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South African National Energy
Development Institute (SNC) Ltd.



SANEDI 2021-2025 STRATEGIC PLAN & APP (2021)

ENERGY INNOVATION FOR LIFE

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Development Institute (SNC) Ltd.



Introduction

ENERGY INNOVATION FOR LIFE

The Act provides in detail for SANEDI's Mandate



The National Energy Act, 2008 (Act No. 34 of 2008), Section 7 (2) gave effect to SANEDI's existence and provides for its primary mandate and specific responsibilities.



The Act provides for SANEDI to direct, monitor and conduct **energy research and development**, promote energy research and technology **innovation** as well as undertake measures to promote **energy efficiency** throughout the economy.

The Act provides in detail for SANEDI's Mandate



	Energy Efficiency	Energy Research and Development
SANEDI's Legislative Mandate	<ul style="list-style-type: none"> • Undertake energy efficiency measures as directed by the Minister; • Increase energy efficiency throughout the economy; • Increase the gross domestic product per unit of energy consumed; and • Optimise the utilisation of finite energy resources; 	<ul style="list-style-type: none"> • Direct, monitor, conduct and implement energy research and technology development in all fields of energy, other than nuclear energy; and • Promote energy research and technology innovation; • Provide for: <ul style="list-style-type: none"> • training and development in the field of energy research and technology development; • establishment and expansion of industries in the field of energy; and • commercialisation of energy technologies resulting from energy research and development programmes; • Register patents and intellectual property in its name resulting from its activities; • Issue licences to other persons for the use of its patents and intellectual property; • Publish information concerning its objects and functions; • Establish facilities for the collection and dissemination of information in connection with research, development and innovation; • Undertake any other energy technology development related activity as directed by the Minister, with the concurrence of the Minister of Science and Technology; • Promote relevant energy research through cooperation with any entity, institution or person equipped with the relevant skills and expertise within and outside the Republic; • Make grants to educational and scientific institutions in aid of research by their staff or for the establishment of facilities for such research; • Promote the training of research workers by granting bursaries or grants-in-aid for research; • Undertake the investigations or research that the Minister, after consultation with the Minister of Science and Technology, may assign to it; and • Advise the Minister and the Minister of Science and Technology on research in the field of energy technology.



SANEDI's strategic direction cascades well from the vision through to the programme level.


SANEDI defined strategic direction

Vision	Mission	Impact Statement	Outcomes	Programme	
Sustainable living for growth and prosperity in Africa	Using applied energy research and resource efficiency to develop innovative, integrated solutions that will catalyse growth and prosperity	Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.	Smart Grid systems Piloted for Smart cities	Applied Energy Research and Development	
			Demonstrated GHG emissions mitigation potential in support of national commitments		Energy Efficiency
			An awareness of the technologies to be used in the transition process (for an increasingly aware society on energy transition solutions)		
			Evidence based planning, resource allocation and decision making enabled by accurate and timely information, datasets and data analytics	Energy Efficiency	
			Energy transition expertise and competence building enabled		Administration
			Internal Operational effectiveness and efficiency	Administration	
			A capacitated, effective and efficient operational environment (within which SANEDI will discharge its mandate) – internal compliance		

Legislative Governing SANEDI Mandate



SANEDI Laws and regulations applicable

-
- 
- Electricity Regulation Act, 2006 (Act No. 4 of 2006), as amended;
 - White Paper on Energy Policy, 1998
 - Petroleum Products Act, 1977 (Act No. 120 of 1977), as amended;
 - Central Energy Fund Act, 1977 (Act No. 38 of 1977), as amended;
 - Petroleum Pipelines Act, 2003 (Act No. 60 of 2003);
 - Petroleum Pipelines Levies Act, 2004 (Act No. 28 of 2004);
 - Gas Act, 2001 (Act No. 48 of 2001);
 - Gas Regulator Levies Act, 2002 (Act No. 75 of 2002);
 - National Energy Regulator Act, 2004 (Act No. 40 of 2004); and
 - Abolition of the National Energy Council Act, 1991 (Act 95 of 1991)
 - The National Environmental Management Act, 1999 (Act No. 107 of 1999)
 - The Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
 - South African Revenue Service Act, 1997 (Act 34 of 1997)
 - National Development Plan Vision 2030

Legislative Governing SANEDI Mandate



SANEDI Laws and regulations applicable



- Medium-Term Strategic Framework
- National Energy Efficiency Strategy of the RSA, 2008
- Energy Security Master Plan for Liquid Fuels, 2007
- Energy Security Master Plan, 2007
- Integrated Resource Plan for Energy, 2010
- Department of Science and Technology 10 Year Innovation Plan
- Measurement and Verification Guideline for Energy Efficiency Certificates (DRAFT)
- Industrial Policy Action Plan (IPAP) 2010/11 – 2012/13, published Feb 2010
- Carbon Capture and Storage Road Map
- Climate Change Response White Paper



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Strategic Plan

ENERGY INNOVATION FOR LIFE



- 🔥 Energy is a vital resource that is a key enabler if the government is to achieve National imperatives as contained in the National Development Plan and MTSF.
- 🔥 Universal, sustainable and affordable energy needs to be achieved to power economic growth and development.
- 🔥 The focus of our strategy will be centred around the creation of an enabling environment within which policy decisions and investments in energy can take place.

Executive Summary



- 🌍 This will be done through:
 - Provision of timely, quality and reliable data sources
 - Accurate and balanced data analysis
 - Policy support instruments
 - Capacity building initiatives
 - Sector support interventions
 - Awareness creation of transition technologies
 - Administrative support of government programmes
- 🌍 We will strive for continuous alignment with the DMRE and continuous engagements
- 🌍 Partnerships will be vital to the successful delivery on our mandate as these will allow us to leverage external resources , especially in the light of current budgetary constraints that the government is facing.



- 🌱 To this end, we will strengthen existing partnerships and pursue further opportunities with:
 - Academia (Universities, TVET colleges etc.)
 - Other national government departments
 - Other organs of states
 - Donor agencies
 - Private sector
- 🌱 We will continue with work on CCUS, extending the project from just the compliance side of storage to utilisation:
 - This is vital to the maintenance of coal as our primary energy sources
 - Reduction of GHG emissions
 - Creation of an new industries through use of Co2 as feedstock in manufacturing processes



- 🌍 The country has embraced the concept of smart cities which will require a smart electricity grid. Work will focus on:
 - the technologies and systems for smart cities
 - Financial sustainability of municipalities
 - Cleaner mobility and decarbonisation of transport
 - Capabilities required for Smart systems
- 🌍 Business case for building of municipal fleet looking at resolving:
 - Reduction in the cost of transportation
 - GhG emissions reduction
 - Congestion management
 - Possibility of securing additional revenue for municipalities

Executive Summary



- 🌱 Focus will also be placed on Pilots that have greater potential for maximum GHG emissions reduction in the long term.
- 🌱 Capacity building initiatives will focus on youth, women, persons with disabilities while support will also be given to SMMEs involved within the energy sector.

