



sanedi

South African National Energy
Development Institute



**annual
report**

2019|20



Contents

PART A: GENERAL INFORMATION

1.	SANEDI General Information	6
2.	List of Abbreviations and Acronyms.....	7
3.	Foreword by the Interim Chairperson	10
4.	Interim Chief Executive Officer's Overview ..	13
5.	Members of the Board.....	15
6.	Statement of Responsibility and Confirmation of Accuracy for the Annual Report	16
7.	Strategic Overview	17
8.	Legislative and Other Mandates	18
9.	Organisational Structure.....	18

PART B: PERFORMANCE INFORMATION

10.	Auditor's Report: Pre-determined Objectives	20
11.	Situational Analysis	21
11.1.	Service Delivery Environment	21
11.2.	Organisational Environment.....	22
11.3.	Key Policy Developments and Legislative changes	23
11.4.	Strategic Outcome- Oriented Goals	24
12.	Performance Information by Programme.....	25
12.1.	Programme highlights for the year	25

12.1.1.	Programme 2: Applied Energy Research, Development and Innovation	25
12.1.2.	Programme 3: Energy Efficiency.....	43
12.2.	Programme 1: Administration	47
12.2.1.	Purpose	47
12.2.2.	Sub-programmes	47
12.2.3.	Programme 1: Strategic Outcome-Orientated Goals	48
12.2.4.	Strategic Objectives, Performance Indicators planned targets and actual achievements	48
12.3.	Programme 2: Applied Energy Research, Development and Innovation.....	49
12.3.1.	Purpose	49
12.3.2.	Sub-programmes	49
12.3.3.	Programme 2: Strategic Outcome-Orientated Goals	50
12.3.4.	Strategic Objectives, Performance Indicators planned targets and actual achievements	50
12.4.	Programme 3: Energy Efficiency	58
12.4.1.	Purpose	58
12.4.2.	Sub-programmes	59
12.4.3.	Programme 3: Strategic Outcome-Orientated Goals	59
12.4.4.	Strategic Objectives, Performance Indicators planned targets and actual achievements	59



PART C: GOVERNANCE

13.	Introduction	62
14.	Portfolio Committees	62
15.	Executive Authority	62
16.	The Accounting Authority / Board	63
16.1.	Introduction	63
16.2.	The Role of the Board	63
16.3.	Board Charter	64
16.4.	Composition of the Board	64
16.5.	Committees	66
16.6.	Remuneration of Board Members	66
17.	Stakeholder Engagement	67
17.1.	Introduction and perspective	67
17.1.1.	<i>Prioritised Stakeholders</i>	68
17.1.2.	<i>Consolidated Issues</i>	68
17.2.	Implementation	68
17.3.	Engagement Plans and Activities	68
17.3.1.	<i>Working for Energy</i>	68
17.3.2.	<i>Clean Energy Solutions</i>	69
17.3.3.	<i>Smart Grids</i>	70
17.3.4.	<i>Cleaner Fossil Fuels</i>	70
17.3.5.	<i>Energy Efficiency</i>	72
17.3.6.	<i>Communications</i>	72
17.3.7.	<i>Events</i>	72
17.3.8.	<i>Newsletter</i>	72
17.3.9.	<i>Public Awareness & Marketing opportunities</i>	72
17.3.10.	<i>Communication focus areas during 2019/20</i>	73
18.	Risk Management	73
19.	Internal Audit and Audit Committees	74
19.1.	Internal Audit	74
19.2.	Audit Committees	74
20.	Compliance with Laws and Regulations	75
21.	Fraud and Corruption	75

22.	Minimising Conflict of Interest	75
23.	Code of Conduct	76
24.	Health, Safety and Environmental Issues	76
25.	Company / Board Secretary	76
26.	Audit Committee Report	79

PART D: HUMAN RESOURCE MANAGEMENT

27.	Introduction	80
27.1.	Overview of Human Resource Matters at SANEDI	80
27.2.	HR Priorities for 2019/20	80
27.3.	Workforce Planning Framework	80
27.4.	Employee Wellness Programme	81
27.5.	Policy Development	81
27.6.	Challenges faced by SANEDI	81
27.7.	Future HR Plans and Goals	81
28.	Human Resource Oversight Statistics	82
28.1.	Costs by Programme	82
28.2.	Personnel Costs by Salary Band	82
28.3.	Performance Rewards	82
28.4.	Training Costs	83
28.5.	Employment and Vacancies	83
28.6.	Employment Changes	83
28.7.	Reasons for Staff Leaving	84
28.8.	Labour Relations: Misconduct and Disciplinary Action	84
28.9.	Equity Target and Employment Equity Status	84

PART E: FINANCIAL INFORMATION

Report of the Auditor-General	87
Accounting Authority's Responsibilities and Approval	93
Annual Financial Statements	94
Accounting Policies	99
Notes to the Annual Financial Statements	115





Figures

Figure 1	SANEDI Strategy Map.....	17
Figure 2	SANEDI Organisational Structure.....	18
Figure 3	South African Primary Energy use based on DMRE Statistics.....	21
Figure 4	Configuration of carbon capture, utilisation, and storage technologies.....	25
Figure 5	Down-selection process from site (basin-scale) screening to the verification of qualified sites that are ready for permitting.....	26
Figure 6	Working for Energy Projects across the country.....	40
Figure 7	Cumulative Energy Savings Impact.....	44
Figure 8	Energy Savings Impact Growth.....	44
Figure 9	Roof cooling options.....	46

Images

Image 1	Ms Tshildizi Tshivhase conducting climate change workshops for the Gauteng Department of Education Subject Advisors.	29
Image 2	Ms Tshildizi Tshivhase and Mr Kubenokuthula Khumalo with ISF 2019 CCS Award winners.	29
Image 3	Ms Tshildizi Tshivhase at the STEMI Conference panel discussion under the topic, “Investing in Women” to tackle climate change, conserving the environment and solutions to sustainable development.	29
Image 4	Mr Wiseman Ngcobo and Minister of Mineral Resources and Energy Gwede Mantashe at the Learner Focus Week SANEDI stand.....	29
Image 5	Electricity tariff training for SANDF at Pretoria Head Quarters.	30
Image 6	SANEDI personnel at the newly Cool Roof painted residential blocks of the SANDF legacy project at Sekutupu Old Age Home opened by the Minister of Defence.....	30
Image 7	The Minister of Defence during the Armed Forces Day celebrations.	30
Image 8	Ribbon cutting ceremony at the plant room of the South Building of the installation. Left to right: Dr Karen Surridge (SANEDI), Col Bennedict Manzini (RWU Limpopo), Maj Gen Joseph Ledwaba (DWF), Col van Wyk (SAAF) and Maj Gen Tersia Jacobs (C Log).....	31
Image 9	Group pictures from SANEDI-SOLTRAIN hosted specialised courses in solar water heating pumped systems “Training Course for Experts & Professionals” (Train the Trainer Course – Part 1)	31
Image 10	Group Picture from SANEDI-SOLTRAIN Solar Thermal Decision Makers Seminar, Hoedspruit.....	31
Image 11	Participants at the SAWEP Wind Turbine Refurbishment Workshop (30 Jan 2020).	32
Image 12	SARETEC WTST 5 class (SAWEP supported): Week one: Basic Computer Skills training.	32
Image 13	An aerial view of the commercial, rural pilot test site, Kagga Kamma Nature Reserve in the Cederberg, Western Cape Province, with the Solar PV and the diesel Gensets in view.	33
Image 14	PowerStar3/Nomad connected to Pylontec Lithium Ion Rack. The battery and the inverter communicate on the integrated CAN bus.....	33
Image 15	Auxiliary storage with lithium ion and lead acid combination batteries. The lead acid battery is on Powerstar2 and the lithium ion is on Powerstar3/Nomad.	33
Image 16	Mobile Waste Oil to Biodiesel Processing Plant-Exterior.	39
Image 17	Mobile Waste Oil to Biodiesel Processing Plant-Interior.....	39
Image 18	Project site inspection at Njhinga Primary School by the project team featuring (from left to right): Mrs Ntshani (Njhinga Primary School Principal – far left), Mr Riaz Hamid (SANEDI – second from left), Mrs Khosa (Vatsekeme – fifth from left), Dr David Tinarwo (University of Venda – second from right), Mr David Mahuma (SANEDI – extreme right)	39
Image 19	Visit to 8 cubic metre digester beneficiary Mr Khosa in Magoro, with Mr Collins Chabane and the project team in the company of a representative of the funding organization, Mr Riaz Hamid of SANEDI.....	40
Image 20	University of Venda Students and lectures together with project Trainees.....	40
Image 21	Trainees finalizing the construction of the compost pits for a twelve cubic metre digester constructed at Manjonjo Farm in Magoro.	41
Image 22	A 18m3 biogas digester built by Vatsekeme NPO under the UNIVEN-SANEDI Partnership, to support an emerging farmer with domestic and agro-processing functions in Chavani.....	41



PART A: GENERAL INFORMATION



1. SANEDI General Information

Registered Name: South African National Energy Development Institute (SANEDI)

Physical Address: CEF House
Block C
Upper Grayston Office Park
152 Ann Crescent
Strathavon
Sandton

Postal Address: PO Box 9935
Sandton
2146

Telephone Number(s): 011 038 4300

E-mail Address: information@sanedi.org.za

Website Address: www.sanedi.org.za

External Auditors: The Auditor-General of South Africa (AGSA)

Bankers: ABSA

Company / Board Secretary: Mr Sihle Mhlangu



2. List of Abbreviations and Acronyms

AA	Accounting Authority	DEDTEA	Department of Economic Development, Tourism & Environmental Affairs
AFS	Annual Financial Statements	DEFF	Department of Environment, Forestry and Fisheries
AFD	French Development Agency	DFI	Development Finance Institutes
AGSA	Auditor-General of South Africa	DID	Department of Infrastructure Development
AMI	Advanced Metering Infrastructure	DKK	Danish Krone
APP	Annual Performance Plan	DMRE	Department of Mineral Resources and Energy (previously DoE)
AR	Annual Report	DoD	Department of Defense
ARC	Audit & Risk Committee	DoT	Department of Transport
ARCC	Audit Risk & Compliance Committee	DoE	Department of Energy (now DMRE)
ASSA	Academy of Science for South Africa	DPWI	Department of Public Works & Infrastructure
BARC	Board Audit Risk Committee	DSD	Department of Social Development
BBI	Biofuels Business Incubator	DSI	Department of Science and Innovation (previously DST)
AU	African Union	DSM	Demand Side Management
BEC	Bid Evaluation Committee	DST	Department of Science and Technology
BEE	Black Economic Empowerment	DTU	Technical University of Denmark
CCMA	Commission for Conciliation, Mediation & Arbitration	DBREV	Douglas Banks Renewable Energy Vision
CCS	Carbon Capture and Storage	EA	Executive Authority
CCT	Clean Coal Technologies	EC	European Commission
CCU	Carbon Capture & Utilisation	ECDC	Early Childhood Development Centres
CCUS	Carbon Capture, Utilisation and Storage	EDI	Electricity Distribution Industry
CEF	CEF Group of Companies formerly known as the Central Energy Fund	EDTEA	Energy and Water Sector Education and Training Authority
CEM	Clean Energy Ministerial	EE	Energy Efficiency
CEO	Chief Executive Officer	EEDSM	Energy Efficiency and Demand Side Management
CER	Centre of Energy Research	EEPBP	Energy Efficiency in Public Buildings and Infrastructure Programmes
CESAR	Centre for Energy Systems Analysis and Research	EIUG	Energy Intensive User Group
CGS	Council for Geosciences	EM	Electric Mobility
CoJ	City of Johannesburg	EPCs	Energy Performance Certificates
COP	Conference of Parties of the United Nations Framework Convention for Climate Change	EPWP	Expanded Public Works Programme
CO2	Carbon Dioxide	ESCo	Energy Service Company
COGTA	Department of Cooperative Governance & Traditional Affairs	ESI	Energy Systems Integration
CORDs	Centres of Research and Development	ERC	Energy Research Centre
CPI	Consumer Price Index	ESI	Electricity Supply Industry
CPT	Cape Town	EU	European Union
CM	Cleaner Mobility	EV	Electric Vehicles
CSI	Corporate Social Investment	EVIA	Electric Vehicle Industry Association
CSIR	Council for Scientific and Industrial Research	EVS	Electric Vehicle Symposium
CSR	Corporate Social Responsibility	EWP	Energy White Paper
CU	Columbia University	EWSETA	Energy and Water Sector Education and Training Authority
DANIDA	Danish International Development Agency		
DEA	Department of Environmental Affairs		



2. List of Abbreviations and Acronyms (continued)

FSCI	Financing Sustainable Cities Initiatives	MTEF	Medium Term Expenditure Framework
FMPPI	Framework for Managing Programme Performance Information	MTSF	Medium Term Strategic Framework
GAAP	Generally Accepted Accounting Practice	MW	Megawatt
GCIS	Government Communications & Information Systems	NAMA	National Appropriate Mitigation Action
GDARD	Gauteng Department of Agriculture and Rural Development	NAAMSA	National Association of Automobile Manufacturers of South Africa
GDID	Gauteng Department of Infrastructure Development	NASA	National Aeronautics and Space Administration
GEF	Global Environment Facility	NCPC	National Cleaner Production Centre
GHG	Greenhouse Gas	NDA	National Development Agency
GIZ	German Agency for International Cooperation	NDP	National Development Plan
GRAP	Generally Recognised Accounting Practice	NEA	National Energy Act, 2008 (Act No. 34 of 2008)
GRI	Global Reporting Initiatives	NEHAWU	National Education, Health and Allied Workers Union
GTS	Green Transport Strategy	NEEAP	National Energy Efficiency Action Plan
HRI	Human Resources Information	NERSA	National Energy Regulator of South Africa
IAS	International Accounting Standards	NBI	National Business Initiative
IDC	Industrial Development Corporation	NDA	National Development Agency
IEA	International Energy Agency	Necsa	South African Nuclear Energy Corporation
IEE	Industrial Energy Efficiency	NEEA	National Energy Efficiency Agency
IEP	Integrated Energy Plan	NGO	Non-Governmental Organisation
IIA	Institute of Internal Auditors	NMBM	Nelson Mandela Bay Municipality
IIRC	International Integrated Reporting Council	NMT	Non-Motorised Transport
IPCC	Inter-Governmental Panel on Climate Change	NRF	National Research Foundation
IPPs	Independent Power Producers	NQF	National Qualifications Framework
IR	Integrated Report	OHSA	Occupational Health & Safety Act
IRP	Integrated Resource Plan	OPEC	Organization of the Petroleum Exporting Countries
IRENA	International Renewable Energy Agency	PAA	Public Audit Act
ISF	International Science Fair	PASA	Petroleum Agency of South Africa
ISGAN	International Smart Grid Action Network	PCSP	Pilot CO2 Storage Project
ESI	Electricity Supply Industry	PDI	Previously Disadvantaged Individual
IT	Information Technology	PEP	Public Employment Programme
KKI	Klein Karoo International	PFMA	Public Finance Management Act
kW	Kilowatt	PFT	Project Facilitation Team
LAN	Local Area Network	PCSP	Pilot Carbon Dioxide Project
M&V	Monitoring and Verification	PIU	Project Implementation Unit
MDA	Mineworkers Development Agency	PMO	Project Management Office
MEDD	Municipal Electricity Distribution Departments	PPC	Parliamentary Portfolio Committee
MerSETA	Manufacturing and Engineering Related Skills SETA	PSSC	Pilot Storage Sub-Committee
MoU	Memoranda of Understanding	PV	Photovoltaics
MPA	Mitigation Potential Analysis	QCTO	Quality Council for Trades & Occupations
MTEC	Medium Term Expenditure Committee	RDI	Research & Development Initiatives
		RE	Renewable Energy



2. List of Abbreviations and Acronyms (continued)

RECORD	Renewable Energy Centre for Research and Development	SMME / SME	Small, Medium and Micro Enterprises
REEEP	Renewable Energy and Energy Efficiency Partnerships	SMART	Specific, Measurable, Achievable, Realistic and Time-bound
R&D	Research and Development	SOLTRAIN	Southern African Solar Thermal Training and Demonstration Initiative
REIPPPP	Renewable Energy independent Power Producer Procurement Programme	SOC	State- Owned Company
REMCO	The Remuneration and Human Resource Committee	SOE	State- Owned Entity
RFP	Request for Proposal	SP	Strategic Plan
SAASTA	South African Agency for Science & Technology Advancement	SSA	State Security Agency
SABIA	Southern Africa Biogas Industry Association	STEMI	Science, Technology, Engineering, Mathematics and Innovation
SACCCS	South African Centre for Carbon Capture and Storage	SU	Stellenbosch University
SADC	Southern African Development Community	SUNREF	Sustainable Use of Natural Resources and Energy Finance
SAEEEC	Southern African Energy Efficiency Confederation	SWH	Solar Water Heating
SAFECCS	South Africa- Europe Cooperation on Carbon Capture and Storage	TAF	Technical Assistance Facility
SAGEN	South Africa – German Energy Programme	TAI	Tax Allowance Incentive
SANAS	South African National Accreditation System	the dti	Department of Trade and Industry
SANBI	South African National Biodiversity Institute	TIA	Technology Innovation Agency
SANDF	South African National Defense Force	ToR	Terms of Reference
SANEDI	South African National Energy Development Institute	TVET	Technical and Vocational Education and Training
SANERI	South African National Energy Research Institute	UCT	University of Cape Town
SAPIA	South African Petroleum Association of South Africa	UI	User Interface
SAPVIA	South African Photovoltaic Industry Association	UJ	University of Johannesburg
SARS	South African Revenue Service	UKED	UMkhanyakude Education District
SARETEC	South African Renewable Energy Technology Centre	UKZN	University Kwa-Zulu Natal
SASGI	South African Smart Grids Initiative	UN	United Nations
SAWEA	South African Wind Energy Association	UNDP	United Nations Development Programme
SAWEP	South African Wind Energy Programme	UNEP	United Nations Environment Programme
SCM	Supply Chain Management	UNFCCC	United Nations Framework Convention for Climate Change
SCP	Sustainable Consumption and Production	UNIDO	United Nations Industrial Development Organisation
SDG	Sustainable Development Goals	UP	University of Pretoria
SEDA	Small Business Development Agency	USTDA	United States Trade and Development Agency
SEP	Stakeholder Engagement Plan	UV	University Venda
SETA	Sector Education and Training Authorities	VSP	Vertical Seismic Profiles
SG	Smart Grids	WASA	Wind Atlas of South Africa
SLA	Service Level Agreement	WB	World Bank
		WfE	Working for Energy
		WSP	Workplace Skills Plan
		WRI	World Resource Institute



3. Foreword by the Interim Chairperson



Mr Nkululeko Buthelezi

Interim Chairperson: SANEDI Board

The Board is pleased to present the Annual Report (AR) for the 2019/20 financial year to The South African National Energy Development Institute's (SANEDI's) valued Stakeholders.

As we wrapped up the financial year as a country, we were just entering into stage 5 of the nation-wide lockdown, because of the global COVID-19 pandemic which was having a devastating effect in several countries in Asia and some parts of Europe. Early indications as this pandemic began to emerge within our borders, was that South Africa's approach was promising in terms of how the pandemic was being managed. However, at the time of approval of this report, the pandemic has caused significant loss of life and livelihoods, devastated the economy, and has prompted Government to respond aggressively with a massive R500 billion social and economic recovery package, in order to ensure a sustainable economic recovery post this pandemic.

The challenge of a post COVID-19 recovery is not one for Government alone to tackle, but rests upon all Stakeholders to come together and ensure that recovery post this pandemic is possible. To this end, energy security is an imperative, even more so now, for

a successful post-COVID-19 recovery to be realised. In order to achieve the desired levels of economic growth, job creation, and creating an enabling environment for small businesses to thrive in, efforts for a reliable, consistent and affordable supply of energy cannot be compromised.

At present, the threat to energy security, specifically consistent, affordable and uninterrupted supply, is an everyday reality as ESKOM battles to keep the lights on due to a seriously constrained electricity grid. We have seen the country experiencing a number of rolling blackouts during the past year, which in itself, had a damaging effect on the country's efforts at growing the economy. On average, grid availability for the past financial year has made our landscape a difficult one for economic activity to thrive.

In order to provide much needed relief from the negative effects of a constrained grid, the Department of Mineral Resources & Energy (DMRE) (formerly DoE) has proactively approved a Ministerial determination on own generation of electricity, without imposing a cap, and is in the process of drafting regulations to enable this to happen. Municipalities in good standing have

also been allowed to procure their own electricity from IPPs, under conditions that will be set by the DMRE and National Energy Regulator of South Africa (NERSA). This bodes well for the transition agenda, as much of this additional capacity will be generated from Renewable Energy(RE) sources. This, a much-needed investment in RE technologies, will enable Government to achieve its objectives of supplying approximately 20% of South Africa's energy needs from non-fossil fuel energy sources.

SANEDI, in partnership with Stakeholders both in National Government and Local Government, Donor Agencies and the Private Sector, has been working hard at providing support to Government to address these energy security challenges. This, through a numbers initiatives such as the development of Policy support instruments, Technology Pilot programmes, Capacity building, implementing initiatives such as the Section 12L tax incentives and various initiatives creating a pathway towards a Clean Energy Future.

During the period under review, SANEDI has managed to deliver:

- Policy Support Instruments including one of which was the Wind Atlas,
- Technology Pilot Programmes, as well as one if which was the Smart Grids (SG) pilot programme which is set to be the base line toward the broader roll-out of SGs in the country,
- Capacity Building Programmes, creating opportunities for Youth, Women for PHDs and Masters opportunities,
- Technology Platforms. The SASGI platform is one of the platforms under the SGs sub-programme which brought together Stakeholders from different municipalities.

Energy Efficiency (EE) remains an essential component in achieving stability especially when the electricity grid is experiencing so much pressure. This will enable the freeing up of surplus electricity that currently exists within the grid, but is continuously wasted through inefficient use of energy in both business and domestic applications. EE is possible, not only through the introduction of incentives such as the 12L Income Tax incentives that SANEDI has been administering on behalf of the South African Revenue Services (SARS), but also through the coupling of interventions with awareness campaigns, that will ensure there is a sustained behavioral change on the part of business and society at large, will we realize, the benefits can be impactful and sustainable.

EE initiatives also have great potential for job creation through Energy Service Companies, (ESCOs). The ESCo Register was originally developed by the DMRE, SANEDI and the Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) in 2017 and was updated in 2019/2020, with a number of participating companies increasing from 58 to 87 across all 9 provinces.

Furthermore, SANEDI as a hosting agent for Agence Française de Développement (AFD) Group SUNREFII has provided technical assistance for evaluating the financial feasibility of RE and EE projects. The fund offered amounts to Euro 1 million and is being offered as a 'green credit line' to South African project developers to the value of approximately R280 million to qualifying applications through the Industrial Development Corporation, (IDC)

Another great challenge that Government has been working tirelessly towards achieving, is that of ensuring there is universal access to electricity. With many structural and economical challenges at present, many households have been electrified through grid connected electrification as well as some other form of non-grid energy source. Government has set its sights on achieving universal access by 2030. However, the challenge of energy poverty remains more real now, as urbanisation takes root in South Africa. The price of electricity remains high, further deepening energy poverty in the country.

Alternative technologies such as Solar PV and Solar Thermal, will be instrumental in making energy accessible to all, given the abundance of sun that the country enjoys. Although the integration of RE into the grid presents an opportunity for energy access, there are still challenges that need to be overcome with integrating variable energy sources into the grid for base load demand.

As we approve this AR, we take the opportunity to wish the Council for Geosciences (CGS) well, as they will be continuing with the implementation of the Carbon Capture and Utilization from SANEDI. We believe the projects is a much better fit for the CGS in terms of its mandate, and will enable the SANEDI to narrow its focus on identified strategic projects, that it will be implementing on behalf of National Government in the 2020/21 financial year.

In an effort to strengthen governance within the organisation, the Board appointed independent Committee members to supplement capacity at the Human Resource



and Remuneration Committee (HRRC) as well as the Board Audit and Risk Committees (BARC).

