



SECTOR SKILL PLAN **2023/24**

ACRONYMS

4IR	Fourth Industrial Revolution
AET	Adult Education and Training
APP	Annual Performance Plan
ATR	Annual Training Report
BOTT	BOTT (build, operate, train and transfer)
CET	Community Education and Training
CMA	Catchment Management Agency
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DMRE	Department of Mineral Resources and Energy
DPE	Department of Public Enterprises
DWS	Department of Water and Sanitation
ECSA	Engineering Council of South Africa
EW	Energy and Water
EWSETA	Energy and Water Sector Education and Training Authority
GDP	Gross Domestic Product
HEIs	Higher Education Institutions
HEMIS	Higher Education Management Information System
HEQSF	Higher Education Qualifications Sub-framework
ICT	Information and Communication Technology
IPAP	Industrial Policy Action Plan
IPP	Independent Power Producer
JET	Just Energy Transition
NC(V)	National Certificate (Vocational)
NDP	National Development Plan
NEET	Not in Employment, Education or Training
NQF	National Qualifications Framework
NSC	National Senior Certificate
NSDP	National Skills Development Plan
NSSS	Non-sewered sanitation systems (NSSS)
NWRS	National Water Resource Strategy
PHEIs	Private Higher Education Institutions
PIVOTAL	Professional, Vocational, Technical and Academic Learning (Programmes)
PSET	Post-School Education and Training
QLFS	Quarterly Labour Force Survey
RPL	Recognition of Prior Learning
SARS	South African revenue Service
SDL	Skills Development Levy (SDL)
SETA	Sector Education and Training Authority
SMMEs	Small, Medium and Micro Enterprises
SOE	State-Owned Enterprise
SP	Strategic Plan
SPOL	Sectoral Priority Occupations and Interventions List
SSP	Sector Skills Plan
WSP	Workplace Skills Plan

FOREWORD

In its third rendition of the five-year planning cycle, the Energy and Water Sector Education and Training Authority (EWSETA) Sector Skills Plan (SSP) has been developed through research to support evidence-based skills planning processes for the energy and water (EW) sector.

The SSP embodies skills development imperatives in support of a developing economy geared toward the realisation of a predetermined directive; that is, to realise the overarching vision articulated by the National Development Plan (NDP). The National Skills Development Plan (NSDP), on the other hand, serves as a roadmap to achieving intended outcomes in response to the ambitious vision of the NDP whilst continually supporting sectoral skill needs.

Furthermore, the EWSETA supports national plans and strategies through skills planning and implementation activities, which enhance effective evidence-based decision-making. It is thus the intention of the EWSETA to achieve successful implementation of EWSETA priority actions contained in this SSP which invariably serve to achieve outcomes enunciated through the NSDP.



Ms Mpho Mookapele
EWSETA Chief Executive Officer



Dr Limakatso Moorosi
EWSETA Board Chairperson

EXECUTIVE SUMMARY

1. INTRODUCTION AND BACKGROUND

The EWSETA updated this Sector Skills Plan (SSP) under guidelines and prescripts prescribed by the Department of Higher Education and Training (DHET). This SSP will serve as an evidence-based plan developed for informing evidence-based decision-making in favour of achieving sector skills development imperatives.

2. RESEARCH PROCESS AND METHODS

The research conducted involved (1) the collection of quantitative data collected through workplace skills plans (WSPs) submitted by sector organisations and respective research studies; (2) qualitative research in the form of in-depth interviews; and (3) desktop research to acquire and analyse secondary data derived from numerous credible sources. Analyses of various datasets (primary and secondary), culminating in the synthesis of data and information, supported evidence-based recommendations.

3. SECTOR PROFILE

The energy and water sector grew by approximately 7.75% between 2020/21 and 2021/22. This outcome was a positive development, especially considering growth experienced across all fifteen energy and water sector subsectors. Even though the COVID-19 pandemic has proven to be one of the most impactful disasters in the world, affecting critical factors such as the local economy and skills development implementation activities, key role players demonstrated resilience. Despite trying times, the EWSETA and its stakeholders maintain support for economic reconstruction and recovery through skills delivery.

Even though challenges are an integral part of productivity in the energy and water sector, advancements in, e.g., innovation, technology, and knowledge, present skills development opportunities for the EWSETA and its stakeholders.

3.1 EMPLOYER PROFILE

In January of 2022, approximately 2,865 organisations were registered with the EWSETA. Small companies still represent the majority of organisations in the sector (98%), followed by medium (1%) and large companies (1%) respectively. The Gauteng Province (GP) continues to account for the single largest share of companies as the primary economic hub of the country.

3.2. LABOUR MARKET PROFILE

- With over 58,000 workers, the electricity, gas, and water supply industry reported an annual decrease of 1,000 employees or (-1.7%) in June 2021 compared to June 2020.
- The Gauteng province (GP) still accounts for the single largest share of employees (about one-third) in the sector when compared with the other provinces.
- WSP data revealed that African workers continued to constitute the highest proportion of employees overall (75.55%) in the year under review.
- Notably, female workers represented a large majority of almost two thirds (64.85%) of employees across WSP-submitting organisations in 2022.
- Since the sector constitutes of mostly energy sector-related organisations, according to WSPs, most workers (about two-thirds) are located within the energy sector relative to the water sector.

4. KEY SKILLS CHANGE DRIVERS

The top five major change drivers identified in the sector were COVID-19; economic reconstruction and recovery; technological advancement in lieu of the Fourth Industrial Revolution (4IR); climate change; and the Just Energy transition (JET).

5. OCCUPATIONAL SHORTAGES AND SKILLS GAPS

- There are many occupational shortages in the sector which indicate skills development opportunities at a broad level.
- Examples of occupational shortages (made up of hard-to-fill vacancies, or HTFVs) in the energy and water sector include electrical engineering technicians, electrical engineers, and others.
- Some of the most pertinent reasons for employers not employing learners who previously completed EWSETA learning programmes included the non-availability of job vacancies, learners acquiring employment elsewhere, and learners wanting to pursue further studies.

6. SETA PARTNERSHIPS

The EWSETA continues to explore ways to maximise skills development through partnerships. Partnerships aim to address specific sectoral skills-related needs and enhance, for example, research, learner development, and employer skills imperatives. EWSETA partnerships continue to be implemented with various sector stakeholders.

7. SETA MONITORING AND EVALUATION (M&E)

Monitoring and evaluation (M&E) activities consider Strategic Plans (SPs), Annual Performance Plans (APPs), Quarterly Monitoring Reports (QMRs), Annual Operations Plans (AOPs) and Annual Performance Reports (APRs).

8. STRATEGIC SKILLS PRIORITY ACTIONS

The following priority actions continue to be incrementally achieved by the EWSETA:

- **Priority 1:** Increase internal human resource capacity to continue to enhance the research effort (Medium term).
- **Priority 2:** Establish partnerships aimed at developing and supplying skilled incumbents to address sectoral needs (short to medium term).
- **Priority 3:** Implement Recognition of Prior Learning (RPL) programmes (medium to long term).
- **Priority 4:** Increase skills development support for SMMEs in the sector, especially in response to 4IR and entrepreneurship skills (short to medium term).
- **Priority 5:** Support equity imperatives such as gender equality, especially in key professional and technical occupations (long term).
- **Priority 6:** Establish a formal EWSETA monitoring and evaluation (M&E) framework (short to medium term).
- **Priority 7:** Support national plans and strategies (long term).

9. CONCLUSION

The priority actions will continue to be incrementally achieved by the EWSETA over the current five-year planning cycle. Stakeholders and related constituencies will continue to form a critical part of skills development in the sector



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INTRODUCTION:
OBJECTIVES OF THE
SECTOR SKILLS PLAN (SSP)

As a crucial component of skills planning, the EWSETA SSP continues to guide the overall skills development objectives of the energy and water sector. Furthermore, the EWSETA SSP provides a basis for the incremental achievement of outcomes specified in the National Skills Development Plan (NSDP) through credible, evidence-based research. In this light, the EWSETA SSP will continue to inform labour market intelligence in the energy and water sector, determine funding priorities, support employer and national skills planning, identify sectoral priority occupations, and effectively enable evidence-based decision-making processes.

RESEARCH PROCESS AND METHODS

The research conducted involved (1) the collection of quantitative data collected through workplace skills plans (WSPs) submitted by sector organisations; (2) empirical studies in the form of topical research such as linking education and work and assessing the skill needs of small and emerging enterprises; and (3) desktop research to acquire and analyse secondary data sets derived from numerous credible sources. The analyses of various datasets (primary and secondary), which culminated in the synthesis of data and information, supported evidence-based recommendations.

LIMITATIONS

- A considerable number of companies have not been assigned company sizes in the SARS Skills Development Levy (SDL) database.
- The unavailability of SARS data categorising firms according to respective provincial locations.
- Respondent fatigue was evident in certain studies where some stakeholders were no longer willing to participate.
- Time constraints in the development of the Sector Skills Plan (SSP) continue to pose a significant challenge.

CONCLUSION

The updating of this year’s iteration of the EWSETA SSP was enriched with research conducted by the EWSETA in the 2021/22 financial year. Through its SSP, the EWSETA remains committed to achieving the skills development objectives of the energy and water sector through evidence-based research and effective decision-making processes.

The table below presents the research processes and methods used to inform this SSP.

Table 1: Research Process and Methods

Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Tracer Study	Mixed Methods	- Reconcile the outputs of respective learning programmes - Establish learner outcomes in relation to their current whereabouts, i.e., employment tracking	Primary data collection: - The use of a computer-assisted telephone interviewing (CATI) system and email communication for the collection of primary data from learners and employers - In addition, the study collected COVID-19-related data from employers and learners Analysis: - The probability sampling method was employed for this study, supported by stratified random sampling. A stratified random sample was taken from a population of learners who completed WIL programmes in the 2018/19 financial year - Data analysis involved the use of various analysis tools and computer software applications such as Excel - The qualitative data collected through in-depth interviews was analysed where key words, ideas, terms, and phrases were categorised into "themes." Themes were used in extrapolating key findings and new insights	- Quantitative sample size of approximately 190 learners was derived and which comprised of Apprenticeship and Learnership respondents - Qualitative sample of approximately 42 employers based on nonprobability sampling using the quasi-randomisation technique	Primary data collected from sector employers and learners who completed respective EWSETA learning programmes	05/2021 to 11/2021
Linking Education and Work	Qualitative	Investigate the understanding of learning through work from the perspectives of related stakeholders in the energy and water supply sectors	Primary data collection: - Explorative in nature, the research focused on collecting primary data from learners and sector-related stakeholders by way of interview instruments Analysis: - Themes were developed based on responses received and categorised where key findings and new insights were extrapolated	- Approximately 23 sector stakeholders were sampled using the quasi-randomisation technique and interviewed - Around 20 learners were sampled using the quasi-randomisation technique	Primary data collected from the sector including employers, universities, government organisations, and learners	10/2020 to 05/2021
Skill Needs of Small and Emerging Enterprises	Mixed Methods	To acquire relevant and current knowledge and insight with respect to the skill needs of small and emerging enterprises within the energy and water sector	Primary data collection: - Random sampling was employed to identify sector employers and quantitative data was collected via Survey Monkey - Qualitative interviews with industry experts were conducted Analysis: - Quantitative data collected via Survey Monkey was transposed to excel for further analysis using statistical methods - Themes were developed from the collected qualitative data based on responses received where key findings and new insights were extrapolated	- Approximately 1,852 companies were quantitatively sampled using random sampling - Due to a lack of participation in formal interviews, only six stakeholders were willing to be interviewed for this study	Primary data was collected from small and medium-size enterprises, as well as from industry experts	04/2021 to 11/2021
Skill Needs of Established and Emerging Cooperatives	Mixed Methods	To determine the skills needs of established and emergent cooperatives within the energy and water Sector	Primary data collection: - Purposive sampling used to identify the most relevant participants for qualitative interviews with sector-related stakeholders (e.g., existing, and emerging sector-related cooperatives, industry experts, senior researchers, lecturers, training managers, etc.) - A quantitative online survey was conducted with stakeholders Analysis: - For qualitative analysis, themes were developed based on responses received where insights could be extrapolated - For quantitative analysis, software such as SPSS and other appropriate tools were used	Approximately 78 stakeholders were sampled across diverse groups, e.g., Cooperatives, universities, and industry experts	Primary data collected from stakeholder organisations	10/2020 to 06/2021
Energy and Water Sector Stakeholder Interviews	Qualitative	Ongoing research to establish hard-to-fill vacancies in the sector, as well as to collect primary data in relation to COVID-19 and how this has influenced skills development imperatives	Primary data collection: - Interviews with employers and related stakeholders in the sector Analysis: - Themes were developed based on responses received and categorised accordingly where insights could be extrapolated	Qualitative sample of 30 stakeholder organisations based on nonprobability sampling using the quasi-randomisation technique	Primary data collected from stakeholder organisations	06/2021 to 08/2021

CHAPTER 1

SECTOR PROFILE

1.1. INTRODUCTION

This chapter provides a profile of the energy and water sector and was developed using data sources involving: (i) an analysis of secondary data sources involving economic and labour market profiling through desktop research and analysis of WSP/ATR submissions, (ii) a review of Standard Industrial Classification (SIC) codes as a secondary data source, (iii) an analysis of the EWSETA-registered companies/organisations as secondary data derived from the SARS Skills Development Levy (SDL) database, (iv) an analysis of EWSETA annual reports, (v) the EWSETA skill needs of small and emerging enterprises research study, and (vi) the EWSETA linking education and work research study.