External Environmental Analysis



Global external environment perspective



Observed Global trends :

- Changing demographic patterns and increases in urbanization
- Increased environmental sensitivity and awareness driving socio-political and economic discourse and
- Information and technological advancements

Considered the impact of these on :

- Current energy demand
- Projected energy demand
- Infrastructure developments
- Servicing Energy Demand
- Impact on the environment and
- GHG emissions

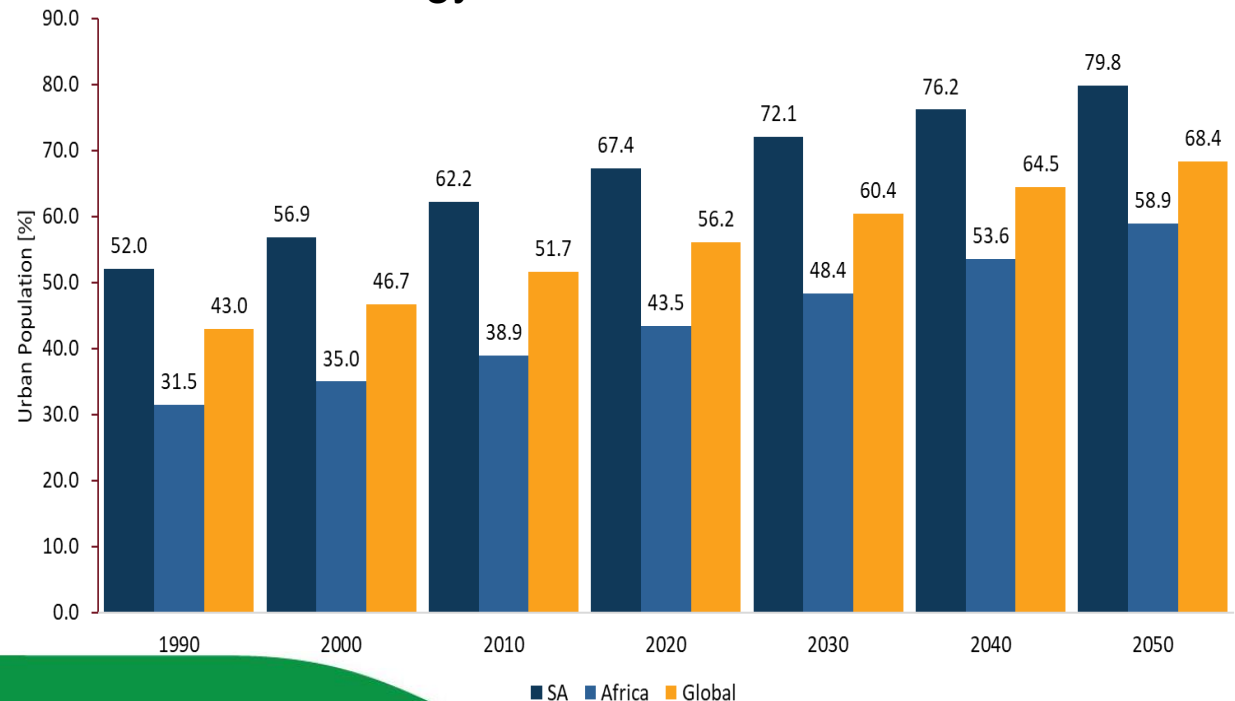
External Environmental Analysis



Urbanisation



- Increasing trend of urbanisation, about 55% of the world population currently lives in cities, with the number set to reach 68% in 2050.
- *Projections for SA, 80% by 2050.*
- Cities account for more than 70% of global greenhouse gas emissions and use two-thirds of the world's energy.



External Environmental Analysis



Convergence and Smart Cities



- Convergence is driven largely by technological advancements
- Availability of information contained in integrated data sources and accessibility of such around the world have consequentially
 - changed how decisions are being made,
 - how businesses operate, and
 - how data has influences strategic and operational considerations
 - encapsulated in the drive towards 4IRdrive

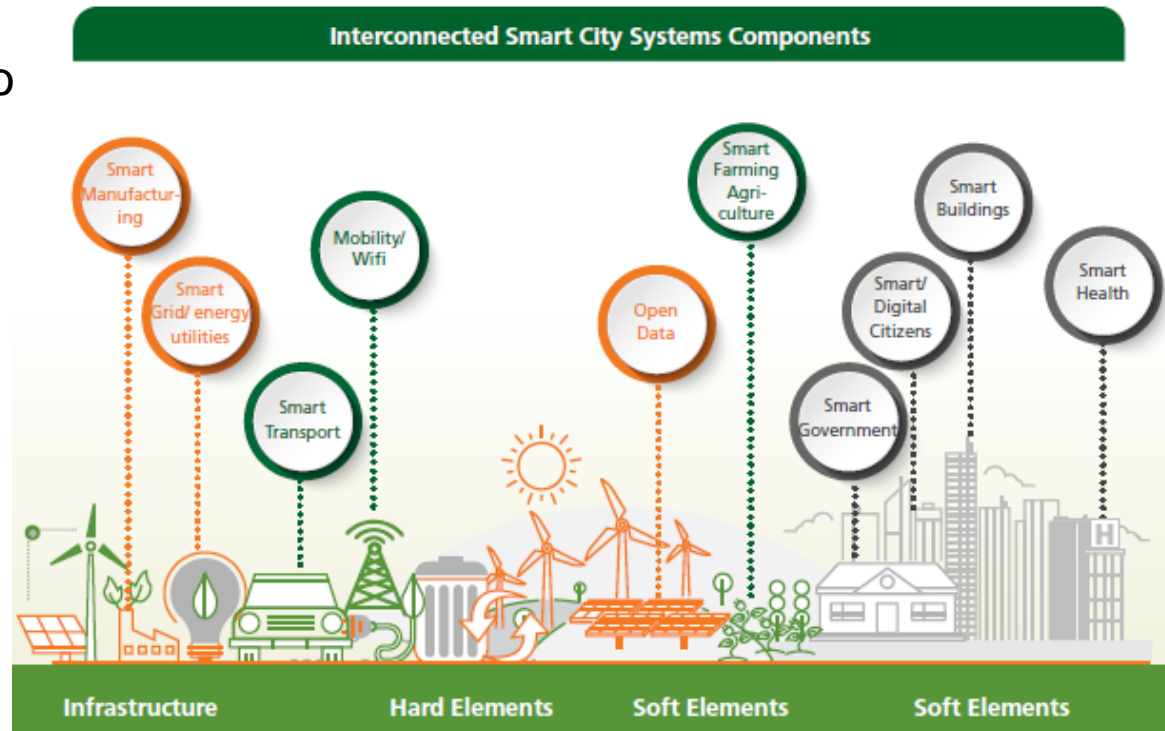
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Convergence and Smart Cities



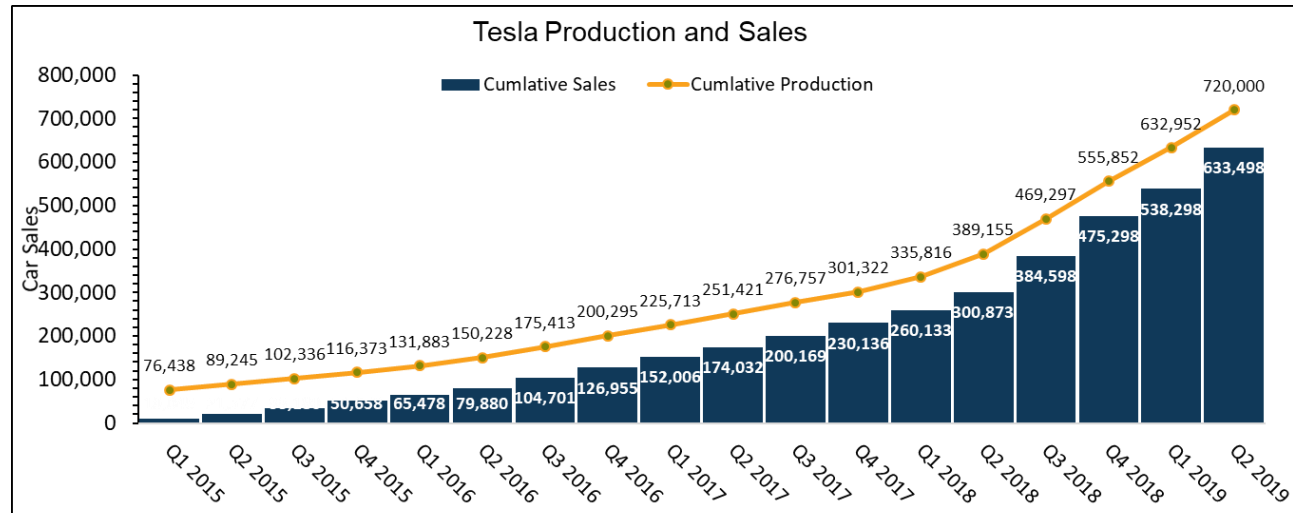
- Smart Cities concept has also gained traction globally fuelled by ICT developments and accessibility of information.
- There parts : Collecting, communicating and 'crunching' (Analysing) enabling quick responsive systems.
- Smart electricity systems as part of these smart cities



External Environmental Analysis

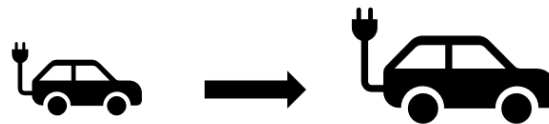


- Smart cities/Smart Grids also embraces the migration to electric vehicles
- EV also being an integral part of smart Grid



EV Policy Commitments

Policy commitment could spur the global EV market and OEMs are projecting significant stock growth.