The appointment of a permanent new Chief Executive Officer (CEO) encountered some delays, however the organisation continued to perform and thrive under the leadership of the then acting CEO, Dr Thembakazi Mali who unfortunately left the organisation to pursue another opportunity in the energy sector. The Board would like to extend its appreciation to the former acting CEO, for her exceptional work in leading the organisation over the past two years and wish her well in her future endeavours.

We also would like to express a word of appreciation to our Stakeholders, who have worked tirelessly with us over this previous Medium Term Expenditure Framework (MTEF) period, to enable us to reach our milestones and achieve our targets. We look forward to even more fruitful partnerships in the future, as we continue to pioneer this energy transition agenda.

Last but not least, SANEDI extends a word of appreciation to the management of the organisation and to the staff

for their hard work throughout the financial year. We wish Ms Lethabo Manamela well as the incoming Interim CEO for the organisation. We extend our full support to her and the organisation as the Board, as we navigate the organisation through this difficult time.

We stand together with Government, as we continue to fight this invisible enemy COVID-19 and with those that have been affected by this pandemic. Our hearts go out to the families and friends who have lost their loved ones as a result of the pandemic.



Mr Nkululeko Buthelezi

Interim Chairperson: SANEDI Board

Date: 30 October 2020

4. Interim Chief Executive Officer's Overview



Ms Lethabo Manamela CA (SA)
Interim Chief Executive Office: SANEDI

During the financial under review, the Institute achieved 88 % of its annual targets

With the Cabinet approval of the Integrated Resource Plan (IRP) during 2019, the country is well on its way, to transitioning from a fossil-based economy to a green economy.

It is expected that the introduction of Renewable Energy (RE) into the grid, will result in disruption of the energy sector and will also require a reconfiguration of the current energy infrastructure and the energy sector as a whole.

Research and investment to advance the green agenda will need to be accelerated, to ensure that Government achieves its planned targets. An enabling policy environment will be crucial in attracting investment to enable Government to reach its planned targets.

Data and knowledge management plays an important part in energy planning. Reliable and timely data, also need to be placed in the forefront of the energy transition

agenda, if adequate and timely planning and investment in the sector is to be made possible. Without reliable data models, embracing all the advancements in data modelling, and without reliable and centralised energy repository, the transition to a green economy may not be as co-ordinated, resulting in limited resources not being optimised.

Linkages between energy and economic growth, social upliftment of communities, reduction in unemployment levels, and poverty alleviation, also need to be considered as part of the transitioning process, to ensure that the transition from Fossil fuels is one that is just, and does not leave communities and the country as a whole in a worse off position. In a nutshell, no one should be left behind as the country transitions. Opportunities for localisation need to be perused to ensure that there is beneficiation, local job creation and economic growth.

Transitioning from the Fossil fuels to green economy, comes with the benefit of reducing the Green house Gas (GHG) emissions and thus tackling the issue of climate change. In recent years, changes in climatic conditions in various places across the world, has shown the negative impact that climate change is having. All indications are

that this will get worse in future years, if the aimed target of keeping temperature to below 1.5°C is not achieved.

Internally, the organisation is undergoing a reorganisation process with the objective of narrowing the focus of the organisation, thereby optimising the utilisation of finite resources. Unfortunately, this has resulted in some staff losses. However the reorganisation was crucial in ensuring that SANEDI remained resilient and fit for purpose.

The finances of the organisation remain constrained however, and greater effort has gone into leveraging external funding to implement some projects that were delivered during the financial year.

We would like to thank the SANEDI staff that have worked tirelessly during the financial year, SANEDI management for their leadership, and the Board for their

continued guidance and support. We also, extend a word of appreciation to all our partners who have partnered with us to support the transition to a green economy. During the financial under review, the Institute achieved 88 % of its annual targets.



Ms Lethabo Manamela CA(SA)

Interim Chief Executive Office: SANEDI

Date: 30 October 2020

5. Members of the Board



Mr N Buthelezi

Interim Chairperson: SANEDI Board

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



Ms Phuthanang Motsielwa

B Acc (CA)(SA)



Ms Nomawethu Qase

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



Ms Deborah Ramalope

BSc (Hon), MSc, and MBL



Mr Mmboneni Muofhe

BSc (Hons), MSc, and MBA



Mr Gerhard Fourie

Diploma Mech Eng, B Com Economics, and 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 AR are consistent with the Annual Financial Statements (AFS). The Auditor-General (AG) will subsequently audit the AFS.

The AR is complete, accurate and is free from any omissions.

The AR has been prepared in accordance with the guidelines on the AR as issued by the National Treasury (NT).

The AFS (Part E) have been prepared in accordance with the standards applicable to the public entity.

The Accounting Authority (AA) is responsible for the preparation of the AFS and the judgements made in this information.

The AA 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 (HRI) and the AFS.

The external auditors are engaged to express an independent opinion on the AFS.

In our opinion, the AR fairly reflects the operations, performance information, HRI, and the financial affairs of the public entity for the financial year ended 31 March 2020.

Yours faithfully



Ms Lethabo Manamela

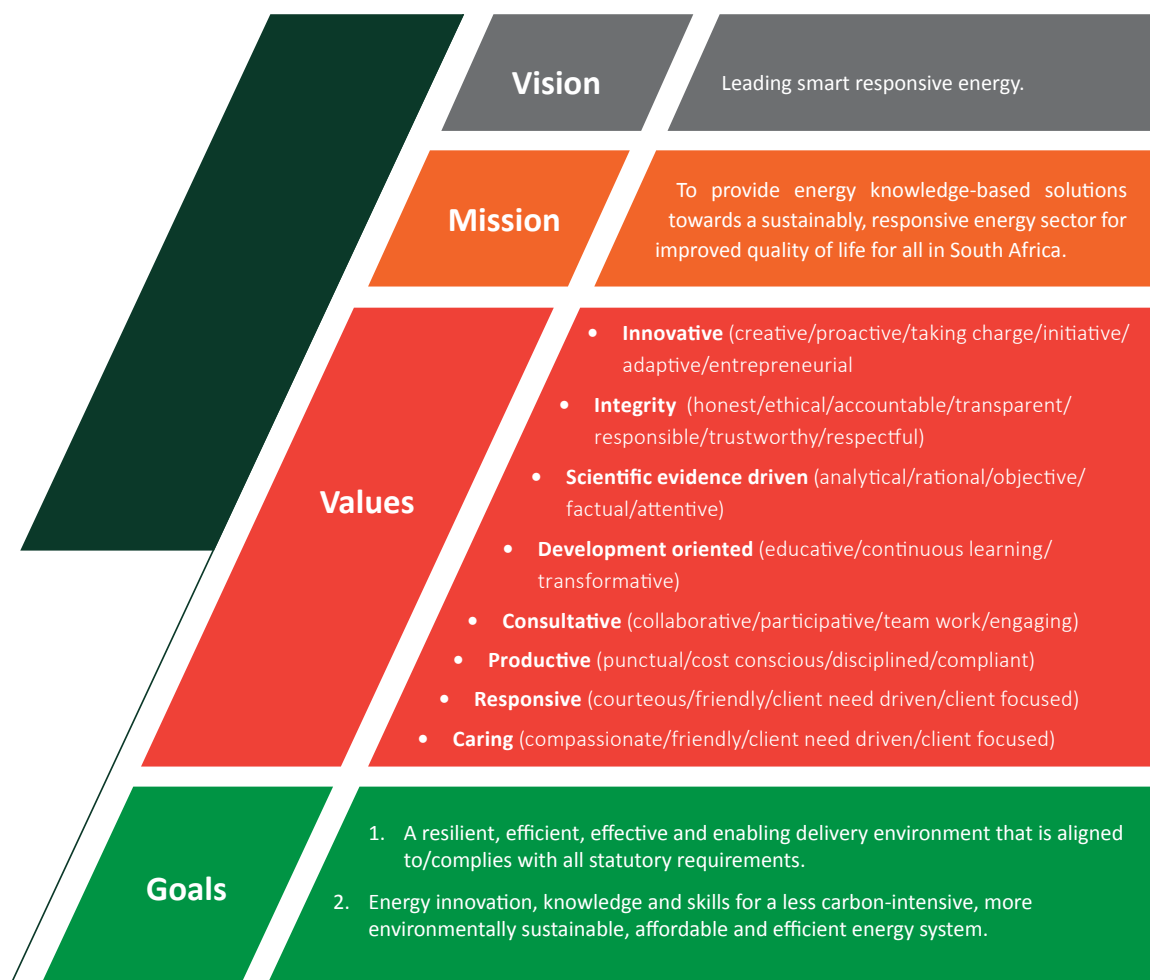
Interim Chief Executive Office: SANEDI

Date: 31 October 2020

7. Strategic Overview

The key elements of SANEDI's Strategic Plan (SP) are captured in the Strategy Map below (Figure 1) as reflected in the 2019/20 APP.

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



Strategic Objectives

PROGRAMME 1	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	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 a sustainable economy.
PROGRAMME 3	3.1 Accelerated adoption of EE solutions to optimise the use of finite resources.

Figure 1: SANEDI Strategy Map

8. Legislative and other Mandates

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

9. Organisational Structure

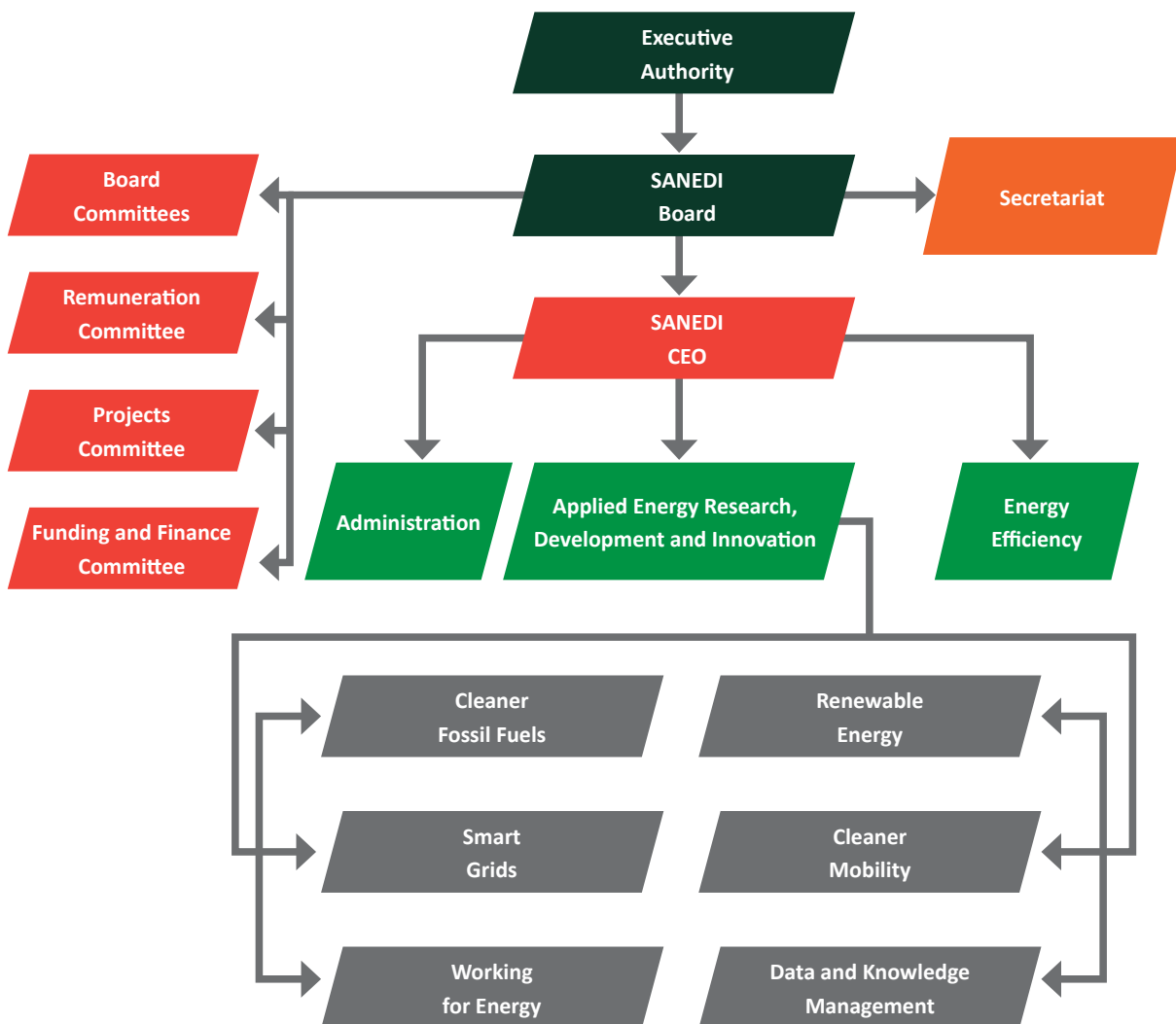


Figure 2: SANEDI Organogram

PART B:
PERFORMANCE INFORMATION



10. Auditor's Report: Pre-determined Objectives

The Auditor-General of South Africa (AGSA)/auditor, 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 *Pre-determined Objectives* heading in the *Report on other legal and regulatory requirements* section of the auditor's report.

Refer to page 88 of the Report for the Auditors Report, published as Part E: Financial Information.

11. Situational Analysis

11.1 Service Delivery Environment

It was the introduction of Fossil fuel energy that facilitated a service delivery environment that led to the industrial revolution, and spurred techno-economic development, job creation and an individual increase in standards of living. The use of Fossil fuels has led to the development of modern Renewable Energy(RE) and Nuclear energy. In recent times, there are a number of imperatives that are leading to a weaning off from Fossil fuels. Transitions from one energy source to another, takes a long time that may be controlled by factors such as the lock-in of a particular technology, lifetime of installed infra-structure, demand pressures and political factors. Consequently, it is essential to ensure a just transition with minimal disruption.

South Africa is still very reliant on Fossil fuels for most of its primary energy supply. Approximately 90% of primary energy is derived from fossil fuels, of which 72% is coal. Furthermore, coal provides 85% of electricity generation capacity and 92% of electricity production. Coal is also used for the production of liquid fuels, including approximately 30% of the petroleum used in South Africa. This reliance on Fossil fuels has led to an approximate 400Mt CO₂ emissions per year. 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.

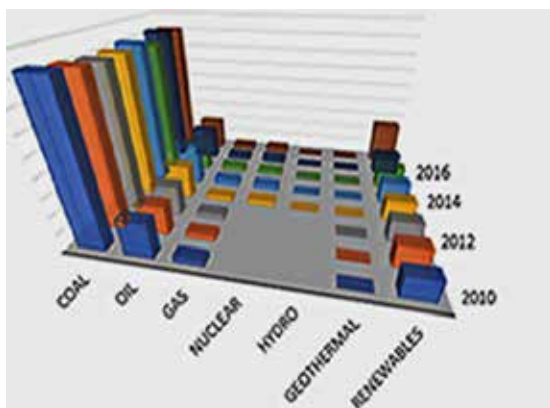


Figure 3: South African Primary Energy use based on The Department of Mineral Resources and Energy (DMRE) Statistics

Notwithstanding the recent advances made in the implementation of 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. This environment is manifest in the recently released Integrated Resource Plan (IRP) by the DMRE.

One of the more profound considerations of service delivery in the energy sector is that of the physical environment, whether it be from legislation or public pressure, both local and international. Such applies to production, conversion and utilisation of energy, across the entire array of environmental concerns. The most recent and dominate concern pertains to global climate change, and the emission of Carbon Dioxide (CO₂) into the atmosphere.

Another conjuncture is that Fossil fuels are finite. Therefore, irrespective of the environment, especially global climate change, it is incumbent on Government to implement a just transition from Fossil fuels to Renewable and Nuclear energies.

South Africa's municipalities rely on electricity sales through Eskom for revenue, however, it is evident that many municipalities struggle to pay their debts to Eskom with no improvement. According to National Treasury (NT) in State of Local Government Report 2018/19), "While most municipalities are in reasonably good shape, about 125 municipalities are in varying degrees of financial distress¹. This report concludes that a significant number of municipalities continue to perform poorly and remain a cause for concern. This contributes to a negative impression of the performance of the municipal system as a whole". Consumer debt to municipalities sits at R165.5 Bn² overall. Municipal outstanding debt owed to Eskom amounts to R33 Bn³. This is undoubtedly, a large factor in the extent of Eskom's R440Bn debt that itself provides a critical risk to our current sovereign debt issue.

It is within this environment that SANEDI, a Research and Development Institute, operates to facilitate the effective and efficient supply and demand of energy to South Africa.

- ¹ State of local Government Finances, 2018-19, National Treasury
- ² Consolidated s71-Q4, 1 August 2019, National Treasury
- ³ June 2019, NT

The Importance of Energy Efficiency in a changing World

Recent climate data shows that the 2010s were the warmest decade on record, with an acceleration of temperature increases in the past 5 years. As Kate Marvel, a research scientist at The National Aeronautics and Space Administration (NASA) and Columbia University (CU), said in a recent Washington Post article, “The planet is statistically, detectably warmer than before the Industrial Revolution. We know why. We know what it means. And we can do something about it.” Indeed we can, and it is called Energy Efficiency (EE).

The 2018 Intergovernmental Panel on Climate Change (IPCC), report found that if limiting global temperature increases to 1.5°C is to be achieved, “investments in low-carbon energy technologies and energy efficiency will need to be upscaled by roughly a factor of six” by 2050 compared to 2015 levels. The International Energy Agency (IEA) says that energy efficiency can provide up to 40 percent of carbon emission reductions necessary to meet climate goals, without new technology and with a positive return on investment. Despite these compelling analyses, recent investment in energy efficiency is failing to grow substantially, and global annual efficiency improvement rates have decreased, with South Africa no different.

There are currently 1,340 jurisdictions in 26 countries, representing populations of more than 800 million citizens, that have declared a climate emergency. Given that increased EE is the lowest cost, highest impact, and fastest-to-implement climate solution, we are not giving it the urgency it deserves. We probably need to declare an efficiency emergency, to address the global climate crisis.

We need a coalition of Government, Corporate, and Non-Governmental Organisation(NGO) leaders ,that champions faster and deeper implementation of EE solutions, uniting the voice of efficiency, that provides a unified platform for partners to influence global discussions on energy and climate, and to advance EE policy, innovation, and investment.

11.2 Organisational Environment

SANEDI’s organisational environment is in a state of flux. The SANEDI Board instigated an organisational review, and concluded with a SANEDI restructuring. The implementation of such restructuring is currently underway, and interim measures were put in place to

continue operation during that period. This has led to some uncertainty among the staff with its consequent low morale. As a result, the organisation saw a significant increase in its staff turnover for the year. The DRME is also going through a restructuring process (the amalgamation of the DoE and the DMR). Some decisions have been placed on hold pending the outcome of that amalgamation process, and consequently this has negatively affected some of SANEDI’s projects.

There is a need to focus on raising awareness of the efficiency emergency, as a means to drive greater ambition and climate action. Together, we can do something about it, and SANEDI is well-placed to play a catalytical role in this endeavour. During the past year, a Global Commission for Urgent Action on Energy Efficiency was established by the International Energy Agency(IEA), and met to discuss ways to help the World’s Governments fast-track progress on efficiency. The Commission has 23 members, and is composed of national leaders, current and former Ministers, top business executives and global thought leaders. The Irish Prime Minister, Mr Leo Varadkar, is the honorary Chair of the Commission.

The first meeting took place late in 2019, and focused on best practices for developing and implementing EE policies. Members also discussed ways to build support for EE policies among decision-makers and key stakeholder groups. The meeting gave members the opportunity to work towards a list of actionable recommendations for Governments, to be released in June 2020 during the IEA’s 5th annual Global Conference on EE. Members agreed that higher levels of ambition on efficiency, coupled with stronger global action, were both necessary and achievable.

“The IEA is pleased to convene such a distinguished group of global figures around the critical topic of EE, and these initial discussions were an important step forward in achieving faster progress on efficiency”, said Dr Fatih Birol, the IEA’s Executive Director.

The Commission’s deliberations are informed by the IEA analysis, which shows a worrying slowdown in global energy efficiency progress. Global primary energy intensity (an important indicator of how heavily the world economy activity uses energy), improved by just 1.2% in 2018. This is the slowest rate since the start of this decade, and well below an average 3% improvement rate that is possible using readily available EE technologies and measures.



This trend, coupled to the recent global COVID-19, Corona virus outbreak, has plunged not only South Africa, but most global economies into a deep recession. EE investments are a potential key tool for policymakers to use in their stimulus packages, for stimulating economies once the pandemic is brought under control and activity can ramp back up.

For these strategies, Governments will be looking at the very immediate future i.e how to create jobs and boost economies. There have been many calls to make clean energy technologies a key part of stimulus packages, which makes complete sense. Stimulus goals align very well with wider clean energy goals, and investment in all fields of clean energy can deliver great opportunities to increase employment and economic activity.

EE offers many win-win opportunities, such as labour-intensive projects that start quickly and are rooted in local supply chains such as construction and manufacturing. Putting such projects in stimulus programmes can support existing workforces and create new jobs. EE has other major benefits, as it improves the economic competitiveness of countries and businesses, makes energy more affordable for consumers, and of course, reduces Greenhouse gas emissions.

Government and SANEDI can, and is leading the way in boosting EE investments by channelling them into public buildings, such as social housing schools, healthcare facilities and Government offices. Examples of this include the Cool Roofs programme and the EE in Public Buildings and Infrastructure (EEPBI) programmes planned for further implementation in the 2020/ 2021 financial year. Technology upgrades and infrastructure projects across different parts of the economy will bring about rapid benefits.

EE programmes can deliver strong growth in economic activity, while also locking in efficiency gains for the future. In the same breath, investment in infrastructure is also an excellent way to spur spending and create jobs across a range of businesses. Smart Grids(SGs), digital connectivity, and even street-lighting upgrades, can all build economic activity at local levels and support large numbers of jobs.

Whether Governments invest in hospitals or schools, streetlights or SGs, housing or infrastructure, stimulus programmes can incorporate ambitious, cost-effective EE elements for little additional effort or cost. An efficient home built today, will produce less than half the emissions and energy bills that would be locked-in to an inefficient home for decades to come.

Unprecedented challenges call for unprecedented responses, and decisions must be made amid great uncertainty. Recognising how many unknowns there are, this is a time to be ambitious and innovative, and to keep a firm eye on our clean energy and climate goals. SANEDI accepts this challenge!

11.3 Key Policy developments and Legislative changes

A key policy development during 2019 was the release of the IRP by the DMRE. The IRP addressed the generation and demand-side intervention programmes for the provision of electricity until 2030.

While there has been no major changes to relevant policies or legislation that affected SANEDI's operations during the 2019/20 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 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 Department of Transport (DoT), to find way 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 greenhouse gases above the allowed threshold, will have to pay the carbon tax, and this tax will be in addition to corporate tax. With the Act which has come into force June 2019, SANEDI should expect to see a significant increase in the uptake of the 12L tax incentive.

The policy challenges associated with global warming, the prospect of increasingly expensive Fossil fuels, and



the recent re-emergence of serious concerns about the safety of nuclear power after the Fukushima accident in Japan, are encouraging many economies to develop SGs as a component of their energy policy portfolios. SGs are often compared to the Internet and smartphones, as one of the major transformational technologies that can potentially reshape economies and societies. Although SGs are defined in various ways in different countries and across institutions, they are typically taken to mean a modern grid concept, that uses advanced Information Technology (IT) to update, and modernize existing power grids to improve reliability, security, efficiency, safety, environmental friendliness and economic aspect of electricity supply systems.

SGs are widely regarded as one of the key building blocks of a sustainable energy future. These future grids will look very different from those of today. Traditional grids are typically centralised and fossil fuel-based. These SGs are essential to enable the wider use of RE and plug-in electric cars, as well as to accelerate energy-efficiency efforts, which are the core elements for more sustainable energy systems. They can also reduce transmission and distribution losses and enhance grid reliability. They are therefore expected to bring economic, environmental, and social benefits in many important ways, such as revitalising the economy and providing green jobs, reducing capital expenditure on energy infrastructure, reducing power disturbance costs to economies as well as facilitating a low-carbon energy future.