1.2. SCOPE OF COVERAGE

The Standard Industrial Classification (SIC) codes for the energy and water (EW) sector are classified in the table below. The table also provides a detailed breakdown of the subsectors - note that the energy and water sectors comprise public and private sector organisations registered with the EWSETA. Based on the SARS skills development levy (SDL) database analysed in January of 2022, the energy and water sector grew by approximately 7.75% on average between 2020/21 and 2021/22 concerning EWSETA-registered employers. The above is an indication of new entrants; however, the composition of new entrants may include organisations that previously existed but expanded their operations to incorporate sector-related business activities. Notably, all 15 energy and water subsectors experienced growth in the same period of between 3% and 16% on average.

Table 2: The EWSETA Standard Industrial Classification (SIC) Codes

SIC Code	Sector	Subsector	No. of Com-panies 2018/19	No. of Com-panies 2019/20	No. of Com-panies 2020/21	Percent-age (%) of Com-panies 2018/19	Percent-age (%) of Com-panies 2019/20	Percent-age (%) of Com-panies 2020/21	Vari-ance (%) 2018/19-2019/20	Vari-ance (%) 2019/20-2020/21	No. of Com-panies 2021/22	Percent-age (%) of Com-panies 2021/22	Variance (%) 2020/21-2021/22
41111	Energy	Generation of energy	475	473	528	20.07	18.96	19.86	-0.42	11.63	573	20.00	8.52
41112	Energy	Distribution of purchased electric energy only	127	141	140	5.37	5.65	5.27	11.02	-0.71	150	5.24	7.14
41114	Energy	Generation of renewable energy	240	271	294	10.14	10.86	11.06	12.92	8.49	327	11.41	11.22
41115	Energy	Transmission of energy	36	39	49	1.52	1.56	1.84	8.33	25.64	57	1.99	16.33
41116	Energy	Project management, maintenance and operation of electrical generation, transmission and distribution, plants, networks, and systems	522	555	576	22.05	22.24	21.66	6.32	3.78	621	21.68	7.81
41118	Energy	Marketing of electricity	137	143	162	5.79	5.73	6.09	4.38	13.29	169	5.90	4.32
41200	Energy	Manufacture of gas: distribution of gaseous fuels through mains	240	254	267	10.14	10.18	10.04	5.83	5.12	294	10.26	10.11
41300	Energy	Steam and hot water supply	28	28	30	1.18	1.12	1.13	0.00	7.14	31	1.08	3.33
50222	Energy	Construction of pylons for electric transmission lines	52	54	57	2.20	2.16	2.14	3.85	5.56	59	2.06	3.51
87141	Energy	Industrial research for electrical energy	101	106	108	4.27	4.25	4.06	4.95	1.89	116	4.05	7.41
42000	Water	Collection, purification, and distribution of water	166	175	179	7.01	7.01	6.73	5.42	2.29	187	6.53	4.47
42001	Water	Public water enterprises: Collection, purification, and distribution of water, including potable water supply, domestic waste, and sewage systems, refuse and sanitation services	13	13	14	0.55	0.52	0.53	0.00	7.69	15	0.52	7.14
42002	Water	Private water companies: Collection, purification, and distribution of water, including potable water supply, domestic waste, and sewage systems, refuse and sanitation services	23	25	36	0.97	1.00	1.35	8.70	44.00	38	1.33	5.56
42003	Water	Irrigation Boards: Collection, purification, and distribution of water, including potable water supply, domestic waste, and sewage systems, refuse and sanitation services	14	14	17	0.59	0.56	0.64	0.00	21.43	18	0.63	5.88
94003	Water	Water and sanitation services (portable water supply, domestic wastewater, and sewage systems)	193	204	202	8.15	8.18	7.6	5.70	-0.98	210	7.33	3.96
Grand Total			2 367	2 495	2 659	100	100	100	5.41	6.57	2 865	100	7.75

Source: Adapted from SARS SDL Database (2021/22)

Based on the SARS skills development levy (SDL) database analysed in January of 2022, the energy and water sector grew by approximately 7.75% on average between 2020/21 and 2021/22 concerning EWSETA-registered employers. The above is an indication of new entrants; however, the composition of new entrants may include organisations that previously existed but expanded their operations to incorporate sector-related business activities. Notably, all 15 energy and water subsectors experienced growth in the same period of between 3% and 16% on average.

1.3. KEY ROLE PLAYERS

Key role players continue to demonstrate the critical role that such stakeholders play within the energy and water sector. Even though the COVID-19 pandemic has proven to be one of the most impactful disasters of our time, key role players have gone above and beyond in doing as much as possible to save jobs whilst maintaining business continuity. As a critical component of essential services within South Africa, sector key role players assume a crucial position in driving economic development and supporting skills development imperatives.

The section below provides a summary overview of stakeholders that form part of the energy and water sector. Although the below is not an exhaustive list, the table offers examples of key role players whilst covering aspects such as roles and responsibilities.

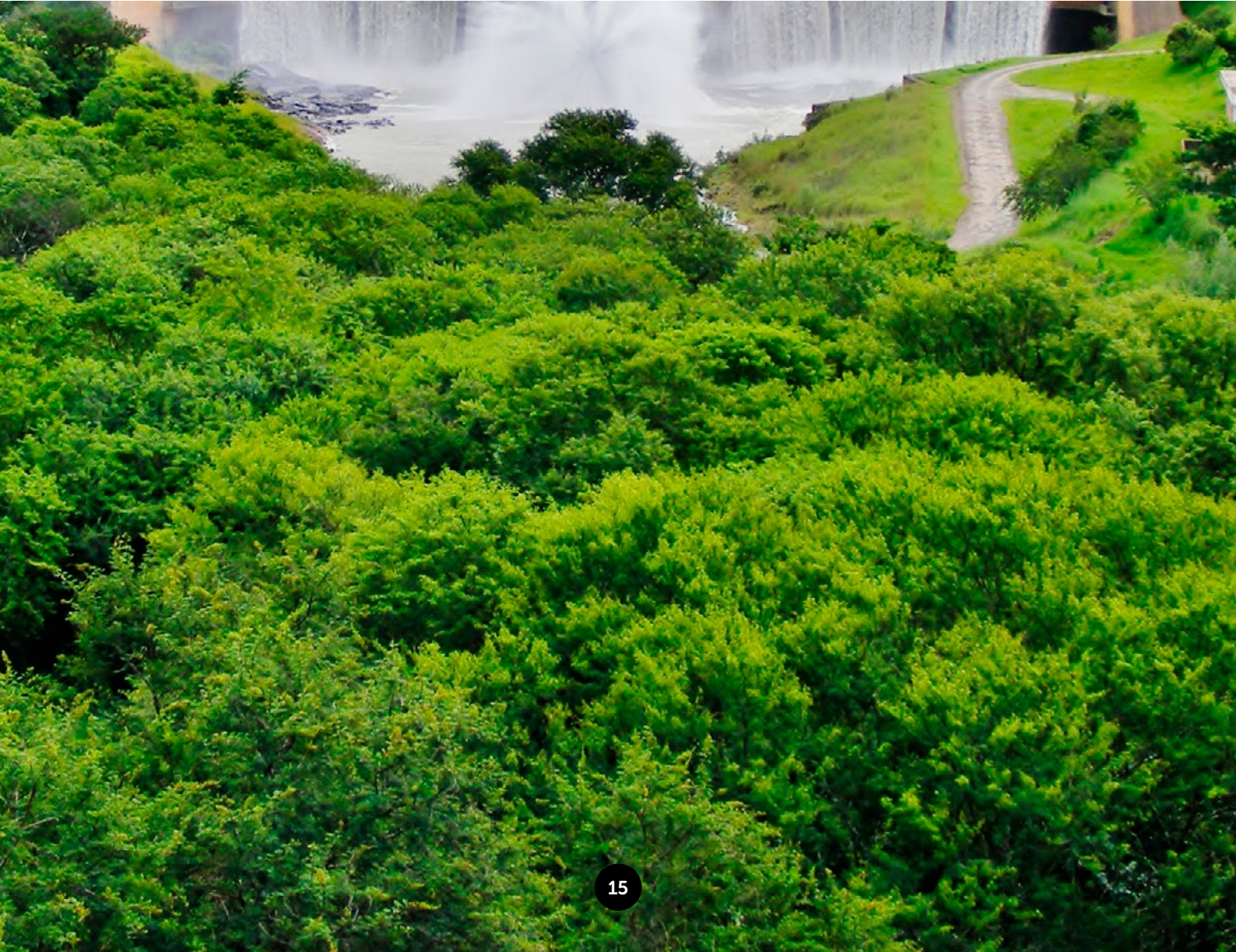


Table 3: Key role players in the energy and water (EW) sector³

Function/purpose	Key Role Player(s)	Role(s)
Regulation (energy)	DMRE NERSA NNR NRWDI CEF PASA NECSA IPP Office DSI	The mission of the Department of Mineral Resources and Energy (DMRE) is to regulate, transform, and promote the minerals and energy sectors, providing sustainable and affordable energy for growth and development, and ensuring all South Africans derive sustainable benefit from the country's mineral wealth. The National Energy Regulator of South Africa (NERSA) is the regulatory authority for electricity, piped gas, and petroleum pipelines. The National Nuclear Regulator (NNR) is responsible for safety standards and regulatory practices protecting people, property, and the environment against nuclear damage. The National Radioactive Waste Disposal Institute (NRWDI) implements professional Nuclear Waste Management and disposal services under the NRWDI Act, Act No. 53 of 2008. The South African National Energy Development Institute (SANEDI) promotes innovation through research and development in the energy sector. The Central Energy Fund (CEF) research, finances, and develops appropriate energy solutions to meet the country's future energy needs. Petroleum Agency South Africa (PASA) promotes the exploration of natural oil and gas (onshore and offshore). Over and above other mandated responsibilities, the South African Nuclear Energy Corporation (NECSA) manages and operates the Vaal puts National Radioactive Waste Disposal Facility in the Northern Cape on behalf of the NRWDI. The Independent Power Producer (IPP) Office, the DMRE, National Treasury (NT) and the Development Bank of Southern Africa (DBSA) established the IPP Office for the specific purpose of delivering on the IPPPP objectives and providing regulatory and legislation governing IPPPP.
Generation & production	ESKOM SASOL IPPs	ESKOM generates, transmits, and distributes electricity to more than five million customers and redistributors in the industrial, mining, commercial, agricultural, and residential sectors. Its core market is South Africa, including neighbouring Southern African countries. Independent Power Producers (IPPs) are mandated to generate electricity through renewable energy sources such as solar, wind, biomass, small hydro, and landfill gas power and are implemented through the Renewable Energy Independent Power Producer Procurement Programme.
Production	SASOL PETROSA	SASOL develops and commercialises technologies, as well as builds and operates world-scale facilities to produce a range of high-value product streams, including liquid fuels, chemicals, and low-carbon electricity. The Petroleum Oil and Gas Corporation of South Africa (PetroSA) is the national oil company of South Africa registered as a commercial entity under South African law.

