

In adhering to best practice and sound Governance principles, the SANEDI Board subjects itself to an annual assessment on the effectiveness of the Board and its committees.

that business operations have on the environment and the society within which it operates,

- (e) Ensure the Institute’s ethics are managed effectively, and the Institute has an effective Social Justice and Ethics Committee,
- (f) Ensure the Institute has an effective and independent Audit Committee,
- (g) Be responsible for the Governance of risk,
- (h) Be responsible for information technology (IT) Governance,
- (i) Ensure the Institute complies with applicable laws and considers adherence to non-binding rules and standards,
- (j) Ensure there is an effective risk-based internal audit,
- (k) Protect and foster the Institute’s image and reputation,
- (l) Ensure the integrity of the Institute’s integrated report,
- (m) Act in the best interests of the Institute by ensuring that individual Board Members:
  - (i) Adhere to legal standards of conduct, and
  - (ii) Disclose real or perceived conflicts to the Board and to the Minister of Energy (“the Minister”) and deal with them accordingly.
- (n) Evaluate the performance of the CEO, and
- (o) Impart knowledge and insights to SANEDI.

### 16.2. The Role of the Board

The Board’s role and responsibilities, as captured in the Board Charter and corresponding to the PFMA and the provision of the National Energy Act, are to:

- (a) Act as the focal point for, and custodian of, Corporate Governance by managing its relationship with Management and other Stakeholders of the Institute along sound Corporate Governance principles,
- (b) Appreciate that strategy, risk, performance and sustainability are inseparable and to give effect to this by:
  - (i) Contributing to and approving the strategy,
  - (ii) Satisfying itself that the strategy and annual performance plans do not give rise to risks that have not been thoroughly assessed by Management,
  - (iii) Identifying key performance and risk areas,
  - (iv) Ensuring that the strategy will result in sustainable outcomes, and
  - (v) Considering sustainability as a business opportunity that guides strategy formulation.
- (c) Provide effective and ethical leadership,
- (d) Ensure the Institute is, and is seen to be, a responsible corporate citizen by having regard to not only the financial aspects of the business of the Institute but also the impact

### 16.3. Board Charter

The Board was appointed 1 December 2016 and the Board Charter was adopted on 28 February 2017 and revised 24 April 2018. The charter is subject to the provisions of the Energy Act, the Public Finance Management Act, Act No. 1 of 1999 (the PFMA), the Constitution of the Republic of South Africa, Act No. 108 of 1996 (the Constitution) and any applicable law or regulatory provision.

The purpose of the charter is to provide a concise overview of:

- (a) the role, responsibilities, functions and powers of the Board, individual Board Members and the Chief Executive Officer and Management of the Institute,
- (b) the powers delegated to various Committees of the Board, and
- (c) the policies and practices of the Board with respect to matters such as Corporate Governance, declaration of conflicts of interest, Board meeting documentation and procedures, composition of the Board and the induction, training and evaluation of Board Members and Board Committees.

The Board has been evaluated on the implementation of the charter in May 2019.





## 16.4. Composition of the Board

The Board is comprised in terms of section 8 of the Energy Act. Board Members are appointed by the Minister in consultation with the Minister of Science and Innovation (previously DST). Section 8(2) of the Energy Act requires the following Board composition:

- (a) Chairperson,
- (b) Deputy Chairperson, and
- (c) Representatives from the following Departments:
  - (i) Mineral Resources and Energy (previously DoE),
  - (ii) Trade and Industry,

- (iii) Science and Technology,
  - (iv) Environmental Affairs ,
  - (v) Tourism, and
  - (vi) Transport.
- (d) And two other suitably qualified persons.

In the 2018/19 financial year the Chairperson of the Board submitted their resignation and the Deputy Chairperson was appointed as Interim Chairperson. The Board also lacked representation from the Departments of Tourism and Transport, however the DMRE (previously Department of Energy (DoE)) is in process of rectifying this.





The Board consists of the following members:

Name	Designation	Date appointed/re-appointed	Resigned/Term ended	Qualifications	Board <sup>18</sup> Directorships	Other committees or task teams <sup>19</sup>	No. of meetings <sup>20</sup> attended
Mr Nkululeko Buthelezi	Interim Chairperson, and FinCo Chair	01-Dec-16	N/A	Dip Scientific Computing and Software Engineering, Dip Management, Adv Dip Project Management, Post Grad Dip Management, MBA	None	BARC, FinCo, SJ&E	Board: 5 Committee: 2
Mr Mlondolozzi Mkhize	Independent Director, and HR & Rem Chair	01-Dec-16	N/A	BA Soc Sci		BARC, HR&R, SJ&E	Board: 0 Committee: 0
Ms Phuthanang Motsielwa	Independent Director, and BARC Chair	20-Aug-13	N/A	B Acc (CA)(SA), RA	1. PSTM Auditors Inc 2. Director African Women Chartered Accountants 3. Setshoge Foundation	BARC, FinCO, SJ&E	Board: 5 Committee: 1
Mr Mimbboneni Muofhe	Director, and Projects Committee Chair	01-Dec-16	N/A	BSc (Hons), MSc, MBA	1. The Innovation Hub 2. Biovac	Proj, SJ&E	Board: 2 Committee: 0
Dr Rebecca Maserumule	Alternate Director	23-Oct-13 01-Dec-16	N/A	PhD, BSc	None	Alternate	Board: 2 Committee: 1
Ms Deborah Ramalope	Director	01-Dec-16	N/A	BSc (Hon), MSc, MBL	None	Proj	Board: 2 Committee: 1
Ms Nomawethu Qase	Director	01-Dec-16	N/A	M Phil (Energy Studies), Post Grad Dip Management, B Soc Sc (Hons)	None	HR & Rem, Proj	Board: 3 Committee: 2
Mr Thabang Audent	Alternate Director	01-Aug-17	N/A		None	Alternate	Board: 1 Committee: 0
Mr Gerhard Fourie	Director	01-Dec-16	N/A	Diploma Mech Eng, B Com Economics, MBA	None	Proj, FinCo	Board: 4 Committee: 1

<sup>18</sup> Reflecting current board directorship/membership

<sup>19</sup> Where BARC | Board audit and risk committee; HR&Rem | Human Resources and Remuneration Committee; Proj Projects Committee; FinCo | Finance and Investment Committee;

SJ&E | Social Justice and Ethics Committee.

<sup>20</sup> Board meetings and Board committee meetings



## 16.5. Committees

The Board has established five committees to assist in the discharge of its duties. These are: the Board Audit and Risk Committee (BARC), the Remuneration and Human Resource Committee (REMCO), the Projects Committee, the Finance Committee, and lastly the Social Justice and Ethics Committee.

It is required that all committees operate under Board-approved terms of reference, which may be updated from time to time to align with the latest developments in Corporate Governance and/or to incorporate revised requirements of the Board. The operation of the committees is guided by the defined ToR and each committee is chaired by a Board member as appointed by the Board. The ToR for the BARC and REMCO committees were prepared and adopted by the Board. The resignation of the Chairperson and unavailability of certain Board members created a vacuum which led to the other committees being unable to establish a quorum and thus not being able to sit during the 2018/19 financial year.

Committee	No. of meetings held	No. of members	Name of members
Board Audit and Risk Committee (BARC)	1	2 <sup>21</sup>	Ms Phuthanang Motsielwa (Chair), Mr Mlondolozzi Mkhize, and Mr Nkululeko Buthelezi (resigned).
Human Resources and Remuneration Committee	1	3	Mr Mlondolozzi Mkhize (Chair), Ms Nomawethu Qase, Mr Nkululeko Buthelezi, and Dr Ingrid Tufvesson (resigned from Board).
Projects Committee	1	3	Mr Mmboneni Muofhe (Chair), Ms Deborah Ramalope, Dr Ingrid Tufvesson (resigned from Board), and Mr Gerhard Fourie.
Finance and Investment Committee	1	3	Mr Nkululeko Buthelezi (Chair), Ms Phuthanang Motsielwa, Dr Ingrid Tufvesson (resigned from Board), and Mr Gerhard Fourie.
Social Justice and Ethics Committee	0	4	Dr Ingrid Tufvesson (resigned from Board), Ms Phuthanang Motsielwa, Mr Nkululeko Buthelezi, Mr Mlondolozzi Mkhize, and Mr Mmboneni Muofhe.

<sup>21</sup> Mr N. Buthelezi had to resign as a member of BARC when he was appointed Interim Chairperson. The unavailability of Mr M. Mkhize led to the committee unable to hold meetings



## 16.6 Remuneration of Board members

Name	Remuneration	Other allowance	Other re-imbursments	Total
Mr Nkululeko Buthelezi	67,852.00	-	-	67,852.00
Ms Phuthanang Motsielwa	38,880.00	-	-	38,880.00
Mr Mlondolozzi Mkhize	-	-	-	-

## 16.7 Going Concern

The financial statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

## 16.8 Subsequent events

Subsequent to the financial year end, the board is aware of an adjustment to the CAPEX budget to make provision for updates to IT infrastructure, with the effect that the approved CAPEX budget of the entity will increase by R4,1 million.





## 17. Stakeholder Engagement

### 17.1. Introduction and Perspective

The Stakeholder Engagement focus is placed on building of strong constructive interpersonal relationships with key Stakeholders, particularly the DMRE (previously Department of Energy). SANEDI has to rely a great deal on its Stakeholders in order for it to fulfil its mandate. These include matters of policy, funding, programme development and implementation, and collaboration.

The emphasis of the Stakeholder Engagement Strategy is on improving the quality and frequency of interactions with Stakeholders in order to create a supportive, collaborative environment within which SANEDI can fulfil its mandate and achieve its strategic priorities. There is an engagement plan for each Stakeholder. In addition, a scorecard, a risk Management process and a supporting budget to support the strategy.

The approach taken is based on the International AA1000 Stakeholder Engagement Standard. The outputs are fully congruent with the Global Reporting Initiative (GRI) G4 Guidelines and International Integrated Reporting Council (IIRC) reporting requirements, even though this is not a requirement for a SoE.

The Stakeholder Engagement Strategy has been created to improve the quality and frequency of interactions with Stakeholders in order to create a supportive, collaborative environment within which SANEDI can fulfil its mandate and achieve its strategic priorities. Needless to say, the GRI guidelines assist in providing holistic framework that address broad performance such as social, environmental and economic reporting to Stakeholders. It is against this backdrop that SANEDI adheres to sustainability reporting to mitigate negative environmental, social and Governance impacts, thereby improving SANEDI's reputation as well as to enable external Stakeholders to understand SANEDI's vision, mission and values.

The boundaries of Stakeholder engagement are defined by the scope and context of the SANEDI Strategic Plan and its mandate, as defined by legislation and the remit provided by the DMRE (previously Department of Energy). No engagement outside these parameters will be entertained, unless there are extenuating circumstances to justify such.

As a norm, the SOEs are required to submit their entities' plans/ activities to the Government Communications Information System's (GCIS) DashBoard via the DMRE's Chief Directorate on a monthly basis. SANEDI has been submitting consistently during the period under review in accordance with the directive of the Acting DG.

Scanning the environment regularly, such as the political landscape and the new emerging best practices will continue to play a significant role in the implementation of the plan. To this end, the portfolios have reached out to SANEDI's collaborative partners/ key Stakeholders on a regular basis in an endeavour to cement the synergistic relations. SANEDI in tandem with its collaborative partners participated in events showcasing its programmes as well as information-dissemination on career opportunities in the Energy Sector, in particular to the rural communities.

Monthly reports are a pre-requisite and the Internal Auditors have conducted quarterly Stakeholder Engagement audits during the period under review to assess that adequate control framework is in place in certain key control activities. These were found to be adequate and effective. In accordance with the best business practices, the monthly reports focused on progress made/lack thereof. In a case of lack thereof, remedial steps were stipulated.

The Government had declared 2018, a year of Nelson Mandela and Albertina Sisulu with the theme: "Be the Legacy." South African Government encouraged all citizens to celebrate the legacy of Nelson Mandela and Albertina Sisulu by doing activities that will leave a legacy on the host communities. In his words, Nelson Mandela said: "What counts in life is not the mere fact that we have lived. It is what difference we have made to the lives of others that will determine the significance of the life we lead."

In light of the above, the centenary of Ma Sisulu was celebrated under the theme "A Woman of Fortitude", which provides an opportunity to pay tribute to and draw inspiration from the courage, fortitude, selflessness and dedication of Ma Sisulu and other heroines, past and present and to reclaim the women's struggle heritage as central to our freedom and democracy. As part of the National Albertina Sisulu Centenary programme, Government launched the "Women of Fortitude", an Inter-Ministerial Committee campaign chaired by Minister Jeff Radebe on 20th & 22nd November 2018 respectively, which draws on the inspiration of the life and legacy of Ma Sisulu. The objective of this campaign was to reignite passion in women of South Africa in embracing the values and principles of Albertina Sisulu.

A total of a 100 courageous, fearless and resilient women were been selected to drive the public conversation and create a chain of active citizenry by mentoring, sponsoring and committing towards a positive change in our nation. These women have a high level of professionalism and are leaders in their respective fields of work, inspirational to other women and are passionate about South Africa and making it a better place. They display strength of character, resilience, courage and bravery. SANEDI's Corporate Stakeholder Engagement Lead was nominated amongst the 300 women and she was eventually appointed as one of the champions of the hundred #Woman of Fortitude.



7.1.1.1. **Prioritised Stakeholders**

A preliminary prioritisation of the list of Stakeholders was undertaken. The following list of priority Stakeholders emerged:

- Broader Public,
- Civil Society,
- COGTA / SALGA [Municipalities],
- Council for Geoscience,
- CSIR,
- Department of Mineral Resources and Energy, (DMRE) (previously Department of Energy, (DoE)),
- Department of Environmental Affairs, (DEA),
- Department of Science and Innovation, (DSI) (previously DST),
- Department of Transport, (DoT),
- Embassies / Funders /World Bank / GIZ,
- Eskom,
- IDC,
- IEA,
- Media,
- National Treasury, (NT),
- NERSA,

- Parliamentary Portfolio Committee,
- SANEDI Board,
- SANEDI Employees,
- Service Delivery Entities, and
- Universities

17.1.2. **Stakeholder Map**

These Stakeholders were then mapped according to the following table:

The horizontal axis denotes the influence that the Stakeholder has on the organisation. High influence Stakeholders are grouped towards the right hand side.

The vertical axis denotes the importance of SANEDI to the Stakeholder. Stakeholders who are dependent on SANEDI are grouped towards the top of the table. The following map describes SANEDI Stakeholder relationships:

All Stakeholders are important and should be given attention according to their individual engagement plans. Stakeholders in the *'Monitor'* quadrant will not be neglected in favour of Stakeholders in the *'Manage Closely'* quadrant.

		Stakeholder Influence on the Organisation			
		No Influence	Low Influence	Some Influence	High Influence
		Stakeholders' support for the organisation has lesser impact on success		Stakeholders' support for the organisation has greater impact on success	
Organisational Impact on SANEDI- [importance]	Stakeholder is highly dependent on SANEDI, they have no choice	<b>Keep Satisfied:</b> Treat them fairly, honour commitments: policy, regulations, industry norms		<b>Manage Closely:</b> Invest in engagement process to manage concerns and develop solutions	
	No direct impacts - stakeholders have broad range of choice	<b>Monitor:</b> Low priority - provide access and information		<b>Keep informed</b> Keep involved and informed	

Figure 7: SANEDI Stakeholder Map approach



### 17.1.3. Consolidated Issues

- (a) **Funding:** Securing and managing funds for operations and projects. *Accountability,*
- (b) **National Repository,** Repository for energy information, research and data. *IP,*
- (c) **Governance:** Formalised relationships, risk and reporting,
- (d) **DMRE - SANEDI:** Working relationship with DMRE, reputation and perceptions, (Undertake more work together, [partnerships]),
- (e) **Projects:** Development, funding, reporting, cooperation, integration, consolidation and delivery of projects [ Individual projects], [opportunities for Job Creation],
- (f) **International Co-operation:** International profile, relationships, funding and co-operation with Governments and bodies,
- (g) **Other Government Departments:** Formal, structured relationships, projects,
- (h) **Human Resources:** Equitable allocation of human resources, [skills] for projects,
- (i) **Communications:** Information sharing, branding as energy leaders, and innovators, [NERSA, PPC, Media],
- (j) **Strategic Leadership:** In the energy field,
- (k) **Development Issues:** Expanding the SANEDI footprint in Southern Africa, and
- (l) **Synergy with other resources:** Water, waste and air.

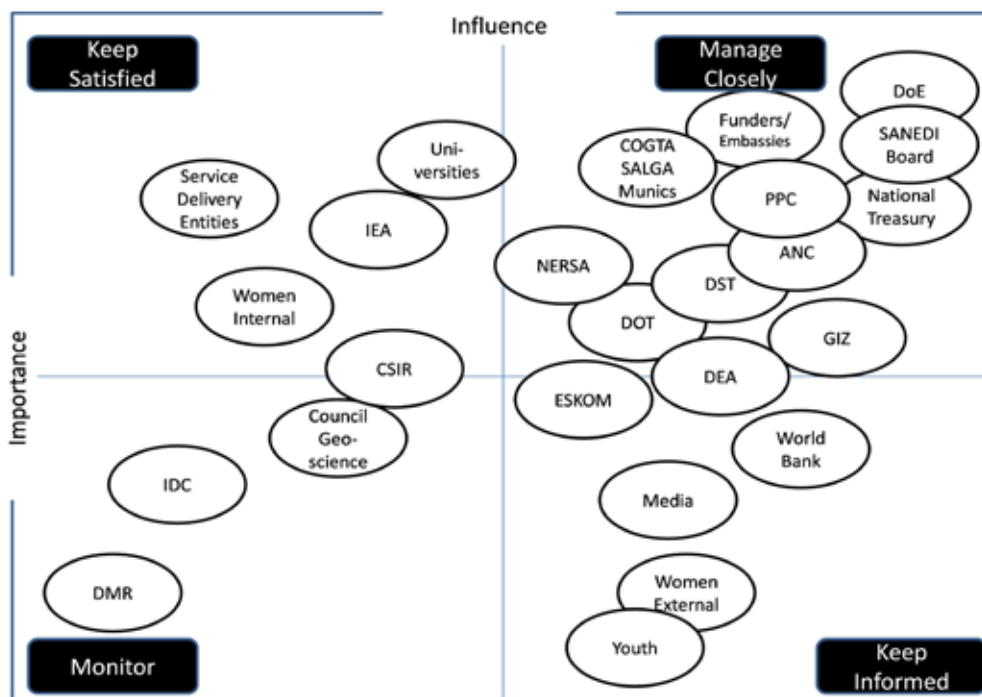


Figure 8: SANEDI Stakeholder Map





## 17.2. Implementation

Implementation takes place according to the individual goals and actions for each Stakeholder. Progress is reported at the monthly EXCO meetings, as well as the quarterly Stakeholder Engagement Steering Committee (SteerCo) and ultimately the SANEDI Board meetings. The EXCO will make any course corrections required, based on the recommendations of the SteerCo.