10 – 15 million EVs by 2020

44 – 95 million EVs by 2025

Of the BRICS, China and India have made commitments that speak to electric mobility transfers.

China:

- 5 million EV's by 2020

India:

- 30% market share in EV sales by 2030
- 100% Bus EV market share in urban areas by 2030

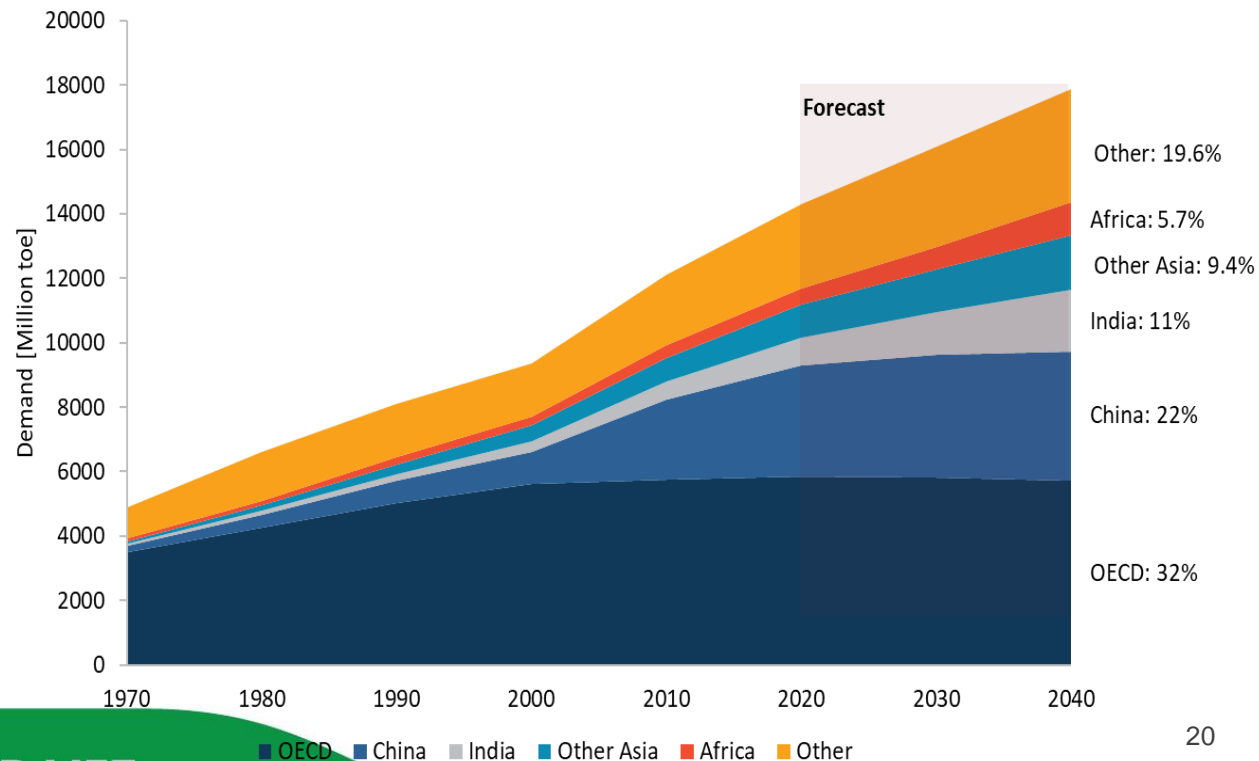
External Environmental Analysis



Rising energy demand



- BP Energy Outlook (2018), demand will continue to grow, with global energy consumption set to increase by approximately 30% by 2040.
- Energy consumption by residential buildings and transport jointly contribute about half (51.3%) of energy consumption.



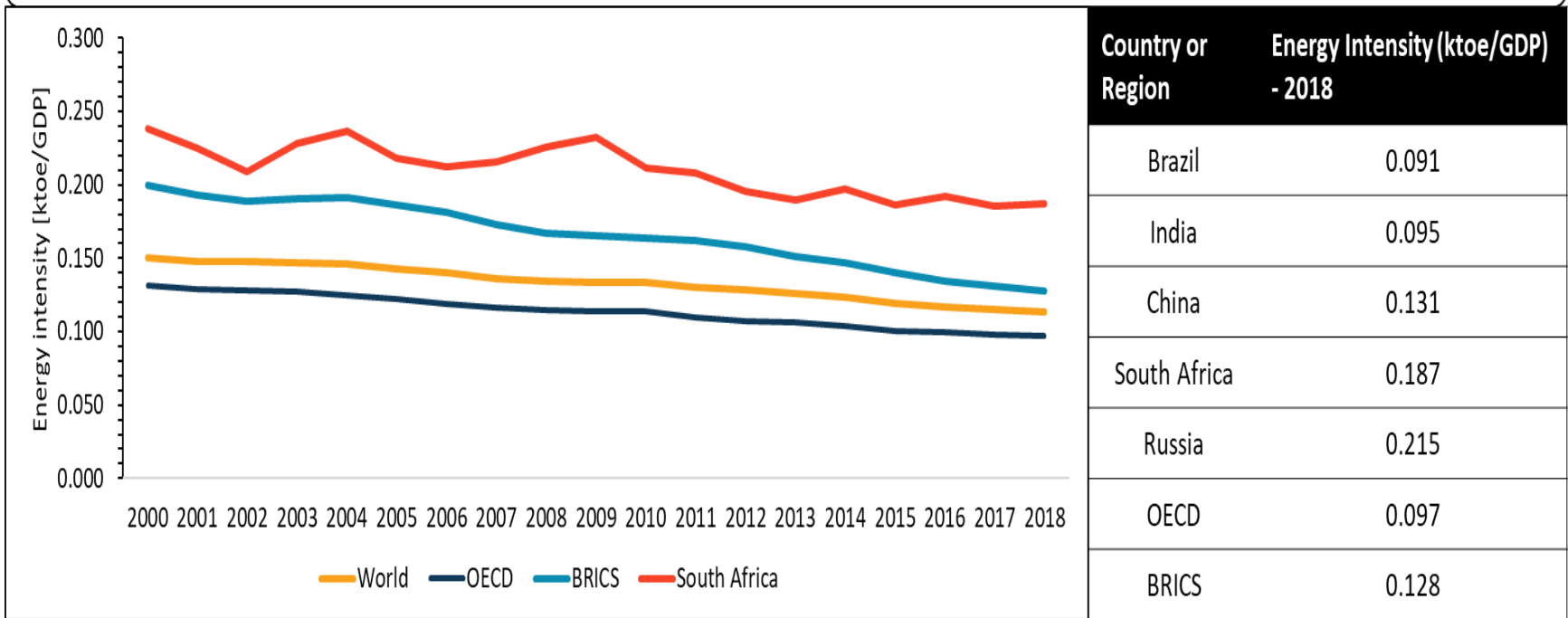
External Environmental Analysis



Rising energy demand



South African energy productivity (or energy efficiency) has improved but seems to be plateauing. Emphasis must be placed on converting scarce energy resource into greater economic production for South Africa to be globally competitive.