1

KEY	
Energy Sector Organisations	
Water Sector Organisations	
Professional Bodies and Related Organisations	
Levy-Paying Employers	
PSET Institutions	

Function/purpose	Key Role Player(s)	Role(s)
Transmission	ESKOM PETRONET	Being a division of Transnet and custodian of the country's strategic pipeline assets, PETRONET owns, operates, manages, and maintains a network of 3,000 kilometres of high-pressure petroleum and gas pipelines.
Distribution	[ESKOM MUNICIPALITIES FUEL DISTRIBUTORS] SAPP	The Southern African Power Pool (SAPP) coordinate the planning and operation of the electric power system among member utilities. Furthermore, the SAPP provide a forum for regional solutions to electric energy problems and allows for the free trading of electricity between the Southern African Development Community (SADC) member countries.
Users	DOMESTIC INDUSTRIAL	Consumers of energy include domestic (e.g., residential dwellings) and industrial users (e.g., commercial applications).
Research & development	SANEDI	Established in 2011 under the National Energy Act, Act No. 34 of 2008, the South African National Energy Development Institute (SANEDI) directs, monitors, and conducts energy research and development; promotes energy research and technology innovation and undertakes measures to promote energy efficiency.
Regulation (water)	DWS WATER TRIBUNAL	The Department of Water and Sanitation (DWS) protects, manages, conserves, regulates, and supports water supply and sanitation in South Africa. The Water Tribunal is an independent body established to mediate appeals against directives and decisions made by responsible authorities, catchment management agencies (CMAs) or water management agencies about matters covered by the National Water Act, Act 36 of 1998, like the issuing of licenses to use water.
Resource management	CATCHMENT AGENCIES	Catchment Management Agencies (CMAs) manage resources in collaboration with local stakeholders by involving local communities in decision-making concerning water needs.
Bulk infrastructure	WTE TCTA WATER BOARDS KOBWA	The Water Trading Entity (WTE) develops, operates, and maintains specific water resources infrastructure and water resources in targeted water management areas. The Trans-Caledon Tunnel Authority (TCTA) is a state-owned enterprise (SOE) responsible for developing, financing, implementing, and managing bulk raw-water infrastructure. Water Boards are separate legal entities that derive their mandate from the Water Services Act (1997). The nine (9) Water Boards provide bulk potable water services to municipalities in which they operate and to other water service institutions and major customers within designated service areas. Established in terms of a treaty between South Africa and Eswatini (formerly known as Swaziland), Komati Basin Water Authority (KOBWA) finances, develops, operates, and maintains the water resources infrastructure comprising the Driekoppies Dam in South Africa and the Maguga Dam in Eswatini.
Users	DOMESTIC INDUSTRIAL WUAs	The primary users of water include residential and commercial users. Water User Associations are cooperative associations of individual water users who undertake water-related activities at the local level for mutual benefit.
Research & development	WRC	The Water Research Commission (WRC) promotes coordination, co-operation, and communication in water research and development; establishes water research needs and priorities; stimulates and funds water research; promotes effective transfer of information and technology and enhances knowledge and capacity-building within the water sector.
Professional bodies	ECSA PIRB SACNASP WISA	The Engineering Council of South Africa (ECSA) regulates the engineering profession. The Plumbing Industry Registration Board promotes good plumbing practices that uphold the integrity of water supply, usage and health and safety prescripts whilst the South African Council for Natural Scientific Professions (SACNASP) regulates natural sciences practitioners in South Africa. The Water Institute of Southern Africa (WISA) plays an active role in the discourse of water supply in the public domain.

Function/purpose	Key Role Player(s)	Role(s)
Labour relations & collective bargaining	NUM NUMSA IMATU SAMWU CEPWWAWU	The National Union of Mineworkers (NUM) supports affirmative action to empower Black people into positions of authority in mining, energy, and construction. The National Union of Metal Workers of South Africa (NUM-SA) is the biggest metal workers trade union in South Africa and works to protect workers from dangerous and unhealthy conditions. The Independent Municipal Workers Union (IMATU) is a progressive trade union operating in the municipal and allied sectors of the South African workplace. The South African Municipal Workers Union (SAMWU) is affiliated with the Congress of South African Trade Unions (COSATU) and protects the wages and work conditions of workers. The Chemical Energy Paper Printing Wood and Allied Workers Union (CEPPWAWU) promotes and protects the rights of workers operating in the petrochemicals and fossil fuels sector.
Additional role players	NBI SANEA SAPVIA SAWEA IOPSA CSIR	The National Business Initiative (NBI) aims to build a South African business community that plays a meaningful, trusted and action-orientated role in a sustainable, equitable and inclusive society. The South African National Energy Association (SANEA) is the South African Member Committee of the World Energy Council representing a hub for objective thought leadership on energy and related matters. The South African Photovoltaic Industry Association (SAPVIA) is a not-for-profit body that consists of active role players in South Africa's photovoltaic market who have a genuine, invested presence in the country. The South African Wind Energy Association (SAWEA) is a not-for-profit body consisting of role players in the country's wind market. The Institute of Plumbing South Africa (IOPSA) is a voluntary national body that provides a platform for qualified accredited plumbers. The Council for Scientific and Industrial Research (CSIR) is a scientific and technology research organisation that researches, develops, localises, and diffuses technologies to accelerate socioeconomic prosperity in South Africa.
Levy-paying employers across the energy and water sector	SKILLS DEVELOPMENT LEVY-PAYING ORGANISATIONS (SMALL, MEDIUM, AND LARGE ENTITIES)	Employers in the sector submit workplace skills plans (WSPs) to the EWSETA annually. WSPs assist the EWSETA to identify occupations in high demand (OIH) and hard-to-fill vacancies (HTFVs) prevalent across submitting firms - NSDP Outcome 1. Through partnerships, employers provide facilities for workplace-based learning (WBL) opportunities - NSDP Outcome 2. In working with the EWSETA, organisations support enhancing skills in the South African workforce - NSDP Outcome 3. Employers participate in EWSETA research, which derives valuable insights and new knowledge concerning learners and organisational outcomes post-completion of respective learning programmes and interventions - NSDP Outcome 4, particularly sub-outcome 2. Employers play a crucial role in sharing insights and knowledge through research concerning learner and organisational outcomes post-implementation of interventions and related learning programmes - NSDP Outcome 4, particularly sub-outcome 2.
Post-school education and training (pset) institutions	HEIs PHEIs TVETs CETCs PCs	Public Higher Education Institutions (HEIs) facilitate education and training across targeted priority occupations and improve the skills and knowledge of workers (responding to NSDP Outcome 1; Outcome 3), especially sub-outcomes 3 and 4). Private Higher Education Institutions (PHEIs) offer higher education programmes equivalent to those provided by traditional Universities, comprehensive Universities and Universities of Technology (UOTs) that fall under the Higher Education Qualifications Sub-framework (HEQSF). PHEIs respond to education and training needs across priority occupations and enhance worker knowledge and competencies (NSDP Outcome 1, particularly sub-outcomes 3 and 4; and Outcome 3). The primary strategic objective for public TVET Colleges is to "increase access into and improve success in programmes that lead to intermediate and high-level learning" (DHET, 2020). Such opportunities provide learners direct access to work-integrated learning (WIL) (NSDP Outcome 1, particularly sub-outcome 3 and 4; Outcome 2; Outcome 3; Outcome 4, especially sub-outcome 2; and Outcome 5, with emphasis on sub-outcome 1). Community Education and Training Colleges (CETCs) were established within the PSET system to provide a pathway to other PSET institutions such as TVET Colleges and universities, particularly for the youth and adult population who do not have access to basic education or further education and training (NSDP Outcome 3; and Outcome 5, particularly sub-outcome 2). Private Colleges offer qualifications or part-qualifications registered on the National Qualifications Framework (NQF) at Levels 1 – 4 and have the potential to provide high-level qualifications such as diplomas and degrees (NSDP Outcome 3; and Outcome 5, particularly sub-outcome 2).

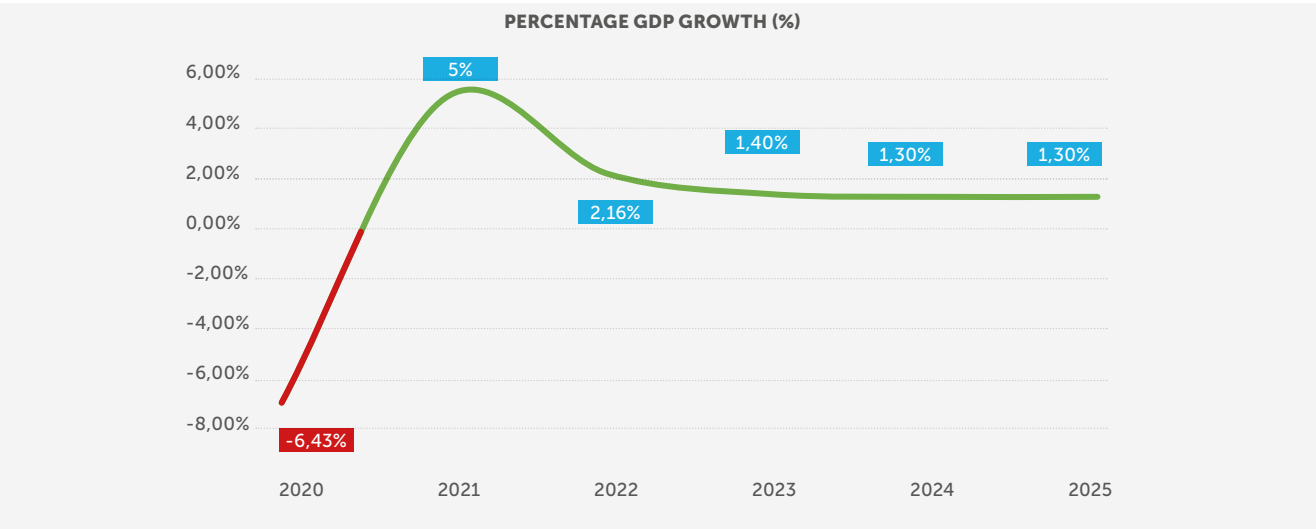
1.4. ECONOMIC PERFORMANCE

After the announcement of the national disaster in March 2020, the South African economy faced new challenges because of the COVID-19 pandemic. Even though the economy endured portentous problems long before the advent of the pandemic, it goes without saying that COVID-19 has forever changed the social and economic landscape. However, on a positive note, the macroeconomic outlook for South Africa improved notably in 2021 since COVID-19. For instance, total salaries and wages increased by 2.4% in real terms quarter on quarter to R714 billion in quarter three (3) of 2021. Since labour remuneration represents economic value add, the growth rate in this respect correlates with GDP growth.

Despite signs of potential, the performance of the local economy revealed additional threats in recent times; for example, local skills emigrating to more established economies and competitor industries posed adverse implications for the South African workforce. According to the South African Economic Reconstruction and Recovery Plan (ERRP), a skilled workforce remains one of several critical enablers in rebuilding and re-establishing the local economy. The following section summarises various economic indicators influencing the energy and water sector.

1.4.1. GROSS DOMESTIC PRODUCT (GDP)

Figure 1: Growth forecast of real GDP (%)

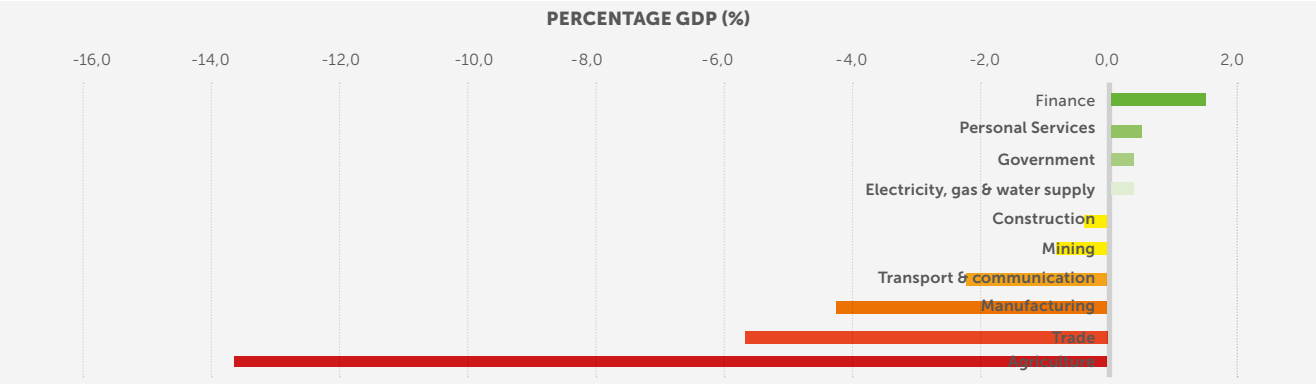


Source: Adapted from (Statista, 2021)

After experiencing positive gains in 2021, the South African gross domestic product (GDP) contracted by 1.5% during the third quarter due to tighter COVID-19 lockdown restrictions and a spate of civil disorder in July of the same year (BusinessTech, 2021). Despite unrelenting times, the South African GDP is forecast to grow over the foreseeable future. Thus, skills development must continue to play a pivotal role in addressing the skill needs of the sector as a means of effectively supporting a developing economy.