Due to budgetary constraints SANEDI in partnership with its strategic allies embarked on a number of activities in its quest to contribute towards the achievement of some of the objectives of the National Development Plan. Below are some of the highlights of the events that SANEDI participated in during the period under review:

- (a) KZN MANDELA DAY held on 6<sup>th</sup> and 7<sup>th</sup> AUGUST 2018 respectively at Sigcawu Early Childhood Development Centre (ECDC) at Nonoto, Kwa-Ximba and Masizane ECDC at Magqibagqiba, Kwa Maphumulo, a collaboration between SANEDI, the DMRE, KZN Security (Security, Disaster, Emergency), DMRE's (previously DoE) Deputy Minister's office (Political support and liaison), Maphumulo Local Municipality, KZN Social Development, EThekweni Metropolitan Municipality and the National Development Agency,
- (b) On 18 July 2018, the DMRE (previously DoE) in partnership with SANEDI co-hosted the launch and opening of Reneuwe Day Care Centre located in Qwaqwa, Free State. The launch was attended by the Honorable Minister of Energy Jeff Radebe, the Deputy Minister of Energy, Ambassador Thembisile Majola, local Government officials from Maluti-a-phofung Municipality and members of the general public. Also in attendance was SANEDI's Interim Chairperson Mr. Nkululeko Buthelezi and SANEDI's General Manager: WfE Mr. David Mahuma,
- (c) The event kicked off with speeches from the Minister and the Deputy Minister of Energy who emphasized the importance and the significant role that the community plays in caring for its children. In addition, representatives from the relevant institutions, including SANEDI's chairperson Mr. Nkululeko Buthelezi delivered speeches which were followed by the official opening of the centre. Furthermore, as part of the Mandela-Sisulu Centenary, a wall painting depicting relevant Stakeholders formed part of the legacy. Tributes were paid through hand paintings and the writings on the wall. At the end of the speeches, SANEDI grabbed the moment and show-cased the application of the biogas digester,
- (d) The DSI invited SANEDI, its collaborative partner to the launch of the Mahikeng Astronomy Telescope (MAT) at the North West University to showcase its offerings on Friday 7th of September 2018 at the Mahikeng Campus,
- (e) It is a 16-inch Meade LX200 GPS located at the Mahikeng Astronomical Observatory and operates remotely which allows learners, students, educators and members of the general public to access it from anywhere in the country.
- (f) The launch was attended by the Minister of Science, and Technology, Mmamoloko Kubayi-Ngubane who was accompanied by the Vice-Principal of the North West University Prof Herman van Schalkwyk, Government officials, high school learners, students, educators and representatives of both Government and private institutions,
- (g) The event included a career exhibition for the learners and students interested in careers within the Science, Technology, Engineering, Maths and Innovation (STEMI) field,
- (h) The South African National Energy Development Institute (SANEDI) awarded three learners with the Carbon Capture & Storage (CCS) Special Award at the Eskom Expo for Young Scientists' International Science Fair held on 4 October 2018 in Boksburg, East of Johannesburg. All three scientific projects seek to reduce and utilise CO<sub>2</sub> that would otherwise be released into the atmosphere by the industry,
- (i) SANEDI's participation at the Eskom Expo for the Young Scientists commenced in 2015 and entailed providing judges and mentorship as part of its ongoing professional development programme, as well as awarding Carbon Capture and Storage Special Awards. This year saw more than 15 Carbon Capture, Utilisation & Storage (CCUS) projects developed by learners during the Regional & International Science Fair (ISF) Finals. SANEDI only awarded 11 Special Awards in Regionals and ISF, respectively,
- (j) TESS Technology Academy was hosting its 16th celebration and awareness of Science, Technology, Engineering, Mathematics and Innovation (STEMI) festival at Amsterdam in Mpumalanga Province on 13th to 17th of August 2018 with the objectives of achieving the following:
  - (i) To encouraging learners to enrol in STEM subjects at high school,
  - (ii) To promote science by showcasing local innovations in the STEMI fields, and
  - (iii) To introduce STEMI careers appealingly to learners.
- (k) SANEDI and SAASTA have entered into an MoU to popularise amongst others STEMI initiative,





- (l) Ten schools attended the festival, from grades 8 to 10. SANEDI participated and demonstrated different models of renewable energy to the pupils and teachers,
- (m) Solar Payback South African project partners, the SANEDI hosted a policy workshop in Pretoria, Gauteng, South Africa on 24th of July 2018. Interested parties from multiple Government, private, finance sector and International Stakeholders gathered to discuss barriers to the implementation of Solar Heat for Industrial Processes (SHIP) technologies in South Africa and the potential of Energy Service Company (ESCO) Models in this space,
- (n) SANEDI and RECORD under the banner of SOLTRAIN have embarked on creating awareness about Renewable Energy (RE), Energy Efficiency (EE) and, more specifically, Solar water Heating (SWH) at military units across Limpopo. Half day awareness training sessions include basic RE and EE understanding and then focussed on how SWH works and can make a difference across varying scales. This included an experiment conducted from a worksheet designed originally for School Science clubs, known as the Science Spazas. In the experiment members of the SANDF got to test the hypothesis behind why heating water with the sun really works. At the most recent session after only three and a half hours in the sun, the test water had reached a whopping 66C! Nothing like a touch and feel exercise to prove science,
- (o) SACCCS through its Pilot School Project (PSP), aims to conduct outreach programmes for Maths, Science and Technology learners. With the assistance of Ugu and Eskom, Expo for Young Scientist Graduates were invited to participate and assist learners to develop projects for the Eskom Expo by being appointed on 1 year part-time contracts. Local learners were encouraged to participate in the Eskom Expo for Young Scientists, an exposition, or science fair, where graduates have a chance to partake in scientific investigations of their choice with a bias towards CCS or Climate Change. Through this initiative a total of five undergraduates were contracted under the SANEDI, Ugu Municipality and Eskom Expo for Young Scientist Agreements,
- (p) The capacity building activities were aimed at equipping SANEDI and Stakeholder Engagement team with surface monitoring skills, thus creating readiness for detection of potential leaks in the PCSP. The monitoring programme saw collaborative efforts being strengthened with National and local Stakeholders that have invested interest in CCS as well as research units from South African Universities,
- (q) Ms Gcobisa Melamane, who is the Environmental monitoring lead for SACCCS conducted water monitoring in KZN (Farm Baiker) with two SACCCS bursary students Mr Mzikayise Nkwane from UKZN and Mr Teddy Mbonambi from UP, and
- (r) On 29<sup>th</sup> November 2018 at the council meeting of the Ugu District Municipality, SANEDI was honoured by the speaker Councillor N.H. Gumede on our partnership and assisting with social development of youth in the District. The council consist of Six Local Municipalities that serve in the council representing their own communities.

## 17.3. Engagement Plans and Activities

### 17.3.1. Working for Energy

The programme is facing a number of challenges including, being stymied, by amongst others inadequate funding resulting in a loss of momentum and follow - through on areas already explored. There is also a loss of realisation of secondary benefits since the economies of scale and scope are not realised.

The programme seeks to demonstrate value-proposition underpinned by clean energy services to deliver a number of requisite solutions to improve the quality of life of the beneficiaries in a nexus format, but this is not in line with the EPWP Mandate of the Department.

The Stakeholder consultation and Management is one of many attempts to create awareness, rally support and garner resources to resolve some of the challenges that the programme can help society resolve.

SANEDI has elevated the absence of the DMRE (previously Department of Energy) as the lead department at the EPWP structures, as one of the impediments for the growth of the WfE initiatives in the EPWP setting.

The partnership between UNISA, mining company Exxaro Resources, and SANEDI officially launched its first institutional anaerobic biogas digester at Earth Centre in Johannesburg in the year under review. SANEDI ensured media interviews and publicity pre, during and post event.

The 10 cubic metre bio-digester uses a feedstock of horse manure diluted with a sustainable volume of water, including grey water, to produce biogas fuel for heating applications. In households, schools, ECDC and community facilities, the fuel can be used as a substitute for electricity or LPG. It can be used for cooking, water heating, space heating and lighting. The installation and utilisation of the biogas from the biogas digester, will not only improve people's standard of living but will also help the environment by minimising organic waste that is left to decompose uncontrolled. After the processing of horse manure, the resultant digestate is an organic fertiliser which can be used to support organic gardening and other farming processes.



**Figure 9: Mr David Mahuma (SANEDI) explaining the Biogas Digester application to attendees at the ECD event in Kwa Maphumulo**

Due to the nature of the project, there are opportunities to create primary jobs in the implementation, operation and maintenance of the biogas systems. The project is also able to support secondary job creation in supporting food security initiatives and other farming activities. This initiative adds to the skills development of the operators who, ultimately can diversify their skills into renewable energy services and stimulate an interest in renewable energy and energy diversity.

The biogas projects can also help to mitigate climate change-related challenges in capturing methane and combusting it into heat and CO<sub>2</sub>. It minimises bio-wastes, sterilises them into digestate that can be valorised. "This 10 cubic metre digester, has been inoculated for a period of three months to enable the bacteria to produce biogas. It is the first time in the works of SANEDI and UNISA that this kind of substrate is used as a feedstock for biogas production. This will open up a possibility for many stable owners to address the problem of "horse manure nuisance" that beset them." explains David Mahuma, General Manager, WfE at SANEDI.



**Figure 10: Nkululeko Buthelezi (SANEDI Interim Chairperson) admiring previous Minister Jeff Radebe's painting in tribute to Centenary Icons Nelson Mandela and Albertina Sisulu (part of the Mandela-Sisulu Centenary, Reneuwe Day Care Centre, Qwaqwa, Free State)**

With the successful installation of the first institutional digester in the Gauteng Province, 19 more are in the pipeline to be installed at a variety of locations in Gauteng, North West, Free State, Limpopo and Mpumalanga Provinces, with a particular focus on institutions such as old age homes, ECDC, schools and clinics. The impact within institutions is greater than within households, since more people stand to benefit from the system than in a family setting. The partners will look at smaller systems that are cost effective which can be used by households. This will be in line with our mandate to be an of our abundant energy resources.

We look forward to more strategic collaborations, which will see more communities being introduced to sustainable and clean energy solutions.



**Figure 11: Lusanda Radebe (SANEDI) listening to Mr David Mahuma capacitating the cooks regarding proper bio digester maintenance at one of the Sharpeville Schools**

### 17.3.2. Solar Technology RDI

Projects such as the Energy Research Programme (ERP) review and Solar Technology Development project with MLT Inverters, which were initiated in the previous financial year are expected to be concluded by the end of the financial year. The monitoring of these projects are in the meantime continuing. To this end, a validation visit covering the last phase of the research and development work, as well as a live demonstration of the MLT Inverters system at the test site in Kagga Kamma Nature Reserve (Western Cape) was undertaken on 25th March 2019.

In 2018, a Call for Proposals, which is targeted towards the development of solar technologies, was issued. Following technical evaluation of the proposal submissions by the Technical Advisory Group (TAG), a report was sent and approved by the Project Steering Committee (PSC). A Funding Agreement between SANEDI and the bidder that has been recommended for funding (i.e. Solar Turtle SA (Pty) Ltd) has now been signed by the parties and the first instalment of the funds is expected to be disbursed by 31 March 2019.



### 17.3.3. Renewable Energy

While RE in South Africa has recently become synonymous with large-scale, grid-connected projects as constructed under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), RE is to be deployed on a smaller, standalone scale where it can directly benefit households, farmers, communities and businesses.

SANEDI's RE and WfE Programmes are involved with developing such solutions. SANEDI has been appointed by the DSI (previously DST) to implement the Solar Technology Research, Development and Innovation (RDI) Programme. A target was set to finalise and execute a solar technology development project under the auspices of the Solar Technology RDI Programme with a successful bidder, namely MLT Inverters.

Coupled with the above, undertake a review of the Energy Research Programme (ERP) under the auspices of the Solar Technology RDI Programme SANEDI.

The Renewable Energy Centre of Research and Development (RECORD) has been closely engaged with implementing the first project for the Department of Defence as per the MoA signed in July 2018. The implementation of a solar water heating system on a military unit that did not have hot water to the buildings that its training support staff should be housed in, is under way. This will render these buildings now serviceable and again able to accommodate the required skilled staff members. RECORD has also finalised an MoA with Department of Correctional Services (DCS) that will allow SANEDI to fulfil an energy advisory and implementation role to the department for the next 3 years.

### 17.3.4. RECORD

The Renewable Energy Centre of Research and Development (RECORD) has been closely engaged with implementing the first project for the Department of Defence as per the MoA signed in July 2018. The Procurement and implementation of a solar water heating system on a military unit, that did not have hot water to the buildings that its medical staff should be housed in, is complete. This will render these buildings now serviceable and again able to accommodate the required skilled staff members. The SANDF also has an interest in biogas technology for some of their bases in Limpopo, and this is expected to be the next project to be initialised. Moreover, the department has engaged SANEDI for assistance with one of the old age homes as a legacy project, and SANEDI is assisting with RE & EE implementation.

The upgrading of hot water supplies to housing units in the SANDF bases in Limpopo will add multiple, habitable residences to its property portfolio. The project is being overseen by the SANEDI, as part of the Solar Thermal Demonstration and Training Initiative (SOLTRAIN), which is funded by the Austrian Development Agency and co-funded by the Opec Fund for International Development.

The SWH systems will reduce the use of diesel, where housing units have hot water geysers, and enable the Defence Force to offer housing with added hot water supplies for its members. An initial project will entail the construction and operationalisation of two 1 500 litre SWH systems to provide hot water to two accommodation bungalows used to accommodate military medic members, approximately half of which are female.

"This project is not only about the training of plumbers and artisans to install solar water heaters, but also about negotiating the financing of such mega projects," explains Dr Karen Surridge, manager of RECORD at SANEDI. "This is the first of several collaborative projects taking place between SANEDI and the DoD, after the signing of a 5-year MoA mid-2018. This project is expected to be partially supported through SOLTRAIN funding and be implemented by SANEDI, thus cementing the interaction of SANEDI, the DoD and SOLTRAIN in the upcoming phase, commencing July 2019."

We have made several exploratory trips to several different sized military installations throughout Limpopo Province, in order to assess energy needs and to be able to provide preliminary informed advice on plausible, sustainable renewable energy and energy efficiency interventions. Since DoD is already constantly undertaking installation, maintenance and repair of water heating infrastructure at its units, this project aims to support and build capacity in this space for the DoD and its members. This can be achieved by implementing an energy efficient, renewable energy hardware system that supports human capacity development, as well as contributing towards reduced energy costs and reliable water heating energy security.

The aim is to train four DoD members to maintain this system and they will shadow the contractor during installation and maintenance of the SWHS. In order to prepare members for the upcoming projects, RECORD created awareness about renewable energy, energy efficiency and, more specifically, SWH at military units across Limpopo through half-day awareness training sessions, including basic understanding of energy, how SWH works and how it can make a difference.



“Given the number of Government and parastatal entities that own housing, we are confident that this model of co-funding and support could be replicated to materially assist them in refurbishing viable properties,” concludes Surridge.

At the 2018 South African National Energy Association (SANEA) awards evening, held on 31 August 2018 at the Military Museum in Johannesburg, the RECORD unit of SANEDI presented two awards in the RECORD Renewable Energy Research Excellence (RERE) categories. Both were won by women, namely:

- Ms Gamuchirai Mutezo, a PHD candidate at the School of Chemical & Metallurgical Engineering at Wits University, won the Young Researcher award for her contribution to renewable energy research. She is an independent researcher, conducting academic and applied research in the field of waste-to-energy, primarily biogas development in Africa’s peri-urban and rural areas and is the Chief Operations Officer at SEA Africa, a research firm that aims to ‘Link Business to African Markets’.



**Figure 12: RERE Young Researcher Award winner, Ms Gamuchirai Mutezo with Dr Karen Surridge (SANEDI, RECORD Centre Manager)**

- Ms Kimenthrie Pillay, a Director and principal consultant at Thrie Energy Collective, won the Commercial Application award for her novel and commercially viable renewable energy research. She is part of a young, innovative and passionate sustainable consulting agency, which works with businesses, organisations and local Government to help improve the sustainability of energy practices, enhance understanding of the needs of communities and advance the potential for technology and development to thrive in Africa.



**Figure 13: RERE Special Contribution award winner, Ms Kimenthrie Pillay with Dr Karen Surridge (SANEDI)**

“We applaud the efforts of all of the candidates for awards this year, but are particularly pleased to be able to make these awards to women in science,” says Dr Thembakazi Mali, interim CEO at SANEDI. “They serve as role models to encourage young girls to enter the world of Science, Technology, Engineering and Mathematics (STEM), which we need, given the low percentage of enrolment in these subjects. We wish them every success, as they continue in their careers of renewable energy.”

The South African Government established the SANEDI to direct, monitor and conduct applied energy R&D, demonstration and deployment, as well as to undertake specific measures to promote the uptake of green energy and energy efficiency in South Africa. Its mission is to use applied and energy research and resource efficiency to develop innovative, integrated solutions that will catalyse growth and prosperity to meet its vision of sustainable living for growth and prosperity in Africa.

**17.3.5. REEEP**

The Climate Change, Clean Energy and Urban Water in Africa project, financed by the European Commission (EC), implemented by UNIDO and executed by the REEEP is a two and a half year pilot project providing technical assistance to South African municipalities, with the aim of:

- Catalysing clean energy interventions in municipal water and wastewater infrastructure to reduce GHG emissions,
- Fostering private sector engagement with municipalities to identify market-based pathways for cost-effective and sustainable deployment of clean energy in such infrastructure, including appropriate risk Management,
- Linking to existing capacity building activities to increase the capacity of municipal managers to identify, source and manage appropriate clean energy and energy efficiency interventions, and



- (d) Monitoring and evaluating outcomes to capture lessons learned and promote replication and scale-up of clean energy solutions in municipalities throughout South Africa and SADC.

Close to 200 members of the !Kheis community in Groblershoop attended an exciting community engagement event on 15 November 2018, where Mayor Andries Diergaardt, Desmond Dolopi, Technical Manager, !Kheis local municipality and local rapper GROBZ-KING, among others, discussed the importance of water and energy issues in the context of climate change. The event was co-hosted by the REEEP, as part of the wider Climate Change, Clean Energy and Urban Water in Africa Project. This project, is funded by the European Commission, implemented by UNIDO and executed by REEEP. REEEP, in partnership with SANEDI has worked with !Kheis Local Municipality for over two years to upgrade its municipal water infrastructure with energy efficiency solutions, to reduce energy bills and CO<sub>2</sub> emissions and improve service delivery.

Mayor Diergaardt opened by discussing the importance of the project to the municipality, stressing the opportunity provided to !Kheis as one of just two municipalities in South Africa to be part of this pilot project. The second municipality involved is Nelson Mandela Bay Metropolitan Municipality in the Eastern Cape. Dolopi discussed the aims and achievements of the project to date, and the plans for the installation of energy meters and new pumps at eight different water treatment works in the municipality. He explained that water pumps and other infrastructure used to provide water and treat effluent are highly energy-intensive, and that many of the pumps in !Kheis are old, which makes them inefficient. The new pumps, which will be installed with the support of the Climate Change, Clean Energy and Urban Water in Africa project, will reduce municipal energy bills and improve service to the community.

The project is currently nearing completion pending the finalisation of contracting between SANEDI and the service provider (the project closure was January 2019, however, an extension was granted by the EU until June 2019 to complete the installations at !Kheis Municipality and the final showcasing event). An external legal firm has thus been appointed to draft a contract for the implementation of the energy efficient pumps and energy Management systems.

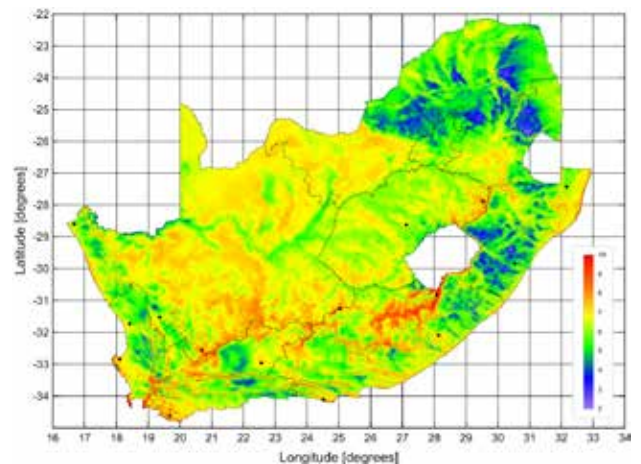
#### 17.3.6. WASA

Ongoing, daily, Project Management engagements with WASA, SAWEF 2 partners are crucial.