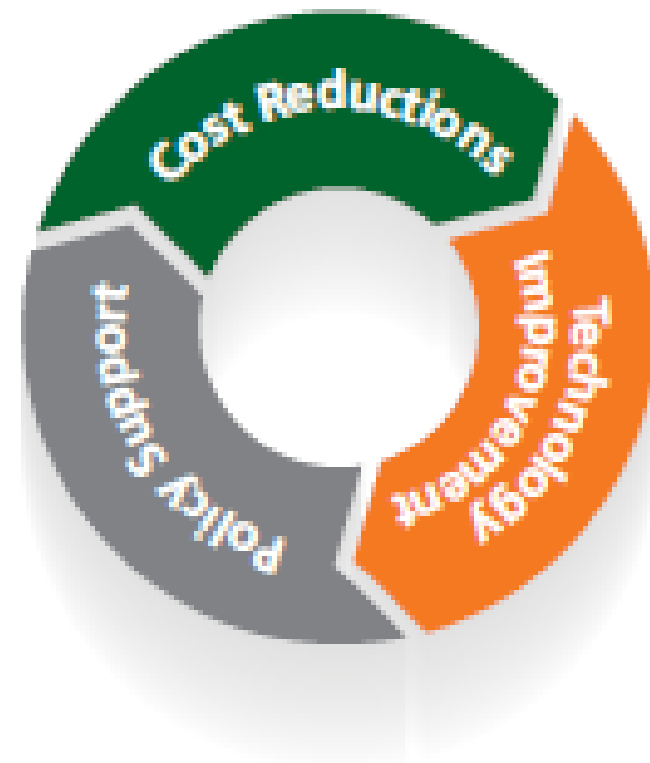
External Environmental Analysis



Increasing Penetration of Renewables



- 🌱 Environmental and economic considerations (primarily climate change) are driving the shifts towards decarbonisation (away from Coal), towards renewable energy and natural gas.
- 🌱 Global developments:
 - Enabling policy environment,
 - Reduction in costs
 - Technological improvements



External Environmental Analysis

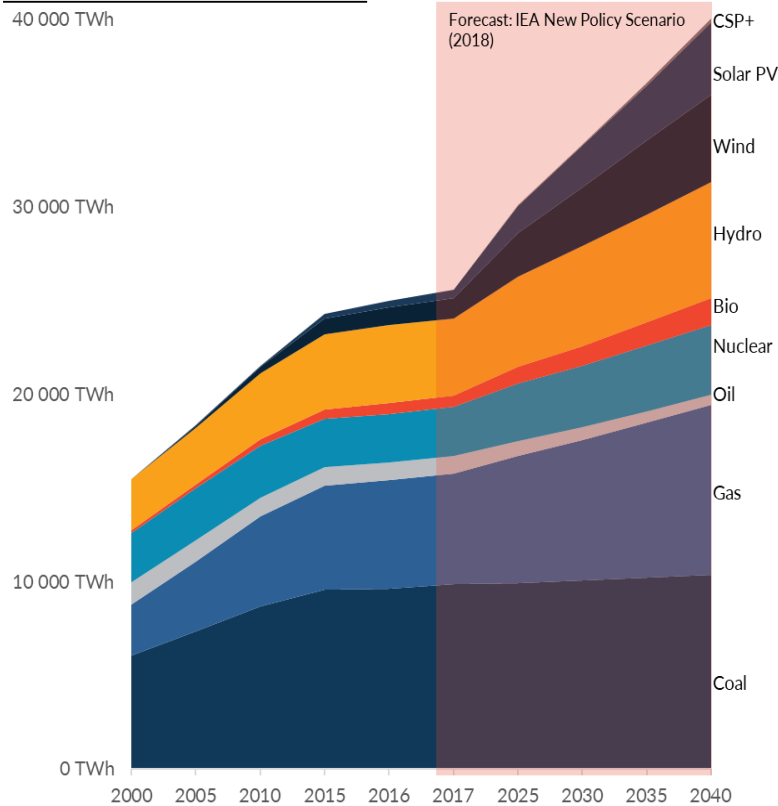


Increasing Penetration of Renewables



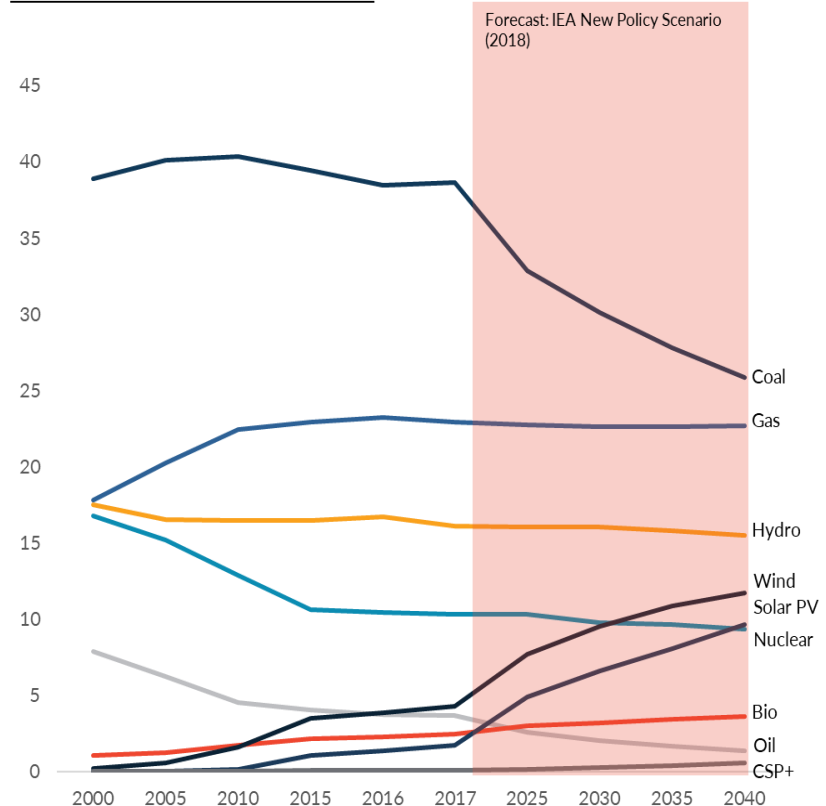
- Projected Increase in energy generated from Wind, Solar PV by 2040

Electricity Outlook (Actual)



Source: International Energy Agency, 2018 World Energy Outlook

Energy Outlook (Relative)



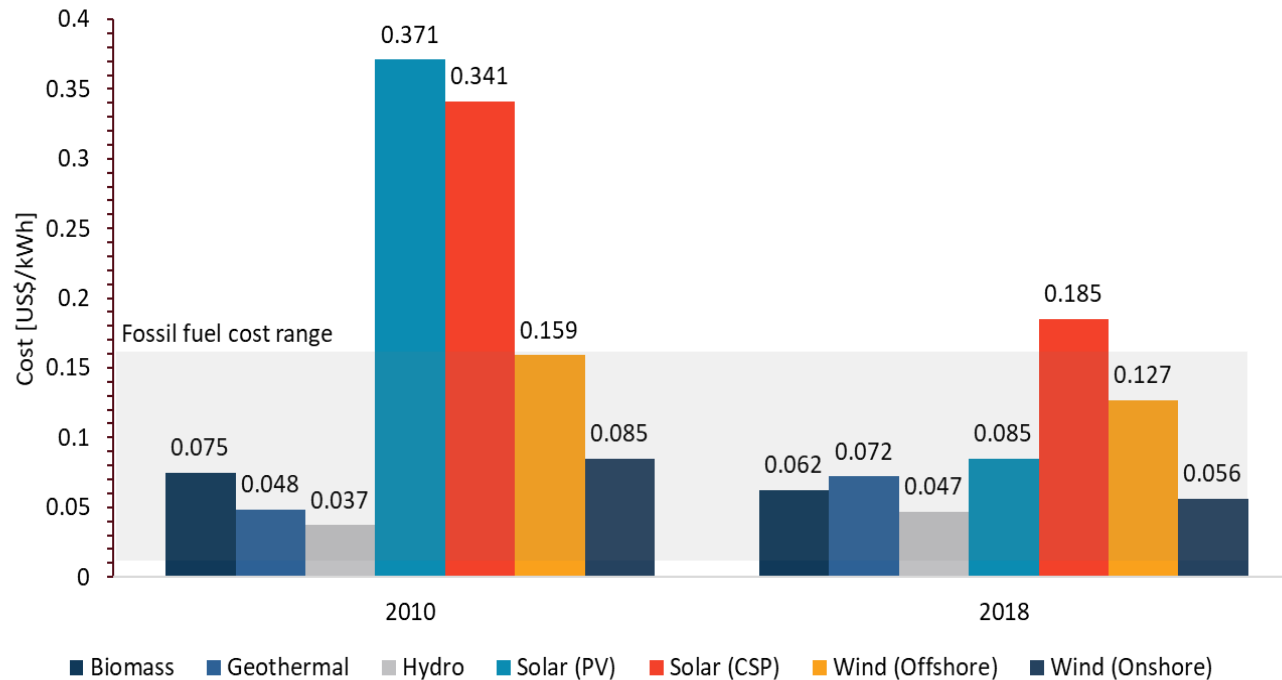
External Environmental Analysis



Increasing Penetration of Renewables



- LCOE for renewables significant in comparison to fossil fuel alternatives



External Environmental Analysis



Environmental Sustainability



- South Africa is a Party to the UNFCCC and also a Party to the Kyoto Protocol that established CO2 emission reduction targets
- Target is still to reduce global warming to below 1.5 degrees centigrade