SGs is a subject that is highly dynamic and rapidly evolving. As an emerging energy-related technology in its nascent

phase of deployment, SGs involve the integration of a broad range of state-of-the-art technologies, that include wind and other RE, Electric Vehicles (EV), car batteries, microgrids, computer networking, and communication systems. This is an area where rapid innovations in technology are taking place. SGs are highly dynamic because they are also the key to both demand-side (e.g., energy-saving and energy efficiency) and supply-side (e.g. renewable energy) management of energy systems, making such technologies a fertile arena in which many possible solutions for a more sustainable future may be located. Many substantive developments are rapidly unfolding, because of SGs. Also, many countries and cities are piloting SGs at different scales from small pilot projects to large demonstration projects, and with varying scope to test technologies, business models, and consumer acceptance. What also adds to the dynamic nature of SGs, is their stakeholder landscape. The development of these SGs is a long-term process and a cross-sector effort that requires visionary and strategic planning, collaboration among policymakers, utilities, the business sector, consumers, and other Stakeholders. There has been a strong international interest in SGs. Drivers of SG policy initiatives are many, such as rising energy costs with the growing demand for energy, increasing awareness of global climate issues, growing need for EE, and rapid innovations in technology are just a few. Many countries and cities, have made considerable progress in recent years to develop SGs at various scales and with different objectives in mind.

11.4 Strategic Outcome Oriented Goals

For the 2019/20 financial year, SANEDI had the following outcome-orientated goals:

Table 1: SANEDI Strategic Outcome Orientated Goals

Goal ⁴	Goal statement
Goal 1. A resilient, effective and enabling delivery environment that is aligned to/ complies with all statutory requirements.	An effective and efficient internal control environment (unqualified audits), 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 Effective risk and comprehensive stakeholder management.
Goal 2. Energy innovation, knowledge and skills for a less carbon intensive, more environmentally sustainable, affordable and efficient energy system.	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.

⁴ Goals are those defined in the Board and Minister approved Strategic Plan (SP) and APP for 2018/19.



12. Performance Information by Programme

12.1 Programme highlights for the year

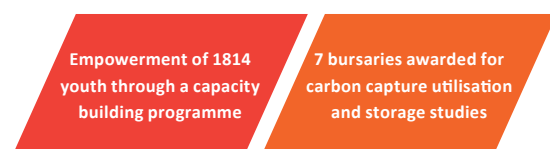
SANEDI has completed another full year of activity in the energy sector. As illustrated in the organisational structure, SANEDI's activities are structured around three main programmes, namely:

- Programme 1: Administration,
- Programme 2: Applied Energy Research, Development and Innovation, and
- 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 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



The contribution of coal to South Africa's primary energy supply, has environmental impacts, hence notably, Global Climate Change. However, notwithstanding the recent advances made in the implementation of RE and

EE measures, it is evident that Fossil fuels will remain the main contributor to South Africa's energy economy for some decades to come, whilst taking into account an international obligation, to mitigate CO₂ emissions into the atmosphere.

Carbon capture, utilisation and storage is one technology to contribute to such a just transition. Carbon capture and storage comprises the capturing of CO₂ (e.g: from an Eskom flue gas stream), thus preventing its release into the atmosphere and safely and permanently storing it into an appropriate deep geological formation.

A Pilot Carbon Dioxide Project (PCSP) is well underway, with a grant of \$23 million from the World Bank Carbon Trust Fund. With the PCSP underway, attention is now being given to carbon capture and utilisation. The modalities of carbon capture and utilisation are contextualised as an holistic approach as outlined in Figure 4.

Once the high-concentration of CO₂ has been produced, then it can be used in two applications:

- Storage – Regulatory Compliance: Globally, the most common application is for regulatory compliance. The PCSP is the first stage of South Africa's storage programme, and
- Utilisation – Commercial Products: It is possible to use CO₂ as a feedstock to produce saleable products. The use of RE in this case ensures minimal (CO₂) emissions, as well as overcoming one of renewables disadvantages, namely storage.

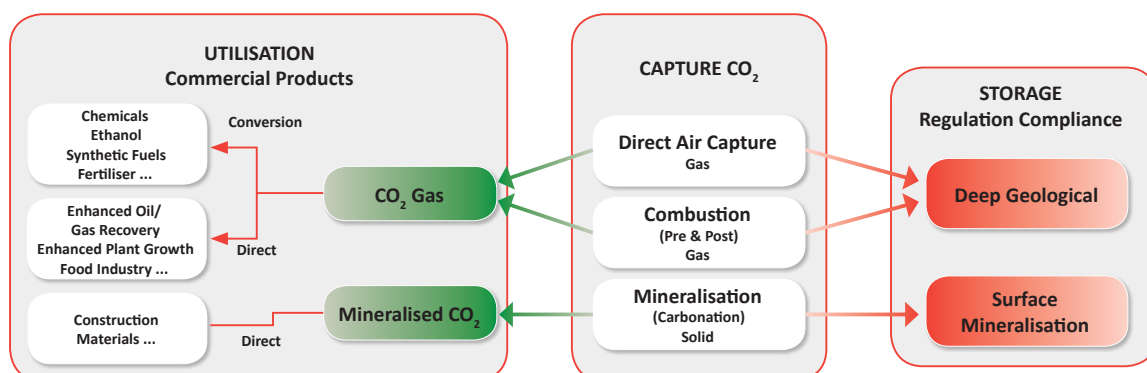


Figure 4: Configuration of carbon capture, utilisation and storage technologies.

During March, 2020, the Minister of DMRE approved the transfer of the carbon capture, utilisation and storage programme from SANEDI to the Council for Geoscience (CGS).

- **Pilot Carbon dioxide Storage Project (PCSP)**

The year's activities focused on the geologic play assessment of the Zululand Basin, undertaken as part of Phase 1 of the PCSP activities. The specific objectives were to:

- Identify candidate plays within the Kosi and St. Lucia troughs,
- Provide analyses and data to support construction of 3D static and dynamic earth models for the candidate plays,
- Assess the viability of candidate plays as a potential pilot (CO₂) storage site,
- Identify and assess risks associated with each candidate play, and
- Make recommendations regarding suitable site(s) in the basin for hosting the PCSP.

The play assessment sub-task accomplished these objectives through the following characterisation activities:

- A refinement of regional lithostratigraphic correlations,
- An integration of petrophysical, core, and rock physics data,
- Seismic horizon interpretation and well log integration, and
- A structural analysis of the basin and new sequence stratigraphic interpretations.

These characterisation efforts integrate the legacy data from the basin, to identify potential CO₂ pilot storage sites and to create the framework for the geologic modelling efforts.

Characterisation activities reduce uncertainty involved with the entire process of generating a permit-ready pilot carbon storage site, from basin down-selection to selected sub-areas to a proven site, as illustrated in Figure 5.

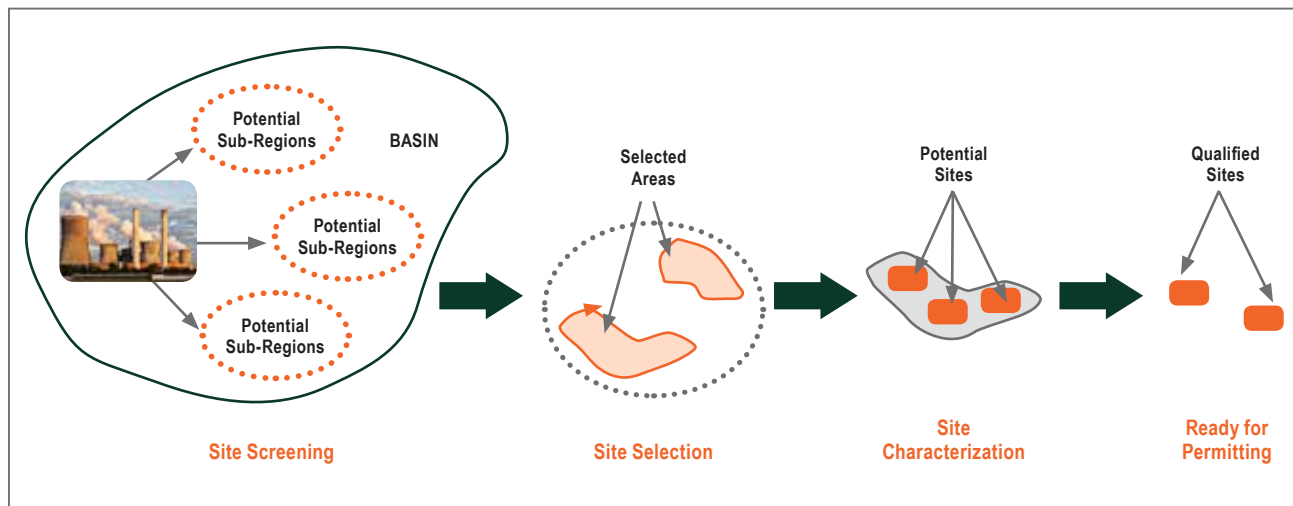


Figure 5. Down-selection process from site (basin-scale) screening to the verification of qualified sites that are ready for permitting. From U.S. DOE/NETL, 2017



The geologic characterisation and risk analysis of the play assessment, identifies the Aptian Lower Sandstone at the ZF location, the primary potential storage site for the PCSP in the Zululand Basin (Dynamic modeling indicated that 17,000 tonnes of CO₂ can be injected over two years). The secondary potential storage site identified through the play assessment, is the Aptian Marginal Sandstones at the ZD location. It is necessary to acquire additional data, and continue characterisation efforts at both potential storage sites, due to existing uncertainties to further reduce risks.

Recommended activities and analyses to take place during phase two of the technical advisory service before a definitive location for the PCSP, can be determined include the following:

- Analysis of Aeromagnetic data being acquired by the CGS to reduce structural uncertainties,
- Acquisition and interpretation of three component 2D seismic to reduce stratigraphic, petrophysical, and structural uncertainties,
- Slim-hole characterisation well drilling, coring, and modern geophysical well log data acquisition of two wells, offsetting the ZF and ZD locations to reduce stratigraphic and petrophysical uncertainties, and to aid the seismic data interpretation, and
- Acquisition of borehole Vertical Seismic Profiles (VSP) to increase the resolution and image quality, and provide greater detail on the stratigraphy and rock properties near the well bore. The advantages these data provide, include reducing stratigraphic, petrophysical, geomechanical, and structural uncertainties as well as enhancing seismic interpretations.

Pilot Monitoring Project activities were conducted in a natural CO₂ release site, that acted as a natural laboratory in order to monitor CO₂ in the atmosphere, soil and water. Subsequently, the protocols documents were formulated. The documents outlines the tools & methodologies required to conduct a successful Baseline CO₂ Monitoring campaign. Baseline monitoring will build a database on, Atmospheric CO₂, Soil CO₂ gas & flux, Surface & Groundwater CO₂ and Ecosystem Impact.

This data will then be compared to data acquired during and post injection. Planned monitoring will be conducted in uMhlabuyalingana and Sarah Baartman Local Municipalities. The protocols documents have informed the Terms of Reference (ToR) for the Baseline Studies.

The delay in attaining access to the study area in KZN to conduct site characterisation for activities identified above, related mainly to stakeholder concerns, spearheaded by the Department of Economic Development Tourism & Environmental Affairs (DEDTEA)-KZN, on behalf of all local Stakeholders. A proposal was submitted to the Pilot Storage Sub-Committee (PSSC) and Steering Committee for continued assessment of the Algoa Basin, to characterise potential sites. This will provide options for further investigation in either basin, should insurmountable objections ensue at KZN.

The Pilot Storage Sub-Committee (PSSC) was reconstituted, and held its inauguration meeting on the 10 February 2020. Technical and stakeholder engagement work progressed with the following key tasks:

- A scoping report for the Algoa Basin/Site Characterisation and a draft stakeholder engagement plan was developed for Algoa,
- A consultation was held with Mnqobokazi, following the submission by SANEDI to their request for further information relating to the proposed pilot CO₂ storage project site in the Zululand basin. Mnqobokazi responded positively, and raised further questions that will be addressed on an ongoing basis. In addition, KZN Department of Cooperative Governance and Traditional Affairs (CoGTA) suggested that the basin characterisation and risk assessment be conducted by SANEDI, in order for the community to discuss the issues of risk from an informed position and be able to make decisions, and
- The Slim Hole Drilling Request for Proposal (RFP) was updated with inputs from the PSSC members.

Key challenges remain, and as alluded to in the body of the text, these will be addressed in order to address the constraints and accelerate the schedule.

- **Carbon Capture and Utilisation (CCU)**

The South African Centre for Carbon Capture and Storage (SACCCS), completed three research reports during this financial year, as well as recruited new post graduate students who were financially supported through the SANEDI External Capacity Building Programme.

- **CCU Research Reports:**

Three research reports were produced that addressed essential steps in the CCU programme, and pave the way to a pilot CO₂ utilisation project, namely a Carbon Mineralisation (CM) Roadmap, Utilisation of CO₂ Scoping Study, and Updated CCUS Road Map.



The Carbon Mineralisation Roadmap for South Africa, was developed to guide the research and implementation of CM in South Africa. SANEDI has previously completed three research projects on the potential of Carbon Mineralisation in the country. The results of the most recent carbon utilisation study, i.e. *“Identification and Quantification of the Potential of Carbon Mineralisation for CO₂ Emissions Reduction in South Africa”*, identified CM technology as one of the methods that could be used to reduce South African CO₂ emissions alongside Carbon Capture and Storage (CCS). All the recommendations made in these previous studies, have been used to develop the Roadmap that will guide the development and implementation of the CM technology in South Africa. The Roadmap research will culminate in a pilot project that will be a proof of ‘concept’ for CM in South Africa.

The Utilisation of CO₂ Scoping Study report, is to assess and review various CO₂ utilisation technologies, and identify potential options for further research and development in South Africa. This scoping study, is a component of the ongoing CO₂ utilisation technology development undertaken by SANEDI in accordance with the revised Carbon Capture, Utilisation and Storage (CCUS) Roadmap. The Updated CCUS Roadmap was completed during this financial year. The work on the PCSP commenced in 2017 as planned under the 2012 CCS Roadmap for South Africa. Due to stakeholder issues in the area identified for the PCSP, the project was delayed and the update of the roadmap became necessary. The updated roadmap now includes other work on Capture and Utilisation on which SACCCS has been working.

The main challenge for carbon capture and utilisation, was the delay in the World Bank procurement of a Carbon Capture Technology Assessment, that would ascertain which capture technology would be best suited to South African requirements and conditions [financed and procured by the World Bank for South Africa]. The World Bank is waiting on notification from the DMRE regarding their restructuring process.

- **Bursaries:**

As part of SANEDI’s initiative for the development of young post-graduate students, especially females, seven bursaries were awarded to persons to undertake appropriate studies in the field of carbon capture, utilisation and storage.

Female	Male	≤25	≤30	Masters	Doctorate
6	1	5	2	6	1

The seven new students bring the total of students supported by SANEDI/SACCCS to 32 since 2010.

- **CCUS Knowledge Sharing Platform Technical Workshop:**

In order to keep our Stakeholders informed on the progress of the CCUS work, a CCUS technical workshop was held on 18 February, 2020. The workshop was attended by the South African Government, industry and academia. The workshop was a knowledge sharing event, that sought to find ways to accelerate the implementation of CCUS in South Africa.

The focus areas identified during the workshop included, carbon tax and how it can be utilised for CCUS projects. Previous research done by SANEDI on the South African Carbon Tax concluded that, R120/t of CO₂ is too low to drive investment in CCS projects. SANEDI will endeavour to do more research on carbon tax and how it can be channelled towards funding CCU projects. Other focus areas identified included, investigating new ways of capturing CO₂, research on potential operating costs of utilisation in SA, finalise CCUS standards, identify the liability costs associated with CCUS, improve data/information sharing mechanisms, integration of renewables into CCUS processes, and development of regulatory frameworks for CCUS.

- **SANEDI External Capacity Building and Energy Training Programme:**

In furtherance of its energy training programme, SANEDI reached over 1800 academics in training workshops. Although training is motivated by CCUS, it also included essential understanding of climate change and energy basics.

The Stakeholder Engagement component, aims at creating general awareness and building capacity for the technology in the country, as well as providing support for the development of the PCSP. This is accomplished through engaging with local Stakeholders, and interested and affected parties in the area identified for the Pilot CO₂ Storage Project (PCSP), which is one of the critical components for CCS technology implementation in South Africa. The engagement programme, also includes reaching out to interested Stakeholders from the private sector, academia, Environmental Non-Governmental Organisations, civil society and school communities.



For the development and implementation of the PCSP Stakeholder engagement strategy, cognisance is given to the diverse people of South Africa, including respect to cultures, languages, education, and economic situation.

Stakeholder Engagement Highlights

The key stakeholder engagement for highlights for CCUS Awareness Raising & Capacity Building Programmes (as well as the PCSP) for 2019/2020 included:

- CCUS Knowledge Sharing Workshop,
 - CCUS Workshops for industry and Government,
- PCSP Engagements, and
 - Technical meetings for PCSP Stakeholders interested and affected Stakeholder (Provincial and Local Government Councillors & Traditional Authorities).

- **Pilot Schools Project**

Over a thousand academics from School Communities (Educators/Learners/Subject Advisors), in Partnership with South African National Biodiversity Institute (SANBI), Environmental Education, were capacitated on matters of climate change, and how CCUS can play a pivotal role in lowering (CO₂) emissions, and providing clean energy solutions and job creation through CCUS,

SANEDI CCS annually sponsors 6 regions (three in KwaZulu-Natal and three in Gauteng) of the Eskom Expo for Young Scientist in support of CCS research in the country. The International Science Fair (ISF) witnessed an increase in numbers of CCUS projects. A total of 9 CCUS projects were identified at the ISF, of which 4 projects stood out and were awarded CCS prizes, and

SANEDI - CCS has been exhibiting and presenting at conferences and dialogue meetings to spike conversations around CCUS as one of the climate change mitigation strategies.



Image 1: Ms Tshildzi Tshivhase conducting climate change workshops for the Gauteng Department of Education Subject Advisors



Image 2: Ms Tshildzi Tshivhase and Mr Kubenokuthula Khumalo with ISF 2019 CCS Award winners



Image 3: Ms Tshildzi Tshivhase at the STEMI Conference panel discussion under the topic “Investing in women to tackle climate change, conserving the environment and solutions to sustainable development”



Image 4: Mr Wiseman Ngcobo and Minister of Mineral Resources and Energy Gwede Mantashe at the Learner Focus Week SANEDI stand.

RENEWABLE ENERGY

- **RENEWABLE ENERGY CENTRE OF RESEARCH AND DEVELOPMENT (RECORD)**

The objective of the RECORD is to *facilitate* renewable energy research coordination, collaboration and dissemination of national and international renewable energy knowledge, contributing towards a sustainable low carbon energy future. Initiatives have been carried out by the centre during the year under review.



- **SOLTRAIN**

The Southern African Solar Thermal Training & Demonstration Initiative (SOLTRAIN) is a Southern African Development Community (SADC) regional programme, that focusses on capacity building and demonstration of solar thermal energy systems in the SADC region, and is funded by the Austrian Government and the Organisation of the Petroleum Exporting Countries (OPEC) Fund for International Development. The programme has been running since 2009. Through the programme, Solar Thermal Roadmaps have been developed for all partner countries, and capacity building and training programmes have been implemented. The SOLTRAIN project aims to tackle heating needs at domestic and commercial sector level, and create opportunities through catalyzing growth of the SWH sector hosted.

The project hosts a number of workshops aimed at informing policy makers on the objectives of the programme, showcasing the potential of solar thermal technologies, mobilize national and international funds for technology implementation, and supporting Governmental bodies in decision making on options for different solar thermal technologies. SANEDI has a Memorandum of Agreement (MoA) with the Department of Defence (DoD) to support the latter in energy related interventions, information sharing, technology demonstration, project support and decision making.

DoD will be taking over all municipal account management for its facilities from the beginning of the 2020/2021 financial year, and within the context of the MoA, SANEDI, in collaboration with Eskom, implemented the first in a series of electricity tariff training sessions for South African National Defense Force (SANDF) members, with subsequent training scheduled to take place in the next financial year to support the DoD in maintaining a skilled, and knowledgeable team to administer their utility accounts.



Image 5: Electricity tariff training for SANDF at Pretoria Head Quarters.

SANEDI also contributed, and implemented, a Cool Surfaces paint application training at the DoD Legacy project at Sekutupu old age home in Limpopo province. This project entailed training selected military personnel in the benefit of Cool Surface technology and the application thereof. This trained team applied their new skills in the residential blocks of the old age home. The project was launched by SOLTRAIN, and Air Force Base Hoedspruit collaborated in the implementation of the Solar Water Heating (SWH) system.



Image 6: SANEDI personnel at the newly Cool Roof painted residential blocks of the SANDF legacy project at Sekutupu Old Age Home opened by the Minister of Defence.



Image 7: The Minister of Defence during the Armed Forces Day celebrations.

The aim of this collaboration, and the main function of installing a state of art SWH system, was to reduce electricity usage and provide reliable hot water through renewable energy means at the SAAF GYM. To date, significant energy savings have already been realized on the system after a few months of operation. The savings are expected to continue to increase in the warmer months.



Image 8: Ribbon cutting ceremony at the plant room of the South Building of the installation. Left to right: Dr Karen Surridge (SANEDI), Col Bennedit Manzini (RWU Limpopo), Maj Gen Joseph Ledwaba (DWF), Col van Wyk (SAAF) and Maj Gen Tersia Jacobs (C Log).

SANEDI also hosted 2 specialized courses in solar water heating pumped systems “Training Course for Experts & Professionals” in Pretoria, as well as a Decision Makers Seminar for Solar Thermal Technology Implementation, in Hoedspruit. The Decision Makers Seminar introduced the concept of using solar energy in heating and cooling systems at a basic technology level, and then showcase investment potential in the sector.

The Renewables Programme also participated at the Southern African Energy Efficiency Confederation (SAEEC) conference held in Pretoria. This was held under the banner title of “Solar Thermal Goes Big in SA?”. The SOLTRAIN programme and its achievements to date, were showcased to stimulate interest in feasibility and implementability of solar thermal technologies for the country. Through the contribution of SOLTRAIN initiatives, South Africa leapt from relative obscurity into the global top 20 of solar thermal installations in terms of m² collector area with the contribution of the Wits Junction district heating project. This project, with a combined 600 m² solar thermal collector system, co-generation and gas heating technologies, serviced 14 student residence buildings with hot water in Oudtshoorn, and the Klein Karoo International (KKI) tannery installed a 600 m² solar collector system.

The extensive success of the SOLTRAIN project has resulted in it being extended into a fourth phase, until December 2022, with an anticipated funding of €2.5 million (approx. R42.5 million).



Image 9: Group pictures from SANEDI-SOLTRAIN hosted specialised courses in solar water heating pumped systems “Training Course for Experts & Professionals” (Train the Trainer Course – Part 1).



Image 10: Group Picture from SANEDI-SOLTRAIN Solar Thermal Decision Makers Seminar, Hoedspruit.

- **SAWEP: Wind Turbine Refurbishment**

Today’s wind farms feature turbines that have been designed to last at least 20 years, with many continuing to operate well beyond its design life. However, like most equipment, turbines will also (during their lifetime benefit from newer, optimised and upgraded technologies). Two significant benefits of refurbishing or retrofitting wind turbines are, extending the service lives of the existing wind farms or they can become available to newly developed wind farms. On the African continent, refurbished wind turbines have the potential to be used, amongst other, in mini-grid projects together with solar PV and storage technologies. This in turn will aid in the continent’s strides to meet the African Union’s (AU) goal of providing affordable and sustainable energy to every single African by 2030. At current estimates, 73 million people will have to be connected yearly. The South African Wind Energy Programme (SAWEP) conducted

a successful stakeholder workshop on 30 January 2020 as one of its deliverables projects: A feasibility study to determine market potential and viability to establish a wind turbine refurbishment industry in South Africa. The project was formulated with the Department of Trade and Industry (**the dti**) Green Industries and EE section. The objective of the project is:

“To conduct a high level feasibility study, and submit reports and research findings supplemented by recommendations, and a Value Matrix Diagram that can be used by the South African Government, and Stakeholders, in the determination of formulating a possible Customised Sector Programme (Implementation Plan) for the Wind Turbine Refurbishment Industry in South Africa”.