The DMRE (previously Department of Energy), supported by SANEDI, CSIR, South African Weather Service, University of Cape Town (UCT), Denmark Technical University and with financial support from Denmark and the Global Environment Facility (GEF)

through the South African Wind Energy Programme (SAWEF) embarked on improving the wind energy resource mapping of South Africa.

The third phase of the Wind Atlas for South Africa (WASA) has gone online, allowing more investors and installers of wind-powered turbines to take advantage of the powerful local information offered by the free online WASA app. A renewable energy project of the South African National Energy Development Institute (SANEDI), WASA offers higher accuracy in wind measurements and patterns, which is vital not only to the renewable energy sector but also invaluable for accurate weather forecasting.



**Figure 14: WASA High Resolution Wind Resource Map<sup>22</sup>, covering all nine provinces, as launched at the WASA Seminar 10 April 2019**

“It has been an exciting project for us,” enthuses Andre Otto, RE Technical Advisor at SANEDI. “Internationally, wind atlases are not usually distributed free, nor do they drill down to such detail.” This information allows scientists to develop wind models for specific areas in South Africa that wish to develop capacity to enable large scale of exploitation of wind energy in South Africa. The narrowing down by area enables us also to offer guidance on the establishment of small scale projects that can now become viable thanks to the accuracy of WASA. Investors need detailed information but are not necessarily willing to pay for it. WASA mitigates this aspect of funding, which is critical for small wind-turbine projects competing for support from the UNDP, for example. This latest extension means that we cover 75% of South Africa’s land mass by tracking wind in Northern Cape, Western Cape, Eastern Cape, KwaZulu-Natal and the Free State. Forecasting is predicated on such information and we see this as a major contributor to the predictions of trends in wind patterns, as climate change continues to modify existing data.

<sup>22</sup> Available at: [www.wasaproject.info](http://www.wasaproject.info)



We look forward to International partners downloading the information to add to the world’s knowledge on weather patterns.

SANEDI, the South African Weather Services (SAWS), the Council for Scientific and Industrial Research (CSIR), the University of Cape Town (UCT) and DTU Wind Energy (the Danish Research Institute and a world leader in wind energy) have formed the consortium undertaking the WASA project, with SANEDI as a coordinator. Each of these institutions brought specialised skills and knowledge, which have resulted in the success of the Wind Atlas for South Africa. For more information, go to [www.wasaproject.info/index.html](http://www.wasaproject.info/index.html).

**17.6.7. Centre for Renewable Energy Systems Analysis and Research (CESAR)**

CESAR project input data, assumptions, methodologies and results were disseminated in presentations to several conferences and workshops Internationally and locally. Through the collaboration with the Energy Research Centre (ERC) and UCT, SANEDI was represented at the International Energy Workshop (IEW) in Sweden in June 2018. The IEW is one of the leading conferences for the International energy modelling research community. In a world of environmental and economic constraints, energy modelling is an increasingly important tool for addressing the complexity of energy planning and policy making. The IEW provides a venue for analysts to compare quantitative energy projections, to understand the reasons for diverging views of future energy developments, and to observe new trends in global energy production and consumption.

In addition, a data explorer side event was hosted at the Domestic Use of Energy Workshop in April 2018 by the ERC. A workshop was also hosted with the DoT to discuss the Green Transport Strategy (GTS) and its alignment with the Macro-Economic Transport Study conducted by the ERC. The workshop discussed the analysis of the long-term vision outlined in the GTS, what the transport sector’s contribution to the overall National mitigation goal should be (the PPD), and how this relates to the long-term vision in the GTS, based on an economy-wide least-cost methodology. More specifically, what interventions this contribution would consist of, the timing and scale of such interventions and their economic and other impacts (including on air pollution). SANEDI presented ‘Smart Grids & the future of load research’ at the NRS (National Standard for domestic electric loads: consumption, demand and profiles) Load Research Data Workshop held in Cape Town in August 2018 hosted by SANEDI/ERC.

SANEDI together with United Nations Development Programme (UNDP), DMRE (previously Department of Energy) & United States Agency for International Development (USAID), LBNL)hosted a workshop on the 28th November 2018 on Energy Efficiency Modelling & Policy Impacts.

USAID is working with LBNL to enhance energy efficiency in the developing world. In South Africa, this project’s objectives are to:

- (a) Integrate LBNL developed tools and best practices for modelling energy savings from new energy efficiency standards into planning processes,
- (b) Achieve energy savings by helping the DMRE implement new standards that are close to International best practices, and
- (c) Build sustainable local capacity for assessing the impact of energy efficiency standards in a comprehensive energy planning process.

The outcome is to use modelling tools developed by LBNL to measure the impact of the standards & labelling programme in South Africa. Resources from the DMRE and SANEDI was trained to use the LBNL modelling tools.

**17.3.8. Smart Grids**

The SANEDI Smart Grids Division is in collaboration with various Stakeholders within the South African Electricity Supply Industry (ESI). Stakeholder engagement is a crucial mechanism for bridging the gap between SANEDI Smart Grids programme and the numerous Stakeholders that exist within the Electricity Supply Industry in South Africa. The Smart Grid Division works closely with various Municipal Electricity Distribution Departments (MEDD) across South Africa. The different categories of municipalities and National departments are part of the South African Smart Grid Initiative (SASGI). They are partners in the drive to a smarter more efficient National electricity power sector.



**Figure 15: Municipal officials attending training on Smart Grids**

Through the EU Donor Funded Smart Grids Programme implementation are involved in a broad array of Stakeholders’ engagements. These engagements relate to pilot projects and sharing lessons learned between parties.



**Figure 16: Practical Smart Grids training at the UP**

### 17.3.9. Cleaner Fossil Fuels

The Cleaner Fossil Fuels programme dedicated more effort on engagements towards the Pilot CO<sub>2</sub> Storage Project (PCSP) following the in-principle support received from the KZN Provincial Cabinet for the Site Characterisation Phase. The PCSP has reached a critical stage of the project where on-the-ground site characterisation work is envisaged to commence in 2019/20. The site characterisation phase will involve seismic survey, slim-hole drilling and baseline monitoring before injection of CO<sub>2</sub> can commence.

SANEDI's rigorous lobbying with the KZN Office of the Premier and Department of Economic Development, Tourism and Environmental Affairs (EDTEA) has culminated into a MoA between SANEDI and EDTEA, as one of the resolutions from the Provincial Cabinet. To this end, EDTEA has been designated as the lead department in the KZN insofar as CCS issues are concerned. For EDTEA to provide technical and environmental inputs on the project, it was deemed necessary that they gain first-hand experience into the characteristics of a commercial operation. As a result, EDTEA was part of the delegation to visit the Boundary Dam Unit #3 CCS Project in Estevan, Canada. The delegation included representatives from SANEDI, DMRE (previously Department of Energy), Mashabane Traditional Council and Big 5 Hlabisa Local Municipality. Boundary Dam is the first carbon capture and storage plant in the world to be fitted to a coal-fired electricity generation station.



**Figure 17: South African delegation to the Canadian SASKPOWER Boundary Dam Project. From L to R Councillor George Mchunu, Thulani Maupa, Nkululeko Buthelezi, iNkosi Siphso Gumede, Landi Themba, Zama Mathenjwa, Ntokozo Ngubo**



**Figure 18: South African delegation at the Petroleum Technology Research Centre, Canada. From L to R Zama Mathenjwa, Ntokozo Ngubo, iNkosi Siphso Gumede, Landi Themba, Thulani Maupa, Norm Sacuta, Dan MacLean, Councillor George Mchunu and Nkululeko Buthelezi**

In 2016, SANEDI entered into a MoU with Eskom Expo for Young Scientists (Eskom Expo) and the collaboration has been reviewed in the subsequent years. Eskom Expo is South Africa's primary and only existing science fair for school learners, where they have an opportunity to showcase their own scientific investigations and engineering projects. During 2018/19, SANEDI granted CCS Special Awards to more than ten Carbon Capture, Utilisation & Storage (CCUS) projects developed by learners during the Regional and International finals.



The CARBON EATER, a CCUS project developed by Ms Nyeleti Mashale, a Grade 11 learner based in Kempton Park is being mentored by SANEDI. The CARBON EATER aims to absorb the CO<sub>2</sub> emitted by factories during the combustion of fossil fuels thus mitigating against climate change. The mentorship programme is part of SANEDI’s capacity building initiatives.



**Figure 19: Tshilidzi Tshivhase (SANEDI) admiring Ms Nyeleti Mashele’s carbon eater project that won a coveted science award at the Eskom Expo**

During the year under review, SANEDI strengthened its working relations with the South African National Biodiversity Institute (SANBI) by capitalizing on their structured programmes such as:

- (a) Training of Assistant Education Officers (AEOs),
- (b) Career Expos, and
- (c) Climate Change Week.

These efforts saw more than 500 learners and Educators being exposed to CCS and Climate Change mitigation options. The current MoU between SANEDI and SANBI is for the period of three years ending in 2020/21.

In addition, SANEDI had an opportunity to participate at the 7th Annual Career Expo hosted by the National Union of Mineworkers (NUM), KZN Basic Education and JB Marks at Richards Bay in KZN. SANEDI’s participation was linked to the Pilot Schools Project of the Pilot CO<sub>2</sub> Storage Project (PCSP) as the majority of school learners present at the expo were from UMkhanyakude District Municipality, an area of interest for the project. This was an excellent opportunity for SANEDI to contribute to the ever-concerning shortage of critical skills/careers in South Africa.

As part of General CCS Stakeholder engagement, SANEDI was invited to exhibit at the Colosa Career Expo in Idutywa, Eastern Cape. An initiative of the Colosa High Alumni and The Nkosi Foundation that was themed “Addressing the challenges of skills shortage through active youth engagement”.

**17.3.10. Energy Efficiency**

A positive development, has been the introduction of the Section 12I and 12L tax incentives, which are clearly defined in the tax legislation. This has enabled SANEDI and the broader commercial and industrial customer base to plan their EE interventions with a greater degree of certainty going forward, and this appears to be a significant game-changer for the funding/incentivising of EE interventions.



**Figure 20: Xolile Mabusela (DMRE) presenting on “EEDSM Opportunities in South Africa and experience in implementing municipal EEDSM” (Gauteng Roadshow)**

SANEDI’s EE continues to engage with all companies involved in the Section 12L and Section 12I tax incentives, mainly through their appointed Measurement and Verification (M&V) professionals and the recently updated online database, kindly funded by GIZ.

A series of workshops were conducted throughout South Africa to introduce the Energy Services Company (ESCO) register, 12L Tax incentive program and EE and Demand Side Management (EEDSM) initiatives to key Stakeholders in the industry. The workshops were organized by the SANEDI in co-operation with the DMRE (previously Department of Energy) and GIZ as part of the South African – German Energy Programme (SAGEN). Workshops were conducted in the following locations:

<b>Pretoria</b>	5 September 2018
<b>Cape Town</b>	7 September 2018
<b>East London</b>	12 September 2018
<b>Polokwane</b>	21 September 2018
<b>Durban</b>	3 October 2018

The workshops were aimed at a broad range of industry participants, including Municipalities, ESCOs, Measurement and Verification Service providers (M&V), Funders and Non-Governmental Organisations (NGOs).





The workshops were very well attended, with 74 attendees in Pretoria, 44 in Cape Town, 31 in East London, 25 in Polokwane and 40 in Durban (refer to Appendix A for attendance registers). Of the attendees, 54% were made up of ESCo/M&V professionals, 21% were from Municipalities/Government, 18% were from industry, and Academia/NGOs made up the remaining 7%.

A number of emerging, Broad Based Black Economic Empowerment (BBBEE) ESCos attended the workshops. Even though they were very excited about the opportunities in the industry, there was a strong feeling that only established ESCos will benefit, and that it will be very hard for smaller ESCos to compete. Continuation of the various ESCo market development initiatives undertaken as part of the SAGEN program will continue to make a positive contribution in this regard.

Further to the feedback received, and with specific reference to future workshops, the following recommendations can be made:

- (a) Long term programme: These workshops often occur in isolation, and don't build on one another,
- (b) Developing a workshop programme, for example a calendar year and sharing with Stakeholders the entire workshop programme will ensure that attendees have visibility on the entire workshop programme,
- (c) Diversified topics: Not all attendees are from similar backgrounds or experience levels. A diversified programme, with various topics and levels of complexity will ensure that attendees get the maximum benefit from the workshops.
- (d) Case studies: Case studies and practical examples are an extremely valuable to attendees. An appropriate mix between theory and case studies will provide the most value to attendees, and
- (e) Communication/marketing: All channels of communicating workshops should be utilized. A well-functioning ESCo Association should be able to play a role in this regard. An annual calendar of workshops on appropriate websites will also ensure awareness of workshops and allow attendees to plan in advance to attend.



**Figure 21: !Kheis Community members using Cool Roof paint for thermal comfort**

### 17.3.11. Cleaner Mobility

During the reporting period, the CM Program assisted the CoJ with finalising the application process for technical assistance with the global Financing Sustainable Cities Initiatives (FSCI), for CoJ EBus rollout project feasibility study. The FSCI provides technical assistance to major cities around the world with technical assistance for large and complex infrastructure projects. The FSCI approved the CoJ application for technical assistance for the EBus rollout Project on the 19th February 2019. A project implementation agreement between CoJ and FSCI was finalised in March 2019, with the first set of deliverables such as a project work plan expected in April 2019.

### 17.3.12. Communications

The Communications Department of SANEDI, through the implementation of the Communication Strategy and Stakeholder Engagement strategy, as well as various legal frameworks, focuses on creating awareness and a positive perception of SANEDI as a brand and its services. It ensures that appropriate messages are targeted to the correct Stakeholders, and building and strengthening relationships with said Stakeholders, creating awareness about SANEDI and its activities. The communications strategy is the basis for SANEDI's communications activities.

#### SANEDI's communications team is tasked with:

- (a) Profiling SANEDI as a dynamic and successful organisation with a practical and energetic approach,
- (b) Create a culture of effective communications,
- (c) Build a team of skilled communicators within SANEDI,
- (d) Empower project and support team members to communicate more effectively,
- (e) Develop communications tools and materials which support and enable effective communications, and
- (f) Provide a programme of practical high-impact communications activities which is achievable with SANEDI's current limited resources.

#### EVENTS

SANEDI recognises events, including industry conferences, seminars and workshops are an opportunity to communicate directly with key audiences, to present information, and to build relationships. The success of events as a communication tool is determined by prioritisation and identification of the most appropriate events, good preparation and training, and the availability of dynamic communication materials. As per the APP, SANEDI exhibited in four key exhibitions during the financial year such as Energy Indaba, Sustainability Week, Learner Focus Week, SAEEC Conference and Sasol Techno X.



Various other events and conferences such as African Utility Week, the Manufacturing Indaba and Cool Surfaces conferences are seen as opportunities for SANEDI experts to present SANEDI projects such as the 12L tax incentives programme, Carbon Capture and Storage and Cool Surfaces, as well as to exhibit at partner's stands such as the Industrial Energy Efficiency Programme stand at the Energy Indaba and the UNIDO stand for the CM programme.

## NEWSLETTER

The content-led approach of SANEDI's communication depends on the availability of up-to-date content and compelling communication materials. All SANEDI's communication material is managed by a member of the SANEDI Communications team responsible for ensuring regular updates and version control, and is sourced from various activities that the various programmes undertake. The quarterly newsletter is an amalgamation of the most newsworthy stories that SANEDI programmes has during the year and opinion pieces about the energy industry such as "energy efficiency translates into future thinking". A yearly publication called Insights is also published by the SANEDI communications department which gives deeper insights on research currently being undertaken in the various energy related fields, possible future opportunities for the industry and also trend forecasting.

## PUBLIC AWARENESS AND MARKETING OPPORTUNITIES

The media is a conduit for the SANEDI's communication with its primary audiences. Media includes print publications (through editorial content), broadcast outlets (through interviews with various SANEDI experts) and social media (through dedicated SANEDI Facebook and LinkedIn pages). SANEDI communications has enlisted the assistance of a Media Monitoring Programme to measure and evaluate how the SANEDI brand is performing locally and Internationally in the media. It shows that there was a marked increase of 69% in the potential reach of SANEDI material in the first quarter, and a total increase of 191% later on during the year. The reports also show that the tonality was overall positive, and that SANEDI is viewed in a good light.



**Figure 22: Dr Thembakazi Mali, presenting at the BRICS Working Group on Energy Savings and Energy Efficiency, May 2018**

The SANEDI website is a central tool of SANEDI communications. It hosts information and is used to increase the reach and impact of SANEDI. Development and maintenance of the SANEDI website is the role of the IT team, with content being created by various portfolios through the Communications Department. It is updated with the SANEDI marketing material on a monthly basis. Through the SANEDI Facebook page, SANEDI communications posts weekly content that is a balanced mix of original text, interesting quotes by SANEDI and its Stakeholders, links to interesting and relevant content, photos and, where appropriate, videos.

## COMMUNICATION FOCUS AREAS DURING 2018/19

In line with the key focus areas of SANEDI, and considering the reduced budget allocation, the key objectives of the communications department were to share knowledge (using all appropriate platforms to ensure a constant flow of relevant and useful content), tell the story (generate news and stories around projects and case studies and ensure events are supported by a good flow of stories), build the brand and the brand ambassadors and collaborate by partnering with similar organisations to extend the reach of SANEDI and align messaging.

The GCIS raised a concern about the pro-activeness versus re-activeness of how the SoEs communicate in general. The GCIS is aware of budgetary constraints or funding limitations, however, SoEs have to be creative in terms of the use of coverage of these engagements and media. To this end, SANEDI embarked on cost effective media campaigns which yielded positive publicity

Coupled with the above, SANEDI hosted an Energy Breakfast Stakeholder event on 5<sup>th</sup> February 2019 with the Minister of Energy, whereby SANEDI grabbed the opportunity to engage with a select group of journalists and credible media channels to showcase the organisation's research and development programmes thereby laying the foundation for long-term media relationships.

The objectives of this event were:

- (a) To educate media on SANEDI as an instrumental organisation in the energy sector in South Africa,
- (b) To position SANEDI, a SoE of the DMRE (previously Department of Energy), as an energy thought leader in the media,
- (c) To build relationships with an intent to cement these, with a select group of core print, online and broadcast media,
- (d) To yield further media coverage for the SANEDI brand, and
- (e) To position the South African National Energy Institution as a leading organization in the Energy sector holistically.



The Energy Breakfast hosted by the Board Interim Chairperson provided an important platform for SANEDI, an agency of the DMRE (previously Department of Energy) and key energy Stakeholders to engage on pertinent energy topics and challenges facing the country and particularly big industry such as mining.



**Figure 23: Panel discussion at the Energy Breakfast, Mining Indaba, Cape Town**

The South African mining industry like all sectors of the country's economy is faced with energy challenges. At the Energy Breakfast, SANEDI looked at two specific areas that can contribute to the mining's energy transition:

- (a) cleaner fossil fuels including carbon capture and storage, and
- (b) EE with a focus on the Section 12L Energy Efficiency Tax Incentive.