Country or Region	Carbon Intensity (ktCO ₂ /GDP) - 2018
Brazil	0.132
India	0.232
China	0.393
South Africa	0.574
Russia	0.471
OECD	0.217
BRICS	0.345

External Environmental Analysis



National external environment perspective



- 🇿🇦 Stagnating economic growth, rising unemployment and income inequality
- 🇿🇦 Fiscal pressure has resulting in a constrained budget
- 🇿🇦 The need for reprioritization of resources to create a lasting and sustainable impact
- 🇿🇦 South African sovereign debt levels
- 🇿🇦 The need for high return levels to attract foreign investment due to lower credit ratings

External Environmental Analysis

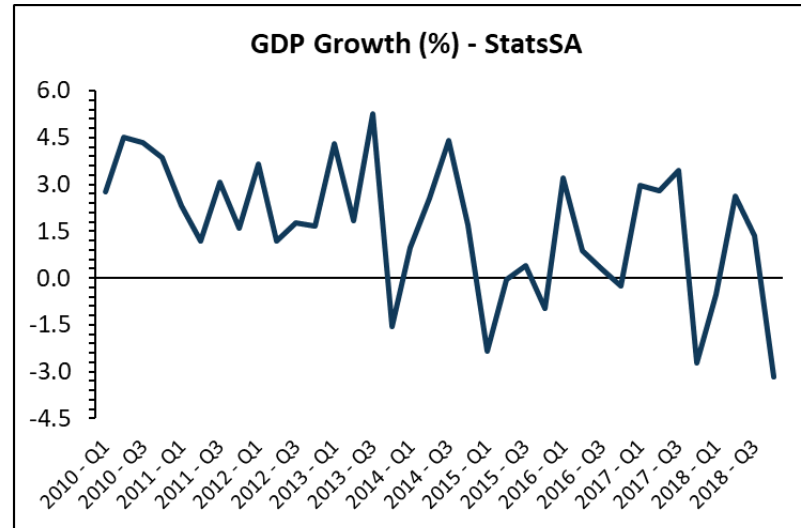


-3.2%

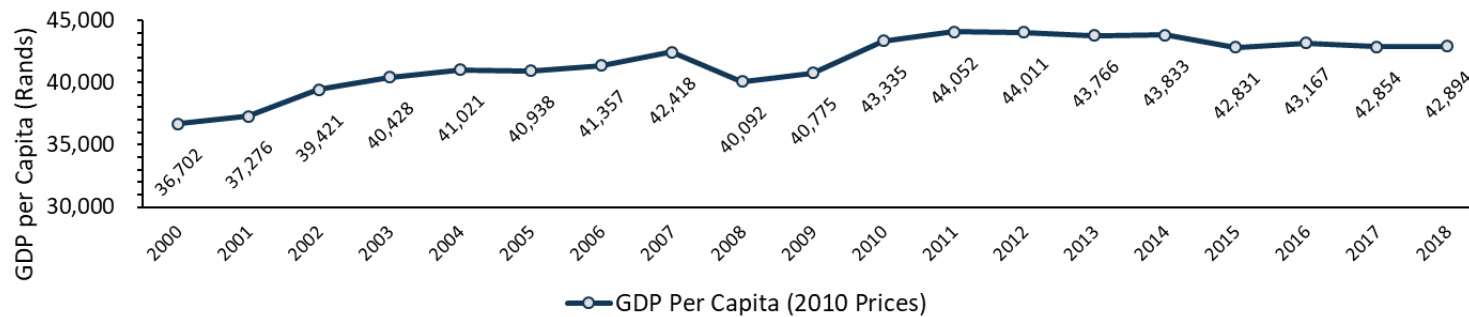
Real GDP contracted by 3.2% in the first quarter. GDP growth has been more negative than positive since 3rd quarter 2013.

87th

South Africa ranks 87th out of 186 countries in terms of GDP per capita. GDP per capita has been decreasing since 2011.



GDP Per Capita (2010 Prices) - Worldbank



External Environmental Analysis



ESKOM and Municipality Service Delivery perspective

- 🌱 Eskom supplies 95% of South Africa's electricity with 92% of the electricity being generated from coal.
- 🌱 That 41% of Eskom's sales are to municipalities who currently have a combined arrears in excess of R19 billion.
- 🌱 Electricity sales made up 26.9% of municipal revenues and electricity purchases made up 21.4% of municipal operating expenditure.
- 🌱 Increasing electricity costs
- 🌱 Inconsistent supply of energy due to Load shedding
- 🌱 Universal modern energy access not yet achieved

Municipality	Debt in Rands
Free State:	7 317 486 321
Mpumalanga:	5 192 724 347
Gauteng:	1 425 648 553
North West:	424 464 273
Limpopo:	402 093 606