Image 11: Participants at the SAWEP Wind Turbine Refurbishment Workshop (30 Jan 2020).

SAWEP was also instrumental in assisting The South African Renewable Energy Technology Centre (SARETEC) with its successful application for Quality Council for Trades and Occupations (QCTO) accreditation of SARETEC as a WTST training provider that was received on 5 February 2020. The QCTO Accreditation offers the following important benefits:

For the wind industry (the knowledge that a certain standard has been set and adhered to by the training provider), and

For the graduate students (knowing their training will be recognized across the global energy industry).



Image 12: SARETEC WTST 5 class (SAWEP supported): Week one: Basic Computer Skills training.

- **SAWEP**

SARETEC and the United Nations Development Programme (UNDP), that is providing procurement services to SAWEP, signed a Letter of Agreement in August 2019 in which SAWEP is supporting SARETEC with R3.4 mill towards the training of 24 Wind Turbine Service Technicians (WTST) over a period of seven months, which include 5 months at SARETEC and two months’ workplace training at an OEM (Original Equipment Manufacturer) wind turbine supplier. The funds also provided a stipend to students during their training.

The WTST, is a globally sought-after qualification which trains specialized technicians to work on wind turbines undertaking construction, maintenance, service, fault finding and repairs. It is clear with the advent of the The South African Renewable Energy independent Power Producer Procurement Programme (REIPPPP) Round 4 with 1367 MW wind awarded, and based on a known ratio of 0.1 technicians for every megawatt of wind power installed, that South Africa will require a substantial additional WTSTs in the next three-to four-years.

SARETEC, is currently the only training centre in SA equipped to offer the seven-month WTST qualification, which is accredited at National Qualifications Framework (NQF) Level 5. The qualification is supported by the Manufacturing and Engineering Related Skills SETA (MerSETA).

Twenty-four students have been segmented into two groups, the first 12 (WTST 5 group) enrolled in September 2019, and the second group (WTST 6) in October 2019. Focusing on Previously Disadvantaged Individuals (PDIs), the 24 students come from mostly rural communities from the Eastern and Western Cape, and had to meet stringent criteria such as a minimum qualification of NQF Level 4 in technical occupational fields. Each of the 24 candidates were also interviewed by a panel of wind energy experts, which included the foremost wind turbine suppliers currently operating in South Africa. This interview process will also aid these manufacturers when deciding on who to place, for workplace training, and possibly employment in the future.

- **SOLAR RDI PROGRAMME**

SANEDI in partnership with the Department of Science and Technology (DST), supported the implementation of two Solar Research and Development Initiatives (RDI), namely the MLT Inverter and Solar Turtle development.

- **MLT INVERTORS**

SANEDI awarded funding to MLT Inverters (Pty) Ltd, to undertake research and development of the refinement of the MLT's inverter range to be compatible with third party devices, thereby enabling micro grids to be fully operational off or on the grid. This project culminated in the live demonstration of the newly developed CAN integrated Nomad3, and PowerStar3 inverter product ranges. These inverter systems were tested, and demonstrated at an off grid rural commercial test site located in Kagga Kamma Nature Reserve in the Western Cape.



Image 13: An aerial view of the commercial rural pilot test site: Kagga Kamma Nature Reserve in the Cederberg, Western Cape, with the Solar PV and the diesel Gensets in view.

The MLT invertors range are compatible with a number of electricity generating systems (diesel gensets, solar PV), and storage devices like lithium batteries that are prominent in the marketplace.



Image 14: PowerStar3/Nomad connected to Pylontec Lithium Ion Rack. The battery and the inverter communicate on the integrated CAN bus.

The MLT company hopes to supply enough products to the local market and thus reinstate the local content requirements.



Image 15: Auxiliary storage with lithium ion and lead acid combination batteries. The lead acid battery is on Powerstar2 and the lithium ion is on Powerstar3/Nomad.

During its development and demonstration, several university students were trained during the execution of the project.

- **SOLAR RDI- SOLAR TURTLE**

The aim of the Solar Turtle RDI project is to design, and manufacture a range of local hotspot enabled solar kiosks with an integrated point of sale systems. It includes an SMME e-learning platform and customer engagement application. The kiosks intended for deployment in rural and urban settings, provide energy services and attract business opportunities for woman and the youth. Three prototypes are being designed, a suitcase kiosk, bicycle trailer and car trailer. The team designed a User Interface (UI) design as a mobile application.

During the reporting period, SANEDI signed and operationalized a MoA with Solar Turtle, which culminated in the design and development of the first prototypes. The products will feature capabilities such as, Inventory (stock) management for the owner, sales cart (sales transaction management, inventory (stock)

& services), WiFi and hotspot sales processing, battery/charging sales processing, printer / scanning sales processing, daily cash-up functionality and will generate basic reports.

Various ownership models are available, which includes the purchase model, rent to buy model, and operator model.

- **PlasWen PYROLYSIS PROOF OF CONCEPT PROJECT**

SANEDI partnered with South African Nuclear Energy Corporation (NECSA) for the design and development of a mobile pilot Plasma Waste Treatment Facility, capable of processing municipal waste and generating electricity. A number of challenges were noted in the running of the plant. To this end, SANEDI has engaged with the Engineering Department of Stellenbosch University (SU) to identify the challenges and propose refinement of its design. The refinements and further testing will be implemented in the next financial year.

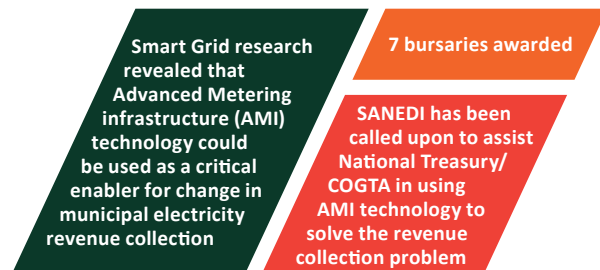
- **REEEP CLIMATE CHANGE, CLEAN ENERGY AND URBAN WATER IN AFRICA (WATERWORKS PROJECT)**

Through the partnership between SANEDI and Renewable Energy and Energy Efficiency Partnership (REEEP), two pilot municipalities saw the implementation of clean energy technologies implementations at their municipal water infrastructures, along with technical training provided to municipal staff and a number of multi-stakeholder learning events.

The first project was successfully completed with the installations and commissioning of an efficient motors and water pumping systems, coupled to an Energy Management System at !Kheis Local Municipality in the Northern Cape.

The Nelson Mandela Bay Municipality (NMBM) saw the installation of new pump sets, and an energy management system which went online in November 2018 at their Fishwater Flats wastewater treatment site. They are currently operational, and data is being collected and recorded for ongoing monitoring of energy usage to optimize works operation for energy and cost savings. A Ribbon Cutting Event was held at NMBM on the 19th June 2019, where the energy management systems were showcased and demonstrated. Furthermore, publicly available Policy Recommendations and Best Practice Guide were also developed and published.

SMART GRIDS



Adequate electricity availability, is a fundamental requirement for supporting South Africa's economic growth and development targets. South Africa's electricity infrastructure countrywide is urgently in need of renewal and enlargement to meet growing electricity demands whilst integrating new, sustainable energy options. This presents significant industry challenges, but also opportunities for modernization and further development.

Appropriate national grid development solutions with balanced leverage of proven and new technologies, are an essential part of the response to these challenges. An electricity network with greater intelligence will facilitate the integration of renewable energy, supporting national energy objectives and the transition towards a low-carbon economy. The development and application of SG solutions, will enable the electricity network to bring considerable additional benefits to customers through improved quality of power supply, more accurate billing and better management of energy consumption. At the same time, it can also be a real source of employment and economic growth.

For the 2019/20 financial year, the SG programme focussed on three key focal areas:

- Closing out the 10 EU donor-funded SG projects and producing the final programme closeout report,
- UP SG collaboration projects, and
- Supporting NT and COGTA in taking the results of the EU Donor funded SG results into a national project.

SANEDI, under the directorship of the Department of Energy (now DMRE), in collaboration with industry Stakeholders, produced a SG vision document to guide our country's journey towards a smarter grid. In the 2019-20 financial year, SANEDI concluded its 10 EU Donor funded SG pilot and demonstration projects, which were established to create an evidence base to guide policy



formulation in the energy space. All projects have been successfully closed, audited, and all requirements of the RDP grant funding processes concluded. The outputs of the programme feed directly into the work of the IMTT on electricity reticulation and distribution. One of the key recommendations coming out of the IMTT work is that Advanced Metering Infrastructure (AMI- Smart pre-paid metering, MDMS, Smart Vending, Smart CIS) should be considered as a key technology enabler to deal with the rising municipal debt problem.

As a result of the SANEDI SG (Smart Grids hereafter) programme, the SANEDI team was seconded to NT for 6 months, to assist National Treasury and COGTA with developing the necessary plans to motivate for funding to undertake further studies, so that a decision on the National Rollout of AMI could be undertaken. SANEDI's SG programme produced a business case report for category B2-B4 municipalities, a Municipality SG Roadmap and a Smart and financially sustainable municipality pilot and demonstration Operational plan. This report was used by NT to secure R1.2 billion over the next 3 years, to undertake 4 pilot studies that will serve as the base reference case for a national rollout of AMI decisions to be taken.

SANEDI, in collaboration with the University of Pretoria(UP) through, Faculty of Engineering Built Environment and Information Technology, has been

undertaking research to advance the realisation of the objectives that are underlined in the South African SG Vision document, to identify gaps in the industry, enable new standard requirements, system modifications and capacity building. Through this strategic initiative, a grant of R3mil was allocated to the programme. The grant allocation for this research collaboration is divided into two primary areas, programme and project level deliverables. The programme related activities cover three fundamental areas, namely:

- The development of a SG laboratory,
- Curriculum development, and
- The provision of bursaries to students.

The project-related activities address specific research work for the benefit of the general industry.

SMART GRIDS BURSARIES

Bursaries and grants to assist students who need financial support through university education. They also encourage students to develop themselves in a particular field of study, and contribute to the body of knowledge in that field. Through the SANEDI Funded Grant Programme, the focus is given to critical skills studies, as there is a need to develop capacity in the Electricity Supply Industry and academia. The following 7 students have been developed during the period of grant funding.

Table 2: Bursary holders

#	Surname	Student Number	Gender	Race	Degree	Duration of Bursary	Focus Area	Amount
1	Hlalele	25334116	Male	Black	PhD Eng	3 years	Smart Grids	R60 000
2	Senatla	13329597	Female	Black	PhD Eng	2 years	Smart Grids	R40 000
3	Poti	13266919	Female	Black	M. Eng	2 years	Smart Grids	R50 000
4	Masike	13180437	Male	Black	M. Eng	2 years	Smart Grids	R25 000
5	Ndou	15102964	Male	Black	M. Eng	2 years	Smart Grids	R100 000
6	Zandamela	15232086	Male	Black	M. Eng	2 years	Smart Grids	R45 000
7	Mhlonogo	142 39282	Female	Black	M. Eng	2 years	Smart Grids	R30 000



SMART GRIDS LABORATORY

There is a need to have a SG lab focused on stimulating research in the SG areas, and driving solutions to local South African challenges. The objective of the SG lab is twofold:

Outline techniques that faculty researchers, and smaller undergraduate institutions may employ to develop a practical yet effective power engineering laboratory, and

Create a laboratory addressing emerging technologies to ensure its relevance in the modern engineering world. The key to the lab is measurement.

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 giving them, the experience of working on engineering projects that are often industry-sponsored. A SG laboratory has been developed at the UP for the students for testing purposes.

The development of training curricula, serves as a specific integrated set of courses designed to provide a cohesive understanding of a topic or subject matter. In this case, it is fundamental to enable the positive growth for professionals within the Electricity Supply Industry, as curricula are designed for specific subject matters, both for technical and non-technical personnel within the distribution utilities (municipalities).

CURRICULUM DEVELOPMENT

The concept of SG is new in South Africa, and this concept must be introduced to personnel through short courses, hence bridging the gap between the “business as usual” approach, to addressing the current challenges. Human Resource (HR) is key to unlocking that potential. The university proposed the development of three short course curricula, of which two have so far been implemented with being postponed due to the COVID-19 Coronavirus outbreak. It is hoped that this task will be fulfilled in the Q1 of the 2020/21 financial year. The courses are:

- Smart metering audits and installation practices,
- AMI Security, and
- SG power distribution (still to be delivered).

The project-related activities require that experts lead the research into very specific areas that have been

highlighted through the scope of work, and Chairperson of the PSU. For the 2019-20 Research Collaboration between parties, 3 areas of interest have been identified.

Two of these topics have been addressed in previous quarters, while the remaining one where addressed in the fourth quarter and were carried out by students, staff and/or external consultants. Detailed reports were produced for each of the three identified topics.

- **The South African Power Sector Model: Unbundling Eskom – Report 1**

The viability of Eskom is crucial to the South African economy, and there is growing concern about its financial and technical status. The President gave insight into the way forward in his 2019 State of the Nation Address, in which he announced the decision to unbundle Eskom into three separate entities. It is envisaged that this will help improve South Africa’s security of supply and economy in general. Unbundling a large utility like Eskom poses its risks. These risks need to be evaluated and mitigated. Before unbundling, it is important to understand the root cause of Eskom’s problems. It is also vital to understand the best unbundling methodologies and how municipalities can take advantage of the situation. This report aims to critically evaluate some of these key issues.

The South African power sector model has, over the years, been shaped by several factors. These factors included matching the need for industrialisation in the 1920s, and the need for centralised grid control and security of supply in the 1960s. Thereafter, the need for a social imperative strategy of mass electrification in the 1990s, followed by Government’s policy in the early 2000s to expose the power sector to competition, with Eskom not building any more power stations, was implemented. In 1998, the Energy White Paper (EWP) was released to address energy requirements for the poor, enhancing the competitiveness of the economy and achieving environmental sustainability of natural resources. The introduction of Independent Power Producers (IPPs) such as Sasol and a few municipalities that had retained generating capacity, was welcomed to support generation capacity, but it was not enough to support growing demand requirements. The IRP 2010 guided the Energy Systems Integration (ESI) by proposing Eskom’s new-build plant fleet, specifying the Renewable Energy Independent Power Producer Procurement programme (REIPPP) capacity, and balancing



the imperative for the security of supply. The REIPPP programme also supported an increase in the energy mix, and aligned with South Africa's commitment to transit to a low carbon economy. This brief historical background of the South African power sector allows one to draw lessons from other international power sectors in understanding the implications, risk and opportunities, for Municipal Electricity Distribution Departments of unbundling Eskom into three separate State entities.

- **The Effects of DG Resources on Distribution Network Design – Report 2**

There is an increased implementation of RE generation sources, such as solar PV, within electrical networks. This is due to the reduced cost of electricity generated from RE systems, as well as the world becoming more environmentally aware. There is, therefore, a need to understand the effects of Distributed Generation (DG) within commercial retail reticulation networks on load, and networks parameters, such as coincident demand and load factor. These load parameters play an important role in network design, as well as in load forecasting which influences network expansion and generation planning decisions.

A study was conducted on a low-voltage commercial retail reticulation network to determine the effects of varying levels of DG penetration on load and network parameters. Two DG placement scenarios were investigated, centrally and de-centrally located within the reticulation network. Results from the hypothetical study were confirmed by conducting the same analysis on a commercial retail reticulation network in service, with measured load demand data available.

Results obtained, indicated that load parameters such as coincident demand, load factor and diversity factor are significantly impacted at high levels of DG penetration. Further investigation is required to determine if the altering of load parameters, from the introduction of DG, would require current design procedures or standards to be modified and updated, or if the standards applicable to the design of reticulation networks are still relevant when varying levels of DG penetration are introduced.

- **LV Protection in a DG Environment – Report 3**

There is a need for increased power supply in low voltage distribution networks. By placing optimally sized selected

clusters of renewable-based AC microgrids in low voltage radial distribution networks, energy demands can be met. However, this leads to fundamental changes and challenges in the topology and protection coordination performance. Protection challenges such as bi-directional current flow, sympathetic tripping, protection blinding, unwanted islanding, nuisance tripping and prohibition of unsynchronized reclosing may occur. This is due to the complex operation and control of the embedded renewable-based microgrid, causing increased dynamic fault currents in the radial distribution network. These protection challenges, require that the existing South African low voltage protection philosophy standards need to be re-evaluated. It is expected that by using communication-based intelligent electronic devices, alongside with an optimization function and adaptive hybrid protection strategies, a hybrid adaptive protection scheme can be outlined, and developed for embedded adaptable renewable-based AC microgrids in South African low voltage radial networks. The developed adaptive hybrid protection philosophy standard, will need to be able to successfully clear high and low impedance faults in a selective, sensitive, speedy and reliable manner. This investigation evaluates the various short circuit fault levels experienced in a low voltage radial distribution network, namely, three-phase, multi-phase, phase-to-ground, and multi-phase-to-ground, when an embedded renewable-based AC microgrid is integrated. Three various types of RE sources, namely, solar photovoltaic, wind generation and energy storage systems, are modelled and designed to the low voltage distribution network specifications. The results from this, are then used to outline and develop an adaptive hybrid philosophy standard, to assist in maintaining the protection coordination between the embedded AC microgrid and an inline intelligent electronic device. An optimization function is then used to optimise the AC microgrids power flow, in-turn reducing losses, bi-directional power flow, and increasing the voltage profile of the radial distribution system. Through the implementation and investigation of an adaptive hybrid low voltage AC microgrid protection philosophy standard, alongside optimisation functions, can improve network efficiency when protection selectivity, sensitivity, stability and reliability of the existing radial low voltage distribution network, when renewable-based AC microgrids are integrated. This will reduce risks in the South African low voltage protection philosophy standards, for the development, and future introduction of IPP to the low voltage side of the utility grid.



DATA KNOWLEDGE MANAGEMENT



- Centre for Energy Systems Analysis and Research (CESAR)

CESAR was established in May 2009, with the stated aim of being the authority in the field of Energy Data for the purpose of Modelling and Planning. CESAR is one of the centre's that previously resided with The South African National Energy Research Institute (SANERI), but is incorporated under the SANEDI. The CESAR programme was previously funded by DST (2009 – 2017) and is now managed and funded by SANEDI.

CESAR aims to provide a holistic approach where Government departments at all levels share, and use credible information that will assist in formulating climate change and energy response strategies. CESAR aims to do this by partnering with both Government departments and Research institutions. CESAR plays the role of a 'Virtual Centre', and its success is largely dependent on the active role of relevant Stakeholders.

The sub-programme is at present focused on capacity building in the Energy Modelling and Data Management space. CESAR programme implemented by SANEDI and The European Research Council (ERC) to conduct research during the period 2015 – 2020, was funded by the DST (2015-2017). The studies produced data-rich papers and models which were extensively referenced in Government strategy documents, the Integrated Energy Plan (IEP) and 2016 Mitigation Potential Analysis (MPA), under the transport sector. In addition, the following research papers were submitted to peer-reviewed journals;

- 1) Investigating the impact of sub-regions on energy systems models using SATIM,
- 2) Spatial Energy in South Africa,
- 3) Spatial energy balances in South Africa provincial, household energy use in South Africa,
- 4) A Techno Economic Renewable Hybrid Technology Mini-Grid Simulation and Costing Model for Off-Grid Rural Electrification Planning in Sub-Saharan Africa,

- 5) Quantifying the energy needs of the transport sector for South Africa – Part 1: Developing a Vehicle Parc Model,
- 6) An analysis of road transport vehicles in South Africa towards 2050: Factors influencing technology choice and implications for fuel supply,
- 7) Decarbonisation and the transport sector: A socio-economic analysis of the transport sectors future in South Africa,
- 8) An energy-economic critique of electric vehicle penetration in South Africa, with emphasis on passenger vehicles,
- 9) Combined system-wide value of sectoral electrical demand flexibility in South Africa's integrated energy system- an application in SATIM,
- 10) A flexible open-source model applied for rural electrification in South Africa using hybrid mini-grids including hydrogen storage,
- 11) Flexible demand in South Africa's Energy System – Addressing System Modelling Needs and Challenges, and
- 12) The measurement and verification of energy conservation measures at a coal-fired power plant.

The study input data, assumptions, methodologies and results were disseminated in presentations to several conferences and workshops. Furthermore, a comprehensive report on hydrogen fuel cells for rural off-grid application was compiled. A book was released showcasing unelectrified rural areas to deploy hydrogen fuels & EE technologies supporting DoE & 1 Data Explorer developed for load research supporting ESKOM and 12 recipients received energy modelling related training.

A fully functioning open energy data portal was developed and was populated with project datasets, models & reports. Stakeholders can currently access and use this portal and share their specific data and projects live online (<http://energydata.uct.ac.za>). Furthermore, through CESAR projects, the ERC has developed a user-friendly visualisation platform, where model results can be viewed online (<https://ercviz.shinyapps.io/gdexplore/>). Seven papers were compiled for submission to peer reviewed journals.

WORKING FOR ENERGY

20 work opportunities created in Limpopo and KZN in the Biogas sector

19 new community Biogas digesters completed

The objective of the Working for Energy Programme is to identify, develop, and promote the development and deployment of clean technologies in low income communities. The programme also creates awareness, develops skills, creates employment opportunities and demonstrates the enterprise development potential in the clean energy space. The SANEDI Board, has phased out the Working for Energy Programme, and its functions will be integrated in the newly restructured SANEDI, under the Energy Access Unit.

- **Waste to biodiesel sector development**

SANEDI has partnered with the Biofuels Business Incubator (BBI), under the Small Business Development Agency (SEDA), for the creation and development of biofuels from various biological sources, such as plant based crops or bio-waste-based sources. BBI trained 21 officials and entrepreneurs, including SANEDI staff on bioenergy at national level.

The SANEDI-BBI partnership finds expression in the Tompi Seleka College of Agriculture, and is expanding to other areas. The partnership has explored the creation of biodiesel from processing used cooking oil. To this extent, a 600l per batch mobile waste cooking oil to biodiesel plant has been developed, and commissioned, to demonstrate the valorisations of waste cooking oil to diesel for own applications. With this mobility, oil collectors in various parts of the country can be reached for the processing of their waste cooking oil to biodiesel and glycerol. The glycerol can be processed into glycerine and other value added chemical products, thus furthering the valorisation of this waste. There are many entrepreneurial opportunities in the waste oil processing value chain. This project is intended to demonstrate some elements of the Circular Economy approach to waste to energy sector.



Image 16: Mobile Waste Oil to Biodiesel Processing Plant-Exterior



Image 17: Mobile Waste Oil to Biodiesel Processing Plant-Interior

SANEDI and BBI ran 5 workshops for the Women in Environment Stakeholder groups and Clean Energy Camps under the Gauteng Department of Agriculture and Rural Development (GDARD), and reached some 145 delegates to support their waste to bio-energy initiatives and opportunities. These Stakeholder groups, are likely to be one of the first beneficiaries to access the services of the mobile biodiesel plant.

- **Waste to bio-energy sector development**

Technology Development and Deployment



Image 18: Project site inspection at Njhinga Primary School by the project team featuring (from left to right): Mrs Ntshani (Njhinga Primary School Principal – far left), Mr Riaz Hamid (SANEDI – second from left), Mrs Khosa (Vatsekeme – fifth from left), Dr David Tinarwo (University of Venda – second from right), Mr David Mahuma (SANEDI – extreme right).

SANEDI has partnered with the University of Venda (UV) to expand the reach of its biogas initiatives, drawing lessons from past experiences. The community Biogas Training and Development Project in Chavani, Limpopo under the partnership between SANEDI and the UV is also progressing well, with training workshops and awareness programmes reaching 26 youth of which 15 were female. This was followed by the construction of the Anaerobic Biogas projects in selected areas.



Image 19: Visit to 8 cubic metre digester beneficiary Mr Khosa in Magoro with Mr Collins Chabane by the project team in the company of a representative of the funding organization, Mr Riaz Hamid of SANEDI.