**Figure 24: Women In Energy Breakfast hosted by the previous Minister Jeff Radebe, Midrand Conference Centre**

“We believe the Energy Breakfast will afford key Stakeholders an opportunity to engage in constructive debate that will set the trend for future engagements. At SANEDI we are committed to working closely with industry and together we can establish an economy that is strengthened by renewable energy,” posited Mr. Buthelezi.

SANEDI's programmes not only focus on energy generated by fossil fuels but cover all energy carriers (excluding nuclear). This enables SANEDI to look at an integrated energy mix that will assist in the optimisation of the country's energy-related mining activities as well as other key industries. The approach applies to both large-scale and emerging mining operations, where clean, sustainable energy solutions are of paramount importance.



**Figure 25: Dr Thembakazi Mali, SANEDI Interim CEO, at the Energy Breakfast, Mining Indaba, Cape Town**

The second project involved the Energy indaba during which Mr. Barry Bredenkamp contributed to a panel discussion. Project three involved the Tax Incentive announcement and media awareness around this.

Six media releases were distributed throughout the month of February. Further PR awareness included two media interviews and three media features were secured. Social media posts were drafted and posted. An overview of these are provided:

- (a) Two media releases have been written and were distributed to key media the first week of March in support of International Women's Day,
- (b) The month of February was used to plan and gather content for the second quarter of 2019,
- (c) Two media releases have been written and were distributed to key media in first week of March 2019 in support of International Women's Day, and
- (d) The month of February was used to plan and gather content for the second quarter of 2019.



## 18. Risk Management

Risk Management is a strategic imperative rather than an option for high performing organisations. SANEDI, is a Schedule 3A Public Entity under the Public Finance Management Act (PFMA), Act 1 of 1999 (PFMA), and should have sound governance structures that adhere to the requirements of the PFMA. SANEDI is committed to a process of Enterprise Wide Risk Management that is aligned to the principles of good Corporate Governance as outlined in the King III report, the COSO guidelines, as supported by the PFMA, and the International Standard on Enterprise Risk Management, ISO 31 000. As such, Rakoma and Associates Inc., as the internal auditors, were tasked with the facilitation of the strategic risk assessment workshop which was held on the 27th of February 2018.

The risk workshop effectively forms part of the strategic planning process within the organisation whereby, the SANEDI Board and SANEDI Management determine and rank the current strategic risks facing the organisation. The process for the risk assessment workshop entailed classifying SANEDI's risks according to defined risk categories, assessing the assumptions made, and evaluating perceptions and judgments about SANEDI's risks. The workshop resulted in the top seven risks being identified and a risk register was developed. The risk register was continuously monitored and presented to SANEDI Management monthly, and to the Board and the DMRE on a quarterly basis.

## 19. Internal Audit and Audit Committees

### 19.1. Internal Audit

The Internal Audit function is provided by an independent service provider that offers assurance and an advisory service.

Rakoma and Associates Inc, an outsourced firm responsible for SANEDI's internal audit function, provides an independent appraisal function that is designed to examine and evaluate SANEDI's internal controls. The main objective of the entity's Internal Audit is to assist the Board and Executive Committee with the effective discharge of their responsibilities by evaluating the adequacy and effectiveness of risk Management, the control environment and Governance processes.

In executing its Board-assigned mandate, the Internal Auditor follows a risk-based audit methodology in compliance with the Institute of Internal Auditors (IIA) and the International Standards for the Professional Practice of Internal Auditing.

Any major weaknesses detected are brought to the attention of the Audit and Risk Committee (ARC), the external auditors and members of Management for their consideration and remedial action.

### 19.2 Audit Committees

The audit committee is constituted as a Board sub-committee with responsibilities as delegated by the Board in terms of Section 51 (1) (ii) of the PFMA and Treasury Regulations 27.1.1. The audit committee has an independent role with accountability to both the Board and shareholders. The role of the audit committee is to provide independent assurance and assistance to the Board on control, Governance and risk Management. The audit committee does not replace established Management responsibilities and delegations. The key activities of the BARC, in correspondence with National Treasury Regulations, are:

- (a) Review the adequacy of policies, procedures and the internal control systems, including information technology security and control, and financial controls,
- (b) Review performance Management systems and information for compliance and alignment to company purpose, objectives and commitments,
- (c) Review and approve the scope of activities of the internal audit function, ensuring that it covers the key risks and that there is alignment with the external auditor (Auditor-General of South Africa), assess the effectiveness of the internal audit function,
- (d) Review the Auditor-General's audit scope, approach and performance, and review findings and implementation of recommendations by Management,
- (e) Review legal and regulatory compliance and effectiveness of systems for monitoring such,
- (f) Report to relevant Stakeholders, including the Board regarding the committee activities, issues and related recommendations, and
- (g) Report concerns to the Executive Authority where relevant.



## 20. Compliance with Laws and Regulations

SANEDI reports on compliance with the PFMA and Treasury Regulations in its quarterly reports submitted to the DMRE and National Treasury. Through the CFO Forum, National Treasury provides a support structure to CFOs of public entities. This interface allows regular engagement with National Treasury that facilitates information sharing, provides training workshops for finance personnel and CFOs and provides updates on recent developments within National Treasury, the Accounting Standards Board and financial legislation and regulations.

All policies and procedures approved by the SANEDI Board are maintained in a register of policies and procedures and are complied with. The Secretariat assists with compliance matters and ensures that the company's affairs, as well as the Board proceedings, are properly carried out in accordance with the relevant laws and standards.

The DMRE furthermore issues an annual compliance calendar to which SANEDI adheres.

## 21. Fraud and Corruption

SANEDI is committed to the eradication of fraud, corruption, misconduct and any irregularities, and takes a zero-tolerance position towards fraud. A Board approved fraud prevention plan was adopted with measures to address fraud risk Management from both a proactive and reactive perspective.

SANEDI has contracted the services of an independent hotline service providing for the confidential reporting of fraud, corruption, misuse of public resources and other inappropriate behaviour. No calls were received by the Fraud Hotline during the 2018/19 financial year.

## 22. Minimising Conflict of Interest

In accordance with the provisions of the Companies Act and the PFMA, all Board members declare financial interests annually and the declarations of financial interests are submitted to the DMRE. Further, any interests are declared at each meeting of the Board or its committees and declaration of interest is implemented in line with the PFMA requirements.

An annual declaration of interest is signed by all staff members, including those working in supply chain Management. A record of these declarations is maintained by the human resources department. Every staff member employed in supply chain Management has furthermore signed the National Treasury code of conduct for supply chain practitioners. All individuals who are involved in the bidding process (including all supply chain related, evaluation and adjudication meetings) declare their interest prior to proceeding with the process, as required by the PFMA.

Any individual who is a member of the Bid Evaluation Committee is not allowed to adjudicate on the same bid if they happen to be a member of the Bid Adjudication Committee.

## 23. Code of Conduct

SANEDI adopted a Code of Conduct in July 2015 which was revised and approved by the Board in April 2018. The Code is universally applicable to all employees and contractors of the organisation and requires a commitment by each and every employee to adhere to the Code. The Code serves as a guide to assist the Board, Executive Management, Staff and Contractors of the organisation in making ethical decisions and engaging in appropriate and lawful conduct. Should there be a breach of the Code of Conduct, a disciplinary process will be followed. No such breach was reported during the year.

## 24. Health, Safety and Environmental Issues

SANEDI endeavours to put the health and safety of its employees and their work environment, including all other persons conducting business on its premises, first as far as is reasonably possible. To this end, SANEDI is committed to the fulfilment of the requirements stipulated in the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and has developed a Health and Safety Policy and subsequently established a Health and Safety Committee to ensure that all who are in SANEDI's work facilities are in an environment that has eliminated or reduced potential health and safety threats.



## 25. Company / Board Secretary

SANEDI had procured Company Secretary Services from an external service provider, First Corporate Secretaries (Pty) Ltd). The service provider was appointed in October 2018 for a period of 12 months. The post for a permanent Company Secretary is currently vacant, however the organisation has initiated the process to appoint a permanent in-house one.

The Company Secretary advises the Board on the appropriate procedures for the Management of meetings and the implementation of Governance procedures, and is further responsible for providing the Board collectively, and each Member individually, with guidance on the discharge of their responsibilities in terms of the legislation and regulatory requirements applicable to South Africa.

The Board is satisfied that there is an arm’s length relationship between the Company Secretary and SANEDI as the Company Secretary is not a Stakeholder in the Organisation and is itself a separate legal entity, and at all times maintains open lines of communication with the Board. The Board has unlimited access to the Company Secretary, who advises the Board on issues including compliance with Government policies and procedures, statutory regulations and relevant Governance principles and recommendations.

The Company Secretary attends Board meetings to ensure that comprehensive minutes of meetings are recorded. The organisation is supporting the Board with any support, resources and information necessary in pursuance of its duties.

## 26. Audit Committee Report

We are pleased to present our report for the financial year ended 31 March 2019.

### Charter

The Board Audit and Risk Committee (the Committee) is guided by a detailed charter that is reviewed and approved on an annual basis. The Committee has regulated its affairs in compliance with this charter and have discharged all its responsibilities as contained therein. The members of the two committees are the same members and the Committee meetings occurred on the same dates.

### Membership

The Committee members are appointed by the Board and per the charter should comprises three independent non-executive members of which two are experts in the field of finance with the other members being representatives of the shareholder.

The committee consists of the same members as listed hereunder and are required to meet on a minimum of four occasions per annum, as per the Charter.

Due to a number of vacancies in the Board, the audit committee was not quorate and was unable to meet as required by the Charter. All matters for the Committee were approved at Board Level.

### Board Audit and Risk Committee

Name	Appointed	Re-appointed	Resigned
P Motsielwa (Chairperson)	20 August 2013	1 September 2017	-

### Audit Committee Responsibility

The Board handled matters related to the responsibility of the Audit Committee within the Board agenda and in so doing has complied with all responsibilities of the committee arising from Section of the Public Finance Management Act and Treasury Regulation 3.1.13. The Board has adopted the formal terms of reference for all committees, including that of the Board Audit and Risk Committee Charter, has regulated its affairs in compliance with this charter and has discharged all its responsibilities as contained therein.

### The Effectiveness of Internal Control

During the review period various reports of the Internal Auditor, as well as the External Auditor’s Report on the Annual Financial Statements and Management Letter of the Auditor General, indicated that the entity’s system of internal control has shortcomings. The Audit, Risk and Compliance Committee has noted these and based on the outcome of such reviews and the information provided by Management, the committee is of the opinion that the internal controls of the entity were effective throughout the year under review in spite of the highlighted control weaknesses.

The Audit, Risk and Compliance Committee reviewed the activities of the internal audit function and has concluded the following:

- (a) The internal audit function is effective, with no unjustified restrictions or limitations, and
- (b) The internal audit reports were reviewed at quarterly meetings, including its annual work programme, co-ordination with the external auditors, the reports of significant investigations and the responses of Management to issues raised therein.

Our review of the findings of the Internal Audit work, which was based on the risk assessments conducted in the Public Entity revealed certain weaknesses, which were then raised with the Public Entity.



The following internal audit work was completed during the year under review:

- (a) Performance Information,
- (b) Financial Control Review,
- (c) Business Continuity and Disaster Recovery Review,
- (d) Project Management Review,
- (e) Procurement, Tender and Payment Process (SCM),
- (f) Stakeholder Strategy,
- (g) Human Resources Management,
- (h) IT Infrastructure & IT Strategy, and
- (i) Compliance Review.

The following were areas of concern that are of strategic importance:

- (a) IT Strategy is yet to be approved. This is pending the review and finalization of the strategic plan for the upcoming MTEF cycle.

### **Corporate Governance**

We acknowledge that the entity continues to strive towards applying sound principles of good Corporate Governance. To this extent the entity has endeavored to ensure that oversight Sub- Committees aimed at assisting the Board to advance its strategic direction are established and operational except for the audit committee.

There were, however, challenges with the operational effectiveness of the Committees for the year under review mainly caused by inability of the Committee meetings to quorate due to vacancies on the Board as a result of resignations that are yet to be filled. This has also resulted in the charters of this sub committees not to be reviewed and approved by the Board. The matter has been escalated to the Office of the Minister of Energy and is receiving urgent attention.

Overall, we are satisfied with advancements made by the entity towards applying best practice on Corporate Governance in the interest on the entity and its Stakeholders.

### **Risk Management**

The Board assigned the oversight responsibility of the risk Management function to the Risk Committee. The entity implemented a Risk Management Strategy, which includes a Fraud Prevention Plan. A formal risk assessment was undertaken for the year ended 31 March 2019 with quarterly reviews, updates and reports. Consequently, internal audit used this data to prepare the three-year rolling Strategic Plan and an Annual Operational Audit Plan. The Committee monitored the significant risks faced by the entity through risk reporting, evaluation of the reports and participation in risk assessment workshop. We are satisfied that significant risks have been managed to an acceptable level.

### **In-Year Management and Monthly/Quarterly Report**

The Public Entity has submitted monthly and quarterly reports to the Executive Authority.

### **Evaluation of Financial Statements**

We have reviewed the annual financial statements prepared by the Public Entity.

### **Auditor's Report**

We have reviewed the Public Entity's implementation plan for audit issues raised in the prior year and we are satisfied that the matters have been adequately resolved.

The Audit Committee concurs and accepts the conclusions of the external auditor on the annual financial statements and is of the opinion that the audited annual financial statements be accepted and read together with the report of the auditor.

**Phuthanang Motsielwa**  
Chairperson of the Audit Committee (SANEDI)  
30 August 2019

**Nkululeko Buthelezi**  
Interim Chairperson: SANEDI Board  
30 August 2019



# **PART D: HUMAN RESOURCE MANAGEMENT**





## 27. Introduction

### 27.1. Overview of Human Resource Matters at SANEDI

The Human Resources (HR) team offers strategic support to the core business of SANEDI by assisting line-Management to implement operational excellence and develop human capital capabilities and potential.

During the year under review information sessions were held to provide and guide staff on the processes which will enable them to make informed decisions regarding their rights as employees, their benefit options as well as on the human resource policies and procedures.

The Workplace Skills Plan (WSP) for the 2018/19 financial year was submitted to the Energy and Water Sector Education and Training Authority (EWSETA). SANEDI actively identified new areas for organisational learning such as Supply Chain Management, Contract Management, Project Management and Finance Management training. In the financial year under review, a total of 86% of staff underwent training to date and this percentage includes further studies, local and International training.

The National Education, Health and Allied Workers Union (NEHAWU) is the only union recognised by SANEDI, with 43% of the bargaining unit members comprised of employees.

### 27.2. HR Priorities for 2018/19

During the 2018/19 financial year, SANEDI embarked on an organisational review process to ensure that the organisation is optimally structured to deliver on its mandate. This process is still underway and will be finalised in the first quarter of the new financial year. Upon finalisation of the organisational structure, critical activities such as the job evaluation of all positions, will be undertaken to ensure that a consistent and rational process of determining the salary structure for various job levels is in place.

The need for performance Management and labour law training for all employees was also identified during the financial year and this training form part of the HR unit's priorities for the 2019/20 financial year. The labour law training will cover key labour matters competency gaps, and practically assist in the daily use of labour law and CCMA processes. It is envisioned that the performance Management training will assist SANEDI in identifying performance gaps among employees and come up with interventions on how to assist employees achieve short-term and long-term goals. SANEDI currently does not undertake succession planning and the organisation will look at ways which will support succession planning by implementing leadership development programs.

The Board approved 26 HR policies this year and the organisation was fully committed in ensuring full implementation of these policies and as such brown bag information sessions well held to communicate the policies to employees. Five key policies were prioritised as these addressed pertinent issues on the current and future employee benefit structure as well as polices that address what constitutes acceptable behaviour by employees. Employees were also educated on how utilising policies and procedures during decision-making ensures that SANEDI is consistent in its decisions.

SANEDI also implemented an HR automated system in order to improve efficiency within the human resources department. It is envisioned that by automating the manual human resource processes and eliminating information-centered risks in the areas of hiring, retaining and firing staff the department will improve its performance and provide meaningful support to the organisation.

### 27.3. Workforce Planning Framework

In the period under review, five learners and two interns were appointed to embark on SANEDI's learnership and internship programme. The objective of the programme is to upskill young graduates from institutions of further education and training and universities by providing them with skills development within the energy sector. This is done by providing theoretical and on-the-job training in order to create a pool of potential candidates for employment by the energy sector.

### 27.4. Employee Wellness Programme

Strengthening the employer-employee relationship is an important goal for the HR department. SANEDI's approach to employee wellness is anchored in its belief that there is a direct correlation between productivity and the well-being of its employees. Accordingly, SANEDI introduced an Employee Wellness Programme in 2017. In the year under review the programme continued to assist employees to identify and resolve personal or work-related problems, providing emotional assistance and support interventions to employees. SANEDI employees participated in the following wellness programmes during the reporting period:

- (a) World Aids Day – November 2018, and
- (b) Wellness day/ HR Open day – February 2019.



## 27.5. Policy Development

In the last financial year 2018/19 26 HR policies and procedures were approved. SANEDI continued to put in place a mechanism through which its policies are viewed on a regular basis to ensure alignment of its HR policies to relevant legislation and its operational requirements.

## 27.6. Challenges Faced by SANEDI

SANEDI did not perform well in the recruitment process as some critical posts remain vacant and the delay in finalising the process led to non-adherence to the Policy on Recruitment and Selection timeframes. The cause of the can be attributed to temporary freeze in the hiring of non-essential position, an effort proactively undertaken by SANEDI Management to ensure that the organisational review process is optimally structured to deliver on its mandate.

## 27.7. Future HR Plans and Goals

The following high-level HR priorities will be embarked on to create a platform for SANEDI to achieve its strategic objectives:

- (a) Implementation of career ladders and succession plans,
- (b) Developing and rolling out talent Management programmes for Identification of the key gaps between the talent in place and the talent required to drive organisation success,
- (c) Developing and implementing programmes to ensure a performance Management culture is fully embedded within the organisation, and
- (d) Developing highly skilled people.





## 28. Human Resource Oversight Statistics

The following section presents statistics relevant to the SANEDI staff complement. The data and statistics do not include short term contracts.

### 28.1. Costs by Programme

Programme	Total Expenditure for the entity (R'000)	Personnel Expenditure (R'000)	Personnel exp. as a % of total exp. (R'000)	No. of employees	Average personnel cost per employee (R'000)
Administration	35,241	13,451	38%	31	434
Applied Energy Research, Development and Innovation	51,062	20,088	39%	28	717
Energy Efficiency	3,556	2,867	81%	4	717
<b>TOTAL</b>	<b>89,859</b>	<b>36,406</b>	<b>41%</b>	<b>63<sup>23</sup></b>	<b>623</b>

Personnel expenditure reflected here include payments made to employees previously employed by SANEDI

### 28.2. Personnel Costs by Salary Band

Level	Personnel Expenditure (R'000)	% of personnel exp. to total personnel cost (R'000)	No. of employees	Average personnel cost per employee (R'000)
Top Management	4,671	13%	3	1,557
Senior Management	6,162	17%	4	1,541
Professional qualified	16,485	45%	21	785
Skilled and Unskilled	9,088	25%	35	260
<b>TOTAL</b>	<b>36,406</b>	<b>100%</b>	<b>63</b>	<b>1,036</b>

Personnel expenditure reflected here includes payments made to employees previously employed by SANEDI

### 28.3. Performance Rewards

Programme	Performance rewards	Personnel Expenditure (R'000)	% of performance rewards to total personnel cost (R'000)
Top Management	-	-	0%
Senior Management	-	-	0%
Professional qualified	-	-	0%
Skilled and Unskilled	-	-	0%
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>0%</b>

No performance bonuses were awarded for the FY 2018/19.