External Environmental Analysis

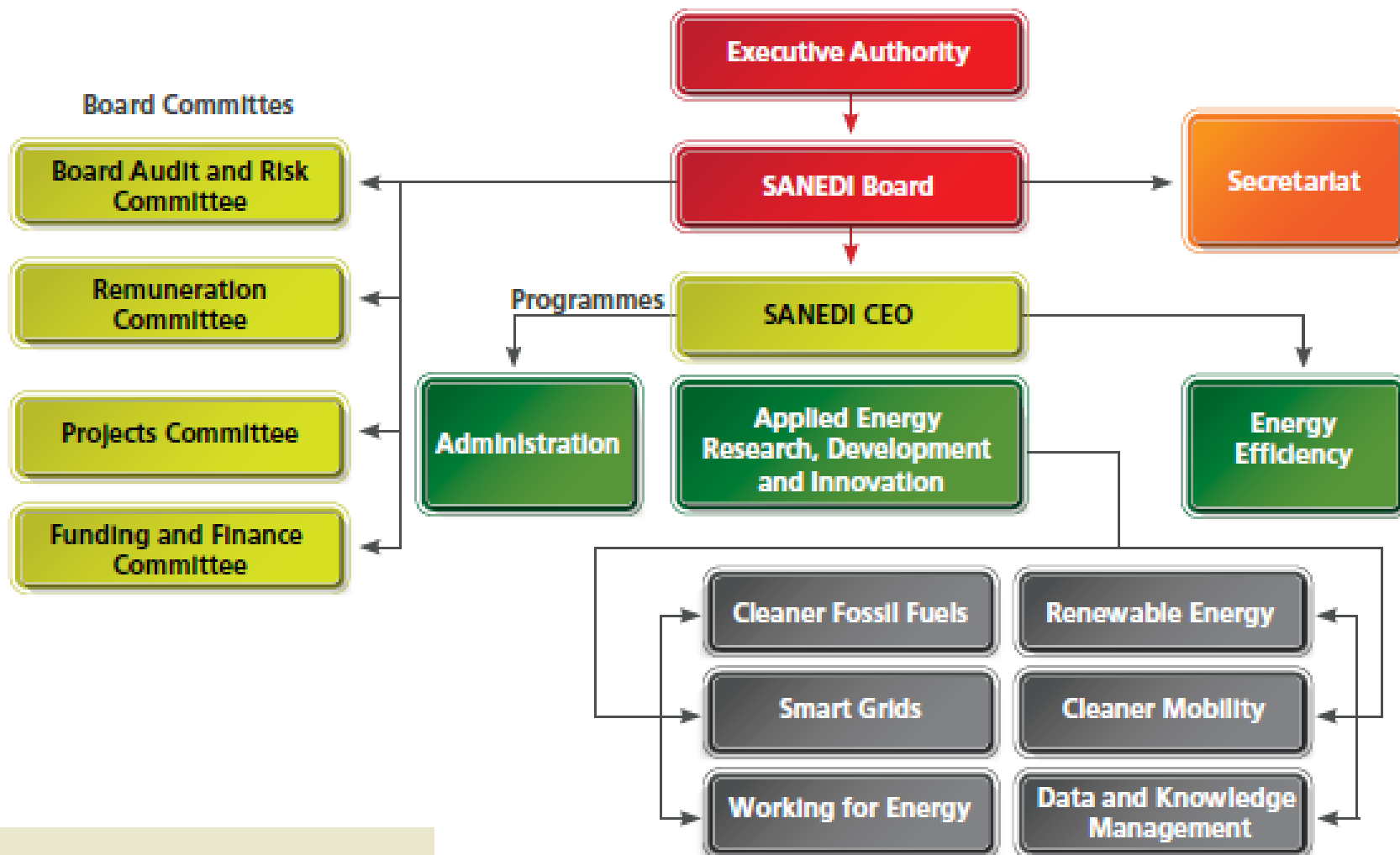


Policy and regulatory landscape

Ambition of the country as stated in the IRP

- Energy demand locally is expected to increase by 1,8-2% annually until 2030 per the IRP,
- Energy mix targets
- GHG emission targets/ strategies

Internal Environmental Analysis

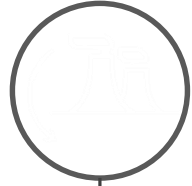


SANEDI's activities contribute across the entire energy landscape, to all of society



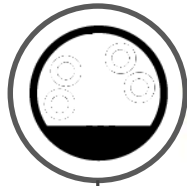
Cleaner Fossil Fuels

Carbon capture and storage
Carbon utilisation
Clean coal technologies
Hybrid systems



Smart Grids

Municipal / ESI sustainability
Integration of distributed and variable generation sources
Support for advanced appliances / electric vehicles



Cleaner Mobility

Electric vehicles
Clean fuels (NLG, CNG, etc.)
Public transport systems
Pedestrian / cycling enabled



Data and knowledge management

National energy data repository
Energy modelling skills and capacity
Analysis and modelling
Decision and planning support tools



Renewable Energy

Solar power
Wind energy
Waste to energy
Wave and ocean current
Storage
Skills development



Working for Energy

Clean energy solutions for rural and peri urban areas
Employment creation
Research



Energy Efficiency

Improved resource efficiency
Technical assistance facility
Industry development
Tax incentives



Internal Environmental Analysis



- 🌱 SANEDI has undergone an organisational restructuring and benchmarking exercise to ensure efficient utilisation resources in delivering the mandate.
- 🌱 Focus on creating a performance enabling culture, strengthening the organisational structure.
- 🌱 limited funds available, resource effectiveness and efficiency by focusing on real value creation is key to the long-term sustainability of SANEDI.
- 🌱 Historically, 65% of SANEDI's budgeted income has been from donor-funded projects.
- 🌱 Programme 2 has historically been allocated approximately 70% of the overall funding because of its volume of sub-programmes.

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 5: Spatial integration, human settlements and local government Priority 2: Economic transformation and job creation	Smart Grid systems Piloted for Smart cities	3 Smart systems Pilot projects	Applied Energy Research and Development

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 2: Economic transformation and job creation Priority 7 : A better Africa and the World Priority 3 : Education, skills and health	Demonstrated GHG emissions mitigation potential in support of national commitments	>4.3 MToe CO2 reduction potential [CO2 equivalent]	Applied Energy Research and Development

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 7 : A better Africa and the World Priority 2: Economic transformation and job creation	An awareness of the technologies to be used in the transition process (for an increasingly aware society on energy transition solutions)	evidenced backed awareness of technologies to be used in the transition process.	Applied Energy Research and Development and Energy Efficiency

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 1: A capable, ethical and developmental state Priority 3: Education, skills and health	Evidence based planning, resource allocation and decision making enabled by accurate and timely information, datasets and data analytics	A centralised and up to date data repository on Clean and Cleaner Fossil fuels available to stakeholders	Applied Energy Research and Development and Energy Efficiency

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 1: A capable, ethical and developmental state	<p>Energy transition expertise and competence building enabled</p> <p>A capacitated, effective and efficient operational environment (within which SANEDI will discharge its mandate) – internal compliance</p>	<p>>10 Expertise and competency building solutions assessed</p>	<p>Applied Energy Research and Development and Energy Efficiency</p>

Outcomes and Targets



Impact Statement :

Enabling decarbonisation and a just transition from a fossil fuel-based economy to an efficient cleaner energy economy. for sustainable development.

MTSF Priority	outcome	Targets	Programme
Priority 1: A capable, ethical and developmental state	<p>Internal Operational effectiveness and efficiency</p> <p>A capacitated, effective and efficient operational environment (within which SANEDI will discharge its mandate) – internal compliance</p>	<p>>84% performance achieved</p> <p>100% implementation of new operating model</p>	Administration

Key Risks



Outcome	Key Risks	Risk Mitigation
Smart city (visibility and control, CO₂ mitigation, energy diversity, interconnection)	<ul style="list-style-type: none"> • Lack of co-ordination between departments and teams • Lack of municipal skills to drive implementation • Political will to drive change 	<ul style="list-style-type: none"> • Driving the linkages between the current requirements of local government and the benefit that smart cities will provide [e.g. smart grid linkage to the smart city] • Communicating the business case for Smart Cities
A skilled and competent workforce within the energy industry as pertains to SANEDI areas of influence	<ul style="list-style-type: none"> • Limited support and buy-ins from stakeholders and constituents [e.g municipalities / other government departments] • Limited Resources to execute [knowledge, finance and human resources] 	<ul style="list-style-type: none"> • Stakeholder engagement, demonstrable outcomes, Communication and awareness • Partnerships and International linkages/collaborations (knowledge-sharing)

Key Risks



Outcome	Key Risks	Risk Mitigation
Reduction of GHG emissions in line with national commitments	<ul style="list-style-type: none">• Lack of funds and investment to drive GHG emission reductions programs	<ul style="list-style-type: none">• Explore alternative funding sources
Create an awareness for the solutions to be used in the transition process	<ul style="list-style-type: none">• Funding for adequate reach and depth• Limited participation	<ul style="list-style-type: none">• Creating a localized reference case

Key Risks



Outcome	Key Risks	Risk Mitigation
Evidence based planning, resource allocation and decision making	<ul style="list-style-type: none"> • Lack of centralized information to drive evidence-based planning • Not being able to access relevant stakeholders [not getting stakeholders to utilize our solutions] 	<ul style="list-style-type: none"> • Building ICT capability • Building relationships and partnerships • Linkage to the DPME
Compliance with legislative and departmental requirements – external compliance	<ul style="list-style-type: none"> • Inadequate resources to execute 	<ul style="list-style-type: none"> • Explore alternative funding sources
A capacitated, effective and efficient operational environment (within which SANEDI will discharge its mandate) – internal compliance	<ul style="list-style-type: none"> • Limited funding and budget allocations • Instability within leadership and governance structures • Mandate of SANEDI pertaining to governance and funding 	<ul style="list-style-type: none"> • Motivate for potential revision of governance aspects of sect. 7 of the NEA