Application of the developed Policy and Industry Instruments

“A Guideline to Plan and Implement Micro-Digester Projects in South Africa” developed by SANEDI in the previous financial year is being extensively used by the Chavani and UKZN as a guide for implementing new biogas projects.

Training and Skills Development

The Waste to Energy projects have a developmental and energy access service potential. In addition, a further number of participants have been trained in the building, operation and maintenance of the biogas systems.

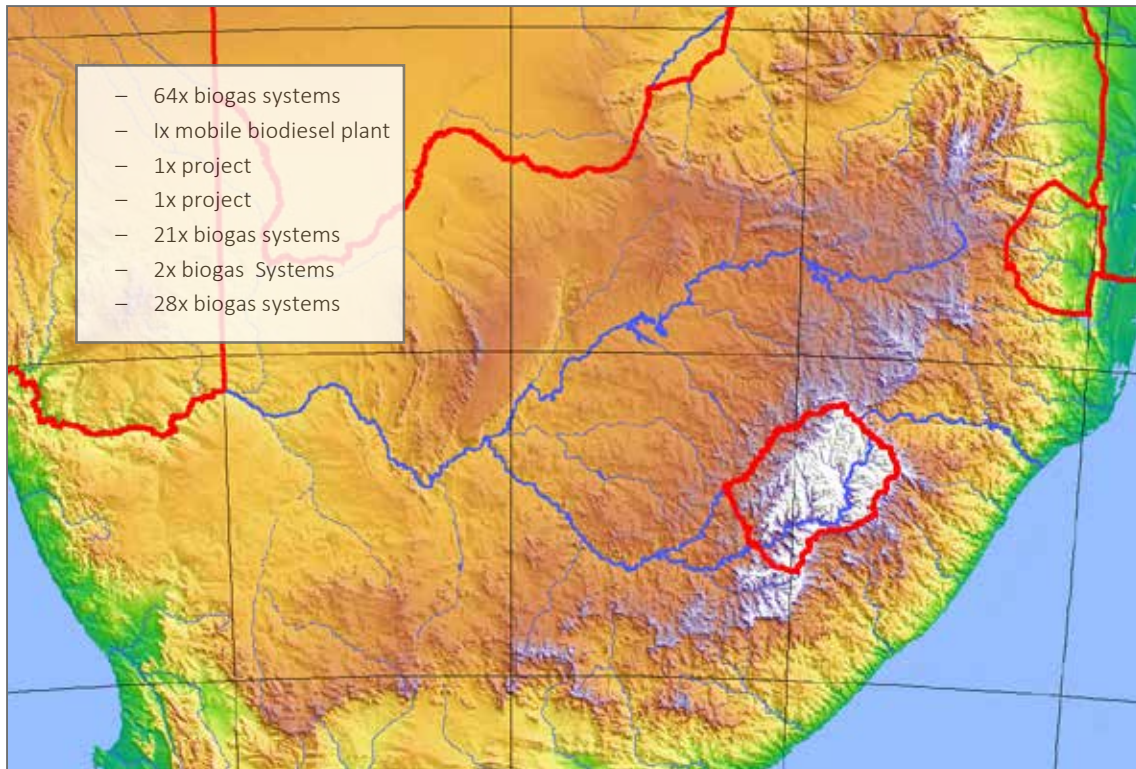


Figure 6: Working for Energy Projects across the country.

In addition, training on waste cooking oils to biodiesel production process was conducted. Several initiatives under the GDARD are underway in women, and youth capacity building. Under the UV, 20 individuals were trained (15 from Vatsakame and 5 from BBI) in the biogas industry. Under the BBI partnership, the programme trained over 120 individuals on the bio-energy sector. A number of awareness and education programmes have been conducted nationally, with various partners reaching over 2000 participants.



Image 20: University of Venda students and lectures together with project trainees.

JOB OPPORTUNITY CREATION

SANEDI has been supporting the DMRE in the Environment and Culture Sector of the National Sector Coordinating Committee of the Expanded Public Works Programme (EPWP), with a view to optimize the contribution of the energy sector towards poverty alleviation and job creation. During its execution, the programme has created 20 job opportunities, in Limpopo and KZN, mainly in the biogas development related sector.



Image 21: Trainees finalising the construction of the compost pits for a 12 cubic metre digester constructed at Manjonjo Farm in Magoro.

ENTERPRISE DEVELOPMENT

Vatsakame is a woman led NPO borne out of the Gawula biogas project, and is well established following the training and capacity building programme under the UV, UNIDO and SANEDI collaboration, and is currently implementing all the new biogas projects in the Chavani and Mhinga villages. A total of 9 digester systems were built by Vatsakame in the Chavani village, with a capacity ranging from 6-24 m³.



Image 22: An 18m³ Biogas digester built by Vatsakeme NPO under the UNIVEN-SANEDI partnership to support an emerging farmer with domestic and agro-processing functions in Chavani.

By the end of the reporting period, the biogas systems had been completed and tested. They were being inoculated and fed for biogas production. The NPO

will also be instrumental in the resuscitation and operationalisation of the restructured Gawula biogas operationalisation projects. In the forthcoming year, the role of the community-based organisations in job creation and poverty alleviation, will be increased along the clean energy projects under the Programme.

- **University of KwaZulu-Natal (UKZN)**

Support of Academic Research

The SANEDI projects have been extensively used by university students, to further the knowledge base development in the bio-energy and related fields. Four students from University of KwaZulu-Natal (UKZN) have researched various aspects of the Ndwedwe, Kwa-Maphumulo and KwaXimba biogas and greening projects in their Masters' thesis. These are as follows:

Karina Chetty

Karina Chetty is a M.A. candidate in Development Studies. Her research explores traditional forms of re-use for household food waste, including applications for domestic animal feedstock and biogas potential.

Simlindile Zuma

Simlindile Zuma is a M.A. candidate in Development Studies. Her research explores household waste perceptions, including traditional forms of re-use and the identification of potential biogas feedstocks. She completed her fieldwork at the Ndwedwe households over the course of December 2019, and is currently recording her findings.

Snegugu Ngcece

Snegugu Ngcece is a M.A. candidate in Development Studies. Her research explores rural energy aspirations at a household level. She completed her fieldwork at the Ndwedwe households over the course of December 2019, and is currently recording her findings.

Gisella Reale

Gisella Reale is an MComm candidate in Leadership Studies. Her work examines institutional barriers to biogas provision in South Africa. Her research proposal has been accepted and she has begun her investigation.

In the same vein, the post graduate students at the UV are working on the Mpfuneko Biogas projects, and are instrumental in the development of the Chavani and Mhinga biogas projects.



A UKZN student working and studying in the refurbishment of the digesters in iLembe developed by the Working for Energy (WfE), achieved a cum laude in his Master's thesis on digester optimisation research. SANEDI is working with universities to establish the potential for mass job creation, energy supply and enterprise development in the bioenergy space.

Programme supported 7 contracted researchers (5 from UKZN and 2 from UniVen).

- **University of Johannesburg**

The Programme has concluded the partnership agreement with the University of Johannesburg (UJ), to assess the impact of SANEDI's bio-energy programme in South Africa, and to develop a roadmap for the most commercially viable segment of the micro biogas sector.

While project implementation is expected to be hampered in the early phases of the new financial year by the COVID-19 pandemic, the changing market conditions will allow SANEDI an opportunity to adapt the development of this intervention to the new, and uncertain reality of the South African economy going forward.

CLEANER MOBILITY

The Cleaner Mobility Program assisted the City of Johannesburg to secure technical assistance from the C40 FSCI for conducting a feasibility study for Electric Buses

The Cleaner Mobility (CM) program continues to undertake research and development in the South African transport sector, within its current limitation of scope and allocated budget. Notwithstanding these limitations, the program is positioned to offer a strategic solution for the country's energy security risks, contribute to balance of payment savings, transport EE improvements, economic development and climate change.

The work done by the CM program during the year, has resulted in the approval by Financing Sustainable Cities Initiatives (FSCI) of the City of Johannesburg (CoJ) application, for technical assistance for the CoJ Electric Bus feasibility study. The FSCI has initiated work for the first draft of the work plan for the feasibility study, which will be submitted to the CoJ and SANEDI in April 2019

for review and approval. The CM program is formulating partnership agreements with the other 3 metros, with the intention to undertake similar feasibility studies. The feasibility studies undertaken will form the basis for development of bankable business cases for large rollout of electric busses on the municipalities public transport network.

In addition, year ending in March 2020, the CM program in partnership with the The United Nations Industrial Development Organisation (UNIDO) LCD SA has made significant progress in the following areas:

- At a national level, improvement of policy and regulatory frameworks for EVs and bicycle use, local manufacture of EV and Non-Motorised Transport (NMT) components and institutional capacity building and awareness,
- At the demonstration level, promotion of Non-Motorised and Public Transport in the cities, development and demonstration of supporting infrastructure for EVs, and
- Monitoring and Evaluation.

The major challenge for the CM program, is the limited financial resources due to the scope of work covered by the program. The program will continue to leverage resources from other Government institutions, donor agents and private sector partners, to achieve its objectives of contributing towards the development of a sustainable clean mobility sector in South Africa. However, the envisaged transition by major cities to SMART cities, presents vast opportunities for the CM program to provide value, and funding generating technical and advisory services phases to the cities.

- **Capacity building**

The UNIDO LCT Project under the CM program organised and sponsored a trip for South African delegates to participate at the 32nd international Electric Vehicle Symposium (EVS 32) in Lyon, France from 18-22 May 2019. The delegation comprised of 14 officials from SANEDI, UNIDO, ESKOM, DoT, CoJ and City of Cape Town (CPT). The primary purpose of the symposium, was to build institutional capacity and knowledge transfer of internationally recognised industry best practices in the cleaner mobility sector for South African Stakeholders. The key areas of benefit for the delegation were on:

- Institutional arrangement and policy development for a sustainable EV industry,



- Selection and application of best practices to encourage uptake of Electric Mobility (EM),
- Development of incentive schemes for EV infrastructure development, and
- Latest international development in EM.

12.1.2 Programme 3: Energy Efficiency

SANEDI processed 43 certified 12L incentive projects with a massive 7 046 493 951 kWh energy savings impact for the year

INDUSTRIAL ENERGY EFFICIENCY PROJECT

A contract was finalised between the UNIDO and SANEDI for certain components of a larger GEF-funded Industrial Energy Efficiency (IEE) project, to be implemented by SANEDI on behalf of the DMRE. This research project, primarily involves undertaking detailed EE related research into the Automotive and the Pulp and Paper industry sectors in South Africa. The contract was originally due for completion by 31 December 2020, but a 1-year, no-cost extension on the contract was approved by the funders, as a result of various delays in kicking-off the contract, not least of which includes disaster measures associated with the global COVID-19 pandemic.

Furthermore, SANEDI was tasked with fulfilling the Monitoring and Evaluation (M & E) component of a 5-year international National Appropriate Mitigation Action (NAMA-facility funded), project in public facilities across all 3 tiers of Government, referred to as the Energy Efficiency in Public Buildings and Infrastructure Programme, (EEPPIP). In preparation for the roll-out of this project, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), through the internationally-funded V-CLIM Facility, agreed to source and fund the services of an industry expert to harmonise all current Measurement and Evaluation (M & E) standards and protocols in the country, and to develop an appropriate protocol for this activity in South Africa. The procurement process for this service was successfully concluded, followed by various engagements with the appointed Service Provider and representatives from key Stakeholders in this area, including the DMRE, the Department of Environment, Forestry and Fisheries (DEFF) and the Department of Public Works

and Infrastructure (DPWI). A detailed and integrated Workplan was developed for this critically important task, including the drafting of a specification for an automated M & E - system for this project, to be hosted by SANEDI.

IMPACT OF THE SECTION 12L ENERGY EFFICIENCY TAX INCENTIVE

Section 12L as stated in the Income Tax Act, is an allowance given to any commercial business or trading entity, that can show measured and verified energy savings that have been attained over a period of 12 consecutive months. Section 12L of the Income Tax Act became effective in November 2013 at a rate of 45c/kWh, which was later increased to a rate of 95c/kWh from March 2015 for verified energy savings over a period of 12 consecutive months. SANEDI administers the entire process for this EE tax incentive, and can report that as at the end of March 2020, the verified savings figure is 24 839 734 650 kWh, i.e. from inception in November 2013 to the end of this reporting period at 31 March 2020.

It is interesting to compare this EE impact in relation to the impact of the Renewable Energy Independent Power Programme (Wind, PV and CSP), which is approximately 3 800 MW installed capacity in South Africa, according to the Integrated Resource Plan of 2019. If the above mentioned EE kWh figure is divided by the 8760 hours of a year, an impact of 2 836 MW avoided capacity would result. If the operational hours per day, are reduced for non-operational hours to 18 hours per day, and 20 days per year are deducted for maintenance and emergency shut-downs or the festive season, the result would be 4 000 MW of avoided capacity.

This illustrates the significant impact that the savings from the Section 12L tax incentives has played on the grid, in relation to the installed capacity of RE programme in South Africa. It is therefore, imperative to note the impact from this EE tax incentive and the RE program, which collectively, are contributing to the stabilization of the national electricity grid, especially in the current situation of restricted generation capacity in the country.

For the financial year, April 2019 to March 2020, SANEDI processed 43 certified 12L incentive projects with a massive 7 046 493 951 kWh energy savings impact for the year. This represents an increase of 44% from the previous financial year, and the avoided (CO₂) emissions totaled 6 976 029 t with a rebate value of R 6.65 billion.



The Section 12L tax incentives programme, shows a steady growth on the certified energy impacts and avoided (CO₂) emissions from inception to date. The years 2016- 2018 showed the greatest growth, where a total of 67 Section 12L tax certificates were issued in the 2018 year. The graphs below show the cumulative energy impacts and growth from inception to date.

Table 3: Energy Impacts per Standard Industrial Classification

SIC	Projects	Energy Impact [kWh]	12L Incentive [R]	CO ₂ Emission [t]
Accommodation	3	26 598 532	12 479 161.55	26 333
Administrative	1	24 599 946	11 069 975.70	24 354
Agriculture	3	10 559 121	10 031 164.95	10 454
Arts, Eng.	1	923 140	876 983.00	914
Electricity	2	222 443 499	211 321 324.05	220 219
Financial	1	1 532 716	1 456 080.20	1 517
Health	10	15 451 007	14 678 457.14	15 296
Manufacturing	72	9 272 805 880	8 293 122 192.90	9 180 078
Mining	70	15 020 482 915	11 162 969 847.28	14 870 278
Real Est.	3	508 240	482 827.10	503
Transportation	11	124 465 408	122 234 300.95	123 221
Wholesale	18	119 364 246	113 396 032.90	118 171
Grand Total	195	24 839 734 650	19 954 118 347.72	24 591 337

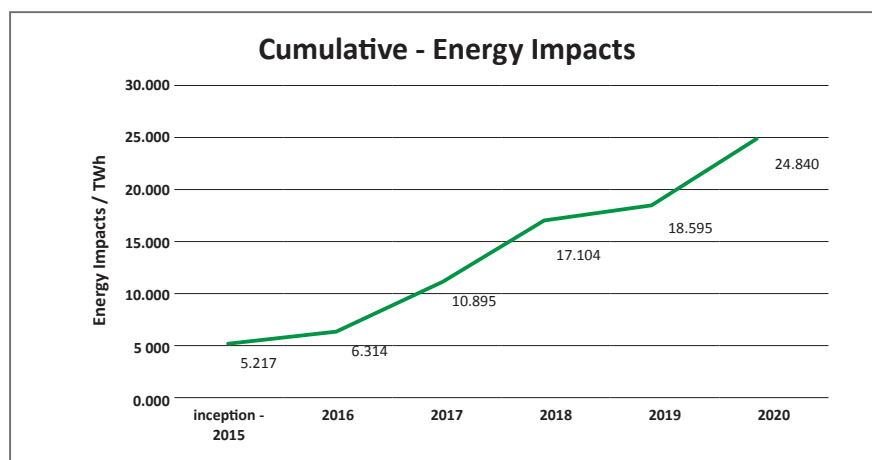


Figure 7: Cumulative Energy Savings Impact

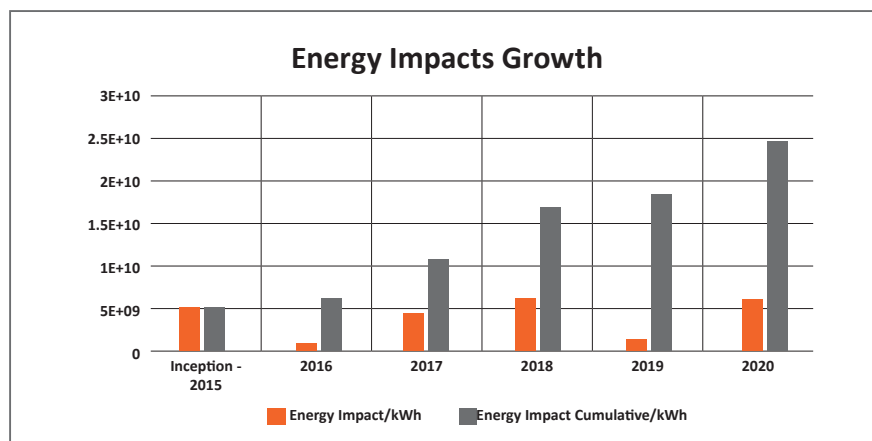


Figure 8: Energy Savings Impact Growth



It is important to note that, based on the successful implementation of this incentive by SANEDI, NT have extended the Section 12L Regulations to 31 December 2022.

Furthermore, SANEDI was able to officially launch a newly-developed Automated Measurement and Verification (M & V) Tool, which accurately calculates the precision and uncertainty of the data submitted to evaluate Section 12L submissions. The initial development of this tool was funded to the tune of R1.2 million by GIZ and handed over to SANEDI for implementation, together with new Section 12L tax applications.

A further positive development, was SANEDI being invited as a guest speaker at the South African National Accreditation System (SANAS) Annual Regulators Meeting, the National Cleaner Production Centre (NCPC) Annual Conference and the Annual Hospitality Forum, to present on the Section 12L tax incentives and Energy Performance Certificates (EPCs), respectively.

The IEA also hosted an EE training week for Sub-Saharan Africa countries from 14 to 17 October 2019 in Pretoria, South Africa and SANEDI (Energy Efficiency), were invited to present the Section 12L tax incentives in the Industrial Workstream of the training. The presentation was well received, as this is still the first tax incentive worldwide that is based on an energy (kWh) rebate and not on an asset value.

On 5 February 2020, Ms Karina Hedemark, Deputy Ambassador from the Danish Embassy in Pretoria, approached SANEDI to host a delegation from the Danish Parliamentary Portfolio Committee (PPC) on taxation and to present to them, information on Green Tax Incentives and Carbon Tax. The delegation led by the Danish Ambassador and the Chair of the Portfolio Committee, together with 15 members, visited SANEDI on 3 March 2020, and were appreciative of the presentations they received on SANEDI's work in general and the Section 12L and 12I EE tax incentives in particular.

ENERGY SERVICE COMPANY (ESCO) MARKET DEVELOPMENT

A national Energy Service Company (ESCO) Register was initiated between the DMRE, SANEDI and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in 2017. The objective of the ESCo register is to contribute to the development of the ESCo market in South Africa. The ESCo's selected are classified into various categories (from partial (Tier 2), to full classification (Tier 1)), in terms of their competencies, size and experience. In

addition, incubation and capacity building measures were designed and offered to the various ESCo categories in an ESCo Market Development Roadmap. The aim is to improve the quality of ESCo's operating in the market, in order to improve the quantity and quality of projects implemented, and to build a resilient energy services sector, capable of supporting a transition to a low carbon economy and furthermore, to support capacity building for smaller companies in the market.

The 2019/20 Register was updated through a national published Request for Submissions. A preliminary evaluation of submission shows that, the number of participating companies increased from 58 to 87 and the amount of fully classified Tier 1 ESCos increased from 14 to 28, the amount of partially classified Tier 2 ESCos decreased from 24 to 19, indicating that smaller companies have indeed managed to progress to Tier 1. There is also a number of emerging Tier 3 companies on the register.

In total, the ESCo Register comprises of 87 qualified ESCos, offering various services in the field of EE and RE. Those qualified ESCos have a footprint in all 9 provinces and have expertise in the following technologies: LED for Public Lighting, Building Lighting, High efficient HVAC, High efficient water heating systems, High efficient steam boilers/systems, High-efficient motors and pumps for fresh and waste water, Waste Water Processes, Cogen, Biogas, Energy Management and Smart Metering, Small Scale Solar PV Systems. In the Residential sector: Commercial, Light Industry, Heavy Industry/Mining and Public Infrastructure/Municipal sectors.

The following additional services are also offered by these registered ESCo's: Energy Auditing, M&V of EE Savings, Engineering Design, Project Implementation, Energy Management, Issuing of Energy Performance Certificates, Energy Performance Contracts, Financing of Energy Projects and a full ESCo Offering, (provision of energy services and financing).

Given the current state of play in the South African energy market, and taking into account findings from previous activities, this activity presents an important opportunity to initiate a long-term, structured program to ensure the development of a thriving and representative ESCo industry. ESCo development is not an end, but rather a means to achieve the EE targets foreseen in the draft National Energy Efficiency Action Plan, (NEEAP). This requires that ESCos are fully capacitated to undertake the investments necessary to achieve these targets and objectives. Developing ESCos and its market, are also



regarded as a potential effective tool to achieve South Africa’s economic transformation agenda.

Furthermore, a successful inter-governmental workshop on EE in public buildings and infrastructure was hosted by the DMRE on 7 and 8 October 2019 in Pretoria, attended by many Government departments, agencies and donor organisations. SANEDI (Energy Efficiency), participated in the 2-day event, and presented our work relating to the ESCo Market Development, with a focus on the national ESCo Register.

SUNREF (SUSTAINABLE USE OF NATURAL RESOURCES AND ENERGY FINANCE)

SANEDI has hosted the Technical Assistance Facility (TAF) of the Sustainable Use of Natural Resources and Energy Finance (SUNREF) South Africa (Phase II) programme since 2017 and continued to fulfill this role in 2019. For background, SUNREF, is a global programme implemented by the French Development Agency, AFD (Agence Française de Développement). Its objective is to assist banks in funding energy transition projects, through the removal of barriers specific to the context they operate in. In South Africa, the programme specifically targets RE and EE projects. It has 2 elements, a concessionary debt credit line to the Industrial Development Corporation (IDC) as local partner bank, and the grant-funded TAF, which supports the IDC in reviewing a portfolio of potential energy transition projects, and also develops capacity-building activities for the IDC and SANEDI.

The relationship had been a mutually supportive one. SANEDI has through its network, been able to pass on several prospective projects to be considered for funding by the IDC, using the SUNREF facility. In cases where the IDC is not the appropriate funder, the TAF has been able to advise on other sources of funding to keep project proposals moving forward. What these engagements have shown, is that companies lack an understanding

of what stage of development they are in, and what type of funding they need at a specific point. The TAF has developed a better understanding of the incentives available for projects, specifically the 12L tax rebate, through its interactions at SANEDI. This has meant that project developers applying for SUNREF funds, have been made aware of the availability of 12L, its potential value to a project and how to apply for it.

SANEDI has recognised in its planning, that it needs to continually build its internal capacity to support the implementation of 12L, and the Measurement and Verification (M&V) roles it is being required to fulfill in several Government projects, which will ultimately lead to investments in EE projects. It therefore applied, and obtained approval, for SUNREF funds to support the running of a locally presented and internationally accredited certified course on M&V for SANEDI staff. This is an example of the positive relationship that has developed between SANEDI and the SUNREF programme since its inception. This will continue in 2020, as SANEDI continues to host SUNREF through its extension until the end of the year.

COOL SURFACES PROGRAMME

Cool roof technology is an inexpensive, effective, energy-passive, low-technology cooling intervention, which allows less heat into a building and makes non-air-conditioned homes, warehouses and other buildings much cooler. The deployment of reflective materials creates sustainable jobs and skills opportunities for low-skilled workers, in both rural and urban contexts. By minimising the heat gain from solar energy absorbed by buildings, reflective building surfaces reduce the demand for cooling energy for those that can afford it, while also providing a sustainable passive cooling solution for the billions of people who do not have the economic means to access mechanical cooling options, as per the diagram below.