1.4.2. INDUSTRY PERFORMANCE

Figure 2: South African Industry Performance in 2021 – GDP (%)



Source: Adapted from (BusinessTech, 2021)

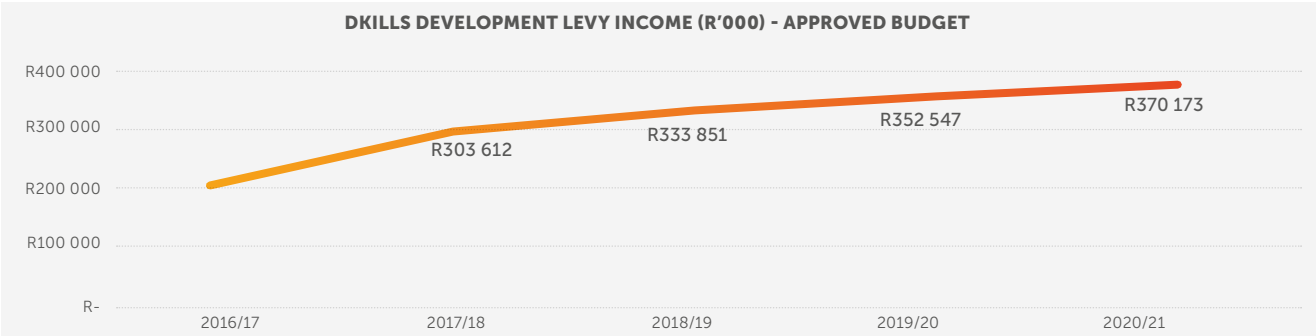
Considering industry performance, six of the ten local industries in South Africa reported losses, including construction, mining, transport and communication, manufacturing, and trade; whilst agriculture suffered its most significant decline in production since 2016, contracting by 13.6%.

Despite some significant performance losses in 2021, it was interesting to note industries such as finance, personal services and government reporting positive gains, whilst the electricity, gas and water industry reported an increase of 0.4% during the same period (BusinessTech, 2021). The total number of employers in the sector grew by 7.75% between 2020/21 and 2021/22 (see Table 2). Economic productivity determines industry performance to a large degree; therefore, the government, private sector, employers, and workers must work together to improve the outlook of the South African economy. As a critical constituent of development, the Energy and Water SETA must continue to supply relevant skills to the sector. Therefore, skills development will remain a critical enabler now and in the future.

1.4.3. SKILLS DEVELOPMENT LEVY

The Skills Development Levy (SDL) is crucial for the operations of the EWSETA, without which the SETA would not be able to function. The figure below presents a summary of revenue received by the EWSETA from 2016/17 to 2020/21.

Figure 3: EWSETA Skills Development Levy (SDL) Income from 2016/17 to 2020/21 (R'000)



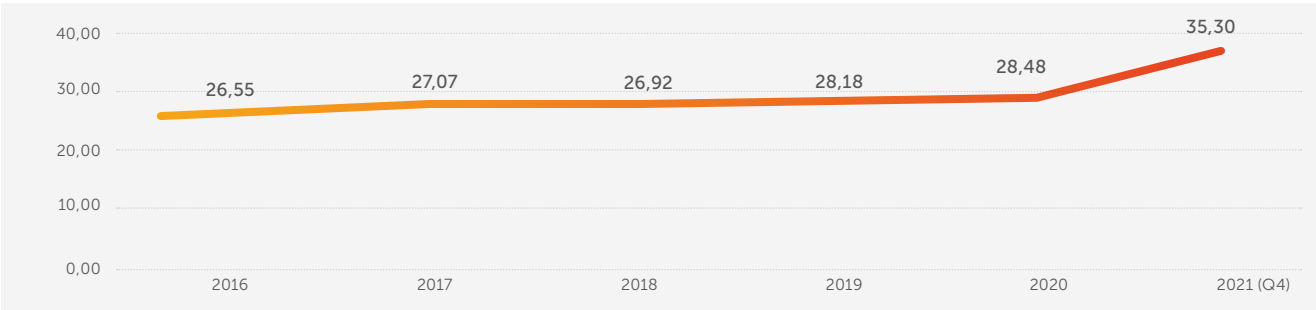
Source: Adapted from EWSETA Annual Reports: 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21

Based on the figure above, the EWSETA has recorded an upward trend in levy income since 2016/17. A sustained increase in revenue through skills development levies collected presents the EWSETA with increased potential to further expand on education and training opportunities in the energy and water sector in support of the reconstruction and recovery of the local economy. Despite the high costs of “tax holidays” and company bailouts implemented during the earlier stages of the COVID-19 pandemic, energy and water sector stakeholders made a concerted effort in mitigating the effects of reduced productivity. Despite the challenges, the EWSETA sustained its skills development operations and continued to implement its mandate with the available resources.

1.4.4. UNEMPLOYMENT

The “new normal” brought about by the prolonged COVID-19 national lockdown created substantial pitfalls for industries, sectors, economies, organisations, workers, and governments. Unemployment has been one of the most prominent global challenges as millions of jobs were lost. Furthermore, COVID-19 may drive the world’s unemployment figure beyond 200 million people (United Nations, 2021). Locally, unemployment continues to be a troubling issue, where approximately one out of every three individuals does not have a job. The figure below summarises the unemployment rate between 2016 and 2021 in South Africa.

Figure 4:Unemployment rate in South Africa (2016 to 2021)



Source: Adapted from (Statista, 2020) | (Stats SA, 2021)

According to the figure above, the unemployment rate has increased notably from 2016 (26.55%) and reached an all-time high of 35.30% in quarter four (4) of 2021 (StatsSA, 2022). Notably, at 38.6%, the unemployment rate among the Black African population group continues to be higher than the national average and other population groups in the country (Stats SA, 2021). However, it is critical to note that the scourge of unemployment in the country was apparent long before the advent of the COVID-19 pandemic. Though the pandemic has notably contributed to the worsening figures, unemployment in South Africa has become “chronic” and the government, along with the related organs of state and the private sector, must act with great urgency to arrest this disheartening threat to development and prosperity. Furthermore, it is equally important to note that the added risks of unemployment typically translate into (1) a lack of learning opportunities in workplaces, (2) a significant increase in the number of job seekers versus job availability ratio, and (3) a substantial reduction in economy-wide productivity, to name some examples. The impact of unemployment in the state is therefore far-reaching.

1.4.5. EMPLOYMENT TRENDS IN THE ELECTRICITY, GAS AND WATER SUPPLY INDUSTRY

Decreases in employment were reported across all local industries except Finance between the second and third quarters of 2021 (i.e., Q2 and Q3). The electricity, gas and water supply industry reported a decrease in employment of approximately 19.2% during the same period, translating to about 23,000 jobs (Stats SA, 2021). Job losses are unavoidable during such difficult times as the local economy faces a myriad of compounding challenges. Nonetheless, skills development remains a critical mechanism for economic recovery.

1.5. ENERGY

Several critical factors have characterised the energy sector over the years: (1) South Africa produced less power in 2019 than it did in 2010 in terms of electricity, declining by 2% in the period; (2) the sector employs fewer people than it did in 2016; (3) the energy mix is slowly shifting away from coal; (4) municipalities are the biggest customers of electricity redistribution; and (5) collectively, the electricity, gas, and water supply industry as a whole has recorded financial losses (Stats SA, 2021). Although such factors present considerable challenges, the demand for energy remains high.

1.5.1. THE FUTURE OF ENERGY IN SOUTH AFRICA

“Energy is the lifeblood of the modern economy” (Oxford Policy Management, 2018).

Considering the current state of affairs, “clean energy is the only way to go” to transform Africa into a sustainable continent conducive to fostering economic resilience and encouraging a better future for all (RES4AFRICA, 2022). Therefore, it remains a primary concern for the EWSETA to promote skills that support the related energy sector developmental ambitions.

Energy constitutes an essential part of any economy, without which many activities would not be possible. Energy demand exists in several forms such as:

- Renewable energy sources:– these energy sources include, for example, hydropower, solar power, wind power; and
- Non-renewable energy sources:– which include, for example, oil and petroleum products, gasoline, natural gas, diesel fuel, and nuclear.

South African energy supply is mostly coal-based and constituted 69% of the primary energy supply in 2016, followed by crude oil with 14% and renewables with 11%. Nuclear contributed 3%, while natural gas also contributed 3% to the total primary supply during the same period (DMRE, 2019). Though a gas-powered future is considered a viable option by industry, it has had its fair share of obstacles.

There are three forms of hydrogen production, namely grey, blue, and green. Grey hydrogen is produced from natural gas and fossil fuels, making it the least renewable form of hydrogen. This form of hydrogen is inexpensive to produce and is commonly used in the chemical industry to make fertilizer and refining oil. However, its production generates a high ratio of carbon dioxide (CO2) emissions. The production of blue hydrogen is similar to grey, with the primary exception being that blue hydrogen production produces fewer carbon emissions than grey. Green hydrogen is the cleanest form of hydrogen production and follows a process of electrolysis (the separation of hydrogen and oxygen molecules by applying electrical energy to water). Renewable sources such as wind and solar generate the electricity required for this process, thereby creating sustainability without emitting harmful gases (J.D. Power, 2021). In this sense, green hydrogen can therefore be considered “renewable.” Three catalytic green hydrogen hubs have been identified in South Africa’s Hydrogen Valley, namely in Johannesburg, Durban/Richards Bay, and Mogalakwena/Limpopo, which will serve as host sits for the

pilot projects in anticipation of the launch of the hydrogen economy. One example of the use of hydrogen technology relates to how Bambili’s energy fuel cell stacks and systems produce clean energy [from hydrogen] and enable off-grid or on-grid applications, including critical backup power, supplemental power or continuous power (Bambili Energy, 2022). Such technologies can be scaled and made available to more markets across the sector, requiring skills and competencies for the sales, instalment, and maintenance of such complex apparatus.

With growing interest from economies across the globe, green hydrogen in South Africa may become a viable energy alternative for the country. However, challenges exist; for example, barriers to entry, lack of infrastructure, low demand, and the potential of job losses incurred due to large-scale production and implementation of hydrogen alternatives. Be that as it may, the country must strive to overcome the existing challenges to undertake hydrogen energy opportunities. Green hydrogen production has its merits; however, the process remains expensive whilst large-scale applications of this clean solution is still not yet fully practical.

In terms of natural gas, organisations such as PetroSA and Sasol represent the primary suppliers of piped natural gas to regions such as Gauteng and KwaZulu-Natal. However, the piped network of natural gas supply is insufficient due to infrastructure limitations. Furthermore, establishing a new gas reticulation network would not only require significant capital expenditure, but natural gas contributes to the climate crisis as a fossil fuel. Be that as it may, the local government continues to explore ways of addressing the lack of infrastructure required to exploit natural gas as a large-scale alternative energy source. Targeted partnerships with gas reticulation/distribution firms could potentially unlock opportunities for skills development in anticipation of new skill needs to facilitate the development and maintenance of modern infrastructure. Based on a study conducted by the EWSETA concerning linking education and the world of work, “training providers and employers understand that collaboration is essential for skills planning and for a smoother transition from education to work;” therefore, partnerships are crucial to unlocking new synergies.

Energy remains in demand across several sectors, for example, industrial, commercial, public services, agriculture, transport, and residential sectors. Most households still rely on electricity supplied via the national grid (predominantly coal-fired power). However, there’s a growing shift towards renewable energy sources across the various sectors as energy alternatives become cheaper, a trend poised to continue on a growth trajectory.

In addition to the rise of renewable energy presence, five renewable energy industry trends to closely monitor over the coming years include (Deloitte, 2022):



The figure below briefly summarises the energy sector’s future outlook in the South African context.

Figure 5: Five renewable energy industry trends to closely monitor over the coming years



The figure below briefly summarises the energy sector’s future outlook in the South African context.

Figure 6: The future of energy in South Africa



1.6. WATER AND SANITATION

“Water is life’s matter and matrix, mother and medium. There is no life without water” (Albert Szent-Gyorgyi).