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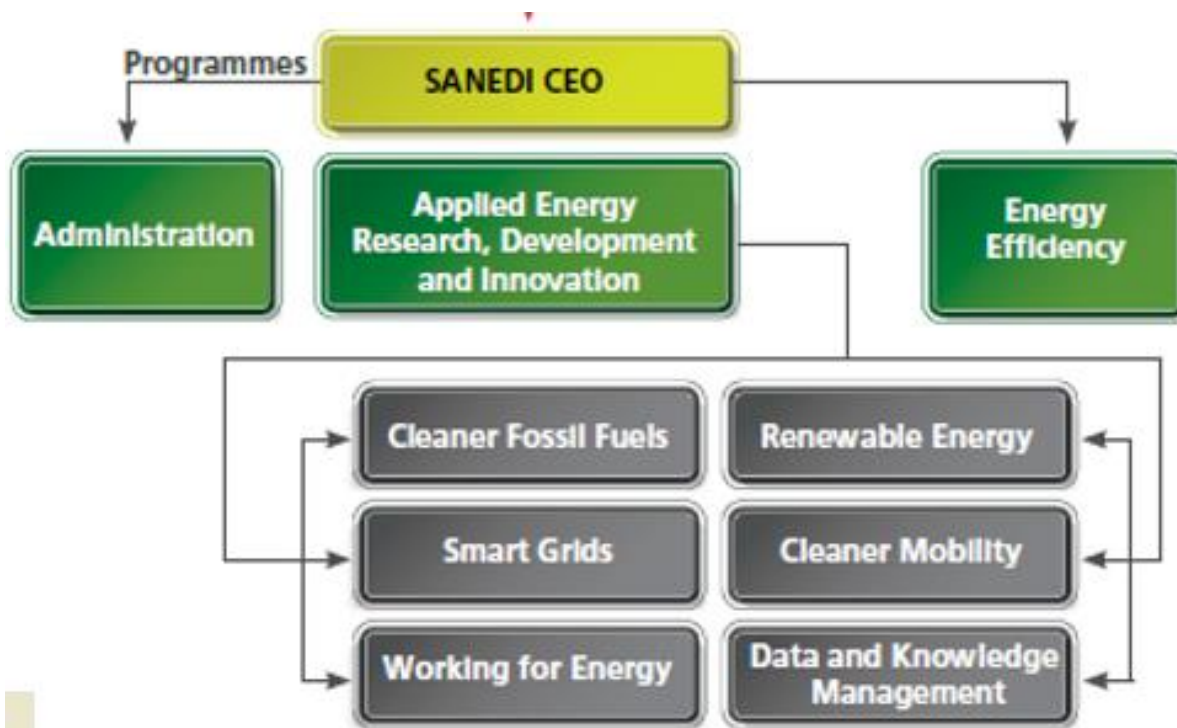
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Annual Performance Plan

ENERGY INNOVATION FOR LIFE

Programme 1: Administration



Programme 1: Administration






PROGRAMME 1 ADMINISTRATION		
Purpose	The purpose of Programme 1 is to create an effectual delivery environment for SANEDI that is fully compliant with all statutory requirements	
Sub-Programmes	Human Resources	Information and Communications Technology
Purpose	Ensuring available, competent and happy staff	Support efficient operations and ensuring data processing, integrity and availability
Sub-Programmes	Corporate Services	Financial Management
Purpose	Incorporating all lines of business and support activities relating to the Board and Board Committees	Including all lines of business and support activities relating to the effectual financial management and auditing practices
Sub-Programmes	Supply Chain Management	Corporate Communications
Purpose	Including all lines of business and support activities relating to effectual supply chain management	Including all lines of business and support activities relating to effectual communications including stakeholder engagement, client satisfaction surveys, public awareness campaigns in collaboration with the DMRE and media intelligence
Sub-Programmes	Shared Logistics	
Purpose	Including shared facilities/resources shared by all managers to ensure a conducive and productive working environment	Ensure adequate project selection resource allocation, project management and performance monitoring

Programme 1: Administration






Outcome	Interventions	2019-20 Target	2020-21 Target
Internal Operational effectiveness and efficiency	Critical business risk factors identified, managed as per risk management plan	>90%	>90%
	Implementation of corporate stakeholder engagement plan (CESP)	75%	75%
	Implementation of corporate ICT plan	80%	80%

-  Appropriate strategies for risk management are developed, implemented, monitored to reduce risks to acceptable levels GHG emission targets/ strategies
-  Resilient and responsive ICT infrastructure to support administrative functions and also enablers for delivery on our mandate.
-  Development, implementation and monitoring of stakeholder engagement plans aligned to stakeholder engagement strategies.

Programme 1: Administration




Outcome	Interventions	2019-20 Target	2020-21 Target
Internal Operational effectiveness and efficiency	Unqualified audits	Unqualified audit opinion	Unqualified audit opinion
	Adherence to employment equity targets	<5%	<5%
	Filled funded positions	<5%	<5%

-  Efficient, effective and cost efficient internal controls to ensure that there is clean administration.
-  Employment Equity targets that are aligned to that of the country
-  Positions are filled with adequately skilled and experienced staff and filled in a manner that does not impact delivery.

Programme 1: Administration



Outcome	Interventions	2019-20 Target	2020-21 Target
A capacitated, effective and efficient operational environment (within which SANEDI will discharge its mandate) – internal compliance	Personnel trained as per Workforce Skills Plan (WSP)	80%	80%

-  Creation of opportunity for development and growth within the organisation through on the job training, bursaries, training programmes etc.

Programme 2: Applied Energy Research



PROGRAMME 2		APPLIED ENERGY RESEARCH, DEVELOPMENT & INNOVATION	
Purpose	The purpose of Programme 2 is to facilitate knowledge creation that can support energy-related planning and decision-making and accelerating the transformation of the energy market and landscape in the country.		
Sub-Programmes	Renewable Energy	Cleaner Fossil Fuels	
Purpose	Support the accelerated and informed development of South Africa's clean energy portfolio and RE sector	Alternative low carbon energy and mitigation options to limit serious, negative and environmental impacts from conventional energy sources	
Sub-Programmes	Data and Knowledge Management	Cleaner Mobility (to be consolidated with Renewables)	
Purpose	Collation, development and utilisation of credible, objective and high-quality data and information relating to the areas of SANEDI's responsibility	Developing Cleaner Mobility Solutions for Public Transportation	
Sub-Programmes	Smart Grids	Working for Energy (to be consolidated with Renewables)	
Purpose	Demonstrate and assess intelligent energy systems infrastructure as an enabler for municipal sustainability	Demonstrating innovative, sustainable energy solutions for rural and low-income urban areas	

Programme 2: Applied Energy Research



Energy Research and Development

- **Direct, monitor, conduct and implement energy research and technology development in all fields of energy, other than nuclear energy; and**
- **Promote energy research and technology innovation;**
- **Provide for:**
 - training and development in the field of energy research and technology development;
 - establishment and expansion of industries in the field of energy; and
 - commercialisation of energy technologies resulting from energy research and development programmes;
- **Register patents and intellectual property in its name resulting from its activities;**
- **Issue licences to other persons for the use of its patents and intellectual property;**
- **Publish information concerning its objects and functions;**
- **Establish facilities for the collection and dissemination of information in connection with research, development and innovation;**
- **Undertake any other energy technology development related activity as directed by the Minister, with the concurrence of the Minister of Science and Technology;**
- **Promote relevant energy research through cooperation with any entity, institution or person equipped with the relevant skills and expertise within and outside the Republic;**
- **Make grants to educational and scientific institutions in aid of research by their staff or for the establishment of facilities for such research;**
- **Promote the training of research workers by granting bursaries or grants-in-aid for research;**
- **Undertake the investigations or research that the Minister, after consultation with the Minister of Science and Technology, may assign to it; and**
- **Advise the Minister and the Minister of Science and Technology on research in the field of energy technology.**

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
1. Reduction of GHG emissions in line with national commitments	Proof of concept of CCUS in South Africa	Energy solutions assessed (advisory notes, feasibility reports, complete study reports, case studies, technology	3	3
	Smart public facilities (Renewable Energy SANEDI driven initiative contributing towards GHG reduction)	Energy solutions assessed (advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities)	5	13

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
2. Create an awareness for the technologies to be used in the transition process	Awareness of and adoption/application of CFF fuel technologies for Business, researchers, academia and society at large.	Energy-related knowledge sharing events / platforms engaged in (own hosted, attended, knowledge presented, supported)	0	1
	Stakeholder awareness of RE technologies and of adoption/application of RE technologies.	Energy-related knowledge sharing events / platforms engaged in (own hosted, attended, knowledge presented, supported)	7	12

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
2. Create an awareness for the technologies to be used in the transition process	Provision of clean energy technologies training in the sector (including municipalities)	Number of recipients of energy-related training facilitated	165	270
	Research publications reflecting clean coal insights	Number of annual Energy industry status report (insights, trends, international and national collaboration decisions, interfacing and forums)	2	1
	Research publications reflecting clean energy insights	Number of annual Energy industry status report (insights, trends, international and national collaboration decisions, interfacing and forums)	5	4