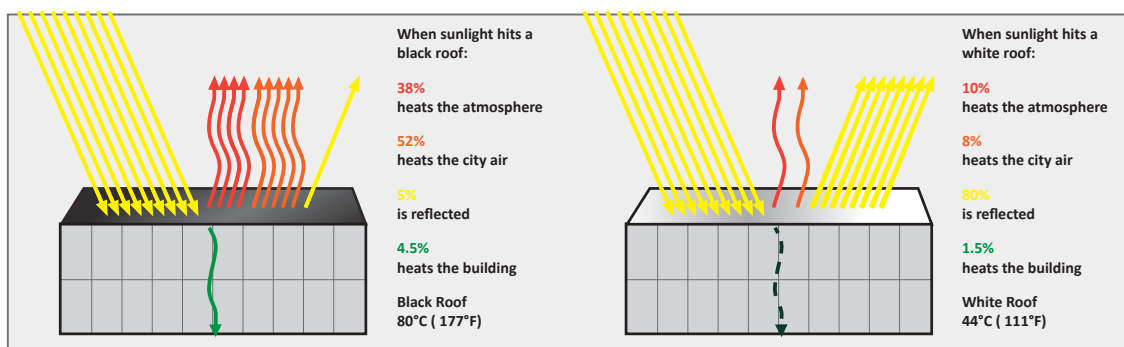


Figure 9: Roof cooling options



In support of this innovative, low-cost technology, SANEDI rolled out a low-cost housing project in Groblershoop in the Northern Cape, which saw a total of 27 500m² residential homes being coated, benefitting an estimated 2 310 people, as well as two schools, a day-care centre and two municipal offices.

Furthermore, significant progress was made in finalising project implementation agreements for the implementation of Cool Surface projects in various DoD facilities, three Sharpeville schools and the City of Cape Town, who are eager to research the implementation of this technology in a medium-sized informal settlement in the city. The latter will be funded through the R1,6 million international Boost Award received by SANEDI in December 2019.

Based on this work and as part of the international 1 Million Cool Roofs Challenge*, SANEDI submitted an entry and was one of ten global finalists to be awarded a \$100 000 grant at a gala function in New York, USA in December 2019, to deploy solar reflective coatings and/or materials on rooftops in South Africa in the coming year. The large cash prize, is a strong indication of the conviction that the organisers have on the ability of cool surfaces to address environmental, and socio-economic concerns in a country like South Africa.

Using the winnings from this prize, together with SANEDI's own resources, SANEDI will be implementing cool roofs projects together with local municipalities, to scale cool roof coatings in the country, effectively coating 25 000m² of roof area in each of the municipalities selected. The minimum number of buildings to be coated, is calculated on the average RDP standard building plans, which is usually 40 to 50m² per roof. Based on the past project's numbers, this completed project should benefit an estimated 500 dwellings and 385 extensions and backyard additions, making a difference to the lives of many impoverished people in the country.

From these ten global finalists, the team that subsequently demonstrates the best sustainable and transferable model for the rapid deployment of cool roofs in 2020, will be awarded a further \$1 million prize for the implementation of this technology in their specific country.

* **A project of the Kigali Cooling Efficiency Programme (K-CEP) in collaboration with the Global Cool Cities Alliance, the United Nations' Sustainable Energy for All (SEforALL) programme and Nesta's Challenge Prize Centre.**

In addition, and at the request of GIZ, and based on the extremely positive media coverage of SANEDI's Cool Roofs Programme in Engineering News and other media in the latter part of 2019, a meeting was held at the GIZ-offices in Hatfield, Pretoria on 22 January 2020, to explore ways in which they can contribute to this project. The meeting resulted in the South African-German Partnership agreeing to procure the services of an expert in the built environment, to analyse and document the results of two separate Cool Surfaces pilot projects in KZN on behalf of SANEDI, and a technical expert was appointed for this task, with an inception meeting between all Stakeholders taking place on 25 March 2020. SANEDI is also encouraged by GIZ's offer of potential additional financial and technical support for the Cool Surfaces project in South Africa, going-forward.

12.2 Programme 1: Administration

PLANNED	ACHIEVED	%
7	5	71%

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:

- Human Resources (HR),
- Information and Communication Technology (ICT),
- Corporate Services,
- Finance,
- Procurement, and
- Communications.

12.2.2 Sub-programmes

The Administration programme is comprised of the following sub-programmes as defined in the 2019/20 Annual Performance Plan (APP):

- Human Resources - which deals with all staff related matters including recruitment, payroll administration, skills development and employee wellness,
- Finance - which deals with procurement, financial administration and reporting,
- Corporate Services - which incorporates all activities related to the Board and Board Committees, Secretariat services, Strategic Planning and Logistics,



- Information and Communication Technology, and
- 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.	An effective and efficient internal control environment (unqualified audits), 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 Effective Risk management and effective and comprehensive Stakeholder management.

12.2.4 Strategic objectives, performance indicators planned targets and actual achievements

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 1: Administration					
1.1 An effective and efficient internal control environment.					
Unqualified audits.	Achieved. Unqualified audit.	Unqualified audit.	Unqualified audit.	N/A	N/A
1.2 A team that is adequately staffed, adequately skilled and trained and adequately representative of the national demographics.					
Vacancy rate of funded positions.	Not achieved.	5%	7%	2%	This is due to the fact that 5 people resigned from their positions from Jan – March 2020.
1.3 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).	Achieved. 80% Personnel trained as per WSP.	80%	80%	N/A	N/A
1.4 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.	Achieved. Maintained less than 5% deviation from the approved Employment Equity (EE) targets.	<5%	<5%	N/A	N/A
1.5 Effective risk management on risk areas affecting SANEDI.					
Percentage 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.	100%	100%	N/A	N/A

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
1.6 Effective and comprehensive Stakeholder management.					
Percentage implementation of Stakeholder Engagement Plan (SEP).	Achieved. 75% of CSEP has been implemented.	75%	75%	N/A	N/A
1.7 An effective and efficient internal control environment.					
Percentage implementation of corporate ICT plan.	Achieved. 98% of the corporate ICT plan implemented.	80%	94%	14%	This is due to a supplier that has committed more resources, and the project was finalised before as stated in the project plan.

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:

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

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 2: 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 cleaner mobility 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.	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

PLANNED	ACHIEVED	%
37	32	86%

The first three columns are as reflected in the approved 2019/20 APP. Achievement against these targets is reflected in the last three columns.

CLEANER FOSSIL FUEL

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
2.1.1 Number of energy solutions assessed (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Achieved. 3 Energy solutions assessed: Surface & Groundwater, Soil CO ₂ and Atmospheric CO ₂	3	4	Exceeded target	Ecosystems was an extra protocol included during the year.
2.1.2 Number of annual energy industry status reports (Insights, trends, international and national collaboration decisions, interfacing and forums).	Achieved. 1 Annual energy industry status report, and CFF input into Annual Energy Industry Status report. .submitted	1	1	N/A	N/A
2.1.3 Minimum number of energy-related datasets maintained per annum.	Achieved. 1 Energy related dataset maintained.	1	1	N/A	N/A
2.1.4 Number of research reports provided.	Achieved. 2 Research reports submitted: Carbon Mineralisation for CO ₂ emissions Research Report, and CCS Implementation.	1	3	Exceeded target.	The requirement for the 2 Road Maps arose during the year.



12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in (Own hosted, attended, knowledge presented, supported.).	No Target – this is a bi-ennial event. Not applicable.	1	1	N/A	N/A
2.2.4 Number of recipients of energy-related training facilitated.	Achieved. 624 Recipients received energy related training.	150	1814	Exceeded target.	More applications were received than expected. Rather than omit somebody, all were accepted.
2.2.5 Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	Not achieved.	2	2	N/A	N/A

RENEWABLE ENERGY

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
2.1.1 Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Achieved. 3 Energy solutions assessed namely: Potential of Solar Heat for Industrial Processes, SAWEP 2 study report on the specifications of Small Scale Wind Energy Pilot, and Draft Energy Research Review submitted to DSI (previously DST).	1	1	N/A	N/A

12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
2.1.2 Number of annual Energy Industry Status reports (Insights, trends, international and national collaboration decisions, interfacing and forums).	Achieved. 1 Annual energy industry status report, and RE component of annual insight publication submitted.	1	1	N/A	N/A
2.1.3 Minimum number of energy-related datasets maintained per annum.	Not achieved. 2 Dataset maintained namely: WASA wind dataset, and Servelec Database maintained (NMBM).	1	3	Target exceeded	Additional resources emerged
2.1.4 Number of Research Reports provided.		3	0	3	There were no resources to achieve the target
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.1 Number of policy support instruments. (Industry roadmaps, sector development plans and industry support tools, etc.).	Achieved. 4 Policy support instruments namely: Policy Brief on Promoting Market-Based Deployment of Clean Energy Technologies and Services in Municipal Waterworks, Solar Heat for Industry Processes South Africa, Best Practice Guide on Climate Change, Clean Energy, and Urban Water in Africa, and 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	1	1	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 Solar Payback Policy Workshop held.	3	6	3	Over-achieved due to additional resources.

12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
2.2.3 Number of commercially viable cleantech solutions progressed to active business incubation and/or deployment.	Achieved. 1 Commercially viable clean-tech solution progressed to active business incubation.	1	1	N/A	N/A
2.2.4 Number of recipients of energy-related training facilitated .	Achieved. 107 Recipients received energy-related training.	85	236	Not fully achieved due resource constraint.	To close the gap during 2020/21 when there is a need.
2.2.5 Number of energy-related research students / contracted researchers supported (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	Achieved. 1 Energy-related research student was supported.	1	0	The funding was extended to DBREV, however no research student was contracted or extended.	To close the gap during 2020/21 when there is a need.
2.2.6 Number of RE technologies deployed.		1	2	1	2 energy technologies were developed.

SMART GRIDS

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
2.1.1 Number of energy solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Achieved. 4 Energy solutions assessed namely: Design Consideration of South African residential distribution systems containing embedded generation, Naledi Local Municipality revenue enhancement case study, Thabazimbi Local Municipality case study, and Review of planning methodologies used to determine optimal generation of capacity mix.	5	5	N/A	N/A



12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
2.1.2 Number of annual energy industry status reports (Insights, trends, international and national collaboration decisions, interfacing and forums).	Achieved. 1 Energy industry status report, and Smart Grid component of Annual Insight publication submitted.	1	1	N/A	N/A
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.1 Number of policy support instruments. (Industry roadmaps, sector development plans and industry support tools, etc.).	Achieved. 1 Policy support instrument SG policy support on The South African Distribution Industry.	1	1	N/A	N/A
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in. (Own hosted, attended, knowledge presented, supported.)	Achieved. 5 (SASGI) Energy-related knowledge sharing events held.	5	4	1	Lack of attendance at SASGI sessions due to travel constraints for Municipal officials. Municipal officials are unable to travel to attend 2 SASGI sessions in one (1) quarter. The 4th Quarter SASGI session was scheduled to take place on the 19th March 2020, however due to the outbreak of the Coronavirus the session has been postponed."
2.2.4 Number of recipients of energy-related training facilitated.	Achieved. 60 Recipients received energy-related training.	60	77	17	We managed to provide training to more participants because the 3rd training was moved online and therefore more people were able to attend the training.
2.2.5 Number of energy-related research students / contracted researchers supported. (e.g. Bursaries, non-bursaries, contract opportunities, infrastructure support, etc.).	Achieved. 6 Energy-related research students were supported.	4	7	3	Additional resources emerged

12.3 Programme 2: Applied energy research, development and innovation (continued)

DATA AND KNOWLEDGE MANAGEMENT

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
2.1.3 Minimum number of energy-related datasets maintained per annum.	Achieved. 3 energy-related datasets maintained, namely: SATIM Database on Transport Updated, Energy-Economic model Development & Database, and GIS dataset for the hydrogen fuel cell deployment for map creation was updated.	3	3	N/A	N/A
2.1.4 Number of Research Reports provided.	Achieved. Research Reports provided namely: An energy-economic critique of electric vehicle penetration in South Africa with emphasis on passenger vehicles, Combined system-wide value of sectoral electrical demand flexibility in South Africa's integrated energy system: an application in SATIM, TEMPO – Techno-Economic Minigrid Planning and Optimization: A flexible open-source model applied for rural electrification in South Africa using hybrid mini-grids including hydrogen storage, and Flexible Demand in South Africa's Energy System – Addressing System Modelling Needs and Challenges.	3	3	N/A	N/A

12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement	Deviation from planned target	Comment on deviations
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.1 Number of policy support instruments. (Industry roadmaps, sector development plans and industry support tools, etc.).	Achieved. 1 Policy support instrument developed, and 1 Map book showcasing unelectrified rural areas to deploy hydrogen fuels & EE technologies supporting DMRE was developed.	1	1	N/A	N/A
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in. (Own hosted, attended, knowledge presented, supported).	Achieved. 3 Energy-related knowledge sharing events held: NRS Workshop, EE Modelling and Policy Impact Workshop, and ERC and SANEDI Transport Modelling Workshop.	1	1	N/A	N/A

CLEANER MOBILITY

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
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. 4 Energy solutions assessed namely: Green Technologies Dialogue Report, Study report to contribute to the development of DoT's Green Transport Strategy, Initial feasibility study (in collaboration with DBSA, CoJ, Tshwane and eThekweni Municipality) for rollout of electric buses in 3 Metros, and National Cycling Strategy.	3	3	N/A	N/A

12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
2.1.2 Number of Annual Energy Industry Status reports. (Insights, trends, international and national collaboration decisions, interfacing and forums).	Achieved. 2 Annual Energy Industry Status reports submitted namely: CM component into SANEDI annual Insight publication, and The Annual EVIA publication: Electro Mobility Africa was published. SANEDI works in partnership with UNIDO in the publication.	1	0	1	Annual EVIA publication and conference postponed due to lack of funding from partner organisations.
2.1.3 Number of Research Reports provided.		1	1	N/A	N/A
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in. (Own hosted, attended, knowledge presented, supported).	Achieved. 2 Energy-related knowledge sharing events namely: USiA workshop, and Policy workshop on Eco mobility and NMT.	1	1	N/A	N/A
2.2.4 Number of recipients of energy-related training facilitated.	Achieved. 57 Recipients of energy-related training.	6	17	Exceeded by 11.	Additional trainees in need emerged.

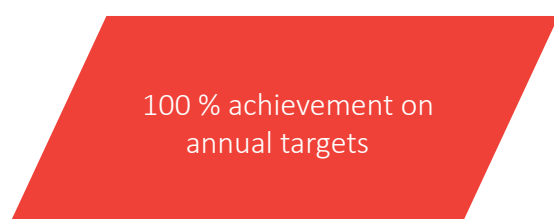
WORKING FOR ENERGY

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 2: Applied energy research, development and innovation					
Strategic Objective 2.1: Energy-related support, information and advice to inform high confidence energy planning, decision-making and policy development.					
2.1.1 Number of energy solutions assessed . (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).		2	2	N/A	N/A

12.3 Programme 2: Applied energy research, development and innovation (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
2.1.2 Number of Annual Energy Industry Status reports (Insights, trends, international and national collaboration decisions, interfacing and forums).		1	0	1	Moratorium on WfE contracting resulted in non-achievement of target. The UJ Contract on the assessment of the WfE Impact and the roadmap for Bioenergy development contract was withheld for over 5 months in anticipation of the closing down of the WfE Programme, midterm by the Board's decision.
2.1.3 Number of Research Reports provided.		1	0	1	There were no resources to achieve the target
Strategic Objective 2.2: Accelerated transformation to a less energy and carbon intensive economy					
2.2.2 Number of energy-related knowledge sharing events / platforms engaged in. (Own hosted, attended, knowledge presented, supported).		4	4	N/A	N/A
2.2.4 Number of recipients of energy related training facilitated	Not Achieved. No energy related training was conducted.	15	34	19	More trainees emerged

12.4 Programme 3: Energy Efficiency (EE)



12.4.1 Purpose

The purpose of SANEDI's 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:

1. Supporting the implementation of EE interventions with technical assistance,

12.4 Programme 3: Energy Efficiency (EE) (continued)

2. 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
3. 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.	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.

12.4.4 Strategic objectives, performance indicators planned targets and actual achievements

PLANNED	ACHIEVED	%
7	7	100%

The first three columns are as reflected in the approved 2019/20 APP. Achievement against these targets is reflected in the last three columns.

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
Programme 3: Energy Efficiency					
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					
3.1.1 Number of EE solutions assessed. (Advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities).	Achieved. 1 EE solution assessed: - Report on the IEA Annual Global Energy Efficiency Conference, with recommendations for South Africa.	1	2	Exceeded target by 1.	Unexpected approval received from an additional 12L tax incentive beneficiary, to produce public Case Studies, and 1 Golden Arrows Bus Company 12L Case Study 1 x Harmony Gold Mine 12L Case Study.



12.4 Programme 3: Energy Efficiency (EE) (continued)

Performance Indicator	Actual Achievement 2018/19	Planned Target 2019/20	Actual Achievement 2019/20	Deviation from planned target	Comment on deviations
3.1.2 Number of EE solutions implemented. (12L, 12L, AFD support projects, cool roofs).	79 EE solutions were implemented .	56	74	Exceeded target by 18.	Increase in EE tax incentives, because of SANEDI presentations at Industry Knowledge events.
3.1.3 Number of Annual EE Industry Status reports. (Insights, trends, international and national collaboration decisions, interfacing and forums).	Achieved. 1 EE sector contribution developed for annual SANEDI Insight publication.	1	1	N/A	N/A
3.1.4 Number of EE datasets maintained.	Achieved. 6 EE-related datasets maintained namely: - Section 12L database, - Section 12I database, - National ESCo Register, - Cool Surfaces Product database, - BigEE database, (limited), and - CRRC knowledge sharing platform.	6	6	N/A	N/A
3.1.5 Number of EE Research Reports provided.	Achieved. 1 EE research report provided, and iKheis Cool Surfaces Project.	1	1	N/A	N/A
3.1.6 Number of industry knowledge sharing events or platforms hosted to promote EE-related market /industry development.	Achieved. 13 Industry knowledge sharing events held.	11	12	Exceeded target by 1.	SANEDI was invited to various Industry Knowledge Sharing events to present on numerous EE related topics, but mainly centred on the Section 12L tax incentives.
3.1.7 Number of recipients of energy-related training facilitated .	Achieved. 282 Recipients received energy-related training.	100	181	Exceeded target by 81.	ICHEM/ University of Cape Town online/ Webinar lecture on Energy and Resource Efficiency- 94 participants.

PART C: GOVERNANCE



13. Introduction

South African State-Owned Entities (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 The South African National Energy Development Institute (SANEDI) has become an important component of the Board's oversight function. Parliament, the Executive Authority(EA) and the Accounting Authority (AA) of the public entity are responsible for Corporate Governance. As a public entity in terms of the Public Finance Management Act (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 PFMA, 1999 (Act No. 1 of 1999), 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 2019/20 financial year, SANEDI had no interaction with the PPC.

15. Executive Authority

The EA of SANEDI is the Minister of Mineral Resources and Energy (previously DoE). As per the compliance requirements, SANEDI submitted the following reports to the EA on the indicated dates:

Report
First quarter performance report for the period 1 April to 30 June 2019.
Annual Report (AR) for 2019/20.
First draft Strategic Plan (SP) for 2020/21.
First draft Annual Performance Plan (APP) for 2020/21.
Second quarter Performance Report for the period 1 July to 30 September 2018.
Second draft SP and APP for 2019/20.
Third quarter Performance Report for the period 1 October to 31 December 2019.
Final draft SP and APP for 2020/19.
Fourth quarter Performance Report for the period 1 January to 31 March 2020

16. The Accounting Authority / Board

16.1 Introduction

The Board is the governing body and AA 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 Minister of Mineral Resources and Energy (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 AR, Annual Financial Statements (AFS), APP and five-year SP, 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.

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 (NEA), are to:

- 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
- Appreciate that strategy, risk, performance and sustainability are inseparable and to give effect to this by:
 - Contributing to and approving the strategy,
 - Satisfying itself that the strategy and APP do not give rise to risks that have not been thoroughly assessed by management,
 - Identifying key performance and risk areas,
 - Ensuring that the strategy will result in sustainable outcomes, and
 - Considering sustainability as a business opportunity that guides strategy formulation.
- Provide effective and ethical leadership,
- 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 that business operations have on the environment and the society within which it operates,
- Ensure the Institute's ethics are managed effectively, and the Institute has an effective Social Justice and Ethics Committee,
- Ensure the Institute has an effective and independent Audit Committee,
- Be responsible for the governance of risk,
- Be responsible for Information Technology (IT) governance,
- Ensure the Institute complies with applicable laws and considers adherence to non-binding rules and standards,
- Ensure there is an effective risk-based internal audit,
- Protect and foster the Institute's image and reputation,
- Ensure the integrity of the Institute's Integrated Report (IR),
- Act in the best interests of the Institute by ensuring that individual Board Members:
 - Adhere to legal standards of conduct, and
 - Disclose real or perceived conflicts to the Board and to the Minister of Energy ("the Minister") and deal with them accordingly.
- Evaluate the performance of the Chief Executive Officer (CEO), and
- Impart knowledge and insights to SANEDI.



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 PFMA, Act No. 1 of 1999, 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:

- (i) The role, responsibilities, functions and powers of the Board, individual Board Members and the CEO and Management of the Institute,
- (ii) The powers delegated to various Committees of the Board, and
- (iii) 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:

- Chairperson,
- Deputy Chairperson,
- Representatives from the following Departments:
 - Mineral Resources and Energy (previously DoE),
 - Trade and Industry,
 - Science and Technology,
 - Environmental Affairs,
 - Tourism, and
 - Transport.

And two other suitably qualified persons.

In the 2019/20 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 Department of Mineral Resources and Energy (previously Department of Energy (DoE)) is in the process of rectifying this.



The Board consists of the following members:

Name	Designation	Date appointed/ re-appointed	Resigned/ Term ended	Qualifications	Board ⁵ Directorships	Other committees or task ⁶ teams	No. of meetings ⁷ attended
Mr Nkululeko Buthelezi	Interim Chairperson and FinCo Chair	01-Dec-16		Dip Scientific Computing and Software Engineering, Dip Management, Adv Dip Project Management, Post Grad Dip Management, and MBA	None	BARC, FinCo, and SJ&E	Board: 5, and Committee: 2
Ms Phuthanang Motsielwa	Independent Director and BARC Chair	20-Aug-13		B Acc (CA)(SA), and RA	PSTM Auditors Inc, Director African Women Chartered Accountants, and Setshoge Foundation	BARC, FinCO, and SJ&E	Board: 5, and Committee: 1
Mr Mmboneni Muofhe	Director and Projects Committee Chair	01-Dec-16		BSc (Hons), MSc, and MBA	The Innovation Hub, and Biovac	Proj; SJ&E	Board: 2, and Committee: 0
Dr Rebecca Maserumule	Alternate Director	23-Oct-13 01-Dec-16		PhD, BSc	None	Alternate	Board: 2, and Committee: 1
Ms Deborah Ramalope	Director	01-Dec-16		BSc (Hon), MSc, MBL	None	Proj	Board: 2, and Committee: 1
Ms Nomawethu Qase	Director	01-Dec-16		M Phil (Energy Studies), Post Grad Dip Management, and B Soc Sc (Hons)	None	HR & Rem, and Proj	Board: 3, and Committee: 2
Mr Thabang Audant	Alternate Director	01-Aug-17			None	Alternate	Board: 1, and Committee: 0
Mr Gerhard Fourie	Director	01-Dec-16		Diploma Mech Eng, B Com Economics, and MBA	None	Proj; FinCo	Board: 4, and Committee: 1

⁵ Reflecting current Board Directorship/Membership.

⁶ 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.

⁷ 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 (SJ&E).

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 terms of reference, and each Committee is chaired by a Board member as appointed by the Board. The terms of reference 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 2019/20 financial year.