<sup>23</sup> SANEDI's staff complement is 56. Payments were however made to 63 staff members during the year, including individuals who had left the employ of the organization during the year.



## 28.4. Training Costs

Programme	Personnel Expenditure (R'000)	Training Expenditure (R'000)	Training Expenditure as a % of Personnel Cost.	No. of employees trained	Average training cost per employee
Administration	13,451	353	1%	5	71
Applied Energy Research	20,088	75	0%	1	75
Energy Efficiency	2,867	-	-	-	-
<b>TOTAL</b>	<b>36,406</b>	<b>217</b>	<b>1%</b>	<b>6</b>	<b>73</b>

Numbers reported include only bursaries funded by the organization. It does not reflect other workshops and training events attended by SANEDI employees

## 28.5. Employment and Vacancies

During 2018/19, three vacancies existed across SANEDI's three programmes:

Programme	2018/2019 No. of Employees	2018/2019 Approved Posts	2018/2019 Vacancies	% of vacancies
Administration	23	2	1	4.3%
Applied energy research, development and innovation	26	1	1	3.8%
Energy Efficiency	7	1	1	14.3%
<b>TOTAL</b>	<b>56</b>	<b>4</b>	<b>3</b>	<b>5.3%</b>

SANEDI's Administration positions were frozen for FY 2018/19 pending the organisational review. Due to lack of staff capacity within Human Resources (HR) (to be filled) and Procurement Departments (filled) – 2 positions were approved by the Board.

## 28.6. Employment Changes

Provide information on changes in employment over the financial year. Turnover rates provide an indication of trends in employment profile of the Public Entity.

Salary Band	Employment at beginning of period	Appointments	Terminations	Employment at end of the period
Top Management	2	-	-	2
Senior Management	4	-	-	4
Professional qualified	22	2	1	22
Skilled and semi-skilled	28	2	2	28
<b>Total</b>	<b>56</b>	<b>4</b>	<b>3</b>	<b>56</b>



## 28.7. Reasons for Staff Leaving

Three staff members left SANEDI during the year. As reflected in the following breakdown of reasons for staff members leaving, all of these employees resigned:

Reason	Number	% of total no. of staff leaving
Death	-	-
Resignation	3	5.3%
Dismissal	-	-
Retirement	-	-
Ill health	-	-
Expiry of contract	-	-
Other	-	-
<b>Total</b>	<b>3</b>	<b>5.3%</b>

## 28.8. Labour Relations: Misconduct and Disciplinary Action

There were no cases of misconduct and disciplinary action during the financial year.

Nature of disciplinary Action	Number
Verbal Warning	None
Written Warning	None
Final Written warning	None
Dismissal	None

## 28.9. Equity Target and Employment Equity Status

At the end of the year under review, our staff establishment was as follows:

Levels	MALE							
	African		Coloured		Indian		White	
	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	-	-	-	-	-	-	-	-
Senior Management	1	-	-	-	1	-	2	-
Professional qualified	5	-	1	-	3	-	2	-
Skilled	6	-	-	-	1	-	-	-
Semi-skilled	1	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>13</b>	-	<b>1</b>	-	<b>5</b>	-	<b>4</b>	-



At the end of the year under review, our staff establishment was as follows: (continued)

Levels	FEMALE							
	AFRICAN		COLOURED		INDIAN		WHITE	
	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	2	-	-	-	-	-	-	-
Senior Management	-	-	-	-	-	-	-	-
Professional qualified	8	-	-	-	-	-	2	-
Skilled	15	-	1	-	1	-	1	-
Semi-skilled	3	-	-	-	-	-	-	-
<b>TOTAL</b>	28	-	1	-	1	-	3	-





# PART E: FINANCIAL INFORMATION

# Report of the auditor-general to Parliament on South African National Energy Development Institute

## Report on the audit of the financial statements

### Opinion

1. I have audited the financial statements of the South African National Energy Development Institute set out on pages 100 to 136, which comprise the statement of financial position as at 31 March 2019, the statement of financial performance, statement of changes in net assets, cash flow statement and the statement of comparison of budget and actual amounts for the year then ended, as well as the notes to the financial statements, including a summary of significant accounting policies.
2. In my opinion, the financial statements present fairly, in all material respects, the financial position of the South African National Energy Development Institute as at 31 March 2019, and its financial performance and cash flows for the year then ended in accordance with Standards of Generally Recognised Accounting Practice (Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA) and the Companies Act of South Africa, 2008 (Act No. 71 of 2008) (the Companies Act).

### Basis for the opinion

3. I conducted my audit in accordance with the International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the auditor-general's responsibilities for the audit of the financial statements section of this auditor's report.
4. I am independent of the Public Entity in accordance with sections 290 and 291 of the International Ethics Standards Board for Accountants' *Code of ethics for professional accountants* (IESBA code), parts 1 and 3 of the International Ethics Standards Board for Accountants' *International Code of Ethics for Professional Accountants (including International Independence Standards)* and the ethical requirements that are relevant to my audit in South Africa. I have fulfilled my other ethical responsibilities in accordance with these requirements and the IESBA codes.
5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

### Emphasis of matters

6. I draw attention to the matters below. My opinion is not modified in respect of these matters.

### Restatement of corresponding figures

7. As disclosed in note 23 to the financial statements, the corresponding figures for 31 March 2018 were restated as a result of an error in the financial statements of the Public Entity at, and for the year ended, 31 March 2019.

### Material impairment

8. As disclosed in note 14 to the financial statements, material losses of R3 188 000 was incurred as a result of a write-off of irrecoverable trade debtors and vat receivable.

### Responsibilities of accounting authority for the financial statements

9. The accounting authority is responsible for the preparation and fair presentation of the financial statements in accordance with Standards of GRAP and the requirements of the PFMA, the Companies Act, and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.
10. In preparing the financial statements, the accounting authority is responsible for assessing the South African National Energy Development Institute's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the accounting authority either intends to liquidate the Public Entity or to cease operations, or has no realistic alternative but to do so.

### Auditor-general's responsibilities for the audit of the financial statements

11. My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they



could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

12. A further description of my responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

## Report on the audit of the annual performance report

### Introduction and scope

13. In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof, I have a responsibility to report material findings on the reported performance information against predetermined objectives for selected programmes presented in the annual performance report. I performed procedures to identify findings but not to gather evidence to express assurance.
14. My procedures address the reported performance information, which must be based on the approved performance planning documents of the public entity. I have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. My procedures also did not extend to any disclosures or assertions relating to planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, my findings do not extend to these matters.
15. I evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected programmes presented in the annual performance report of the public entity for the year ended 31 March 2019:

Programmes	Pages in the annual performance report
Programme 2 – applied energy research, development and innovation	29 - 56
Programme 3 – energy efficiency	57 - 60

16. I performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. I performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
17. I did not raise any material findings on the usefulness and reliability of the reported performance information for these programmes:
- Programme 2 - applied energy research, development and innovation
  - Programme 3 - energy efficiency

### Other matters

18. I draw attention to the matters below.

#### Achievement of planned targets

19. Refer to the annual performance report on pages xx to xx for information on the achievement of planned targets for the year and explanations provided for the under/over achievement of a number of targets.

#### Adjustment of material misstatements

20. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were on the reported performance information of programme 2 - applied energy research, development and innovation and programme 3 - energy efficiency. As management subsequently corrected the misstatements, I did not raise any material findings on the usefulness and reliability of the reported performance information.

## Report on the audit of compliance with legislation

### Introduction and scope

21. In accordance with the PAA and the general notice issued in terms thereof, I have a responsibility to report material findings on the compliance of the public entity with specific matters in key legislation. I performed procedures to identify findings but not to gather evidence to express assurance.
22. The material findings on compliance with specific matters in key legislations are as follows:

### Annual financial statements

23. The financial statements submitted for auditing were not prepared in accordance with the prescribed financial reporting framework, as required by section 55(1) (a) and (b) of the PFMA. Material misstatements of commitments and subsequent events disclosure items identified by the auditors in the submitted financial statements were corrected, resulting in the financial statements receiving an unqualified audit opinion.

### Procurement and contract Management

24. Some of contracts and quotations were awarded to bidders that did not score the highest points in the evaluation process, as required by section 2(1)(f) of Preferential Procurement Policy Framework Act, 2000 (PPPFA, 2000) and Preferential Procurement Regulations, 2017.
25. Some of the contracts were modified or extended without the approval of a properly delegated official as required by section 44 of the PFMA and treasury regulations 8.1 and 8.2.

## Other information

26. The accounting authority is responsible for the other information. The other information comprises the information included in the Annual Report which includes the accounting authority's report as required by the Companies Act. The other information does not include the financial statements, the auditor's report and those selected programmes presented in the annual performance report that have been specifically reported in this auditor's report.
27. My opinion on the financial statements and findings on the reported performance information and compliance with legislation do not cover the other information and I do not express an audit opinion or any form of assurance conclusion thereon.
28. In connection with my audit, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements and the selected programmes presented in the annual performance report, or my knowledge obtained in the audit, or otherwise appears to be materially misstated.
29. If, based on the work I have performed, I conclude that there is a material misstatement in this other information, I am required to report that fact. I have nothing to report in this regard.

## Internal control deficiencies

30. I considered internal control relevant to my audit of the financial statements, reported performance information and compliance with applicable legislation, however, my objective was not to express any form of assurance on it. The matters reported below are limited to the significant internal control deficiencies that resulted in the findings on compliance with legislation included in this report.
31. The accounting authority did not exercise adequate oversight responsibility regarding compliance with laws and regulations and related internal controls which resulted in instances of non-compliance with the PFMA and treasury regulations.
32. Senior Management did not prepare accurate annual financial statements that are supported by reliable evidence. The annual financial statements were subject to material amendments resulting from the audit.

Johannesburg  
31 July 2019



**A U D I T O R - G E N E R A L**  
**S O U T H A F R I C A**

*Auditing to build public confidence*

## Annexure – Auditor-general’s responsibility for the audit

1. As part of an audit in accordance with the ISAs, I exercise professional judgement and maintain professional scepticism throughout my audit of the financial statements, and the procedures performed on reported performance information for selected programmes and on the Public Entity's compliance with respect to the selected subject matters.

### Financial statements

2. In addition to my responsibility for the audit of the financial statements as described in this auditor's report, I also:
  - identify and assess the risks of material misstatement of the financial statements whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control
  - obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Public Entity's internal control.
  - evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the accounting authority.
  - conclude on the appropriateness of the Board of directors, which constitutes the accounting authority's use of the going concern basis of accounting in the preparation of the financial statements. I also conclude, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the South African National Energy Development Institutes' ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements about the material uncertainty or, if such disclosures are inadequate, to modify the opinion on the financial statements. My conclusions are based on the information available to me at the date of this auditor's report. However, future events or conditions may cause a Public Entity to cease continuing as a going concern.
  - evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

### Communication with those charged with Governance

3. I communicate with the accounting authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.
4. I also confirm to the accounting authority that I have complied with relevant ethical requirements regarding independence, and communicate all relationships and other matters that may reasonably be thought to have a bearing on my independence and, where applicable, related safeguards.



# Accounting Authority's Responsibilities and Approval

The SANEDI Board of Directors is required by the Public Finance Management Act (Act 1 of 1999), to maintain adequate accounting records and is responsible for the content and integrity of the financial statements and related financial information included in this report. It is the responsibility of the board to ensure that the financial statements fairly present the state of affairs of the entity as at the end of the financial year and the results of its operations and cash flows for the period then ended. The external auditors are engaged to express an independent opinion on the financial statements and was given unrestricted access to all financial records and related data.

The financial statements have been prepared in accordance with Standards of Generally Recognised Accounting Practice (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board.

The financial statements are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The board acknowledges that it is ultimately responsible for the system of internal financial control established by the entity and place considerable importance on maintaining a strong control environment. To enable the board to meet these responsibilities, the accounting authority sets standards for internal control aimed at reducing the risk of error in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the entity and all employees are required to maintain the highest ethical standards in ensuring the entity's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk

Management in the entity is on identifying, assessing, managing and monitoring all known forms of risk across the entity. While operating risk cannot be fully eliminated, the entity endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The board is of the opinion, based on the information and explanations given by Management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement.

The board has reviewed the entity's cash flow forecast for the year to 31 March 2020 and, in the light of this review and the current financial position, it is satisfied that the entity has or has access to adequate resources to continue in operational existence for the foreseeable future.

The accounting authority is primarily responsible for the financial affairs of the entity.

The external auditors are responsible for independently reviewing and reporting on the entity's financial statements. The financial statements have been examined by the entity's external auditors and their report is presented on page 100.

The financial statements set out on pages 100 to 136, which have been prepared on the going concern basis, were approved by the accounting authority on 8 August 2019 and were signed on its behalf by:

**Nkululeko Buthelezi**  
Interim Chairperson: SANEDI Board



# Statement of Financial Position

as at 31 March 2019

		March 2019	March 2018
		R '000	R '000
<b>ASSETS</b>			
Non-Current Assets			
Property, plant and equipment	3	6 506	3 011
Intangible assets	4	2 017	3 915
		<b>8 523</b>	<b>6 926</b>
<b>Current Assets</b>			
Receivables from (non) exchange transactions	5	9 023	2 699
VAT receivable	6	-	2 431
Cash and cash equivalents	7	229 519	244 864
		<b>238 542</b>	<b>249 994</b>
<b>Total Assets</b>		<b>247 065</b>	<b>256 920</b>
<b>LIABILITIES</b>			
Current Liabilities			
Payables from exchange transactions	10	12 529	16 038
Unspent conditional grants and receipts	8	15 872	46 940
Provisions	9	8 485	11 136
		36 886	74 114
<b>Total Liabilities</b>		<b>36 886</b>	<b>74 114</b>
<b>NET ASSETS</b>		<b>210 179</b>	<b>182 806</b>
<b>Accumulated surplus</b>		<b>210 179</b>	<b>182 806</b>



# Statement of Financial Performance

as at 31 March 2019

		March 2019	March 2018
		R '000	R '000
Revenue			
Revenue from exchange transactions			
	Services Rendered:Sponsorship & Consultancy	4 303	3 775
	Interest received	14 979	13 410
	Other income	853	559
	Gain on foreign exchange	206	-
	<b>Total revenue from exchange transactions</b>	<b>20 341</b>	<b>17 744</b>
<b>Revenue from non exchange transactions</b>			
	Government grants & subsidies	97 099	124 853
	<b>Total revenue</b>	<b>117 440</b>	<b>142 597</b>
<b>Expenditure</b>			
	Direct personnel costs	(36 406)	(47 437)
	Director's remuneration	(115)	(548)
	Depreciation and amortisation	(3 617)	(1 310)
	Impairment loss/ Reversal of impairments	(95)	(155)
	Provision for Doubtful Debt	(3 188)	(9 444)
	Repairs and maintenance	(879)	(1 322)
	Project development costs	(33 363)	(75 652)
	Loss on foreign exchange	-	(96)
	Operating expenses	(12 403)	(10 466)
	<b>Total expenditure</b>	<b>(90 066)</b>	<b>(146 430)</b>
	<b>Surplus (deficit) for the year</b>	<b>27 374</b>	<b>(3 833)</b>



# Statement of Changes in Net Assets

as at 31 March 2019

	Accumulated surplus R '000	Total net assets R '000
<b>Balance at 01 April 2017</b>	<b>186 639</b>	<b>186 639</b>
Deficit for the year	(3 833)	(3 833)
	(3 833)	(3 833)
<b>Balance at 01 April 2018</b>	<b>182 805</b>	<b>182 805</b>
Surplus for the year	27 374	27 374
	27 374	27 374
<b>Balance at 31 March 2019</b>	<b>210 179</b>	<b>210 179</b>



# Cash Flow Statement

as at 31 March 2019

		March 2019 R'000	March 2018 R'000
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
<b>Receipts</b>			
	Grants	73 198	100 654
	Interest income	17 171	16 315
	Services rendered consultancy & sponsorship	4 802	3 823
		<b>95 171</b>	<b>120 792</b>
<b>Payments</b>			
	Employee costs	(39 997)	(45 401)
	Suppliers	(55 100)	(57 436)
	Transfer of RDP Funds	(10 112)	(22 410)
		<b>(105 209)</b>	<b>(125 247)</b>
	<b>Net cash flows from operating activities</b>	<b>(10 036)</b>	<b>(4 454)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
	Purchase of property, plant and equipment	(5 189)	(2 492)
	Purchase of other intangible assets	(119)	(3 871)
	<b>Net cash flows from investing activities</b>	<b>(5 308)</b>	<b>(6 363)</b>
	<b>Net increase/(decrease) in cash and cash equivalents</b>	<b>(15 344)</b>	<b>(10 817)</b>
	Cash and cash equivalents at the beginning of the year	244 864	255 681
	<b>Cash and cash equivalents at the end of the year</b>	<b>229 520</b>	<b>244 864</b>





# Statement of Comparison of Budgets and Actual Amounts

as at 31 March 2019

Budget on Cash Basis

	Approved budget	Adjustments	Final Budget	Actual amounts on comparable basis	Difference between final budget and actual	Reference
	R '000	R '000	R '000	R '000	R '000	
<b>STATEMENT OF FINANCIAL PERFORMANCE</b>						
Grants & other receipts	174 030	-	174 030	117 440	(56 590)	*
<b>Total revenue</b>	<b>174 030</b>	<b>-</b>	<b>174 030</b>	<b>117 440</b>	<b>(56 590)</b>	
<b>Expenditure</b>						
Employee costs	(56 802)	-	(56 802)	(36 520)	20 282	**
Depreciation and amortisation	(2 520)	-	(2 520)	(3 712)	(1 192)	**
Project costs	(91 206)	-	(91 206)	(33 363)	57 843	****
Operational expenditure	(23 502)	-	(23 502)	(16 470)	7 032	*****
<b>Total expenditure</b>	<b>(174 030)</b>	<b>-</b>	<b>(174 030)</b>	<b>(90 065)</b>	<b>83 965</b>	
<b>Surplus for the year</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>27 375</b>	<b>27 375</b>	

\*Revenue includes estimates of donor funds that did not come through due to delays in finalisation of financial agreements.

\*\*Employee costs were less than budgeted as there are vacancies that have not been filled for the CEO, various positions remained vacant and were not filled. There were no bonuses paid during the year.

\*\*\*Depreciation was greater than budgeted for due to an increase in capex spending relating to IT Equipment.

\*\*\*\*There was an underspending in some of the programmes due to delays in finalising of financing agreements, appointment of personnel to some programmes. Some of the activities due for completion in this financial year were moved to the following year due to movements within sub programmes.

\*\*\*\*\*Operating costs were less due to cost containment measures that were adopted by the entity.

There were also delays in executing activities for administration that resulted in lower than expected spending.

There was a decline in the lease costs as a result of savings from relocation to the CEF premises.

The accounting policies on pages 10 to 25 and the notes on pages 26 to 41 form an integral part of the financial statements.



# Accounting Policies

## 1. PRESENTATION OF FINANCIAL STATEMENTS

The financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP), issued by the Accounting Standards Board in accordance with Section 91(1) of the Public Finance Management Act (Act 1 of 1999).

These financial statements have been prepared on an accrual basis of accounting and are in accordance with historical cost convention as the basis of measurement, unless specified otherwise. They are presented in South African Rand.

A summary of the significant accounting policies, which have been consistently applied in the preparation of these financial statements, are disclosed below.

### 1.1 Presentation currency

These financial statements are presented in South African Rand, which is the functional currency of the entity.

### 1.2 Going concern assumption

These financial statements have been prepared based on the expectation that the entity will continue to operate as a going concern for at least the next 12 months.