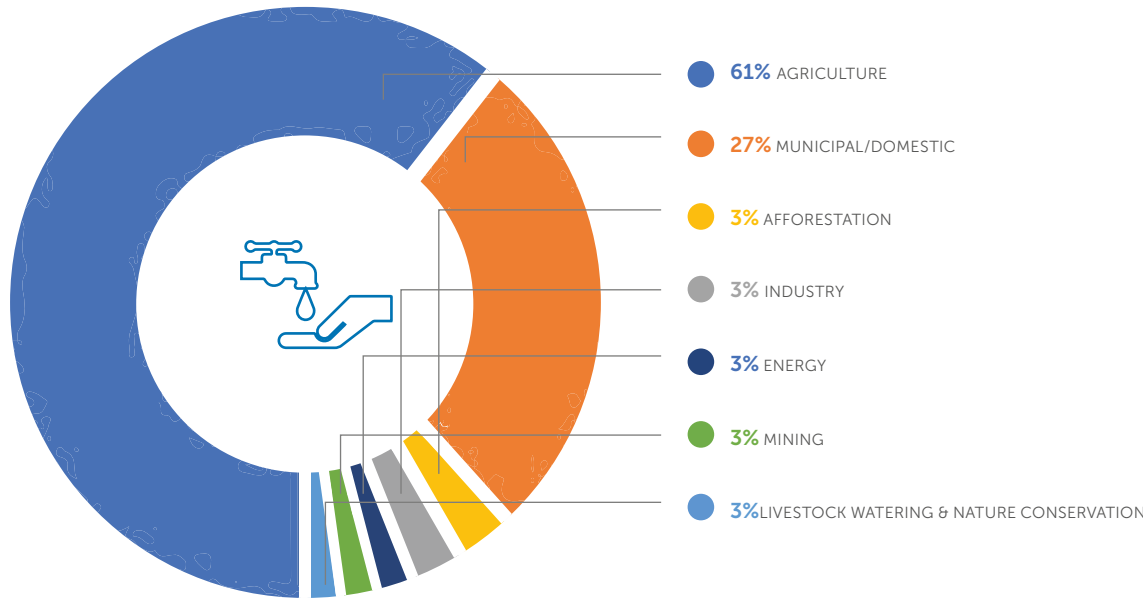
Water demand continues to rise despite South Africa being a water-scarce country. Water scarcity refers to the relationship between human water consumption and available water supply in a given area. Several factors are influencing the availability of water which can be categorised into two broad aspects as follows (HSF, 2020):

- Physical water scarcity:– physical water scarcity occurs when there is not enough water to meet all demands or inadequate natural water resources to supply a region’s demand. Factors influencing physical water scarcity include (i) demand-driven water scarcity, (ii) population-driven water scarcity, (iii) climate-driven water scarcity and (iv) pollution-driven water scarcity.
- Economic water scarcity:– also referred to as second-order water scarcity, economic water scarcity is caused by a lack of investment in water or a lack of human capacity to satisfy the water demand, even in places where water is abundant. It is argued that economic water scarcity is induced by political power, policies, and/or socioeconomic relations.

There are signs of the collapse of water services, failing infrastructure, non-payment of water services, mismanagement, and maladministration across many municipalities countrywide. Furthermore, the National Water and Sanitation Master Plan (2018) identifies a water supply deficit of 17% by 2030 (Mail&Guardian, 2021).

South Africans consume approximately 234 litres of water per person daily, well above the global per capita average of 173 litres. Only about 64% of households have safe, reliable access to water, whilst more than 37% of drinking water escapes through leaking pipes and infrastructure failures (Mail&Guardian, 2021). With a high possibility of water deficits in the foreseeable future, it is clear that South Africans must learn to do more with a lot less. Around 14% of households in 2020 relied on communal or neighbours’ taps for drinking water, whilst 89% had access to improved water sources in the same period (Stats SA, 2021).

Figure 7: Water use across various sectors in South Africa (%)



Source: Adapted from (DWS, 2021a)

According to the DWS (2021a), the agricultural sector expends most of the country’s water supply (61%), whilst municipal and domestic use accounts for 27% of total consumption. Energy, mining, livestock watering, and nature conservation sectors collectively account for 6% of total usage.

For sanitation, between 2002 and 2020, the majority of households in the Western Cape (93.9%) and Gauteng (90,5%) had access to improved sanitation, whereas access was most limited in Mpumalanga (64.4%) and Limpopo (58.7%). The national average of access to improved sanitation stood at 83.2% in 2020 (Stats SA, 2021).

1.6.1. THE FUTURE OF WATER IN SOUTH AFRICA

According to the HSF (2020), total water demand will continue to increase whilst physical and economic water scarcity issues will exacerbate the water supply deficit (HSF, 2020). However, groundwater, desalinated seawater in coastal areas, and wastewater reuse can be primary drivers for narrowing the water supply and demand gap if effectively implemented (GreenCape, 2021).

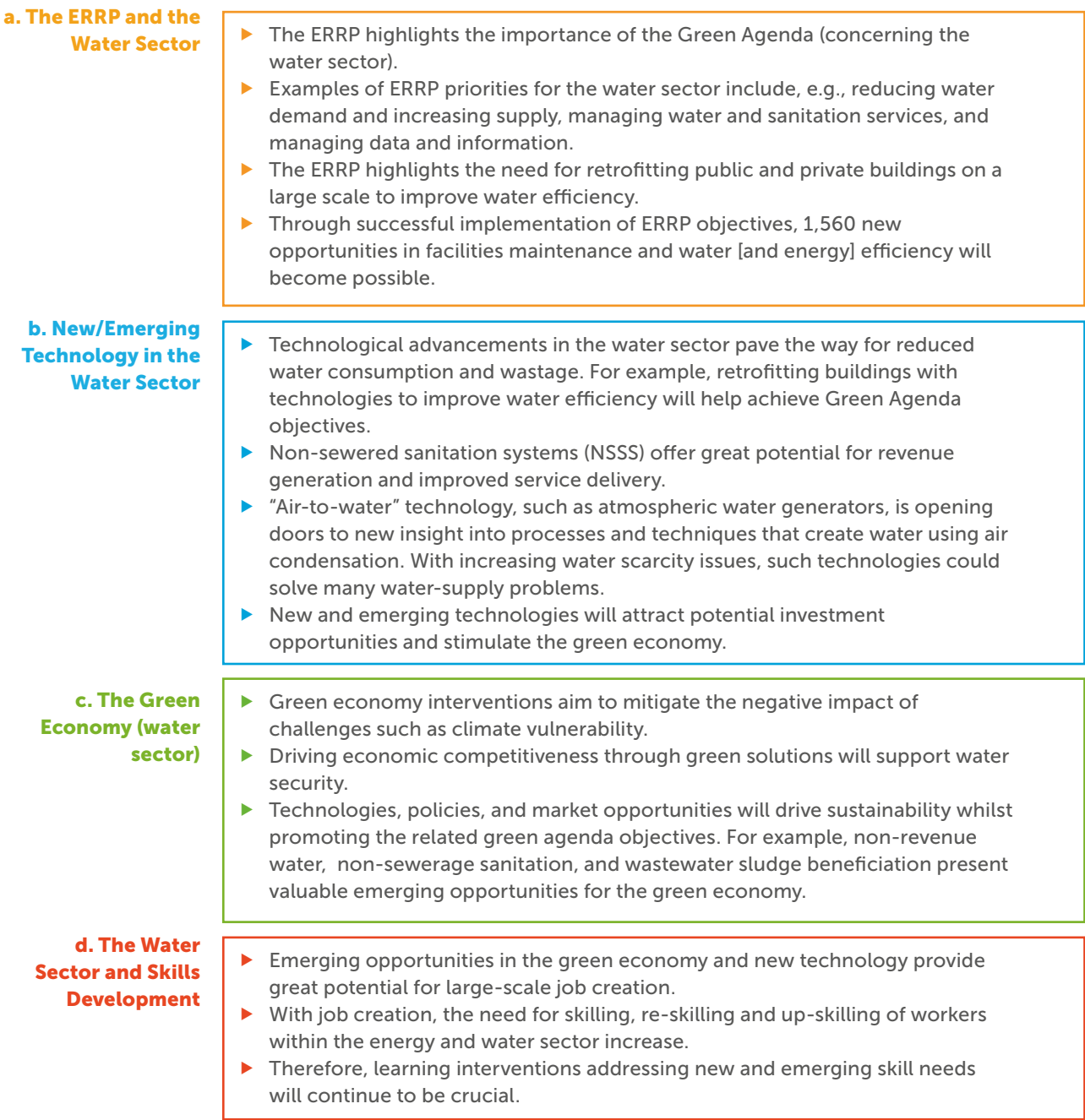
Emerging opportunities in the water sector are as follows (GreenCape, 2021):

Figure 8: Emerging opportunities in the water sector



The figure below briefly summarises the water sector’s future outlook in the South African context.

Figure 9: The future of water in South Africa



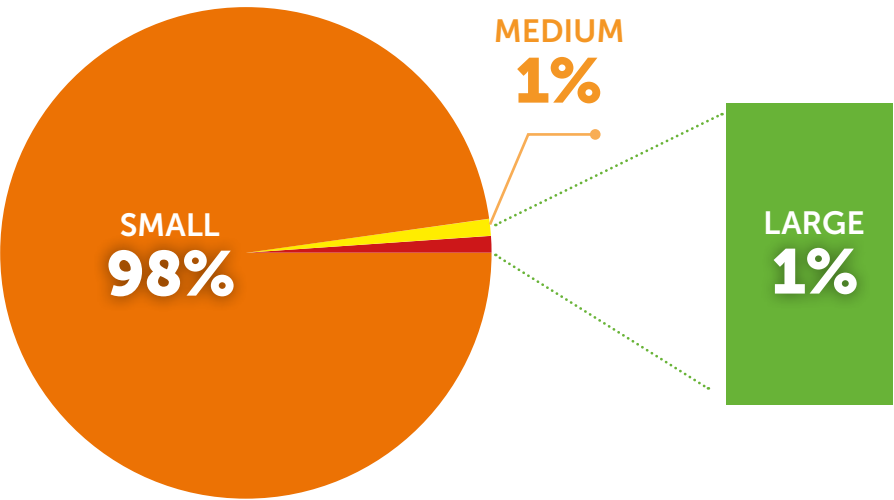
1.7. EMPLOYER PROFILE

In January of 2022, approximately 2,865 organisations across the energy and water sector were registered with the EWSETA. The sector consists of fifteen (15) subsectors, where ten (10) such subsectors reside in the energy sector and five (5) operate within the water sector. Based on the SARS SDL data, the energy and water sector grew in the number of registered employers between 2018/19 and 2021/22.

1.7.1. EMPLOYER DISTRIBUTION BY ORGANISATION SIZE

The data presented below provides a summary overview of the size distribution of organisations across the energy and water sector. It is crucial to emphasise the predominance of small enterprises, as seen in the figure below.

Figure 10: Size distribution of organisations across the sector (%)



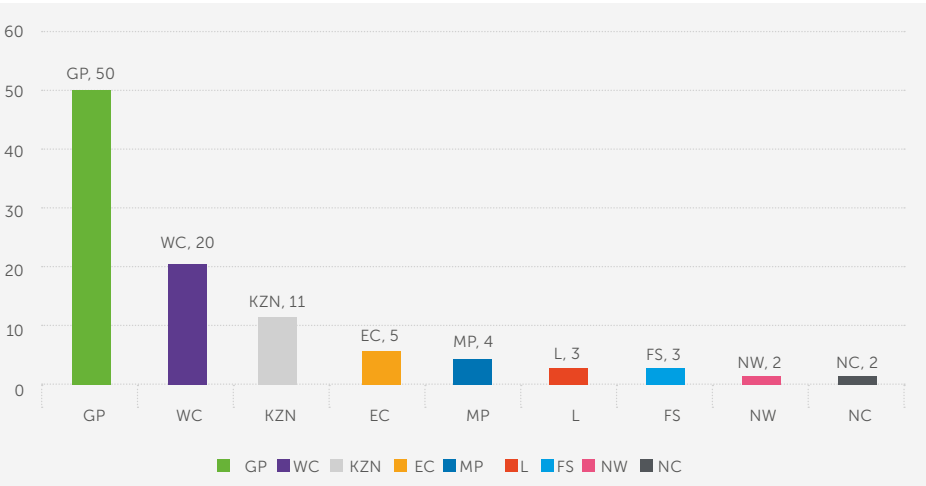
According to the SARS SDL database, the proportions of respective companies have remained much the same as previous years, with small companies representing the vast majority of organisations in the sector (98%), followed by medium and large companies (1% respectively).

Source: Adapted from SARS SDL Database (2021/22)

1.7.2. EMPLOYER DISTRIBUTION BY PROVINCE

According to the data, half (50%) of employers in the energy and water sector are in the Gauteng Province, followed by Western Cape (20%), KwaZulu-Natal (11%) and Eastern Cape (5%). The Northern Cape and the North West represent the lowest proportion of employers (2% respectively).

Figure 11: Employer distribution by province (%)



The Gauteng Province (GP) continues to account for the single largest share of companies as the primary economic hub in the country. Interestingly, GP contributes 33% of the country's total GDP and is the seventh-largest economy on the continent (SA Tourism, 2021).

Source: Adapted from SARS SDL Database (SARS, 2021)

1.7.3 COMPANY START-UPS / NEW BUSINESSES

An analysis of the SARS SDL database revealed 29 new start-up companies registered with the EWSETA in 2021/22. With positive growth in the number of companies registered with the EWSETA during the same period, it was encouraging to note new companies entering the sector, which implies potential new business opportunities. Therefore, it is prudent for the EWSETA to ensure the adequate support and capacitation of new companies to maximise synergies and related education and training opportunities.