Committee	No. of meetings held	No. of members	Name of members
Board Audit and Risk Committee (BARC)	1	25 ^[1]	Ms Phuthanang Motsielwa (Chair) Mr Zanoxolo Koyana Ms Mpuseng Tlhabane
Human Resources and Remuneration & Social Justice and Ethics Committee	1	3	Ms Nomawethu Qase (Chair) Mr Nkululeko Buthelezi Mr Gerhard Fourie Ms Mpeseng Tlhabane
Projects Committee	1	3	Mr Mmboneni Muofhe (Chair) Ms Deborah Ramalope Mr Gerhard Fourie
Finance and Investment Committee	1	3	Mr Nkululeko Buthelezi (Chair) Ms Phuthanang Motsielwa Mr Gerhard Fourie

16.6 Remuneration of Board members

Name	Remuneration	Other allowance	Other re-imbursments	Total
Mr Nkululeko Buthelezi	R454 157.00			R454 157.00
Ms Phuthanang Motsielwa	R268 620.00			R268 620.00

[1] 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.



17. Stakeholder Engagement

17.1 Introduction and perspective

The Stakeholder Engagement focus is placed on building strong, constructive, interpersonal relationships with key Stakeholders, particularly the Department of Mineral Resources and Energy (DMRE), (previously Department of Energy). SANEDI recognises the strategic importance of its Stakeholders and partners in fulfilling 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.

Needless to say, the GRI guidelines assist in providing a holistic framework that addresses 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 SP and its mandate, as defined by legislation and the remit provided by the DMRE. 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 Director-General (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 confirm that an 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 of progress, remedial steps were stipulated.



17.1.1 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),
- Department of Environment, Forestry and Fisheries (DEFF),
- 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 Consolidated Issues

- **Funding:** Securing and managing funds for operations and projects. *Accountability.*
- **National Repository;** Repository for energy information, research and data. *IP.*
- **Governance:** Formalised relationships, risk and reporting.
- **DMRE - SANEDI:** Working relationship with DMRE, reputation and perceptions, (Undertake more work together), (partnerships).
- **Projects:** Development, funding, reporting, cooperation, integration, consolidation and delivery of projects (Individual projects), (opportunities for Job Creation).
- **International Cooperation:** International profile, relationships, funding and cooperation with Governments and bodies.
- **Other Government Departments:** Formal, structured relationships, projects.

- **Human Resources:** Equitable allocation of human resources (skills) for projects.
- **Communications:** Information sharing, branding as energy leaders, and innovators (NERSA, PPC, Media).
- **Strategic Leadership:** In the energy field.
- **Development Issues:** expanding the SANEDI footprint in Southern Africa.
- **Synergy with other resources:** Water, waste, air.

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 SANEDI Board meetings. The EXCO will make any course corrections required. 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 (NDP).

17.3 Engagement Plans and Activities

17.3.1 Working for Energy

The Working for Energy (WfE) Programme is making strides to forge relationships with existing and new partners for mutual benefit, with a view to formalising and strengthening collaborative efforts towards poverty alleviation and service delivery. The objective is to promote the utilisation of clean energy solutions in everyday operation, and maintenance of small-scale public facilities and community development, and Public Employment Programme (PEP) initiatives under the mandate of various partner institutions, and to understand the interaction of beneficiaries with such technologies for posterity. The results coming out of these partnerships, will allow SANEDI to craft recommendations for policy and strategy development for the application of cleaned technology interventions in the broader South African indigent communities, with concomitant socio economic benefits, such as poverty alleviation, job creation and the development of local industries.

To this end, a number of critical partners were identified and expansion of work on existing partnerships is continuing, with work on newly identified partners commencing. To date, work with the Universities of South Africa, KZN and UV pertaining to the research and development in various aspects of bioenergy is ongoing.



The WFE Programme has produced demonstration projects in schools, Early Childhood Development Centres (ECDC), Community Development Centres and in households in selected localities. The process to renew contracts with the Gauteng Department of Infrastructure Development (GDID) and the National Development Agency (NDA) (under the Department of Social Development (DSD)) had commenced.

New work with the Mineworkers Development Agency (MDA) had begun, with the aim of promoting the application of clean energy interventions in their poverty alleviation, job creation and the development of local industries initiatives.

The above partnership arrangements are aimed at expansion focusses on project scope and scale, reach, access, impact assessment and expansion of research on the clean energy sector for the rural and low income urban communities.

17.3.2 Clean Energy Solutions

While Renewable Energy (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.

The Renewable Energy Centre of Research and Development (RECORD) has been closely engaged with implementing the first project for the Department of Defence (DoD) as per the Memorandum of Agreement (MoA) signed in July 2018. This will include the procurement and implementation of cool surfaces together with the Energy Efficiency (EE) team. The Solar Water Heating (SWH) systems will reduce the use of diesel, where housing units have hot water geysers, and enable the DoD 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.

SOLTRAIN hosted a policy workshop on solar thermal with various Stakeholders. 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. "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 Surrridge, 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 RE and EE 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 EE, RE hardware system that supports Human Capacity Development (HCD), as well as contributing towards reduced energy costs and reliable water heating energy security.

The aim is to train 4 DoD members to maintain this system and they will shadow the contractor during installation and maintenance of the SWH systems. In order to prepare members for the upcoming projects, RECORD created awareness about RE, EE 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 Dr Surrridge.

The Climate Change, Clean Energy and Urban Water in Africa project, financed by the European Commission (EC), implemented by United Nations Industrial Organisation (UNIDO) and executed by the Renewable Energy and Energy Efficiency Partnership (REEEP) is a 2.5-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 Greenhouse Gas Emissions (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 EE interventions, and
- Monitoring and evaluating outcomes to capture lessons learned, and promote replication and scale-up of clean energy solutions in municipalities throughout South Africa and The Southern African Development Community (SADC).

The Waterworks project is currently nearing completion, pending the finalisation of the contract 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 IKheis Municipality and the final showcasing event). An external legal firm has thus been appointed to draft a contract for the implementation of the EE pumps and energy management systems.

17.3.3 Smart Grids

The SANEDI Smart Grids (SG) 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 SG Programme and the numerous Stakeholders that exist within the ESI in South Africa. The SG 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), SASGI are partners in the drive to a smarter more efficient national electricity power sector.

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

Also, to expedite the installation of SG technology to improve municipal revenue collection. In addition, to smarten the utility environment through the establishment of an integrated utility value chain. The EU Donor Funded SG Programme is a joint programme collaboration between the DMRE and SANEDI. The South

African SG Initiative is an Electricity Supply Industry forum that engages with a broad array of Stakeholders across South Africa. Both programmes expose the SG team constantly to relevant Stakeholders within the ESI.

Issues thus far include amongst others, the Policy issues in the terrain are unclear, clarification of roles to avoid competition, Mandate and credibility issues, to be sensitively managed.

17.3.4 Cleaner Fossil Fuels

Subsequent to a meeting held on 30 July 2019 between SANEDI and the KwaZulu-Natal Department of Cooperative Governance and Traditional Affairs (KZN CoGTA), where SANEDI requested KZN CoGTA to facilitate a meeting to address questions/concerns from the "Letter" from Mngobokazi Qhubekani Community Trust. The KZN CoGTA Chief Director: Traditional Governance & Conflict Management recommended that a meeting inclusive of multi-stakeholders be coordinated. In this meeting amaKhosi were to be invited to attend with their respective Trusts to avert a situation whereby each Trust writes to SANEDI et al. In light of the above, a meeting was convened for 5 September 2019 at KZN CoGTA UMkhanyakude Regional offices. It was noted that both iNkosi Tembe (Tembe Traditional Council) and iNkosi Ngwane (Mngobokazi Traditional Council) were not present at the meeting. As a result, AmaKhosi that were present recommended that this legal matter be addressed directly with iNkosi Ngwane, the Traditional Council and Mngobokazi Qhubekani Community Trust. A resolution was taken that KZN CoGTA should coordinate a meeting between SANEDI, its partners i.e. DMRE and Council for Geoscience (CGS) & Mngobokazi Traditional Council as a matter of urgency. The CGS Legal representative advised the meeting that the "Letter" cannot be shared with other amaKhosi unless consent has been given by Mngobokazi. It was recommended that iNkosi SN Mkhize (PCSP Convenor) nominated by the KZN Provincial House of Traditional Leaders be present at the meeting with Mngobokazi. In addition, amaKhosi re-emphasised their support for the proposed Pilot (CO₂) Storage Project (PCSP).

SANEDI in collaboration with UMkhanyakude Education District (UKED), South African Agency for Science & Technology Advancement (SAASTA), Council for Scientific and Industrial Research (CSIR) and DMRE hosted a Science Kits Handover and Career Expo to rural schools under the uMkhanyakude District. The event took place on Friday, 18 October 2019 in Makhasa Village near Hluhluwe in KZN.



During SANEDI's engagements with the UMkhanyakude Education District in an endeavour to raise awareness on climate change and career opportunities within the Science, Technology, Engineering, Mathematics and Innovation (STEMI) fields, it was identified that most schools don't have access to brick and mortar laboratories nor to science experiments. To assist with the shortage of laboratories, SANEDI realised a need to handover science kits to remote schools. Furthermore, SANEDI handed over the first batch of 16 science kits in March 2016. The aim for this initiative is to address the shortage of technical skills in the STEMI sector that requires ongoing intervention by Government, and its Stakeholders to promote skills development amongst the youth. In addition, learners walk for hours to school to get better education. SANEDI had planned to handover science kits during the Energy Month, May 2019 which was postponed due to the National General Elections. The science kits cater for science subjects and the beneficiaries are primary schools, high schools and technical schools from UMhlabuyalingana and Big Five Hlabisa Local Municipalities (within UMkhanyakude District Municipality).

During 2016, 15 schools benefited from the science kits including primary and high schools. The second phase in October 2019 benefited the following:

- Three Primary schools,
- Seven High schools,
- Three Technical schools (3 Science Kits per school), and
- One Education Centre.

This included replenishing science kits that were handed over in 2016, mainly to high schools.

The event hosted more than 260 learners, Educators, Exhibitors and Stakeholders from Educational Districts, and Regional Economic Development, Tourism and Environmental Affairs (EDTEA). The exhibition component was collaboration between the following organisations:

Organisation	Contribution
SANEDI	Transportation of learners, catering and PA system.
SAASTA	Transportation of Exhibitors and exhibits.
CSIR	Laboratory material and lab coats.
UKED	Venue.

Mr Thanduyise Motha, Director: Education District welcomed all members, and thanked SANEDI for facilitating the programme that will bring about change in the District at an opportune moment when matriculants were about to commence with final exams. He mentioned that this effort is appreciated and is a significant intervention and investment in the youth of UMkhanyakude. He further provided statistics of the UMkhanyakude Education Department since 2008. UKED has 552 schools of which 164 are high schools and the pass rate has changed since the year 2008. Below is a comparison over a ten-year period:

- 2008 – 38% Matric pass rate
- 2018 – 78.2% Matric pass rate

In light of the above, he stated that the district aims to achieve above 80% pass rate this year. About 140 high schools are doing Maths and Science and only 15 schools have functional laboratories, 40 schools have no functional laboratories or science kits.

In addition, he mentioned that performance in critical subjects is not good, for example, Mathematics is currently at an average of 36%, Physical Science at 78% and Life Science at 31.2%. In closing, Mr Motha encouraged all Stakeholders to provide mentorship to learners and educators in Maths and Science.

During November, more efforts were channelled to knowledge sharing initiatives such as South African National Biodiversity Institute (SANBI's) Climate Change Week at the Harold Porter Botanical Garden, and participation at the Eskom Expo for Young Scientists' Science Camp in Tembisa, in an endeavour to prepare learners for next year's (2020) Regional Expos and International Science Fair. More time was dedicated to planning the upcoming 6th Biennial CCS Conference South Africa, scheduled to take place in October 2020. The initial date was 17- 18 February 2020, but due to time constraints, the Conference Organising Committee made a recommendation that a Workshop/Dialogue be arranged for February, and the conference later in the year to allow ample time for procurement and invitation of speakers and Stakeholders alike. The Conference Organising Committee consists of members from SANEDI, DMRE, and CGS.



17.3.5 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, this appears to be a significant game-changer for the funding/incentivising of EE interventions. 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 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

17.3.6 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, thus 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:

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

17.3.7 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 4 key exhibitions during the financial year, such as The 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 conference are seen as opportunities for SANEDI experts to present SANEDI projects. 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 Clean Mobility (CM) Programme.

17.3.8 Newsletter

The content-led approach of SANEDI 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, as the most newsworthy stories of SANEDI's programmes during the year are published. Opinion pieces about the energy industry, such as "Energy Efficiency translates into future thinking" are topics published. 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.

17.3.9 Public awareness and marketing opportunities

The media is a conduit for 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 beginning 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 shown in a good light.

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 SANEDI's marketing material on a monthly basis. Through the SANEDI Facebook page, 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.

17.3.10 Communication focus areas during 2019/20

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 Government Communications Information Systems (GCIS) raised a concern about the pro-activeness versus reactivity 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 a cost effective media campaign.

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.

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 PFMA, Act 1 of 1999, 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 17th of March 2020.

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

Internal audit is an independent provider of assurance and 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 Audit 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 Board Audit and Risk Committee (BARC), in correspondence with National Treasury (NT) Regulations, are:

- Review the adequacy of policies, procedures and the internal control systems, including information technology security and control, and financial controls,
- Review performance management systems and information for compliance and alignment to company purpose, objectives and commitments,
- 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) (AGSA), assess the effectiveness of the internal audit function,
- Review the Auditor-General's (AG) audit scope, approach and performance, and review findings and implementation of recommendations by management,
- Review legal and regulatory compliance and effectiveness of systems for monitoring such,
- Report to relevant Stakeholders, including the Board regarding the committee activities, issues and related recommendations, and
- 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 Chief Financial Officer(CFO) Forum, NT provides a support structure to CFOs of public entities. This interface allows regular engagement with NT that facilitates information sharing, provides training workshops for finance personnel and CFOs, and provides updates on recent developments within NT, 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 provider, 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 2019/20 financial year.

22. Minimizing Conflict of Interest

In accordance with the provisions of the Companies Act and the PFMA, all Board members and members of the Executive team, declare financial interests annually and the declarations of financial interests are submitted to the DMRE. Further, 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 (SCM). A record of these declarations is maintained by the Human Resources(HR) Department.

Every staff member employed in SCM 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 (BEC), is not allowed to adjudicate on the same bid if they happen to be a member of the Bid Adjudication Committee (BAC).



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(OHSA), 1993 (Act No. 85 of 1993). SANEDI 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

The Company Secretary services were performed by an external service provider, First Corporate Secretaries (Pty) Ltd. The post for in-house Company Secretary was filled on 2 February 2020.

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 2020.

CHARTER

The BARC (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.

MEMBERSHIP

The Committee members are appointed by the Board. The Committee consists of three independent members. Two of the members are external members.

Due to a number of vacancies in the Board, and the late appointment of external members, the Audit Committee was not quorate and did not meet as required by the Charter.

BOARD AUDIT AND RISK COMMITTEE

Name	Appointed	Re-appointed	Resigned
P Motsielwa (Chairperson)	20 August 2013	1 September 2017	-
Tshepiso Poho	11 October 2019		
Koyana Zanoxolo	11 October 2019		

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 51(1)(ii) of the PFMA and Treasury Regulation 3.1.13. The Board has adopted the formal terms of reference for all committees, including that of the BARC 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 period under review, various reports of the Internal Auditor, as well as the External Auditor's Report on the AFS and Management Letter of the AG, indicated that the entity's system of internal control has shortcomings. The Audit, Risk and Compliance Committee (ARCC) 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 ARCC reviewed the activities of the internal audit function and has concluded the following:

- The internal audit function is effective, with no unjustified restrictions or limitations, and
- 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:

- Performance Information,
- Financial Control Review,
- Business Continuity and Disaster Recovery Review,
- Project Management Review,
- Procurement, Tender and Payment Process (SCM),
- Human Resources Management, and
- IT Infrastructure & IT Strategy.

CORPORATE GOVERNANCE

We acknowledge that the entity continues to strive towards applying sound principles of good Corporate Governance. To this extent, the entity has endeavoured 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 of 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 3-year rolling SP 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 a 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 AFS 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 AFS and is of the opinion that the audited AFS be accepted and read together with the report of the Auditor.



Phuthanang Motsielwa

Chairperson of the Audit Committee (SANEDI)

30 October 2020

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 2019/20 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 SCM, 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 2019/20

During the 2019/20 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 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 forms 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 The Commission for Conciliation, Mediation and Arbitration (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 and long-term goals. SANEDI has a succession planning in place and the organisation will look at ways which will support succession planning, by implementing leadership development programs.

The Board approved Incentive and Leave policies for the year under review, and the organisation was fully committed in ensuring full implementation of these policies, and as such, brown bag information sessions were held to communicate the policies to employees. These policies were prioritised as these addressed pertinent issues on the current and future employee rewards structure, as well as 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, training and development, employment equity, employee relations and performance management, in order to improve efficiency within the HR Department. It is envisioned that by automating the manual HR processes and eliminating information-centered risks in the areas of training statistics and firing staff, the department will improve its performance and provide meaningful support to the organisation.

27.3 Workforce Planning Framework

For the past 5-years, five learners and 9 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 World Aids Day and Wellness day/HR open day during the reporting period.

27.5 Policy Development

In the last financial year 2019/20, 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

The challenge emanated as a result of the organisational review, as there was a temporary freeze in the hiring of non-technical positions contributing to the high vacancy rate. SANEDI also experienced an unprecedented increase in the number of vacancies towards the end of the financial year due to high staff turnover.

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:

- HR strategy that will support the implementation of the new organisational strategy for the new MTSF period,
- Implementation of career ladders and improvement in the succession plans,
- 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,
- Developing and implementing programmes to ensure a performance management culture is fully embedded within the organisation, and
- 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	27 093	15 665	22.2%	20	783
Applied Energy Research, Development and Innovation	36 447	22 822	32.3%	25	913
Energy Efficiency	6 043	6 043	8.5%	7	863
TOTAL	70 599	44 530	63%	52	2,559

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	3 317	7.4%	2	1,659
Senior Management	8 105	18.2%	4	2,026
Professional qualified	19 636	44%	19	1,033
Skilled and Unskilled	13 471	30.2%	27	499
TOTAL	44 529	99.8%	52	5,217

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%
TOTAL	-	-	0%

Performance award for the 2018/19 financial year were only approved in the 2019/20 financial year for payment after the financial year.

28.4 Training Costs

The figures for Energy Efficiency Programme are included under Administration hence there is 0 on EE, the budget and the cost was all under the Administration.

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	1 450	666	40%	30	48.33
Applied Energy Research	190	15	1%	16	11.87
Energy Efficiency	-	-		-	-
TOTAL	1640	381	41%	42	60.20

28.5 Employment and Vacancies

During 2019/20, six vacancies existed across SANEDI's three programmes:

Programme	2019/2020 No. of Employees	2019/2020 Approved Posts	2019/2020 Vacancies	% of vacancies
Administration	20	-	2	10%
Applied energy research, development and innovation	25	-	2	8%
Energy Efficiency	7	-	2	28.5%
TOTAL	52	-	6	46.5%

SANEDI's Administration positions were frozen for FY2019/20 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

Turnover rates provide an indication of trends in the employment profile of the public entity. *Appointments 1 independent contract was appointed after her resignation, Company secretary and Senior Advisor for M&V.*

Salary Band	Employment at beginning of period	Appointments	Terminations	Employment at end of the period
Top Management	2	-	1	1
Senior Management	4	-	-	4
Professional qualified	19	3	5	19
Skilled and semi-skilled	27	-	4	22
Total	52	3	10	46

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 and with the exception of 1 employee whose contract ended.*

Reason	Number	% of total no. of staff leaving
Death		
Resignation	9	17%
Dismissal		
Retirement		
Ill health		
Expiry of contract	1	1.9%
Other		
Total	10	18.9%

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	3	-	1	-	3	-	2	-
Skilled	6	-	-	-	1	-	-	-
Semi-skilled	2	-	-	-	-	-	-	-
TOTAL	12	-	1	-	5	-	4	-

Levels	FEMALE							
	AFRICAN		COLOURED		INDIAN		WHITE	
	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	2	-	-	-	-	-	-	-
Senior Management	-	-	-	-	-	-	2	-
Professional qualified	7	-	-	-	1	-	1	-
Skilled	13	-	1	-	-	-	-	-
Semi-skilled	3	-	-	-	-	-	-	-
TOTAL	25	-	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 94 to 128, which comprise the statement of financial position as at 31 March 2020, statement of financial performance, statement of changes in net assets, cash flow statement and 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 2020, and its financial performance and cash flows for the year then ended in accordance with the South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA).

Basis for 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 *Code of ethics for professional accountants* and parts 1 and 3 of the *International Code of Ethics for Professional Accountants (including International Independence Standards)* of the International Ethics Standards Board for Accountants (IESBA codes) as well as 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 matter

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

Restatement of corresponding figures

7. As disclosed in note 22 to the financial statements, the corresponding figures for 31 March 2019 were restated as a result of an error in the financial statements of the public entity at, and for the year ended, 31 March 2020.

Responsibilities of the accounting authority for the financial statements

8. The board of directors, which constitutes the accounting authority is responsible for the preparation and fair presentation of the financial statements in accordance with SA Standards of GRAP and the requirements of the PFMA 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.
9. In preparing the financial statements, the accounting authority is responsible for assessing the public entity'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 appropriate governance structure 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

10. 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.
11. 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

12. 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 on the usefulness and reliability of the reported performance information against predetermined objectives for the selected programme presented in the annual performance report. I performed procedures to identify material findings but not to gather evidence to express assurance.
13. My procedures address the usefulness and reliability of 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 do not examine whether the actions taken by the public entity enabled service delivery. My procedures also do 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.
14. 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 programme presented in the annual performance report of the public entity for the year ended 31 March 2020:

Programme	Pages in the annual performance report
Programme 2 - applied energy research, development and innovation	49 – 58

15. 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.
16. I did not identify any material findings on the usefulness and reliability of the reported performance information for this programme:
- Programme 2 - applied energy research, development and innovation

Other matters

17. I draw attention to the matters below.

Achievement of planned targets

18. Refer to the annual performance report on pages 25 to 60 for information on the achievement of planned targets for the year and explanations provided for the under/overachievement of a significant number of targets.

Adjustment of material misstatements

19. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were in the reported performance information of programme 2 – applied energy research, development and innovation. 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

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

Annual financial statements

22. The financial statements submitted for auditing were not prepared in accordance with the prescribed financial reporting framework, as required by section 55(1)(b) of the PFMA. Material misstatements of related parties and financial instruments identified by the auditors in the submitted financial statements were corrected, resulting in the financial statements receiving an unqualified audit opinion.



Other information

23. The accounting authority is responsible for the other information. The other information comprises the information included in the annual report which includes the directors' report and the audit committee's report. The other information does not include the financial statements, the auditor's report and the selected programme presented in the annual performance report that have been specifically reported in this auditor's report.
24. 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.
25. 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 programme presented in the annual performance report, or my knowledge obtained in the audit, or otherwise appears to be materially misstated.
26. 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.
27. I have nothing to report in this regard.

Internal control deficiency

28. 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 matter reported below is limited to the significant internal control deficiencies that resulted in the finding on compliance with legislation included in this report.
29. Senior management did not implement adequate review controls to ensure that the financial statements are free from material misstatements and comply with the requirements of the PFMA as the submitted annual financial statements were subject to material amendments resulting from the audit.

Auditor General

Johannesburg
13 November 2020



AUDITOR - GENERAL
SOUTH AFRICA

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 the selected programme 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 board of directors, which constitutes 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 relating to events or conditions that may cast significant doubt on the ability of the South African National Energy Development Institute 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 my 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 operating as a going concern
 - evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and determine 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, actions taken to eliminate threats or safeguards applied.



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 or deficit 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 or deficit.

The board has reviewed the entity's cash flow forecast for the year to 31 March 2021 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 pages 88 to 93.