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
2. Create an awareness for the technologies to be used in the transition process	Provision of clean energy technologies training in the sector (including municipalities)	Number of recipients of energy-related training facilitated	165	270
	Research publications reflecting clean coal insights	Number of annual Energy industry status report (insights, trends, international and national collaboration decisions, interfacing and forums)	2	1
	Research publications reflecting clean energy insights	Number of annual Energy industry status report (insights, trends, international and national collaboration decisions, interfacing and forums)	5	4

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
<p>3. Evidence based planning, resource allocation and decision making enabled by accurate and timely information, datasets and data analytics</p>	<p>Information and data made available for policy development</p>	<p>Number of energy solutions assessed (advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities)</p>	<p>7</p>	<p>7</p>
	<p>Accessible and high-quality data: Maintain energy-related datasets</p>	<p>Minimum number of energy-related datasets maintained per annum</p>	<p>6</p>	<p>8</p>

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
4. Energy transition expertise and competence building enabled	Training modules and programmes relevant to the current environment	Policy support instruments (industry roadmaps, sector development plans and industry support tools, etc.)	0	5
	Training programmes as well as trained, skilled participants	Recipients of energy-related training facilitated	739	472
	Energy Research students and researchers supported	Number of energy-related research students / contracted researchers supported (e.g. bursaries, non-bursaries, contract opportunities, infrastructure support, etc.)	2	5

Programme 2: Applied Energy Research



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
5. Smart city (visibility and control, CO2 mitigation, energy diversity, interconnection)	Smart grid: the development of a business case for municipal smart grid (revenue, asset management) roll-out, visibility and control, DMRE priority areas (enhanced revenue management, smart asset management)	Energy solutions assessed (advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities)	1	3
	Greened municipal fleet, cleaner transport massification	Energy solutions assessed (advisory notes, feasibility reports, complete study reports, case studies, technology roadmaps and operational demonstration facilities)	1	1

Programme 3: Energy Efficiency



PROGRAMME 3	ENERGY EFFICIENCY
Purpose	The purpose of Programme 3 is to accelerate a shift towards a resource and particularly, an energy (including gas, liquid fuels, electricity and water) efficient society
Sub-Programmes	The Energy Efficiency programme does not have any sub-programmes

SANEDI EE activities aligned to the mandate per the National Energy Act of 2008



“The cheapest form of energy is the one you do not use”
Author Unknown

Programme 3: Energy Efficiency



Baseline :

DMRE directed EE interventions

- ⑩ Energy Efficient Appliance Labelling support
- ⑩ Energy Efficiency in public buildings proposal development
- ⑩ Industrial Energy Efficiency project
- ⑩ Energy Efficiency-related data collection support
- ⑩ Cool coatings

Nation Wide EE increase

- ⑩ 130 post graduate bursars in Energy Management through UP EEDSM Hub
- ⑩ 10 M & V incubation/ capacity building for SMMEs
- ⑩ 2 x annual national road shows in all 9 provinces on Energy Efficiency & 12L tax incentives
- ⑩ Multiple energy related training workshops undertaken & conferences addressed

Increase GDP per energy consumed

- ⑩ >19Twh of electricity savings
- ⑩ >13 730 Mega-tonnes of Co2

Optimise Finite Energy resources

- ⑩ International Big EE Database
- ⑩ 12L incentives database
- ⑩ ESCO Register
- ⑩ ESCO National Training programmes
- ⑩ SUNREF I and SUNREF II
- ⑩ Cool Roofs Supplier & Product database
- ⑩ M & V Professional Expert Rotational database

Programme 3: Energy Efficiency



DMRE directed Interventions

Partnership:

- SANEDI (Energy Efficiency) ,
- Department of Mineral Resources and Energy (DMRE),
- the Department of Public Works and Infrastructure (DPWI) and
- the Department of Co-operative Governance and Traditional Affairs (COGTA),

In the implementation of two, three-year European Union(EU)-funded projects in the public sector, focusing primarily on data collection and modelling energy performance:-

- To improve energy and environmental performance of government buildings, through an accelerated integration of renewable energy and energy efficient technologies.
- To achieve a net-zero energy of South African Wastewater Treatment Plants (WWTPs), through the deployment of integrated biogas cogeneration/Combined Heat and Power (CHP) and energy efficient technologies.



DMRE directed Interventions

- 🌱 SANEDI (Energy Efficiency), will be responsible for the Measurement and Evaluation (M & E) function of a five-year (*Vertical*) Nationally Appropriate Mitigation Action (**V-NAMA**) funded programme,
- 🌱 Titled '**Energy Efficiency in Public Buildings and Infrastructure Programme (EEPBIP)**', involving various government departments, (nationally, provincially and at a local government level).
- 🌱 The SANEDI/ M & E component of this programme has a grant budget of Euro 700 000.00 and the project is due to officially commence during 2020.

Programme 3: Energy Efficiency



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
Demonstrated GHG emissions mitigation potential in support of national commitments	Processed 12L tax applications	Number of EE solutions implemented	1	1
	Smart public facilities (and any other SANEDI driven initiative contributing towards GHG reduction)	Number of EE solutions Assessed	56	6

Programme 3: Energy Efficiency



Outcome	Outputs	Interventions	2019-20 Target	2020-21 Target
2. Evidence based planning, resource allocation and decision making	Administration of 12i and 12l tax incentives	EE energy-related datasets maintained per annum	1	1
	Register of energy performance certificates for commercial buildings	EE energy-related datasets maintained per annum	New indicator	1

Budget allocation



STATEMENT OF FINANCIAL PERFORMANCE	REVISED ESTIMATE	AVERAGE GROWTH RATE (%)	AVERAGE: EXPEN-DITURE/ TOTAL (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	AVERAGE: EXPEN-DITURE/ TOTAL (%)
	2019/20	2016/17 - 2019/20		2020/21	2021/22	2022/23	2019/20 - 2022/23	
Revenue								
Non-tax revenue	6 330	-40,9%	13,7%	6 678	1 000	4 672	-9,6%	2,1%
Economic classification item	6 330			6 678	1 000	4 672	-9,6%	2,1%
Transfers received	226 084	-40,9%	13,0%	227 563	205 190	199 311	-4,1%	97,9%
Total revenue	232 414	61,0%	86,3%	234 241	206 190	203 983	-4,3%	100,0%
Expenses								
Current expenses	232 414	-	-	234 241	206 190	203 983	-4,3%	100,0%
Compensation of employees	50 735	28,2%	100,0%	54 103	57 540	59 927	5,7%	25,6%
Goods and services	179 020	0,7%	31,9%	177 333	145 676	140 030	-7,9%	73,0%
Depreciation	2 659	44,4%	67,1%	2 805	2 974	40 268	14,8%	1,4%
Interest, dividends and rent on land	-	-	-	-	-	-	-	-
Transfers and subsidies								
Total expenses		28,2%	100,0%	234 241	206 190	203 091	-4,3%	100,0%
Surplus / (Deficit)		-100,0%	-	-	-	-	-	-
Statement of financial position								
Balance sheet item								
Total assets	90 932	172,9%	-33,0%	96 342	101 640	107 231	5,6%	100,0%
Balance sheet item								
Total equity and liabilities	90 932	172,9%	-33,0%	96 342	101 640	107 231	5,6%	100,0%

Budget allocation



- 🌱 Expenditure on goods and services is projected to increase by 73,3% over the MTEF mainly as a result of World Bank funded carbon Capture and Storage Pilot and the two Energy Efficiency.
- 🌱 Cost containment measures will continue to be implemented to contain expenditure. Administrative expenditure related to programme 1, governance and administration will in expected to increase by 20,5% over the remainder of the medium term.
 - focus on improving control efficiencies and automation of processes of data management processes.
 - New business development will also be our core focus as well as implementation of the organisational review recommendations. Core mandate expenditure relating to programme 2 and 3, that is Applied Energy
- 🌱 Research and Energy Efficiency, will increase by 79,5% in the future periods with the Carbon Capture and Storage Pilot being the largest contributor to the expenditure estimates



sanedi

South African National Energy
Development Institute (SNC) Ltd.



**THANK
YOU**

ENERGY INNOVATION FOR LIFE

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