### 1.3 Significant judgements and sources of estimation uncertainty

In preparing the financial statements, Management is required to make estimates and assumptions that affect the amounts represented in the financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the financial statements. Significant judgements include:

#### Fair value estimation

The fair value of financial instruments traded in active markets (such as trading and available for sale securities) is based on quoted market prices at the end of the reporting period. The quoted market price used for financial assets held by the entity is the current bid price.

The fair value of financial instruments that are not traded in an active market (for example, over the counter derivatives) is determined by using valuation techniques. The entity uses a variety of methods and makes assumptions that are based on market conditions existing at the end of each reporting period. Quoted market prices or dealer quotes for similar instruments are used for long term debt. Other techniques, such as estimated discounted cash flows, are used to determine fair value for the remaining financial instruments. The fair value of interest rate swaps is calculated as the present value of the estimated future cash flows. The fair value of forward foreign exchange contracts is determined using quoted forward exchange rates at the end of the reporting period.

The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair values. The fair value of financial liabilities for disclosure purposes is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the entity for similar financial instruments.

#### Impairment testing

The recoverable(service) amounts of cash generating units and individual assets have been determined based on the higher of value in use calculations and fair values less costs to sell. These calculations require the use of estimates and assumptions.

The entity reviews and tests the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. Assets are grouped at the lowest level for which identifiable cash flows are largely independent of cash flows of other assets and liabilities. If there are indications that impairment may have occurred, estimates are prepared of expected future cash flows for each group of assets. Expected future cash flows used to determine the value in use of goodwill and tangible assets are inherently uncertain and could materially change over time.



# Accounting Policies (continued)

## 1.3 Significant judgements and sources of estimation uncertainty (continued)

### Provisions

Provisions were raised and Management determined an estimate based on the information available. Additional disclosure of these estimates of provisions are included in note 9 Provisions.

### Allowance for doubtful debts

On debtors an impairment loss is recognised in surplus and deficit when there is objective evidence that it is impaired. The impairment is measured as the difference between the debtors carrying amount and the present value of estimated future cash flows discounted at the effective interest rate, computed at initial recognition.

### Going concern

Management considers key financial metrics and loan covenant compliance in its approved medium term budgets, together with its existing term facilities, to conclude that the going concern assumption used in the compiling of its annual financial statements is relevant.

For other provisions, estimates are made of legal or constructive obligations resulting in the raising of provisions, and the expected date of probable outflow of economic benefits to assess whether the provision should be discounted.

## 1.4 Property, plant and equipment

Property, plant and equipment are tangible non current assets that are held for use in the production or supply of goods or services or for administrative purposes, and are expected to be used during more than one period.

The cost of an item of property, plant and equipment is recognised as an asset when:

- it is probable that future economic benefits or service potential associated with the item will flow to the entity, and
- the cost of the item can be measured reliably.

Property, plant and equipment is initially measured at cost.

The cost of an item of property, plant and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by Management. Trade discounts and rebates are deducted in arriving at the cost.

When assets are acquired through a non exchange transaction, its cost is its fair value as at date of acquisition.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment loss.

Property, plant and equipment are depreciated on the straight line basis over their expected useful lives to their estimated residual value.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses. The useful lives of items of property, plant and equipment have been assessed as follows:

Item	Depreciation method	Average useful life
Furniture and fixtures	Straight line	2-15 years
Motor vehicles	Straight line	5 years
Office equipment	Straight line	5 years
Computer equipment	Straight line	3 years
Leasehold improvements	Straight line	over the lease period
Communication equipment	Straight line	2-15 years



# Accounting Policies (continued)

## 1.4 Property, plant and equipment (continued)

The depreciable amount of an asset is allocated on a systematic basis over its useful life.

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The depreciation method used reflects the pattern in which the asset's future economic benefits or service potential are expected to be consumed by the entity. The depreciation method applied to an asset is reviewed at least at each reporting date and, if there has been a significant change in the expected pattern of consumption of the future economic benefits or service potential embodied in the asset, the method is changed to reflect the changed pattern. Such a change is accounted for as a change in an accounting estimate.

The entity assesses at each reporting date whether there is any indication that the entity expectations about the residual value and the useful life of an asset have changed since the preceding reporting date. If any such indication exists, the entity revises the expected useful life and/or residual value accordingly. The change is accounted for as a change in an accounting estimate.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Items of property, plant and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

The gain or loss arising from the derecognition of an item of property, plant and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from the derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

Assets which the entity holds for rentals to others and subsequently routinely sell as part of the ordinary course of activities, are transferred to inventories when the rentals end and the assets are available for sale. Proceeds from sales of these assets are recognised as revenue. All cash flows on these assets are included in cash flows from operating activities in the cash flow statement.

The entity separately discloses expenditure to repair and maintain property, plant and equipment in the notes to the financial statements (see note 3).

## 1.5 Intangible assets

An asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so, or
- arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

A binding arrangement describes an arrangement that confers similar rights and obligations on the parties to it as if it were in the form of a contract.

An intangible asset is recognised when:

- it is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the entity, and
- the cost or fair value of the asset can be measured reliably.

The entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent Management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

Where an intangible asset is acquired through a non exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.



# Accounting Policies (continued)

## 1.5 Intangible assets (continued)

An intangible asset arising from development (or from the development phase of an internal project) is recognised when:

- it is technically feasible to complete the asset so that it will be available for use or sale.
- there is an intention to complete and use or sell it.
- there is an ability to use or sell it.
- it will generate probable future economic benefits or service potential.
- there are available technical, financial and other resources to complete the development and to use or sell the asset.
- the expenditure attributable to the asset during its development can be measured reliably.

Intangible assets are carried at cost less any accumulated amortisation and any impairment losses.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Reassessing the useful life of an intangible asset with a finite useful life after it was classified as indefinite is an indicator that the asset may be impaired. As a result the asset is tested for impairment and the remaining carrying amount is amortised over its useful life.

Amortisation is provided to write down the intangible assets, on a straight line basis, to their residual values as follows:

Item	Depreciation method	Average useful life
Computer software, other	Straight line	2 years

Intangible assets are derecognised:

- on disposal, or
- when no future economic benefits or service potential are expected from its use or disposal.

The gain or loss arising from the derecognition of an intangible asset is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the intangible asset. Such a difference is recognised in surplus or deficit when the intangible asset is derecognised.

## 1.6 Financial instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or a residual interest of another entity.

The amortised cost of a financial asset or financial liability is the amount at which the financial asset or financial liability is measured at initial recognition minus principal repayments, plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, and minus any reduction (directly or through the use of an allowance account) for impairment or uncollectibility.

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation.

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

Derecognition is the removal of a previously recognised financial asset or financial liability from an entity's statement of financial position.

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability (or group of financial assets or financial liabilities) and of allocating the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument



# Accounting Policies (continued)

## 1.6 Financial instruments (continued)

or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability. When calculating the effective interest rate, an entity shall estimate cash flows considering all contractual terms of the financial instrument (for example, prepayment, call and similar options) but shall not consider future credit losses. The calculation includes all fees and points paid or received between parties to the contract that are an integral part of the effective interest rate (see the Standard of GRAP on Revenue from Exchange Transactions), transaction costs, and all other premiums or discounts. There is a presumption that the cash flows and the expected life of a group of similar financial instruments can be estimated reliably. However, in those rare cases when it is not possible to reliably estimate the cash flows or the expected life of a financial instrument (or group of financial instruments), the entity shall use the contractual cash flows over the full contractual term of the financial instrument (or group of financial instruments).

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable willing parties in an arm's length transaction.

A financial asset is:

- cash,
- a residual interest of another entity, or
- a contractual right to:
  - receive cash or another financial asset from another entity, or
  - exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the entity.

A financial liability is any liability that is a contractual obligation to:

- deliver cash or another financial asset to another entity, or
- exchange financial assets or financial liabilities under conditions that are potentially unfavourable to the entity.

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

Liquidity risk is the risk encountered by an entity in the event of difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset.

Loans payable are financial liabilities, other than short term payables on normal credit terms.

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency risk, interest rate risk and other price risk.

Other price risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices (other than those arising from interest rate risk or currency risk), whether those changes are caused by factors specific to the individual financial instrument or its issuer, or factors affecting all similar financial instruments traded in the market.

A financial asset is past due when a counterparty has failed to make a payment when contractually due.

A residual interest is any contract that manifests an interest in the assets of an entity after deducting all of its liabilities. A residual interest includes contributions from owners, which may be shown as:

- equity instruments or similar forms of unitised capital,
- a formal designation of a transfer of resources (or a class of such transfers) by the parties to the transaction as forming part of an entity's net assets, either before the contribution occurs or at the time of the contribution, or
- a formal agreement, in relation to the contribution, establishing or increasing an existing financial interest in the net assets of an entity.

Transaction costs are incremental costs that are directly attributable to the acquisition, issue or disposal of a financial asset or financial liability. An incremental cost is one that would not have been incurred if the entity had not acquired, issued or disposed of the financial instrument.



# Accounting Policies (continued)

## 1.6 Financial instruments (continued)

Financial instruments at amortised cost are non derivative financial assets or non derivative financial liabilities that have fixed or determinable payments, excluding those instruments that:

- the entity designates at fair value at initial recognition, or
- are held for trading.

Financial instruments at cost are investments in residual interests that do not have a quoted market price in an active market, and whose fair value cannot be reliably measured.

Financial instruments at fair value comprise financial assets or financial liabilities that are:

- derivatives,
- combined instruments that are designated at fair value,
- instruments held for trading. A financial instrument is held for trading if:
  - it is acquired or incurred principally for the purpose of selling or repurchasing it in the near term, or on initial recognition it is part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short term profit taking,
  - non derivative financial assets or financial liabilities with fixed or determinable payments that are designated at fair value at initial recognition, and financial instruments that do not meet the definition of financial instruments at amortised cost or financial instruments at cost.

### Classification

The entity has the following types of financial assets (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

<b>Class</b>	<b>Category</b>
Loans receivable	Financial asset measured at amortised cost
Trade and other receivables	Financial asset measured at amortised cost
Cash and cash equivalents	Financial asset measured at amortised cost
Investments	Financial asset measured at amortised cost

The entity has the following types of financial liabilities (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

<b>Class</b>	<b>Category</b>
Trade and other payables	Financial liability measured at amortised cost

### Initial recognition

The entity recognises a financial asset or a financial liability in its statement of financial position when the entity becomes a party to the contractual provisions of the instrument.

The entity recognises financial assets using trade date accounting.

### Initial measurement of financial assets and financial liabilities

The entity measures a financial asset and financial liability initially at its fair value plus transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

The entity measures a financial asset and financial liability initially at its fair value [if subsequently measured at fair value].

The entity first assesses whether the substance of a concessionary loan is in fact a loan. On initial recognition, the entity analyses a concessionary loan into its component parts and accounts for each component separately. The entity accounts for that part of a concessionary loan that is:



# Accounting Policies (continued)

## 1.6 Financial instruments (continued)

- a social benefit in accordance with the Framework for the Preparation and Presentation of Financial Statements, where it is the issuer of the loan, or
- non exchange revenue, in accordance with the Standard of GRAP on Revenue from Non exchange Transactions (Taxes and Transfers), where it is the recipient of the loan.

Subsequent measurement of financial assets and financial liabilities

The entity measures all financial assets and financial liabilities after initial recognition using the following categories:

- Financial instruments at amortised cost.

All financial assets measured at amortised cost, or cost, are subject to an impairment review.

### Gains and losses

A gain or loss arising from a change in the fair value of a financial asset or financial liability measured at fair value is recognised in surplus or deficit.

For financial assets and financial liabilities measured at amortised cost or cost, a gain or loss is recognised in surplus or deficit when the financial asset or financial liability is derecognised or impaired, or through the amortisation process.

### Impairment and uncollectibility of financial assets

The entity assesses at the end of each reporting period whether there is any objective evidence that a financial asset or group of financial assets is impaired.

#### Financial assets measured at amortised cost:

If there is objective evidence that an impairment loss on financial assets measured at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced directly OR through the use of an allowance account. The amount of the loss is recognised in surplus or deficit.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed directly OR by adjusting an allowance account. The reversal does not result in a carrying amount of the financial asset that exceeds what the amortised cost would have been had the impairment not been recognised at the date the impairment is reversed. The amount of the reversal is recognised in surplus or deficit.

#### Financial assets measured at cost:

If there is objective evidence that an impairment loss has been incurred on an investment in a residual interest that is not measured at fair value because its fair value cannot be measured reliably, the amount of the impairment loss is measured as the difference between the carrying amount of the financial asset and the present value of estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment losses are not reversed.

### Derecognition

#### Financial assets

The entity derecognises financial assets using trade date accounting.





# Accounting Policies (continued)

## 1.6 Financial instruments (continued)

The entity derecognises a financial asset only when:

- the contractual rights to the cash flows from the financial asset expire, are settled or waived,
- the entity transfers to another party substantially all of the risks and rewards of ownership of the financial asset, or
- the entity, despite having retained some significant risks and rewards of ownership of the financial asset, has transferred control of the asset to another party and the other party has the practical ability to sell the asset in its entirety to an unrelated third party, and is able to exercise that ability unilaterally and without needing to impose additional restrictions on the transfer. In this case, the entity:
  - derecognise the asset, and recognise separately any rights and obligations created or retained in the transfer.

The carrying amounts of the transferred asset are allocated between the rights or obligations retained and those transferred on the basis of their relative fair values at the transfer date. Newly created rights and obligations are measured at their fair values at that date. Any difference between the consideration received and the amounts recognised and derecognised is recognised in surplus or deficit in the period of the transfer.

If the entity transfers a financial asset in a transfer that qualifies for derecognition in its entirety and retains the right to service the financial asset for a fee, it recognise either a servicing asset or a servicing liability for that servicing contract. If the fee to be received is not expected to compensate the entity adequately for performing the servicing, a servicing liability for the servicing obligation is recognised at its fair value. If the fee to be received is expected to be more than adequate compensation for the servicing, a servicing asset is recognised for the servicing right at an amount determined on the basis of an allocation of the carrying amount of the larger financial asset.

If, as a result of a transfer, a financial asset is derecognised in its entirety but the transfer results in the entity obtaining a new financial asset or assuming a new financial liability, or a servicing liability, the entity recognise the new financial asset, financial liability or servicing liability at fair value.

On derecognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received is recognised in surplus or deficit.

If the transferred asset is part of a larger financial asset and the part transferred qualifies for derecognition in its entirety, the previous carrying amount of the larger financial asset is allocated between the part that continues to be recognised and the part that is derecognised, based on the relative fair values of those parts, on the date of the transfer. For this purpose, a retained servicing asset is treated as a part that continues to be recognised. The difference between the carrying amount allocated to the part derecognised and the sum of the consideration received for the part derecognised is recognised in surplus or deficit.

If a transfer does not result in derecognition because the entity has retained substantially all the risks and rewards of ownership of the transferred asset, the entity continues to recognise the transferred asset in its entirety and recognise a financial liability for the consideration received. In subsequent periods, the entity recognises any revenue on the transferred asset and any expense incurred on the financial liability. Neither the asset, and the associated liability nor the revenue, and the associated expenses are offset.

### Financial liabilities

The entity removes a financial liability (or a part of a financial liability) from its statement of financial position when it is extinguished — i.e. when the obligation specified in the contract is discharged, cancelled, expires or waived.

An exchange between an existing borrower and lender of debt instruments with substantially different terms is accounted for as having extinguished the original financial liability and a new financial liability is recognised. Similarly, a substantial modification of the terms of an existing financial liability or a part of it is accounted for as having extinguished the original financial liability and having recognised a new financial liability.

The difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid, including any non cash assets transferred or liabilities assumed, is recognised in surplus or deficit. Any liabilities that are waived, forgiven or assumed by another entity by way of a non exchange transaction are accounted for in accordance with the Standard of GRAP on Revenue from Non exchange Transactions (Taxes and Transfers).



# Accounting Policies (continued)

## 1.6 Financial instruments (continued)

### Presentation

Interest relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Dividends or similar distributions relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Losses and gains relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

A financial asset and a financial liability are only offset and the net amount presented in the statement of financial position when the entity currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In accounting for a transfer of a financial asset that does not qualify for derecognition, the entity does not offset the transferred asset and the associated liability.

## 1.7 Leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

When a lease includes both land and buildings elements, the entity assesses the classification of each element separately.

Operating leases lesse

Operating lease payments are recognised as an expense on a straight line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease asset or liability. The aggregate benefit of incentives is recognised as a reduction of rental expense over the lease term on a straight line basis over the lease term. Any contingent rent is recognised separately as an expense when paid or payable and are not straight lined over the lease term.

## 1.8 Employee benefits

Employee benefits are all forms of consideration given by an entity in exchange for service rendered by employee

A qualifying insurance policy is an insurance policy issued by an insurer that is not a related party (as defined in the Standard of GRAP on Related Party Disclosures) of the reporting entity, if the proceeds of the policy can be used only to pay or fund employee benefits under a defined benefit plan and are not available to the reporting entity's own creditors (even in liquidation) and cannot be paid to the reporting entity, unless either:

- the proceeds represent surplus assets that are not needed for the policy to meet all the related employee benefit obligations, or
- the proceeds are returned to the reporting entity to reimburse it for employee benefits already paid.
- Termination benefits are employee benefits payable as a result of either:
  - an entity's decision to terminate an employee's employment before the normal retirement date, or
  - an employee's decision to accept voluntary redundancy in exchange for those benefits.

Other long term employee benefits are employee benefits (other than post employment benefits and termination benefits) that are not due to be settled within twelve months after the end of the period in which the employees render the related service.

Vested employee benefits are employee benefits that are not conditional on future employment.

Composite social security programmes are established by legislation and operate as multi employer plans to provide post employment benefits as well as to provide benefits that are not consideration in exchange for service rendered by employees.



# Accounting Policies (continued)

## 1.8 Employee benefits (continued)

A constructive obligation is an obligation that derives from an entity's actions where by an established pattern of past practice, published policies or a sufficiently specific current statement, the entity has indicated to other parties that it will accept certain responsibilities and as a result, the entity has created a valid expectation on the part of those other parties that it will discharge those responsibilities.

### Short term employee benefits

Short term employee benefits are employee benefits (other than termination benefits) that are due to be settled within twelve months after the end of the period in which the employees render the related service.

Short term employee benefits include items such as:

- wages, salaries and social security contributions,
- short term compensated absences (such as paid annual leave and paid sick leave) where the compensation for the absences is due to be settled within twelve months after the end of the reporting period in which the employees render the related employee service,
- bonus, incentive and performance related payments payable within twelve months after the end of the reporting period in which the employees render the related service, and
- non monetary benefits (for example, medical care, and free or subsidised goods or services such as housing, cars and cellphones) for current employees.

When an employee has rendered service to the entity during a reporting period, the entity recognise the undiscounted amount of short term employee benefits expected to be paid in exchange for that service:

- as a liability (accrued expense), after deducting any amount already paid. If the amount already paid exceeds the undiscounted amount of the benefits, the entity recognise that excess as an asset (prepaid expense) to the extent that the prepayment will lead to, for example, a reduction in future payments or a cash refund, and
- as an expense, unless another Standard requires or permits the inclusion of the benefits in the cost of an asset.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non accumulating absences, when the absence occurs. The entity measures the expected cost of accumulating compensated absences as the additional amount that the entity expects to pay as a result of the unused entitlement that has accumulated at the reporting date.