1.7.4. COMPANY CLOSURES / LIQUIDATIONS

The SDL database further indicated two company liquidations in 2021/22, both of which operated in the energy sector; i.e., one company in the generation of energy and the other in the manufacture of gas and/or distribution of gaseous fuels through mains. The previous year (2020/21) recorded 34 companies in the sector having undergone liquidations, indicating a notable improvement in the number of closures between 2020/21 and 2021/22.

1.7.5. A NOTE ON LEVY PAYING AND NON-LEVY PAYING ORGANISATIONS

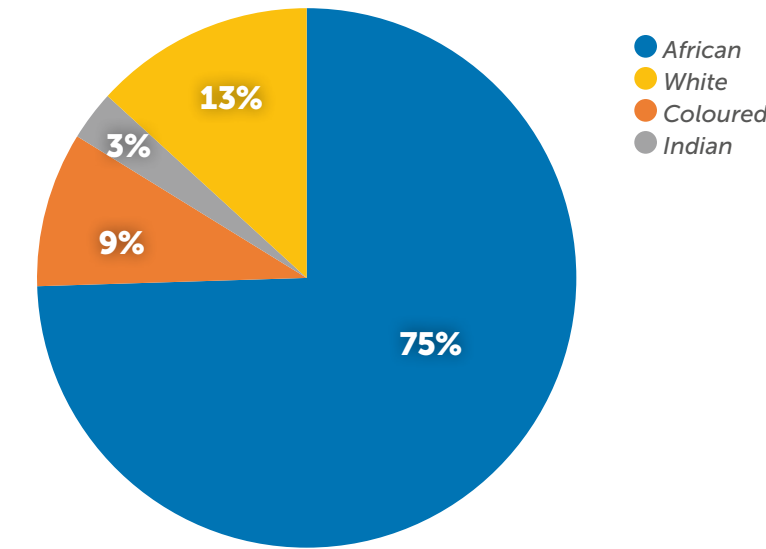
It is crucial to mention that the majority of the organisations registered with the EWSETA are non-levy paying, representing an approximate 60:40 split ratio in favour of non-levy paying entities. Therefore, the EWSETA faces some obvious challenges, such as a small levy revenue base, a reduced database of registered companies and learners, and the added challenge of lower administration budgets. Be that as it may, the EWSETA continues to support employers in the sector, i.e., **NSDP Outcome 3 "... to transform workplaces, improve productivity and improve economic growth prospects in various sectors of the economy"**. Therefore, the energy and water sector must grow in the number of levy-paying organisations.

1.8. LABOUR MARKET PROFILE OF THE SECTOR

The electricity, gas, and water supply industry constitutes over 58,000 workers. Due to its economic prowess, the Gauteng province (GP) still accounts for the single largest share of employees (about one third) in the sector compared with the other provinces. The section below summarises the labour market profile of workers concerning race, gender, age, and disability status based on WSP submissions received by the EWSETA at the end of April in 2022.

1.8.1. RACE REPRESENTATION OF WORKERS IN THE SECTOR

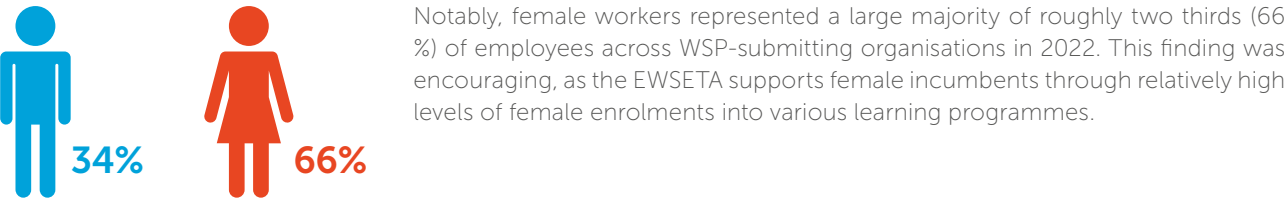
Figure 12: Race representation of workers in the sector



Analysis of the workplace skills plan (WSP) data revealed that African workers continued to account for the highest proportion of employees overall (75%) in the year under review. This trend has been evident for a number of years and this observation might be indicative of transformation across the world of work with respect to the representation of workers in the sector with respect to race.

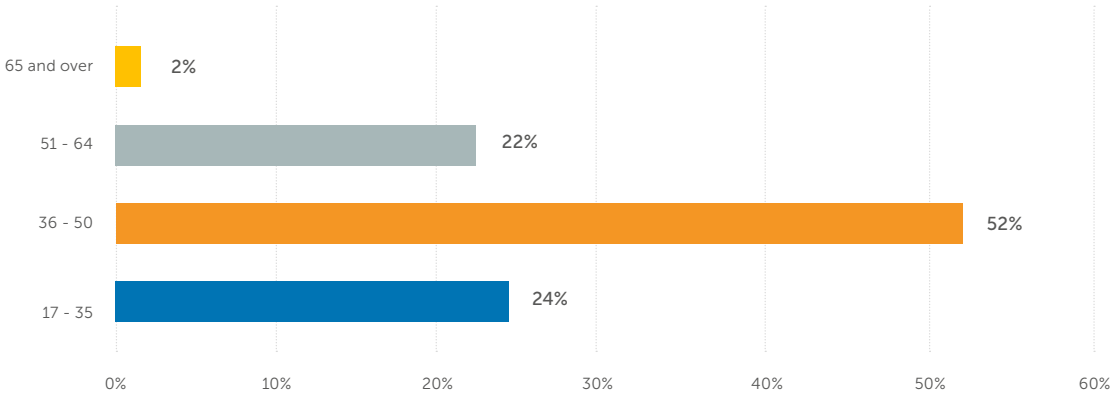
1.8.2. GENDER REPRESENTATION OF WORKERS IN THE SECTOR

Figure 13: Gender representation of workers in the sector



1.8.3. AGE REPRESENTATION OF WORKERS IN THE SECTOR

Figure 14: Age representation of workers in the sector

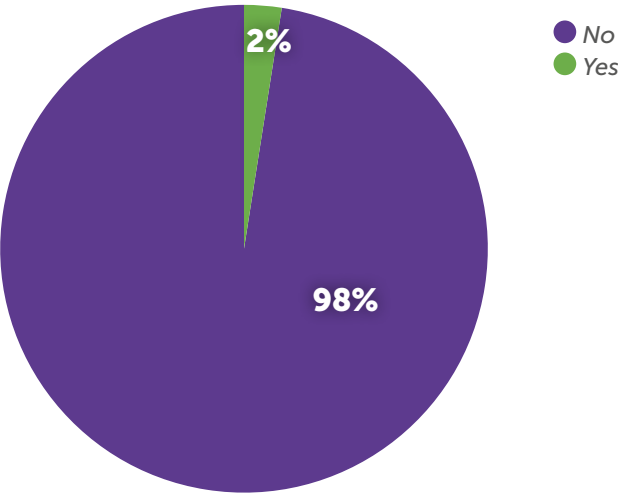


Workers aged between 36-50 years constituted more than half (52%) of the workforce in the period under review (previously dominated by employees aged 51 years and over). The sector must be encouraged to employ more young people since the youth unemployment rate remains alarmingly high at over 50%.

1.8.4. DISABILITY REPRESENTATION OF WORKERS IN THE SECTOR

Figure 15: Disability representation of workers in the sector

Over the years, workers living with a disability (LWD) have remained at more or less similar proportions across WSP-submitting firms in the sector, with 2022 recording just around 2% of workers.



1.8.5. BROAD OCCUPATIONAL GROUPS OF SECTOR EMPLOYEES

Since the sector constitutes a majority of energy-related businesses, most workers (roughly two-thirds) are located within the energy sector relative to the water sector.

Table 4: Broad occupational groups of sector employees

Major OFO Group	EC	FS	GP	KZN	L	MP	NC	NW	WC	Total	(%)
TECHNICIANS AND ASSOCIATE PROFESSIONALS	1 201	586	4 077	2 299	1 916	4 098	980	738	1 630	17 525	29.68
PROFESSIONALS	411	260	4 127	806	1 062	1 466	221	155	1 132	9 640	16.33
CLERICAL SUPPORT WORKERS	624	230	2 712	1 062	798	1 078	538	287	1 060	8 389	14.21
SKILLED AGRICULTURAL, FORESTRY, FISHERY, CRAFT AND RELATED TRADES WORKERS	645	203	3 367	801	545	977	343	353	672	7 906	13.39
ELEMENTARY OCCUPATIONS	1 018	184	2 456	1 050	680	668	401	502	771	7 730	13.09
MANAGERS	258	137	1 937	437	454	837	142	118	595	4 915	8.32
SERVICE AND SALES WORKERS	170	75	763	89	167	431	31	39	191	1 956	3.31
PLANT AND MACHINE OPERATORS AND ASSEMBLERS	53	30	432	100	29	65	53	100	123	985	1.67
Grand Total	4 380	1 705	19 871	6 644	5 651	9 620	2 709	2 292	6 174	59 046	100

Source: EWSETA WSP data (April of 2022)

According to WSP submissions in 2022, close to one third (29.68%) of workers were employed in the technicians and associate professionals major OFO group, followed by professionals (16.33%), and clerical support workers (14.21%).

1.8.6. THE IMPACT OF COVID-19 ON THE SECTOR LABOUR MARKET PROFILE

The table below provides examples of key findings related to COVID-19 and various implications for skills development across the sector based on a study conducted by the EWSETA in the 2021/22 financial period that considered small and emerging enterprises.

Table 5: Impact of COVID-19 on the sector labour market profile (key findings)

No.	Impact of COVID-19 on the sector labour market profile
1	Almost half (47.7%) of those who participated in the study indicated that COVID-19 had a high impact on their company. A further 20.9% reported a medium level impact.
2	The most significant impact resulting from the pandemic was reduced income, followed by reduced productivity, and then reduced revenue (a reduction in revenue accounted for more than 52% of participants).
3	When interviewed, industry experts indicated that small and medium-sized companies had been the most adversely impacted organisations in the sector due to several disadvantages. Disadvantages included, for example, a small revenue income potential and decreased productivity when compared with larger firms.
4	Furthermore, almost half (47.6%) of companies reported staff retrenchments due to the pandemic, and 14.3% reported retrenchments of over half of the total staff compliment.

Source: EWSETA Skill Needs of Small and Emerging Enterprises Study Report:2021/22

1.9. IMPLICATIONS ON SKILLS DEVELOPMENT

Table 6: Implications on skills development

Factor	Implications on Skills Development
Key role players	As a critical component of essential services within South Africa, the energy and water sector key role players assume a crucial position in driving economic development and supporting skills development imperatives. - Though the COVID-19 pandemic has proven to be one of the most impactful disasters of our time, key role players within the sector have saved jobs while maintaining business continuity. - Training learners in workplaces remained a priority for many employers in the sector, despite the inherent challenges the pandemic has brought about. - Though skills supply was disrupted by the COVID-19 pandemic, key role players continued to implement as many learning programmes as possible.
Economic performance	Slow GDP growth, unemployment, the COVID-19 pandemic, and other interrelated challenges dampen economic performance. - Though there was some growth in GDP in 2021, the subdued economic performance stifled job creation, business development, and related productivity. Therefore, reduced economic productivity will hinder skills delivery efforts. - The significant job losses recorded over the last few years have had a material impact on education and training imperatives due to a reduction in learning activities. - The advent of COVID-19 placed additional pressure on an already fragile South African economy, thereby reducing the operational viability of many employers. Training budgets had to be therefore reduced/redirected to save jobs and preserve critical monetary reserves. - More positively, incremental increases of the skill development levy (SDL) revenue received by the EWSETA over the years can serve to promote more education and training opportunities in the sector. - For education and training imperatives to be effectively realised, government, the private sector, and foreign direct investors must work in tandem to successfully reconstruct and recover the local economy and its performance.
Growth and development across energy and water subsectors	All energy and water subsectors grew in the number of employers in 2021/22. Furthermore, technological advancement is envisaged to propel the sector into further development. Therefore, EWSETA skills development imperatives must continue to consider the following: - Increased effort in establishing formal partnerships with new and established employers to support EWSETA skills development imperatives; - Technological advancements across various disciplines, coupled with sectoral growth, indicate a potential need for skilling, upskilling and reskilling unemployed and employed workers in preparation for a “green” South Africa; - The promise of an economy driven by the growth of the renewable energy subsector and “clean” energy alternatives must guide skills development imperatives now and in the future; - Business and supply chain models will have to adapt to increasing demand for energy and water, giving rise to new skill sets and knowledge-sharing opportunities between South Africa and the rest of the world; - Large-scale job creation from growing investment into industry and sectoral development will present opportunities to skilled incumbents entering the energy and water sector. Therefore, more advanced skill sets, such as those in Bachelor’s, Master’s, and PhD levels, must continue to be prioritised in support of the need for advanced energy and water-related skills and knowledge in response to a growing sector, increasing demand, and limited supply capacity.