The financial statements set out on pages 94 to 128, which have been prepared on the going concern basis, were approved by the accounting authority on 30 October 2020 and were signed on its behalf by:



Nkululeko Buthelezi

Interim Chairperson: SANEDI Board

Statement of Financial Position

as at 31 March 2020

	Note(s)	2020 R '000	2019 R '000
Assets			
Non- Current Assets			
Property, plant and equipment	3	8 903	6 506
Intangible assets	4	51	2 017
		8 954	8 523
Current Assets			
Receivables from exchange transactions	5	4 481	9 023
Cash and cash equivalents	6	249 029	229 519
		253 510	238 542
Total Assets		262 464	247 065
Liabilities			
Current Liabilities			
Payables from exchange transactions	9	4 956	12 529
Unspent conditional grants and receipts	7	15 513	15 872
Provisions	8	10 122	8 485
		30 591	36 886
Total Liabilities		30 591	36 886
Net Assets		231 873	210 179
Accumulated surplus		231 873	210 179



Statement of Financial Performance

	Note(s)	2020 R '000	2019 R '000
Revenue			
Revenue from exchange transactions			
Services Rendered: Sponsorship & Consultancy		1 714	4 303
Interest received		15 642	14 979
Other income		35	853
Gain on foreign exchange		-	206
Total revenue from exchange transactions		17 391	20 341
Revenue from non- exchange transactions			
Transfer revenue			
Government grants & subsidies	10	78 942	97 099
Total revenue		96 333	117 440
Expenditure			
Direct personnel costs	11	(38 203)	(36 406)
Director's remuneration	11	(360)	(115)
Depreciation and amortisation	3	(3 810)	(3 617)
Impairment loss/ Reversal of impairments	12	(9)	(95)
Provision for Doubtful Debt	13	428	(3 188)
Repairs and maintenance		(944)	(879)
Project development costs	15	(17 224)	(33 363)
Loss on foreign exchange		(11)	-
Operating expenses	14	(14 507)	(12 403)
Total expenditure		(74 640)	(90 066)
Surplus for the year		21 693	27 374

Statement of Changes in Net Assets

as at 31 March 2020

	Accumulated surplus R '000	Total net assets R '000
Balance at 01 April 2018	182 805	182 805
Surplus for the year	27 374	27 374
	<hr/> 27 374	<hr/> 27 374
Balance at 01 April 2019	210 180	210 180
Surplus for the year	21 693	21 693
	<hr/> 21 693	<hr/> 21 693
Balance at 31 March 2020	231 873	231 873

Note(s)



Cash Flow Statement

	Note(s)	2020 R '000	2019 R '000
Cash flows from operating activities			
Receipts			
Grants		77 763	73 198
Interest income		16 448	17 171
Services rendered- consultancy & sponsorship		4 210	4 802
		98 421	95 171
Payments			
Employee costs		(37 649)	(39 997)
Suppliers		(36 734)	(55 100)
Transfer of RDP Funds		(29)	(10 112)
Transfer of grants		(240)	-
		(74 652)	(105 209)
Net cash flows from operating activities	16	23 760	(10 036)
Cash flows from investing activities			
Purchase of property, plant and equipment	3	(4 250)	(5 189)
Purchase of other intangible assets	4	-	(119)
Net cash flows from investing activities		(4 250)	(5 308)
Net increase/(decrease) in cash and cash equivalents			
Cash and cash equivalents at the beginning of the year		229 519	244 864
Cash and cash equivalents at the end of the year	6	249 029	229 520

Statement of Comparison of Budget and Actual Amounts

as at 31 March 2020

Budget on Cash Basis

	Approved budget R '000	Adjustments R '000	Final Budget R '000	Actual amounts on comparable basis R '000	Difference between final budget and actual R '000	Reference
Statement of Financial Performance						
Grants & other receipts	232 414	-	232 414	96 333	(136 081)	*
Total revenue	232 414	-	232 414	96 333	(136 081)	
Expenditure						
Employee costs	(50 735)	-	(50 735)	(38 562)	12 173	**
Depreciation and amortisation	(2 659)	-	(2 659)	(3 810)	(1 151)	**
Impairment loss/ Reversal of impairments	-	-	-	(9)	(9)	
Project costs	(147 845)	-	(147 845)	(17 224)	130 621	****
Operational expenditure	(31 175)	-	(31 175)	(15 035)	16 140	*****
Total expenditure	(232 414)	-	(232 414)	(74 640)	157 774	
Surplus for the year	-	-	-	21 693	21 693	

* Revenue is less than budgeted due to lower than anticipated donor funds being received.

** Employee costs were less than budgeted as there are vacancies that were not filled for the CEO and various positions remain unfilled. There were no bonuses paid during the year.

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

**** There was an underspending in some of the programmes due to delays in finalising of financing agreements with various stakeholders, appointment of personnel to some programmes and a delay implementation in some programmes.

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

The accounting policies on pages 98 to 113 and the notes on pages 114 to 127 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.

These accounting policies are consistent with the previous period.

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

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 8 - 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

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.



Accounting Policies

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.

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, or
- the expenditure attributable to the asset during its development can be measured reliably.



Accounting Policies

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 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).



Accounting Policies

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.

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,



Accounting Policies

- 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:

Class	Category
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:

Class	Category
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:

- 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



Accounting Policies

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.

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.



Accounting Policies

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).

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.



Accounting Policies

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

Operating leases - lessee

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 employees.

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.

A constructive obligation is an obligation that derives from an entity's actions whereby 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



Accounting Policies

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.

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.



Accounting Policies

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 19.

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.

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,



Accounting Policies

- 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.

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



Accounting Policies

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.

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 -



Accounting Policies

- (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 a accrual basis, and presented by economic classification linked to performance outcome objectives.

The approved budget covers the fiscal period from 2019/04/01 to 2020/03/31.

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

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.



Accounting Policies

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.

Accounting Policies

2. NEW STANDARDS AND INTERPRETATIONS

2.1 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:

2.2 Standards and Interpretations early adopted

The entity has chosen to early adopt the following standards and interpretations:

Standard/ Interpretation:	Effective date: Years beginning on or after	Expected impact:
----------------------------------	--	-------------------------

2.3 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 2020 or later periods:

Standard/ Interpretation:	Effective date: Years beginning on or after	Expected impact:
• IGRAP 20: Accounting for Adjustments to Revenue	01 April 2020	Unlikely there will be a material impact
• GRAP 1 (amended): Presentation of Financial Statements	01 April 2020	Unlikely there will be a material impact
• GRAP 34: Separate Financial Statements	01 April 2020	Unlikely there will be a material impact
• IGRAP 1 (revised): Applying the Probability Test on Initial Recognition of Revenue	01 April 2020	Unlikely there will be a material impact
• Directive 7 (revised): The Application of Deemed Cost	01 April 2020	Unlikely there will be a material impact



Notes to the Financial Statements

	2020 R '000	2019 R '000
--	----------------	----------------

3. PROPERTY, PLANT AND EQUIPMENT

	2020			2019		
	Cost / Valuation	Accumulated depreciation and accumulated impairment	Carrying value	Cost / Valuation	Accumulated depreciation and accumulated impairment	Carrying value
Furniture and fixtures	1 654	(1 126)	528	1 667	(969)	698
Motor vehicles	211	(182)	29	211	(140)	71
Office equipment	475	(357)	118	513	(331)	182
IT equipment	14 454	(6 323)	8 131	10 401	(4 964)	5 437
Leasehold improvements	153	(104)	49	177	(110)	67
Communication equipment	337	(289)	48	324	(273)	51
Total	17 284	(8 381)	8 903	13 293	(6 787)	6 506

Reconciliation of property, plant and equipment - 2020

	Opening balance	Additions	Depreciation	Impairment loss	Total
Furniture and fixtures	698	-	(170)	-	528
Motor vehicles	71	-	(42)	-	29
Office equipment	182	2	(62)	(4)	118
IT equipment	5 437	4 233	(1 534)	(5)	8 131
Leasehold improvements	67	-	(18)	-	49
Communication equipment	51	15	(18)	-	48
	6 506	4 250	(1 844)	(9)	8 903

There were no items of property, plant and equipment pledged as security. Repairs performed to maintain property, plant and equipment amounted R8 8211,85(thousands) in the current year. Assets with a net book value of R9 166,39 (thousands) were impaired during the year.

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
	3 011	5 189	(1 599)	(95)	6 506



Notes to the Financial Statements

	2020 R '000	2019 R '000
--	----------------	----------------

4. INTANGIBLE ASSETS

	2020			2019		
	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value
Computer software, internally generated	12 089	(12 038)	51	12 089	(10 072)	2 017

Reconciliation of intangible assets - March 2020

	Opening balance	Amortisation	Total
Computer software	2 017	(1 966)	51

Intangible assets are not pledged as security. There were no additions in relation to assets acquired during the year.

Reconciliation of intangible assets - March 2019

	Opening balance	Additions	Amortisation	Total
Computer software, internally generated	3 915	119	(2 017)	2 017

Intangible assets in the process of being constructed or developed

5. RECEIVABLES FROM EXCHANGE TRANSACTIONS

Trade debtors	-	2 750
Provision for bad debts: Non-VAT	(268)	(833)
Employee costs in advance	96	121
Other receivables	294	381
Interest Receivable	1 263	715
Prepayments	434	586
Project Prepayments	2 662	5 303
	4 481	9 023

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 6 months past due are not considered to be impaired. At 31 March 2020, R 0million (2019: R2,2 million) were past due but not impaired.



Notes to the Financial Statements

	2020 R '000	2019 R '000
The ageing of amounts past due but not impaired is as follows:		
1 month past due	-	-
2 months past due	-	2 203
3 months past due	-	-
	-	2 203

Trade and other receivables impaired

The amount of the provision was R (268,000) as of 31 March 2020 (2019: R 833 000)

Reconciliation of provision for impairment of trade and other receivables:

Opening Balance	833	10 282
Additional Provision raised	-	833
Amounts written off as uncollectable	(136)	(10 282)
Amounts recovered	-	-
Amounts reversed	(429)	-
	268	833

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. The reversal of the provision covers amounts reversed from prior periods that were incorrectly raised as debtors, these are deemed immaterial and no adjustments will be made.

6. CASH AND CASH EQUIVALENTS

Cash and cash equivalents consist of:

Cash on hand	8	14
Bank balances	249 021	229 505
	249 029	229 519

Cash and cash equivalent consists 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

2020
R '000

2019
R '000

7. UNSPENT CONDITIONAL GRANTS AND RECEIPTS

Unspent conditional grants can be attributed to ring fenced projects from various donors that are in progress at the end of the financial year. 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	15 513	15 872
----------------	--------	--------

Movement during the year

Balance at the beginning of the year	15 872	46 940
Additions during the year	3 345	5 845
Income recognition during the year	(3 435)	(26 801)
Transfer of RDP	(29)	(10 112)
Transfer of Grants	(240)	-
	(15 513)	(15 872)

Unspent conditional grants and third party funds (continued)

European Union Project (COCAFE)	274	253
FP7	32	32
SA Coal Roadmap	717	670
SDC Monitoring & Implementation Project	190	190
Danish Renewable Energy Programme	1 326	1 749
EEDSM Hub	224	210
WASA Support	903	877
SolarTech Roadmap	7 510	10 294
Soltrain	1 256	685
Austin Offshore	311	293
Solar Payback	578	578
WASA 3	18	41
Department of Defense	85	-
1M Cool Roofs Challenge	773	-
EE Industrial comp 1	1 316	-
	15 513	15 872

These balances relate to donor funds earmarked for specific projects within the organisation. These amounts are invested in money market accounts and interest accrues to the invested money.



Notes to the Financial Statements

2020
R '000

2019
R '000

Deferred Income Reconciliation March 2020

	Opening Balance	Additional Receipts	Deferred Income Recognised	Grant Repayments	Interest Earned	Closing Balance
European Union Project (COCATE)	253	-	1	-	21	273
FP7	32	-	-	-	-	32
SA Coal Roadmap	670	-	-	-	47	717
SDC EE Monitoring & Implementation	190	-	-	-	-	190
Danish Renewable Energy Programme	1 749	-	706	-	284	1 327
EEDSM Hub	210	-	-	-	14	224
WASA Support	877	-	1	29	56	903
SolarTech	10 294	-	3 286	240	742	7 510
1M Cool Roofs Challenge	-	923	186	-	36	773
Industrial EE Comp	-	1 304	-	-	12	1 316
Soltrain	685	594	136	-	113	1 256
Austin Offshore	293	-	2	-	20	311
Solar Payback	578	-	-	-	-	578
WASA 3	41	-	25	-	2	18
DOD-Solar Water Heating	-	524	448	-	9	85
Total	15 872	3 345	4 791	269	1 356	15 513

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 and Implementation Project	202	-	12	-	-	190
EU Aid 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
Solar Tech Roadmap	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 off Shore	123	161	1	-	9	293
Solar Payback	221	391	34	-	-	578
WASA 3	38	-	-	-	3	41
Total	46 940	3 645	26 798	10 112	2 199	15 872



Notes to the Financial Statements

	2020 R '000	2019 R '000
--	----------------	----------------

8. PROVISIONS

Reconciliation of provisions- 2020

	Opening Balance	Additions	Reversed during the year	Total
Provisions	8 485	5 344	(3 707)	10 122

The bonus provision is calculated based on the company performance, division's performance and individual's performance at the discretion of the board considered, once company performance has been audited. The reversal relates to the provision for the March 2018/2019 and an additional provision raised for the March 2019/2020 Year.

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

9. PAYABLES FROM EXCHANGE TRANSACTIONS

Trade & other payables/creditors	314	246
Leave provision	1 227	1 565
Accrued expense	3 296	10 667
Sundry Creditors	-	(11)
WCA control	114	57
Union fees	5	5
	4 956	12 529

10. GOVERNMENT GRANTS AND SUBSIDIES

Operating grants

Grants- realisation of deferred transfers	4 791	26 858
DOE-MTEF Realisation	74 151	70 241
	78 942	97 099

Services in kind

SANEDI received in-kind revenue from some of its partners in the form of lectures, media and support for various initiatives under programmes 2. There were also services rendered of a technical nature that involved reviewing of technical reports, providing advice on the regulatory requirements for the CCS pilot under programme 2. There was also in kind revenue in the form of utilisation and access to the office accommodation under programme 3 at no cost.

Notes to the Financial Statements

	2020 R '000	2019 R '000
11. EMPLOYEE RELATED COSTS		
Basic	33 931	35 162
Recruitment and relocation costs	-	22
Bonus	1 637	(1 313)
Medical aid- company contributions	1 055	971
UIF	87	96
WCA	52	52
SDL	330	341
Leave pay provision	(333)	(848)
Provident and Pension Contributions	1 444	1 426
Personnel study costs	-	142
Personnel functions and refreshments	-	123
Personnel development- training	-	232
	38 203	36 406

Board Remuneration

Annual Remuneration	360	115
	360	115

12. IMPAIRMENT OF ASSETS

Impairments

Property, plant, and equipment	9	95
--------------------------------	---	----

13. PROVISION FOR DOUBTFUL DEBT

Debt impairment	(428)	3 188
-----------------	-------	-------

Included in the provision is a reversal of provision raised in the prior year for R428 000 .



Notes to the Financial Statements

	2020 R '000	2019 R '000
14. GENERAL EXPENSES		
Administration	134	57
Advertising	724	39
Auditors remuneration	1 581	1 282
Bank charges	46	40
Computer expenses	2 982	1 902
Consulting and professional fees	3 226	2 830
Lease rentals	1 707	1 438
Insurance	412	366
Conferences and seminars	39	139
Printing and stationery	46	230
Marketing and promotional expenditure	736	2 155
Board expenses	-	100
Catering and entertainment	195	71
Subscriptions and membership fees	23	(6)
Telephone and fax	1 345	974
Travel- local	813	682
Employee welfare and training	484	-
Other office running expenses	14	104
	14 507	12 403

15. PROJECT DEVELOPMENT COSTS

Project Implementation costs	12 553	28 272
Travel	1 587	3 057
Overheads	3 084	2 033
	17 224	33 362

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

	2020 R '000	2019 R '000
16. CASH GENERATED FROM (USED IN) OPERATIONS		
Surplus	21 693	27 374
Adjustments for:		
Depreciation and amortisation	3 810	3 617
Impairment loss/ Reversal of impairments	9	95
Provision for doubtful debts	(428)	3 188
Movements on bonus provisions	1 637	(2 651)
Changes in working capital:		
Receivables from exchange transactions	4 542	(15 693)
Provision for doubtful debts	428	(3 188)
Payables from exchange transactions	(7 572)	(3 510)
VAT	-	11 800
Unspent conditional grants and receipts	(359)	(31 068)
	23 760	(10 036)

17. FINANCIAL INSTRUMENTS DISCLOSURE

Categories of financial instruments

2020

Liquidity Risk

The entity's risk to liquidity is as a result of the funds available to cover future commitments. The entity manages liquidity risk through an ongoing review of future commitments and credit facilities.

As at 31 March 2020	Less than 1 year	Between 1 and 5 years	Over 5 years	Non- Interest	Total
Cash and cash equivalents	249 029	-	-	-	249 029
Trade and other receivables	4 481	-	-	-	4 481
	253 510	-	-	-	253 510

Credit risk

Credit risk consist mainly of cash deposits, cash deposits and cash equivalents and debtors. The entity only deposits cash with major banks with high quality credit ratings and limits exposure to any counter party. Receivables comprises interest earned in the money market.

As at 31 March 2020	Less than 1 year	Between 1 and 5 years	Over 5 years	Non-Interest	Total
Trade and other payables	4 956	-	-	-	4 956

Market Risk

Interest Risk

The entity has interest-bearing -assets that are affected by interest rates fluctuations, these include bank and cash and cash equivalents. Interest - bearing investments are held with reputable banks to minimise exposure. No significant risks has been identified with regards to interest rates.



Notes to the Financial Statements

	2020 R '000	2019 R '000
--	----------------	----------------

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
	237 455	-	-	-	237 455

Financial liabilities

At 31 March 2019	Less than 5 years	Between 1 and 5 years	Over 5 years	Non- interest	Total
Trade and other payables	12 530	-	-	-	12 530

18. COMMITMENTS

Authorised capital expenditure

Approved and contracted for

- Capital

	4 080	-

Authorised, but not yet contracted for

- Capital

	148 100	126 100

Total capital commitments

Approved and contracted for

	4 080	-

Authorised, but not yet contracted for

	148 100	126 100
	152 180	126 100

During the financial year, additional projects were approved, these were contracted and budgeted for, however R4m of those projects were subject to budget availability. There were also additional contracts amounting to R22million that were approved and not yet contracted for.

The commitment related to the PCSP pilot project, all agreements with relevant parties and stakeholders were concluded during the previous financial year, where the financing, subsequent to the current financial year end, the project will be transferred to CGS, refer to note 23 for the post balance sheet note disclosure.

Contractual commitments

- Projects
- Administration

	33 121	21 309
	7 079	3 221
	40 200	24 530

Minimum payments due

- within one year
- second to fifth year

	37 381	21 386
	2 819	3 144
	40 200	24 530



Notes to the Financial Statements

	2020 R '000	2019 R '000
Operating leases - as lessee (expense)		
Minimum lease payments due		
- within one year	1 149	1 149
- in second to fifth year inclusive	95	1 244
	1 244	2 393

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.

Rental expenses relating to operating leases		
within one year	167	334
second to fifth year inclusive	-	167
	167	501

SANEDI has entered into a lease agreement 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.

19. CONTINGENCIES

Surplus Funds

SANEDI has reported surpluses for the year ended 31 March 2020 for R21,7million (Surplus 2019: R27million). The surplus is fully committed and SANEDI will be submitting a request for retention of surpluses to the National Treasury.

Contingent liabilities

The entity is involved in a CCMA matter with an employee, the matter is currently in arbitration. At the date of this report there are no amounts to disclose

Notes to the Financial Statements

	2020 R '000	2019 R '000
--	----------------	----------------

20. RELATED PARTIES

Members of key management	Refer to member's report note 21
CEF (SOC) Limited	Entities under common control

SANEDI has been established by the Department of Mineral Resources and Energy and in terms of national legislation. SANEDI is ultimately controlled by the Department of Mineral Resources and Energy. All transactions with related parties are at arm's length.

Related party balances

Amounts included in trade and other payables

CEF(SOC) Limited	1 591	-
------------------	-------	---

Related party transactions

Revenue received from related parties

Department of Minerals Resources and Energy	74 151	70 241
---	--------	--------

Rent paid to related parties

CEF (SOC) Limited	1 148	-
-------------------	-------	---

Management fees paid to related parties

CEF(SOC)Limited	418	-
-----------------	-----	---

Recoveries

CEF (SOC)Limited	839	-
------------------	-----	---

Remuneration of management

Board members

2020

Name	Director's remuneration	Total
Miss P Motsiewla	165	165
Mr Buthelezi (Interim Chairperson)	166	166
Mr T Poho	13	13
Ms M Thlabani	16	16
	360	360



Notes to the Financial Statements

	2020 R '000	2019 R '000
2019		
Name	Director's remuneration	Total
Miss P Motsiewla	39	39
Mr Buthelezi (Interim Chairperson)	76	76
	115	115

21. MEMBER'S EMOLUMENTS

No emoluments were paid to the member or any individuals holding a prescribed office during the year.

Executive

2020

Name	Basic Salary	Allowances	Subsistence and travel (Reimbursed)	Leave	Total
Ms L Manamela- chief financial officer	1 296	24	-	-	1 320
Dr AD Surridge	1 464	108	1	-	1 573
Dr T Mali	1 961	66	42	134	2 203
Dr M Bipath	1 409	84	12	-	1 505
Mr D Mahuma	1 543	24	7	-	1 574
Mr B Bredenkamp	1 469	24	-	-	1 493
	9 142	330	62	134	9 668

SANEDI operates on a cost to company system, employees' contributions to the provident and other benefit funds are allocated from the overall cost to company.

During the current financial year, the interim CEO resigned effective 25 March 2020.

2019

Name	Basic Salary	Allowances	Performance Bonus	Subsistence and travel (Reimbursed)	Acting Allowance	Total
Mr KM Nassiep- chief executive officer	542	-	796	-	-	1 338
Ms L Manamela- chief financial officer	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
	9 234	330	796	48	403	10 811



Notes to the Financial Statements

2020 R '000	2019 R '000
----------------	----------------

22. PRIOR PERIOD ERRORS

The commitments disclosure for the Promethium and Esciences contract in relation to the CCS had ended in the prior period and was erroneously disclosed. The impact is that the financial statements disclosure for the 2018/2019 year were understated by an amount of R1,3million.

The correction of the error(s) results in adjustments as follows:

Contractual commitments	2020 Restated	2019 Restated
Project Related	-	(1 293)
Admin	-	-
	-	(1 293)
Within one year	-	(1 293)
Second to fifth year inclusive	-	-
	-	(1 293)

23. EVENTS AFTER THE REPORTING DATE

Subsequent to the financial year end, the board is aware of a letter endorsed by the Minister of Department of Mineral resources and Energy, informing that the functions within the CCUS be transferred to the Council for Geoscience at the beginning of the second quarter of the 2021 Financial Year. All financial obligations and commitments will also be transferred.

During the financial year, the entity was in the process of approving expenditure relating to projects, material projects were subsequently approved and finalised after the financial year amounting to R5,9million. This represents a non-adjusting event. The R5,9million is made up of R3,4million which has not yet been contracted for, and R2,5million which represents a portion of a contract that was approved prior to the year-end, but the remainder of the funds only approved after year-end.

24. FRUITLESS AND WASTEFUL EXPENDITURE

Opening Balance	10	-
Fruitless and Wasteful Expenditure relating to current year	2	10
Less: Amount Recovered	(6)	-
	6	10

The fruitless and wasteful expenditure in the current year relates to travel costs and interest on late payments.

25. IRREGULAR EXPENDITURE

Opening balance	1 793	66
Add: Irregular Expenditure- current year	-	1 727
	1 793	1 793

The irregular expenditure incurred in the prior year was due to three quotes not obtained prior to award being chosen, 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

Website: www.sanedi.org.za

RP432/2020

ISBN: 978-0-621-49017-6



PLEASE RECYCLE THIS REPORT