The entity recognise the expected cost of bonus, incentive and performance related payments when the entity has a present legal or constructive obligation to make such payments as a result of past events and a reliable estimate of the obligation can be made. A present obligation exists when the entity has no realistic alternative but to make the payments.

### Post employment benefits

Post employment benefits are employee benefits (other than termination benefits) which are payable after the completion of employment.

Post employment benefit plans are formal or informal arrangements under which an entity provides post employment benefits for one or more employees.

Multi employer plans are defined contribution plans (other than state plans and composite social security programmes) or defined benefit plans (other than state plans) that pool the assets contributed by various entities that are not under common control and use those assets to provide benefits to employees of more than one entity, on the basis that contribution and benefit levels are determined without regard to the identity of the entity that employs the employees concerned.

### Post employment benefits: Defined contribution plans

Defined contribution plans are post employment benefit plans under which an entity pays fixed contributions into a separate entity (a fund) and will have no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employee benefits relating to employee service in the current and prior periods.



## Accounting Policies (continued)

### 1.8 Employee benefits (continued)

When an employee has rendered service to the entity during a reporting period, the entity recognise the contribution payable to a defined contribution plan in exchange for that service:

- as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the reporting date, an entity recognise that excess as an asset (prepaid expense) to the extent that the prepayment will lead to, for example, a reduction in future payments or a cash refund, and
- as an expense, unless another Standard requires or permits the inclusion of the contribution in the cost of an asset.

Where contributions to a defined contribution plan do not fall due wholly within twelve months after the end of the reporting period in which the employees render the related service, they are discounted. The rate used to discount reflects the time value of money. The currency and term of the financial instrument selected to reflect the time value of money is consistent with the currency and estimated term of the obligation.

### 1.9 Provisions and contingencies

Provisions are recognised when:

- the entity has a present obligation as a result of a past event,
- it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation, and
- a reliable estimate can be made of the obligation.

The amount of a provision is the best estimate of the expenditure expected to be required to settle the present obligation at the reporting date.

Where the effect of time value of money is material, the amount of a provision is the present value of the expenditures expected to be required to settle the obligation.

The discount rate is a pre tax rate that reflects current market assessments of the time value of money and the risks specific to the liability.

Where some or all of the expenditure required to settle a provision is expected to be reimbursed by another party, the reimbursement is recognised when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement is treated as a separate asset. The amount recognised for the reimbursement does not exceed the amount of the provision.

Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate. Provisions are reversed if it is no longer probable that an outflow of resources embodying economic benefits or service potential will be required, to settle the obligation.

Where discounting is used, the carrying amount of a provision increases in each period to reflect the passage of time. This increase is recognised as an interest expense.

A provision is used only for expenditures for which the provision was originally recognised.

Provisions are not recognised for future operating surplus (deficit).

If an entity has a contract that is onerous, the present obligation (net of recoveries) under the contract is recognised and measured as a provision.

Contingent assets and contingent liabilities are not recognised. Contingencies are disclosed in note 20.

### 1.10 Commitments

Items are classified as commitments when an entity has committed itself to future transactions that will normally result in the outflow of cash.

Disclosures are required in respect of unrecognised contractual commitments.



# Accounting Policies (continued)

## 1.10 Commitments (continued)

Commitments for which disclosure is necessary to achieve a fair presentation should be disclosed in a note to the financial statements, if both the following criteria are met:

- Contracts should be non cancellable or only cancellable at significant cost (for example, contracts for computer or building maintenance services), and
- Contracts should relate to something other than the routine, steady, state business of the entity – therefore salary commitments relating to employment contracts or social security benefit commitments are excluded.

## 1.11 Revenue from exchange transactions

Revenue is the gross inflow of economic benefits or service potential during the reporting period when those inflows result in an increase in net assets, other than increases relating to contributions from owners.

An exchange transaction is one in which the entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of goods, services or use of assets) to the other party in exchange.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

### Measurement

Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts and volume rebates.  
Rendering of services

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the reporting date. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- the amount of revenue can be measured reliably,
- it is probable that the economic benefits or service potential associated with the transaction will flow to the entity,
- the stage of completion of the transaction at the reporting date can be measured reliably, and
- the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When services are performed by an indeterminate number of acts over a specified time frame, revenue is recognised on a straight line basis over the specified time frame unless there is evidence that some other method better represents the stage of completion. When a specific act is much more significant than any other acts, the recognition of revenue is postponed until the significant act is executed.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue is recognised only to the extent of the expenses recognised that are recoverable.

Service revenue is recognised by reference to the stage of completion of the transaction at the reporting date. Stage of completion is determined by services performed to date as a percentage of total services to be performed.

### Interest

Revenue arising from the use by others of entity assets yielding interest or similar distributions is recognised when:

- It is probable that the economic benefits or service potential associated with the transaction will flow to the entity, and
- The amount of the revenue can be measured reliably.

Interest is recognised, in surplus or deficit, using the effective interest rate method.

## 1.12 Revenue from non exchange transactions

Revenue comprises gross inflows of economic benefits or service potential received and receivable by an entity, which represents an increase in net assets, other than increases relating to contributions from owners.



# Accounting Policies (continued)

## 1.12 Revenue from non exchange transactions (continued)

Conditions on transferred assets are stipulations that specify that the future economic benefits or service potential embodied in the asset is required to be consumed by the recipient as specified or future economic benefits or service potential must be returned to the transferor.

Control of an asset arise when the entity can use or otherwise benefit from the asset in pursuit of its objectives and can exclude or otherwise regulate the access of others to that benefit.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services, or use of assets) to another entity in exchange.

Non exchange transactions are transactions that are not exchange transactions. In a non exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Restrictions on transferred assets are stipulations that limit or direct the purposes for which a transferred asset may be used, but do not specify that future economic benefits or service potential is required to be returned to the transferor if not deployed as specified.

Stipulations on transferred assets are terms in laws or regulation, or a binding arrangement, imposed upon the use of a transferred asset by entities external to the reporting entity.

Transfers are inflows of future economic benefits or service potential from non exchange transactions, other than taxes.  
Recognition

An inflow of resources from a non exchange transaction recognised as an asset is recognised as revenue, except to the extent that a liability is also recognised in respect of the same inflow.

As the entity satisfies a present obligation recognised as a liability in respect of an inflow of resources from a non exchange transaction recognised as an asset, it reduces the carrying amount of the liability recognised and recognises an amount of revenue equal to that reduction.

### Measurement

Revenue from a non exchange transaction is measured at the amount of the increase in net assets recognised by the entity.

When, as a result of a non exchange transaction, the entity recognises an asset, it also recognises revenue equivalent to the amount of the asset measured at its fair value as at the date of acquisition, unless it is also required to recognise a liability. Where a liability is required to be recognised it will be measured as the best estimate of the amount required to settle the obligation at the reporting date, and the amount of the increase in net assets, if any, recognised as revenue. When a liability is subsequently reduced, because the taxable event occurs or a condition is satisfied, the amount of the reduction in the liability is recognised as revenue.

Services in kind

The entity recognise services in kind that are significant to its operations and/or service delivery objectives as assets and recognise the related revenue when it is probable that the future economic benefits or service potential will flow to the entity and the fair value of the assets can be measured reliably.

The entity discloses the nature and type of services in kind received during the reporting period. Services rendered in kind are not recognised.

## 1.13 Translation of foreign currencies

### Foreign currency transactions

A foreign currency transaction is recorded, on initial recognition in Rands, by applying to the foreign currency amount the spot exchange rate between the functional currency and the foreign currency at the date of the transaction.



# Accounting Policies (continued)

## 1.13 Translation of foreign currencies (continued)

At each reporting date:

- foreign currency monetary items are translated using the closing rate,
- non monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction, and
- non monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous financial statements are recognised in surplus or deficit in the period in which they arise.

When a gain or loss on a non monetary item is recognised directly in net assets, any exchange component of that gain or loss is recognised directly in net assets. When a gain or loss on a non monetary item is recognised in surplus or deficit, any exchange component of that gain or loss is recognised in surplus or deficit.

Cash flows arising from transactions in a foreign currency are recorded in Rands by applying to the foreign currency amount the exchange rate between the Rand and the foreign currency at the date of the cash flow.

## 1.14 Fruitless and wasteful expenditure

Fruitless expenditure means expenditure which was made in vain and would have been avoided had reasonable care been exercised. All expenditure relating to fruitless and wasteful expenditure is recognised as an expense in the statement of financial performance in the year that the expenditure was incurred. The expenditure is classified in accordance with the nature of the expense, and where recovered, it is subsequently accounted for as revenue in the statement of financial performance.

## 1.15 Irregular expenditure

Irregular expenditure as defined in section 1 of the PFMA is expenditure other than unauthorised expenditure, incurred in contravention of or that is not in accordance with a requirement of any applicable legislation, including

- (a) this Act, or
- (b) the State Tender Board Act, 1968 (Act No. 86 of 1968), or any regulations made in terms of the Act, or
- (c) any Provincial legislation providing for procurement procedures in that Provincial Government.

National Treasury practice note no. 4 of 2008/2009 which was issued in terms of sections 76(1) to 76(4) of the PFMA requires the following (effective from 1 April 2008).

Irregular expenditure is recognised when the amount can be reliably determined and to extent that the amount of the irregular expenditure has not been recognised as a receivable. The amount recognised is equal to the fair value of the transaction unless it is impractical to determine.

The Irregular expenditure receivables are measured at the amount that is expected to be recovered.

Irregular expenditure that was incurred and identified during the current financial year and for which condonement is being awaited at year end will be disclosed in the notes to the financial statements as well as any irregular expenditure was incurred in the previous financial year and is only condoned in the following financial year, and Irregular expenditure that was incurred and identified during the current financial year and which was not condoned by the National Treasury or the relevant authority.

## 1.16 Budget information

The approved budget is prepared on an accrual basis and presented by economic classification linked to performance outcome objectives.

The approved budget covers the fiscal period from 2018/04/01 to 2019/03/31.

The budget for the economic entity includes all the entities approved budgets under its control.



## Accounting Policies (continued)

### 1.16 Budget information (continued)

The financial statements and the budget are on the same basis of accounting therefore a comparison with the budgeted amounts for the reporting period have been included in the Statement of comparison of budget and actual amounts.

The Statement of comparative and actual information has been included in the financial statements as the recommended disclosure when the financial statements and the budget are on the same basis of accounting as determined by National Treasury.

The financial statements and the budget are not on the same basis of accounting therefore a reconciliation between the statement of financial performance and the budget have been included in the financial statements.

### 1.17 Related parties

A related party is a person or an entity with the ability to control or jointly control the other party, or exercise significant influence over the other party, or vice versa, or an entity that is subject to common control, or joint control.

Control is the power to govern the financial and operating policies of an entity so as to obtain benefits from its activities.

Joint control is the agreed sharing of control over an activity by a binding arrangement, and exists only when the strategic financial and operating decisions relating to the activity require the unanimous consent of the parties sharing control (the venturers).

Related party transaction is a transfer of resources, services or obligations between the reporting entity and a related party, regardless of whether a price is charged.

Significant influence is the power to participate in the financial and operating policy decisions of an entity, but is not control over those policies.

Management are those persons responsible for planning, directing and controlling the activities of the entity, including those charged with the Governance of the entity in accordance with legislation, in instances where they are required to perform such functions.

Close members of the family of a person are considered to be those family members who may be expected to influence, or be influenced by, that Management in their dealings with the entity.

The entity is exempt from disclosure requirements in relation to related party transactions if that transaction occurs within normal supplier and/or client/recipient relationships on terms and conditions no more or less favourable than those which it is reasonable to expect the entity to have adopted if dealing with that individual entity or person in the same circumstances and terms and conditions are within the normal operating parameters established by that reporting entity's legal mandate.

Where the entity is exempt from the disclosures in accordance with the above, the entity discloses narrative information about the nature of the transactions and the related outstanding balances, to enable users of the entity's financial statements to understand the effect of related party transactions on its financial statements.

### 1.18 Events after reporting date

Events after reporting date are those events, both favourable and unfavourable, that occur between the reporting date and the date when the financial statements are authorised for issue. Two types of events can be identified:

- those that provide evidence of conditions that existed at the reporting date (adjusting events after the reporting date), and
- those that are indicative of conditions that arose after the reporting date (non adjusting events after the reporting date).

The entity will adjust the amount recognised in the financial statements to reflect adjusting events after the reporting date once the event occurred.

The entity will disclose the nature of the event and an estimate of its financial effect or a statement that such estimate cannot be made in respect of all material non adjusting events, where non disclosure could influence the economic decisions of users taken on the basis of the financial statements.





# Notes to the Financial Statements

## 2. NEW STANDARDS AND INTERPRETATIONS

### Standards and interpretations effective and adopted in the current year

In the current year, the entity has adopted the following standards and interpretations that are effective for the current financial year and that are relevant to its operations:

Standard/ Interpretation:	Effective date:	Expected impact:
	Years beginning on or after	
GRAP 12 (as amended 2016): Inventories	1-Apr-18	Unlikely there will be a material impact
GRAP 16 (as amended 2016): Investment Property	1-Apr-18	The impact of the is not material.
GRAP 17 (as amended 2016): Property, Plant and Equipment	1-Apr-18	The impact of the is not material.
GRAP 21 (as amended 2016): Impairment of non-cash-generating assets	1-Apr-18	The impact of the is not material.
GRAP 26 (as amended 2016): Impairment of cash-generating assets	1-Apr-18	The impact of the is not material.
GRAP 27 (as amended 2016): Agriculture	1-Apr-18	The impact of the is not material.
GRAP 31 (as amended 2016): Intangible Assets	1-Apr-18	The impact of the is not material.
GRAP 103 (as amended 2016): Heritage Assets	1-Apr-18	The impact of the is not material.
Directive 12: The Selection of an Appropriate Reporting Framework by Public Entities	1-Apr-18	The impact of the is not material.

### Standards and interpretations issued, but not yet effective

The entity has not applied the following standards and interpretations, which have been published and are mandatory for the entity's accounting periods beginning on or after 01 April 2019 or later periods:

Standard/ Interpretation:	Effective date:	Expected impact:
	Years beginning on or after	
GRAP 34: Separate Financial Statements	1-Apr-20	Unlikely there will be a material impact
GRAP 104 (revised): Financial Instruments	1-Apr-99	Unlikely there will be a material impact
GRAP 35: Consolidated Financial Statements	1-Apr-20	Unlikely there will be a material impact
GRAP 36: Investments in Associates and Joint Ventures	1-Apr-20	Unlikely there will be a material impact
GRAP 37: Joint Arrangements	1-Apr-20	Unlikely there will be a material impact
GRAP 38: Disclosure of Interests in Other Entities	1-Apr-20	Unlikely there will be a material impact
GRAP 110 (as amended 2016): Living and Non-living Resources	1-Apr-20	Unlikely there will be a material impact
GRAP 20: Related parties	1-Apr-19	Unlikely there will be a material impact
GRAP 108: Statutory Receivables	1-Apr-19	Unlikely there will be a material impact
GRAP 109: Accounting by Principals and Agents	1-Apr-19	Unlikely there will be a material impact
IGRAP 17: Service Concession Arrangements where a Grantor Controls a Significant Residual Interest in an Asset	1-Apr-19	Unlikely there will be a material impact
IGRAP 19: Liabilities to Pay Levies	1-Apr-19	Unlikely there will be a material impact



## Notes to the Financial Statements (continued)

### 3. PROPERTY PLANT AND EQUIPMENT

	2019			2018		
	Cost / Valuation	Accumulated depreciation and accumulated impairment	Carrying value	Cost Valuation	Accumulated depreciation and accumulated impairment	Carrying value
Furniture and fixtures	1 667	(969)	698	1 862	(918)	944
Motor vehicles	211	(140)	71	211	(98)	113
Office equipment	513	(331)	182	508	(261)	247
IT equipment	10 401	(4 964)	5 437	6 133	(4 552)	1 581
Leasehold improvements	177	(110)	67	177	(92)	85
Communication equipment	324	(273)	51	334	(293)	41
<b>Total</b>	<b>13 293</b>	<b>(6 787)</b>	<b>6 506</b>	<b>9 225</b>	<b>(6 214)</b>	<b>3 011</b>

#### Reconciliation of property, plant and equipment March 2019

	Opening balance	Additions	Depreciation	Impairment loss	Total
Furniture and fixtures	944	-	(246)	-	698
Motor vehicles	113	-	(42)	-	71
Office equipment	247	5	(70)	-	182
IT equipment	1 581	5 149	(1 198)	(95)	5 437
Leasehold improvements	85	-	(18)	-	67
Communication equipment	41	35	(25)	-	51
<b>Total</b>	<b>3 011</b>	<b>5 189</b>	<b>(1 599)</b>	<b>(95)</b>	<b>6 506</b>

There were no items of property, plant and equipment pledged as security. Repairs performed to maintain property, plant and equipment amounted to R0,059 million in the current year.



# Notes to the Financial Statements (continued)

## Reconciliation of property, plant and equipment March 2018

	Opening balance	Additions	Depreciation	Impairment loss	Total
Furniture and fixtures	450	972	(323)	(155)	944
Motor vehicles	156	-	(43)	-	113
Office equipment	126	204	(86)	-	247
IT equipment	1 016	1 230	(665)	-	1 581
Leasehold improvements	7	86	(8)	-	85
Communication equipment	102	-	-	-	41
<b>Total</b>	<b>1 860</b>	<b>2 492</b>	<b>(1 186)</b>	<b>(155)</b>	<b>3 011</b>

## 4. INTANGIBLE ASSETS

	2019			2018		
	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value	Cost/ Valuation	Accumulated amortisation and accumulated impairment	Carrying value
Computer software, internally generated	12 089	(10 072)	2 017	11 971	(8 056)	3 915

## Reconciliation of intangible assets - March 2019

	Opening balance	Additions	Amortisation	Total
Computer software	3 915	119	(2 017)	2 017

Intangible assets are not pledged as security. Additions are in relation to assets acquired during the year.

## Reconciliation of intangible assets - March 2018

	Opening balance	Additions	Amortisation	Total
Computer software, internally generated	167	3 871	(123)	3 915

Intangible assets in the process of being constructed or developed



## Notes to the Financial Statements (continued)

### 5. RECEIVABLES FROM (NON) EXCHANGE TRANSACTIONS

	March 2019 R'000	March 2018 R'000
Trade debtors	2 750	1 518
Provision for bad debts: Non VAT	(833)	(913)
Employee costs in advance	121	233
Other receivables	381	467
Interest Receivable	715	813
Prepayments	586	581
Project Prepayments	5 303	-
	<b>9 023</b>	<b>2 699</b>

#### Prepayments

The prepayments includes payment for insurance cover, licences and project related expenditure membership fees. All receivables disclosed are from exchange transactions only.

#### Trade and other receivables past due but not impaired

Trade and other Receivables are not pledged as security. The entity does not hold any collateral as security. Trade and other receivables which are less than 3 months past due are not considered to be impaired. At 31 March 2019, R 2,2million (2018: R0 million) were past due but not impaired.

The ageing of amounts past due but not impaired is as follows:

	March 2019 R'000	March 2018 R'000
1-3 months past due	-	-
3- 6 months past due	2 203	-
6- 12 months past due	-	-
<b>Total</b>	<b>2 203</b>	<b>-</b>



# Notes to the Financial Statements (continued)

## Trade and other receivables impaired

The amount of the provision was R 0,833 million as of 31 March 2019 (2018: R 10,2 million)

	March 2019 R'000	March 2018 R'000
Opening Balance	10 282	1 467
Additional provision raised	833	9 354
Amounts written off as uncollectable	(10 282)	-
Amounts recovered	-	(539)
<b>Total</b>	<b>833</b>	<b>10 282</b>

The creation and release of provision for impaired receivables have been included in operating expenses in surplus. The maximum exposure to credit risk at the reporting date is the fair value of each class of receivable mentioned above.