Factor	Implications on Skills Development
Labour Market Profile	Labour market implications on skills development include the following aspects: - Based on a study conducted by the EWSETA in 2021/22, participants reported a reduction in income, company productivity and company revenue, which would have reduced employment potential and skills development opportunities emanating from declining company revenue and industry-related performance issues as a result of the COVID-19 pandemic. - The same study revealed that about half of participating companies had undergone staff retrenchments at the time, which would have displaced many workers, leaving them without jobs and reduced training opportunities due to reduced financial and human resource capacity within organisations. - A growing NEET population continues to be a matter of concern; therefore, upskilling, and reskilling opportunities must form part of skills planning interventions. - With over 58,000 workers in the sector, WSP submissions revealed that the Gauteng province continued to represent the single largest share of employees in 2022. - Though many incumbents continued to work in the sector despite economic troubles coupled with the advent of the COVID-19 pandemic, young workers increasingly face unemployment. - Furthermore, the WSP data showed that technicians and associate professionals continued to represent the single largest share of employees across WSP-submitting firms in 2022.
Economic Reconstruction and Recovery	Effective implementation of the ERRP is required. With the successful implementation of the ERRP, skills planning for the sector must consider the following: - Infrastructure development will require an increase in the number of skilled workers to address related needs, such as workers involved in electrical engineering, water-specific technicians, and related specialists; - Ongoing industry research and development (R&D) to further enhance technological innovation and application; - Increased worker participation in various RPL learning programmes in response to the ERRP to appropriately align worker knowledge and experience with respective formal qualifications; - Enhancement of the EWSETA research effort through collaborative research; - Increased skills development activities aimed at promoting entrepreneurial skills to support the presence and competitiveness of small and emerging enterprises in the energy and water sector.

1.10. CONCLUSION

Despite trying times, the EWSETA and its stakeholders maintain support for economic reconstruction and recovery through skills delivery. Even though notable challenges are an integral part of the energy and water sector, advancements in, e.g., innovation, technology, and knowledge-sharing present skills development opportunities for the EWSETA and its stakeholders. Evidence-based planning and appropriate decision-making will support the effective implementation of EWSETA interventions now and in the future.

CHAPTER 2

KEY SKILLS CHANGE DRIVERS

2.1. INTRODUCTION

Chapter 2 of this sector skills plan discusses factors driving change and influencing skills development across the energy and water sector. Data sources utilised in the development of this chapter included the following: (i) Primary data collected through the EWSETA skill needs of small and emerging enterprises research study; (ii) An analysis of WSP/ATR submissions as received from energy and water sector employers; (iii) An analysis of related national plans and strategies as secondary data sources; and (iv) qualitative, in-depth interviews conducted with various employers and industry experts across the energy and water sector.

2.2. FACTORS AFFECTING SKILLS DEMAND AND SUPPLY

Many factors influence skills demand and supply in the energy and water sector. Major change drivers are those factors that significantly influence the sector in one way or another. The table below summarises the major change drivers identified within the energy and water sector.

2.2.1. MAJOR CHANGE DRIVERS



Table 7: Major change drivers

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
COVID-19	COVID-19 has caused disruptions to the successful implementation and completion of learning programmes caused by, e.g., business closures, job losses, and training budget reductions. The impact of COVID-19 may be apparent for the foreseeable future.	- The national lockdown associated with the COVID-19 pandemic resulted in learning programmes not being implemented, which resulted in many learners not completing their respective learning programmes. - Health and safety practices remain crucial across the sector, which has meant ongoing training and (re)-orientation to rapidly changing regulations and legislation around safety matters. - Though relatively limited, the sector experienced business closures during the prolonged national lockdown, which disrupted planned interventions. - Thousands of jobs have been lost in the sector since the advent of the pandemic. As a result, many worker-orientated learning programmes could not be implemented or completed. - Training budgets reserved for skills development had to be reallocated to compensate for revenue losses incurred by businesses during the national lockdown. - Blended learning has become an increasingly important consideration for skills delivery across energy and water sector organisations.	- Technological capabilities enhanced by digital platforms as a means of reducing physical contact and improving safety practices. - Promote knowledge and awareness of related legal and regulatory prescripts. - Encourage health and safety best practices through skills programmes and related awareness interventions. - Promote access to blended learning platforms for enhanced training.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.2] - Outcome 5 [particularly sub outcome(s): 5.1; 5.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
ECONOMIC RECONSTRUCTION AND RECOVERY	Development of infrastructure will require an increase in the capacity of workers in support of economic reconstruction and recovery.	- The need for advanced knowledge and skills across various energy and water sector-related disciplines must continue to be prioritised concerning planning and implementation of relevant learning programmes addressing OIHD. - The growing demand for energy capacity in different forms such as integrated variable renewables indicates that skills development interventions must focus on supporting energy alternatives in the short to medium term. - The possibility of a water-scarce planet requires immediate attention. Technology has become a focal point for economies across the globe when considering water supply, with South Africa being no exception. Therefore, specialised skills in the innovation and development of modern technologies to support sustainable water supply is paramount. - The emergence of a green economy suggests that cleaner and more efficient energy and water solutions will be at the helm of skills development imperatives.	- Specialists and professionals are required in both energy and water sectors to support infrastructural development through (i) bursaries (e.g., civil engineering technologists, electrical engineers, and environmental scientists), (ii) continuous professional development (CPD), and (iii) candidacy-related interventions. - Specialists and professionals in water-related disciplines are required to support water conservation through bursaries and CPD-related interventions. - Develop/update appropriate qualifications to respond to the identified skill needs.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 7 - Outcome 8

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
TECHNOLOGICAL ADVANCEMENT	Emergent technologies in the sector such as renewable energy applications and water generation solutions are making strides in creating reliability and sustainability in support of the Green Agenda, especially technologies which are new/emergent across the green (G) occupations.	- The emergence of integrated, variable energy and water technologies requires the determination of specialised skills in the planning, development, installation, operation, and maintenance of physical structures and systems. - he rising demand for energy availability and water supply services places increasing pressure on the PSET system to deliver qualified incumbents to the sector. - As technology integrates and becomes increasingly variable, the skilling, reskilling/upskilling of current workers will become more important. - Boost investment into recent technologies supporting the Green Agenda and prompt the development of skills in related fields and disciplines. - However, the Fourth Industrial Revolution (4IR) complicates skills planning efforts as technological advances continue to occur more rapidly.	- Retraining of workers in related disciplines to respond to technological advancements. - Upskilling the current workforce in new technological applications and processes through in-house training and related interventions. - Education and training in formal disciplines that include technological learning components will be required (e.g., formal degree disciplines). - Candidacy programmes (for professional registration of related qualifications). - Workplace-oriented learning interventions such as learnerships, internships and apprenticeships to skill/reskill learners on practical applications of new/emerging technologies. - Continuous development must be encouraged amongst learners to keep abreast of emergent technologies. - Develop/update appropriate qualifications to respond to the identified skill needs.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 7 - Outcome 8

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
CLIMATE CHANGE	The impact of climate change continues to hinder productivity which in turn disrupts training imperatives, especially within the water sector.	- Water scarcity issues continue to pose a risk, particularly to the water sector. From an infrastructure point of view, the ERPP prescribes a large-scale reduction in water demand, an increase in water supply, and appropriate water management systems to address the looming water crises. - Thus, advanced education and training across various fields will become critical for skills planning in identifying the related skill needs and implementing the most appropriate interventions. - Furthermore, new, and emerging technologies in the sector designed to overcome the adverse effects of climate change have become increasingly important, which require the most appropriate skills. For instance, “air-to-water” technologies such as atmospheric water generators, need highly knowledgeable and skilled professionals to design, operate and maintain functionality.	- Innovations to curb water demand whilst increasing water supply requires experts, professionals, and specialists. Education and training in formal disciplines, such as bursaries for degree disciplines, will be required from Bachelor’s level to PhD level. - Additional training in Candidacy programmes (for professional registration of related qualifications) will continue to be necessary for the related disciplines. - Workplace-oriented learning interventions such as internships to equip learners on practical applications of new/emerging technologies will also be needed. - Continuous development is crucial for learners to keep abreast of emerging technologies designed to curb water demand and increase supply in response to water scarcity. - Develop/update appropriate qualifications to respond to the identified skill needs.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 5 [particularly sub outcome(s): 5.1; 5.2] - Outcome 7 - Outcome 8

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
JUST ENERGY TRANSITION (JET)	The just energy transition (JET) emphasises decarbonising, digitising, decentralising, and deregulating energy. One of the primary goals of the JET is to reduce carbon emissions whilst moving the local economy away from coal-dependent power solutions.	- A shift towards a decarbonised, 'green' economy will require the development [and redevelopment] of employed and unemployed learners in the sector. - For example, innovation, modern technology, new systems, and new work processes brought about by the energy transition will require contemporary education and training to deliver highly skilled and knowledgeable workers to the sector. - For there to be a 'just' transition, updating policies such as those related to equality of opportunity will be necessary. - New qualifications/certifications in related disciplines will require the realignment of quality assurance strategies when designing contemporary learning programmes.	Education and training in formal disciplines will be required in the form of bursaries (for energy-related degree disciplines).	Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]
			Recognition of prior learning (RPL) and workplace-oriented learning interventions such as apprenticeships and learnerships will be necessary to skill learners on the practical applications of new/emerging technologies.	Outcome 2 [particularly sub outcome(s): 2.1]
			Short courses on decarbonisation, decentralisation, digitisation, and deregulation will add value to upskilling and/or reskilling activities.	Outcome 3 [particularly sub outcome(s): 3.1]
			International Capacity Building Programmes could also improve the contemporary aspects of training and development.	Outcome 4 [particularly sub outcome(s): 4.1; 4.2]
			Develop/update appropriate qualifications to respond to the identified skill needs.	- Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 7 - Outcome 8

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver	NSDP outcomes impacted by skills development implications
LEGISLATIVE/ COMPLIANCE/ REGULATORY ENVIRONMENT	Legal, regulatory, and compliance-related prescripts govern the operations of energy and water sector organisations.	- Since the operations of sector organisations depend on numerous laws, regulations and compliance prescripts, incumbents must adhere to good governance conventions. - For example, certain professionals operating in the sector must acquire and maintain professional certification throughout their tenure, which requires continuous development. - As legal prescripts change over time, so do the requirements of workers in the sector. Therefore, workers must continuously develop their knowledge and skills to remain abreast of new regulations and prevailing laws.	Ongoing training and re-training of workers is critical to maintaining professional standards and adhering to regulatory requirements.	Outcome 2 [particularly sub outcome(s): 2.1]
			The training of compliance officers and managers on an ongoing basis is critical through, e.g., in-house training, short courses, and continuous development.	- Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 7 - Outcome 8

2.3. POLICY FRAMEWORKS AFFECTING SKILLS DEMAND AND SUPPLY

Many national plans and strategies in existence today influence the sector. The EWSETA SSP identifies those national plans and strategies which bear considerable influence on skills planning imperatives for the sector and have remained the same as those identified in previous SSP updates; except for the Just Energy Transition (JET) and the District Development Model (DDM).