## 6. VAT RECEIVABLE

	March 2019 R'000	March 2018 R'000
VAT	-	11 800
Provision for bad debts	-	(9 369)
<b>Total</b>	<b>-</b>	<b>2 431</b>

The VAT receivable balance has been fully written off as irrecoverable during the current financial year, and is included in Note 14 of the Income statement for provision for doubtful debts.

## 7. CASH AND CASH EQUIVALENTS

### Cash and cash equivalents consist of:

	March 2019 R'000	March 2018 R'000
Cash on hand	14	12
Bank balances	229 505	244 852
<b>Total</b>	<b>229 519</b>	<b>244 864</b>

(Cash and cash equivalents consist of cash on hand and balances with financial institutions and investments in money market instruments. There are no restrictions placed on the realisation or usability of cash balances. The entity does not have access to any additional undrawn facilities)



## Notes to the Financial Statements (continued)

### 8. UNSPENT CONDITIONAL GRANTS AND THIRD PARTY FUNDS

These amounts are invested in money market accounts and interest accrues to the invested money.

**Unspent conditional grants and receipts comprises of:**

**Unspent conditional grants and receipts**

Unspent grants

**Movement during the year**

Balance at the beginning of the year

Additions during the year

Income recognition during the year

Transfer of RDP funds

**Total**

	March 2019 R'000	March 2018 R'000
Unspent grants	15 872	46 940
Balance at the beginning of the year	46 940	89 501
Additions during the year	5 845	44 910
Income recognition during the year	(26 801)	(65 061)
Transfer of RDP funds	(10 112)	(22 410)
<b>Total</b>	<b>(15 872)</b>	<b>(46 940)</b>

European Union Project (COCLATE)

FP7

CESAR

SA Coal Roadmap

SDC EE Monitoring & Implementation

EU Aid Demo Project

Danish Renewable Energy Programme

EEDSM Hub

WASA Support

Solar Tech Roadmap

RECORD

12L GIZ

Soltrain

Austin Offshore

Solarpayback

WASA 3

**Total**

	March 2019 R'000	March 2018 R'000
European Union Project (COCLATE)	253	375
FP7	32	47
CESAR	-	1 740
SA Coal Roadmap	670	638
SDC EE Monitoring & Implementation	190	201
EU Aid Demo Project	-	20 147
Danish Renewable Energy Programme	1 749	8 558
EEDSM Hub	210	208
WASA Support	877	786
Solar Tech Roadmap	10 294	12 070
RECORD	-	176
12L GIZ	-	625
Soltrain	685	989
Austin Offshore	293	122
Solarpayback	578	220
WASA 3	41	38
<b>Total</b>	<b>15 872</b>	<b>46 940</b>

These amounts are invested in money market accounts and interest accrues to the invested money.



## Notes to the Financial Statements (continued)

### 8. UNSPENT CONDITIONAL GRANTS AND THIRD PARTY FUNDS (CONTINUED)

Deferred Income Reconciliation March 2019	Opening Balance	Additional Receipts	Deferred Income Recognised	Grant Repayments	Interest Earned	Closing Balance
European Union Project (COCATE)	375	-	142	-	21	253
FP7	47	-	18	-	3	32
CESAR	1 740	-	1 778	-	37	-
SA Coal Roadmap	637	-	3	-	35	670
SDC EE Monitoring & Implementation	202	-	12	-	-	190
EU Demo Project	20 147	-	11 810	8 690	354	-
Danish Renewable Energy Programme	8 558	-	6 944	660	795	1 749
EEDSM Hub	208	-	10	-	13	210
WASA Support	786	2 684	2 667	-	73	877
SolarTech	12 068	-	2 585	-	812	10 294
RECORD	176	-	49	130	3	-
12L GIZ	625	-	9	632	18	-
Soltrain	989	409	736	-	23	685
Austin Offshore	123	161	1	-	9	293
SolarPayback	221	391	34	-	-	578
WASA 3	38	-	-	-	3	41
<b>Total</b>	<b>46 940</b>	<b>3 645</b>	<b>26 798</b>	<b>10 112</b>	<b>2 199</b>	<b>15 872</b>



## Notes to the Financial Statements (continued)

### 8. UNSPENT CONDITIONAL GRANTS AND THIRD PARTY FUNDS (CONTINUED)

Deferred Income Reconciliation March 2018	Opening Balance	Additional Receipts	Deferred Income Recognised	Grant Repayments	Interest Earned	Closing Balance
European Union Project (COCATE)	350	-	-	-	25	375
FP7	43	-	-	-	4	47
CESAR	3 324	-	1 753	-	169	1 740
SA Coal Roadmap	599	-	-	-	39	638
SDC EE Monitoring And Implementation Project	201	-	-	-	-	201
EU Aid Demo Project	68 440	18 022	50 419	18 022	2 127	20 148
Danish Renewable Energy Programme	3 531	15 069	7 277	3 662	897	8 558
EEDSM Hub	194	-	-	-	14	208
WASA Support	734	-	-	-	52	786
Solar Tech Roadmap	7 750	4 500	753	-	573	12 070
RECORD	414	-	250	-	12	176
SAIREC	1 368	-	655	726	13	-
12L GIZ	2 065	2 069	3 576	-	67	625
Soltrain	374	729	143	-	29	989
Austin off Shore	114	-	-	-	8	122
Solar Payback	-	455	235	-	-	220
WASA 3	-	37	-	-	-	37
<b>Total</b>	<b>89 501</b>	<b>40 881</b>	<b>65 061</b>	<b>22 410</b>	<b>4 029</b>	<b>46 940</b>





# Notes to the Financial Statements (continued)

## 9. PROVISIONS

### Reconciliation of provisions - 2019

	Opening Balance	Additions	Utilised during the year	Reversed during the year	Total
Provisions	11 136	5 000	(1 338)	(6 313)	8 485

The bonus provision is calculated based on the company performance and individual's performance at the discretion of the board considered once company performance has been audited. The provision amount has been calculated on a similar basis as in prior periods and is within the maximum cap as issued by the National Treasury. The board is currently reviewing the incentive policy. This review will have an impact on the amount of incentives payable however the extent of the impact is not known at the date of this report.

### Reconciliation of provisions - 2018

	Opening Balance	Additions	Utilised during the year	Reversed during the year	Total
Provisions	10 559	11 136	(8 239)	(2 320)	11 136

## 10. PAYABLES FROM EXCHANGE TRANSACTIONS

	March 2019 R'000	March 2018 R'000
Trade & other payables/creditors	246	(69)
Leave provision	1 565	2 412
Accrued expense	10 667	13 636
Sundry creditors	(11)	-
WCA control	57	54
Union fees	5	5
<b>Total</b>	<b>12 529</b>	<b>16 038</b>

## 11. GOVERNMENT GRANTS AND SUBSIDIES

	March 2019 R'000	March 2018 R'000
Grants realisation of deferred transfers	26 858	65 078
DOE MTEF Realisation	70 241	59 775
<b>Total</b>	<b>97 099</b>	<b>124 853</b>

### In kind revenue

SANEDI received in kind revenue from some of its partners in the form of proposed training, conferences, study tours for staff under both programmes 2 & 3. There was also in kind revenue in the form of part time funding for 1 full time resource under programme 3 as well as secondment of two resources under programme 2 at no cost.



## Notes to the Financial Statements (continued)

### 12. EMPLOYEE RELATED COSTS

	March 2019 R'000	March 2018 R'000
Basic	35 162	35 450
Recruitment and relocation costs	22	85
Bonus	(1 313)	8 816
Medical aid company contributions	971	911
UIF	96	104
WCA	52	55
SDL	341	422
Leave pay provision	(848)	(41)
Provident and Pension Contributions	1 426	1 368
Personnel study costs	142	(77)
Personnel functions and refreshments	123	94
Personnel development training	232	250
<b>Total</b>	<b>36 406</b>	<b>47 437</b>

#### Board Remuneration

	March 2019 R'000	March 2018 R'000
Board Fees	115	548

### 13. IMPAIRMENT OF ASSETS

	March 2019 R'000	March 2018 R'000
<b>Impairments</b>		
Property, plant and equipment	95	155

### 14. PROVISION OF DOUBTFUL DEBT

	March 2019 R'000	March 2018 R'000
Debt impairment	3 188	9 444

Included in the provision is an additional provision raised for R0,8million raised during the year and R2,4million in relation to VAT write offs.



# Notes to the Financial Statements (continued)

## 15. GENERAL EXPENSES

	March 2019 R'000	March 2018 R'000
Administration	57	405
Advertising	39	111
Auditors remuneration	1 282	1 563
Bank charges	40	39
Computer expenses	1 902	821
Consulting and professional fees	2 830	1 387
Lease rentals	1 438	2 517
Insurance	366	292
Conferences and seminars	139	42
Printing and stationery	230	247
Marketing and promotional expenditure	2 155	733
Board expenses	100	358
Catering and entertainment	71	133
Subscriptions and membership fees	(6)	59
Telephone and fax	974	450
Travel local	682	791
Water and electricity	-	131
Other office running expenses	104	387
<b>Total</b>	<b>12 403</b>	<b>10 466</b>

## 16. PROJECT DEVELOPMENT COSTS

	March 2019 R'000	March 2018 R'000
Project Implementation costs	28 272	71 570
Travel	3 057	4 047
Overheads	2 033	35
<b>Total</b>	<b>33 362</b>	<b>75 652</b>

Project costs relate to costs directly associated with the entity's mandate (Programme 2 and programme 3) which range from applied Research expenditure, demonstration project expenditure as well as capacity building projects.



# Notes to the Financial Statements (continued)

## 17. CASH USED IN OPERATIONS

	March 2019 R'000	March 2018 R'000
Surplus (deficit)	27 374	(3 833)
<b>Adjustments for:</b>		
Depreciation and amortisation	3 617	1 310
Impairment loss/ Reversal of impairments	95	155
Provision for doubtful debts	3 188	9 444
Movements on bonus provisions	(2 651)	(577)
Foreign exchange transactions	-	96
Prepaid expenses	-	29 333
Accrued expenses	-	40 818
<b>Changes in working capital:</b>		
Receivables from (non) exchange transactions	(15 693)	(38 841)
Provision for doubtful debts	(3 188)	-
Payables from exchange transactions	(3 510)	202
VAT	11 800	-
Unspent conditional grants and receipts	(31 068)	(42 561)
<b>Total</b>	<b>(10 036)</b>	<b>(4 454)</b>

## 18. FINANCIAL INSTRUMENTS DISCLOSURE

### Categories of financial instruments 2019

#### Financial assets

##### As at 31 March 2019

	Less than 1 year	Between 1 and 5 years	Over 5 years	Non Interest	Total
Cash and cash equivalents	229 519	-	-	-	229 519
Trade and other receivables	7 936	-	-	-	7 936
	<b>237 455</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>237 455</b>

#### Financial liabilities

##### As at 31 March 2019

	Less than 1 year	Between 1 and 5 years	Over 5 years	Non Interest	Total
Trade and other payables	(12 530)	-	-	-	12 530



## Notes to the Financial Statements (continued)

2019

### Financial assets

	At cost	Total
Trade and other receivables from exchange transactions	7 936	7 936
Cash and cash equivalents	229 519	229 519
	<b>237 455</b>	<b>237 455</b>

### As at 31 March 2018

	Less than 1 year	Between 1 and 5 years	Over 5 years	Non Interest	Total
Cash and cash equivalents	244 864	-	-	-	244 864
Trade and other receivables	2 700	-	-	-	2 700
VAT Receivable	795	1 636	-	-	2 431
	<b>248 359</b>	<b>1 636</b>	-	-	<b>249 995</b>

### Financial liabilities

#### At 31 March 2018

	Less than 5 years	Between 1 and 5 years	Over 5 years	Non interest	Total
Trade and other payables	(16 041)	-	-	-	(16 041)



# Notes to the Financial Statements (continued)

## 19. COMMITMENTS

	March 2019 R'000	March 2018 R'000
<b>Authorised capital expenditure</b>		
<b>Authorised, but not yet contracted for</b>		
Capital	126 100	126 100
<b>Total capital commitments</b>		
<b>Authorised, but not yet contracted for</b>	<b>126 100</b>	<b>126 100</b>

The commitment relates to the PCSP pilot project. All agreements with relevant parties and Stakeholders were concluded during the course of the financial year. The financing agreement has been signed, contracted for and approved for.

	March 2019 R'000	March 2018 R'000
<b>Contractual commitments</b>		
Projects	20 016	43 543
Administration	3 221	3 921
	<b>23 237</b>	<b>47 464</b>
<b>Minimum payments due</b>		
within one year	20 093	43 543
second to fifth year	3 144	3 921
	<b>23 237</b>	<b>47 464</b>
<b>Operating leases as lessee (expense)</b>		
<b>Minimum lease payments due</b>		
within one year	1 149	1 148
in second to fifth year inclusive	1 244	2 393
	<b>2 393</b>	<b>3 541</b>

SANEDI also leased unit 1 on the first floor of Block C, Upper Grayston Office Park, located at Erf 20 Simba Township, Sandton, from CEF (SOC) Ltd. The lease commenced on 1 May 2017 and the rent shall be payable monthly, on the anniversary date. The lease terminates on 30 April 2021. The Lease is for a period of 4 years, SANEDI has the option to renew the lease for another four years. No contingent rent is payable.

	March 2019 R'000	March 2018 R'000
<b>Rental expenses relating to operating leases</b>		
within one year	334	-
second to fifth year inclusive	167	-
	<b>501</b>	<b>-</b>

SANEDI has entered into a lease agreements for photocopiers, the lease being for a 24 month period ending from the 15th October 2018 to the 15th October 2020 for six Printers. This lease has no escalation clause and is payable monthly in advance.

### Defaults and breaches

There was no default during the period of principal, interest, sinking fund or redemption terms of loans payable. No terms were renegotiated before the financial statements were authorised for issue.



# Notes to the Financial Statements (continued)

## 20. CONTINGENCIES

### Surplus Funds

SANEDI has reported surpluses for the year ended 31 March 2019 for R27million (Surplus 2018: R0 million). The surplus is fully committed and SANEDI will be submitting a request for retention of surpluses to the National Treasury.

## 21. RELATED PARTIES

SANEDI has been established by the Department of Energy and in terms of National legislation. SANEDI is ultimately controlled by the Department of Energy. All transactions with related parties are at arm's length and will not be disclosed separately.

### Related party transactions

#### Grants Received

	March 2019 R'000	March 2018 R'000
Department of Energy	70 241	59 775
Department of Science and Technology	-	4 500

### Board remuneration

#### Board members

#### 2019

#### Director's remuneration

	March 2019 R'000	March 2018 R'000
Miss P Motsielwa	39	39
Mr Buthelezi (Deputy Chairperson)	76	76
	<b>115</b>	<b>115</b>

#### 2018

#### Director's remuneration

	March 2019 R'000	March 2018 R'000
Miss P Motsielwa	141	141
Dr I Tufvesson (Chairperson)	147	147
Mr Buthelezi (Deputy Chairperson)	186	186
Mr M Mkhize	74	74
	<b>548</b>	<b>548</b>

#### Board members

Board Members who are representatives of National Departments are not remunerated in their personal capacity for serving on the SANEDI board and sub committee.



## Notes to the Financial Statements (continued)

### 22. MEMBER'S EMOLUMENTS

No emoluments were paid to the member or any individuals holding a prescribed office during the year.

#### Executive

#### 2019

Name	Basic Salary	Allowances	Performance Bonus	Substance and travel (Reimbursed)	Acting Allowance	Total
Mr KM Nassiep CEO	542	-	796	-	-	1 338
Ms L Manamela CFO	1 256	24	-	-	-	1 280
Dr AD Surridge	1 459	108	-	14	-	1 581
Dr T Mali	1 599	66	-	-	403	2 068
Dr M Bipath	1 396	84	-	7	-	1 487
Mr D Mahuma	1 526	24	-	26	-	1 576
Mr B Bredenkamp	1 456	24	-	1	-	1 481
	<b>9 234</b>	<b>330</b>	<b>796</b>	<b>48</b>	<b>403</b>	<b>10 811</b>

SANEDI operates on a cost to company system, employees contributions to the provident and other benefit funds are allocated from the overall costs to company. The remuneration paid to the former CEO was for services previously rendered for the period until 30 June 2017 and comprises the bonus and basic pay.

#### 2018

Name	Basic Salary	Allowances	Performance Bonus	Substance and travel (Reimbursed)	Leave	Total
Mr KM Nassiep CEO	464	33	-	-	270	767
Ms L Manamela CFO	1 161	58	425	1	-	1 645
Dr AD Surridge	1 350	150	425	16	-	1 941
Dr T Mali	1 300	513	425	3	-	2 241
Dr M Bipath	1 288	126	425	32	-	1 871
Mr C Snyman	1 006	112	339	2	-	1 459
Mr D Mahuma	1 416	62	393	14	-	1 885
Mr B Bredenkamp	1 348	66	425	12	-	1 851
	<b>9 333</b>	<b>1 120</b>	<b>2 857</b>	<b>80</b>	<b>270</b>	<b>13 660</b>





# Notes to the Financial Statements (continued)

## 23. PRIOR PERIOD ERRORS

The commitments disclosure for the Denmark Tech University was erroneously disclosed in the foreign currency of the Danish Krone, the impact is that the financial statements disclosure for the 2017/2018 year were understated by an amount of R0,856 million. The commitments disclosure for Mintek relating to subcontracting of staff was not disclosed in the 2017/2018 financial year. The contract was signed in the 2017 financial year and the contract value of R2,5 million was not included in the disclosure, the impact on the prior period is an understatement of the contract value less the amount spent in the 2017/2018 period of R0,643 million, resulting in a total undisclosed amount of R1,9 million.

The correction of the error(s) results in adjustments as follows:

### Contractual commitments

	March 2019 R'000	Restated March 2018 R'000
Project Related	-	2 774
Admin	-	-
	-	<b>2 774</b>
Within one year	-	2 774
Second to fifth year inclusive	-	-
	-	<b>2 774</b>

## 24. EVENTS AFTER THE REPORTING DATE

Subsequent to the financial year end, the board is aware of an adjustment to the CAPEX budget to make provision for updates to the IT infrastructure. This is estimated to increase the entity's approved CAPEX budget by R4,1 million.

## 25. FRUITLESS AND WASTEFUL EXPENDITURE

	March 2019 R'000	Restated March 2018 R'000
Fruitless and wasteful expenditure	10	-

There fruitless and wasteful expenditure in current year relates to interest charges on late payments and also relates to travel costs.

## 26. IRREGULAR EXPENDITURE

	March 2019 R'000	Restated March 2018 R'000
Opening balance	66	-
Add: Irregular Expenditure current year	1 727	66
	<b>1 793</b>	<b>66</b>

### Analysis of expenditure awaiting condonation per age classification

#### Details of irregular expenditure – current year

The irregular expenditure was due to three quotes not obtained prior to award, costs incurred outside of an expired contract, and lowest bidder not being appointed.





A State owned entity established under Section of the National Energy Act 2008|Act No. 34 of 2008 |

**Physical Address:** CEF House, Block C,  
Upper Grayston Office Park, 152 Ann Crescent,  
Strathavon, Sandton.

**Postal Address:** PO Box 9935, Sandton, 2146

**Telephone:** 011 038 4300

**Email:** [information@sanedi.org.za](mailto:information@sanedi.org.za)

**Website:** [www.sanedi.org.za](http://www.sanedi.org.za)

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