Table 8: Key National Plans and Strategies Affecting Skills Demand and Supply

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning	Linked to NSDP Outcomes
National Skills Development Plan (NSDP)	The NSDP aims to “ensure that South Africa has adequate, appropriate and high-quality skills that contribute towards economic growth, employment creation and social development” . The EWSETA therefore continues to link education and work through research, evidence-based planning and informed decision making, thereby responding to occupations in high demand across the energy and water sector.	The NSDP comprises several outcomes to which the EWSETA aligns itself. Informed through evidence-based skills planning (underpinned by evidence-based research) and effective decision making, educating, and training unemployed and employed learners remains a priority for the EWSETA. Thus, the EWSETA will continue to support the NSDP as follows: - Identify and increase production of priority occupations in high demand; - Link education and the workplace; - Improve the level of skills in the South African workforce; - Increase access to occupationally directed programmes; - Support the growth of the public college system; - Provide skills development support for entrepreneurship and cooperative development; - Encourage and support worker initiated training; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 5 [particularly sub outcome(s): 5.1; 5.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 7 - Outcome 8

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning	Linked to NSDP Outcomes
White Paper on Post-School Education and Training (PSET)	The White Paper on PSET sets out strategies to improve the capacity of the PSET system to meet South Africa’s needs as it outlines policy directives to guide the DHET and related institutions to contribute to building a developmental state with a flourishing economy. In this light, the EWSETA seeks to establish linkages between education and training and the world of work through the PSET system as enabler in positioning skills development as a key driver in the appropriate supply of qualified and skilled incumbents	In support of the White Paper, the EWSETA seeks to establish linkages between education and training and the world of work through the PSET system as an enabler in positioning skills development as a critical driver in the supply of qualified and skilled incumbents. Thus, the effective collaboration between the EWSETA, PSET institutions, and sector employers is crucial in supplying the most relevant and appropriate skills to the sector. The EWSETA will therefore continue to support the White Paper as follows: - Identify and increase production of priority occupations in high demand; - Link education and the workplace; - Improve the level of skills in the South African workforce; - Increase access to occupationally directed programmes; - Support the growth of the public college system; - Provide skills development support for entrepreneurship and cooperative development; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 5 [particularly sub outcome(s): 5.1; 5.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8
[New] Industrial Policy Action Plan (IPAP)	The primary aim of the [New] IPAP is to reindustrialise South Africa. Since this policy is wholistically encompassing, it includes both the energy and water sectors. When considering the strides made in technological advancement, the IPAP plays a pivotal role in ensuring infrastructural development and inclusive growth. The above indicates that the energy and water sector has the critical responsibility of ensuring sustainability whilst supporting the development of the local economy.	The energy and water sector assumes a critical role in infrastructural development whilst reducing demand and increasing the reliable supply of energy and water in a ‘green’ and sustainable manner. Advanced skills supplied to the sector would serve to address prescribed requirements. Thus, the EWSETA will continue to support the IPAP in the following ways: - Identify and increase production of priority occupations in high demand; - Link education and the workplace; - Improve the level of skills in the South African workforce; - Increase access to occupationally directed programmes; - Provide skills development support for entrepreneurship and cooperative development; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning	Linked to NSDP Outcomes
Integrated Resource Plan (IRP) 2019	The IRP is an electricity infrastructure development plan based on “least-cost” electricity supply and demand balance whilst considering the security of supply and environmental conservation, which also refers to minimising carbon emissions and reducing water consumption. The water-energy nexus demonstrates how energy and water technology solutions can work cohesively to bring about greater efficiencies in the sustainable and “green” production and supply of such critical resources. Therefore, equipping learners with the required skills is paramount.	The water-energy nexus indicates a wealth of opportunities in establishing a reliable and sustainable supply of energy and water resources for a developing economy. For instance, water scarcity and electricity demand require the necessary knowledge, skills, and expertise to ensure a sustainable future for all. Therefore, the EWSETA must continue to respond to the prescripts identified in the IRP in the following ways: - Identify and increase production of priority occupations in high demand; - Link education and the workplace; - Improve the level of skills in the South African workforce; - Increase access to occupationally directed programmes; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 8
National Energy Strategy (NES)	The NES sets out regulations for the efficient, “green” use of energy in buildings, especially in new buildings, making it compulsory for construction developments to comply with energy standards that seek to maximise energy efficiency whilst reducing usage and eliminating waste.	As the world moves towards greater efficiency, sustainability has become equally crucial. The EWSETA will therefore continue to support the NES as follows: - Identify and increase production of priority occupations in high demand; - Link education and the workplace; - Improve the level of skills in the South African workforce; - Increase access to occupationally directed programmes; - Provide skills development support for entrepreneurship and cooperative development; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8
Just Energy Transition (JET)	The Just energy transition (JET) aims to achieve “Net Zero” carbon emissions by 2050 whilst making a meaningful contribution to sustainable job creation. Some of the additional benefits of moving towards lower carbon technologies include a positive impact on air quality and water usage, the potential to create new jobs, and the preservation of biodiversity in South Africa.	A cleaner and ‘greener’ future will benefit all. The JET sets ambitious targets for South Africa, especially for the energy sector. The EWSETA will therefore endeavour to support the JET according to the following: - Identify and increase production of priority occupations; - Link education and training to an increased number of workplaces; - Improve the level of skills in the South African workforce; - Provide skills development support for entrepreneurship and cooperative development.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1]

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning	Linked to NSDP Outcomes
National Water Resource Strategy 2 (NWRS 2)	The NWRS 2 is primarily concerned with efficient and effective methods for water resource management. The strategy aims to provide sustainable and equitable water supply services for all whilst ensuring the protection, efficient usage, development, conservation, and management thereof.	Sustainability in water supply requires skills that promote and realise improved water management systems, increased recycling and reuse, and increased public awareness of water conservation. Thus, the EWSETA will continue to support the NWRS 2 as follows: - Identify and increase production of priority occupations; - Link education and training to an increased number of workplaces; - Improve the level of skills in the South African workforce; - Provide skills development support for entrepreneurship and cooperative development; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8
The National Water and Sanitation Master Plan (NWSMP)	The NWSMP aims to: reduce water demand, increase water supply, effectively manage water and sanitation services, improve raw water quality, protect, and restore ecological infrastructure, create effective water sector institutions, manage water-related data and information, build sector capacity, ensure financial best practice, align legislation to water-related compliance matters, enhance research in the development of the water sector, and support innovation in water-related disciplines.	In response to the prescript of the NWSMP, the EWSETA will continue to: - Identify and increase production of priority occupations; - Link education and training to an increased number of workplaces; - Improve the level of skills in the South African workforce; - Provide skills development support for entrepreneurship and cooperative development; - Support career development services.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4] - Outcome 2 [particularly sub outcome(s): 2.1] - Outcome 3 [particularly sub outcome(s): 3.1] - Outcome 4 [particularly sub outcome(s): 4.1; 4.2] - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 8

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning	Linked to NSDP Outcomes
Economic Reconstruction and Recovery Plan (ERRP)	The ERRP seeks to realise economic reform through substantial structural change. Despite a myriad of challenges evident in the country's financial profile, the ambitions of the ERRP aim to address issues that have thwarted development, for example, low levels of investment, an increasing budget deficit, and the maladministration of state funds. The South African ERRP prescribes several ambitious but practical objectives for the required development of the economy. Interventions that ensure, for example, energy and water sustainability and the implementation of "green" interventions, define the objectives of the ERRP.	In light of the ERRP, the EWSETA will continue to support the skills development-related objectives enshrined in the plan by maintaining a supportive and facilitative role in supplying much-needed skills, knowledge, and competencies required for economic reform. ERRP interventions such as reindustrialisation, energy security, women and youth inclusion, and green economy aspirations guide the EWSETA skills planning imperatives. Therefore, the EWSETA will continue to support the ERRP as follows: • Identify and increase production of priority occupations in high demand (including green occupations); • Link education and the workplace; • Improve the level of skills in the South African workforce; • Increase access to occupationally directed programmes; • Provide skills development support for entrepreneurship and cooperative development; • Support career development services.	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] • Outcome 2 [particularly sub outcome(s): 2.1] • Outcome 3 [particularly sub outcome(s): 3.1] • Outcome 4 [particularly sub outcome(s): 4.1; 4.2] • Outcome 6 [particularly sub outcome(s): 6.1] • Outcome 8
District Development Model (DDM)	The District Development Model builds on the White Paper on Local Government (1998) which seeks to ensure that "local government is capacitated and transformed to play a developmental role and also committed to working with citizens and groups within the community to meet their social, economic and material needs and improve the quality of their lives".	Though the DDM is directed at government-level strategic planning, the EWSETA may potentially play a supportive role in facilitating development and maintenance through skills supply. The EWSETA can partner with respective SETA and government entities in promoting skills to: • Identify and increase production of priority occupations in high demand; • Provide skills development support for entrepreneurship and cooperative development.	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4] • Outcome 6 [particularly sub outcome(s): 6.1]

Sources: (New IPAP | NSDP | IRP | White Paper on PSET | NES | JET | NWRS II | NWSMP | ERRP

2.4. CONCLUSION

There are many factors influencing the energy and water sector. Major change drivers, national plans, and national strategies constitute a crucial component of skills planning and development imperatives of the energy and water sector. As a guiding principle, the EWSETA must ensure support of the national plans and strategies outlined in this chapter though the following key measures:

Enshrining the intended outcomes of the NSDP within the SETA's skills planning imperatives; whilst underpinning the intentions of the White Paper on PSET; supporting industrial development; facilitating skills development imperatives across occupations in high demand, including those relating to green occupations in both the energy and water sectors; and playing a critical role in securing energy and water resources for the country.



CHAPTER 3

OCCUPATIONAL SHORTAGES AND SKILLS GAPS

3.1. INTRODUCTION

This chapter focuses on occupational shortages, skills gaps and occupational supply in the energy and water sector. Data sources used in the development of this chapter were based on quantitative and qualitative data sources as follows: (i) HTFVs and Skills Gaps: Empirical research conducted by the EWSETA to establish occupational shortages and skills gaps within the sector. The fieldwork involved surveys (quantitative) and in-depth interviews (qualitative) whilst WSP/ATR data informed HTFVs and skills gaps across submitting firms; (ii) Sectoral Priority Occupations and Interventions List (previously known as the PIVOTAL List): The SPOL was derived by 'ranking' identified priority occupations. It is important to note that HTFVs formed a proxy upon which occupations were identified in the SPOL and are not synonymous terms (i.e., are not used interchangeably); (iii) The South African Economic Reconstruction and Recovery Plan (ERRP): An in-depth analysis of the energy and water-related priority skills concerning the ERRP was previously conducted (as previously submitted to the Department of Higher Education and Training); (iv) Previous EWSETA SSPs; and (v) Occupations In High Demand (OIHD) list.

3.2. SECTORAL OCCUPATIONAL DEMAND

The following section presents hard-to-fill vacancies (HTFVs) and skills gaps identified in the sector.

3.2.1. HARD-TO-FILL VACANCIES (HTFVS)

Approximately 100 occupations constituted HTFVs identified in WSPs submitted to the EWSETA. The table below provides a summary of the most apparent occupations weighted and ranked as follows:

Table 9: The most apparent occupations constituting HTFVs (based on energy and water sector WSP submissions received, including data derived from WSP/ATR extensions granted)



	OCCUPATION CODE	OCCUPATION	QUANTITY NEEDED	OCCUPATION PREVIOUSLY IN DEMAND (i.e., OIHD)? (Y/N)	Indicated as a HTFV during Stakeholder Interviews? (Y/N)	New / Emerging Occupation in the EW Sector? (Y/N)	Indicated as a HTFV in the Previous SSP? (Y/N)	Reason(s) for apparent HTFV(s)
1	311301	Electrical Engineering Technician	13	Y	Y (2021)	N	Y	Lack of suitable experience Lack of relevant qualifications Salary expectations of candidates are too high
2	215101	Electrical Engineer	9	Y	Y (2019 and 2021)	N	N	Lack of relevant qualifications Lack of suitable experience Equity considerations
3	214101	Industrial Engineer	10	Y	N	N	N	Lack of relevant qualifications/professional registration Poor remuneration Lack of suitable experience
4	671202	Millwright	5	Y	N	Y	N	Lack of suitable experience
5	132104	Engineering Manager	4	Y	Y (2020)	N	N	Salary expectations of candidates are too high Lack of qualified candidates
6	213302	Environmental Scientist	4	Y	N	N	N	Lack of suitable experience
7	215103	Energy Engineer	5	Y	N	N	N	Lack of suitable experience
8	226302	Safety, Health, Environment and Quality (SHE&Q) Practitioner	6	Y	N	N	N	Lack of qualified candidates/professional registration (SAIOSH)
9	311801	Draughtsperson	7	Y	Y (2020)	N	N	Lack of suitable experience
10	213306	Water Quality Analyst	2	N	N	N	N	no reason(s) provided by submitting firm(s)
11	211401	Geologist	2	N	Y (2019 and 2021)	N	Y	Lack of suitable experience
12	214202	Civil Engineering Technologist	2	Y	Y (2020)	N	N	Lack of qualified, professional engineers in the sector
13	214501	Chemical Engineer	4	Y	N	N	N	Poor remuneration Lack of suitable experience
14	215102	Electrical Engineering Technologist	2	N	Y (2020)	N	N	Lack of suitable experience
15	211101	Physicist	2	Y	N	N	N	Lack of suitable experience

Some of the occupations in high demand identified in a report produced by GreenCape included environmental specialists, health and safety advisors/supervisors, electrical engineers, project engineers, and civil engineers as some examples (GreenCape, 2022). Many such occupations relate to those identified in the EWSETA SSP.

3.2.2. SKILLS GAPS

The table below provides a summary of the most apparent skills gaps identified in 2021 in the energy and water sector. The table indicates the related occupations for the apparent skills gaps, including the corresponding major group levels per occupation.

Table 10: Skills gaps at occupational and major group levels

No.	Skills Gap	Occupation Code	Occupation Name	Major Group Level	Total
1	Technical (job-specific) (71)	313203	Water Process Controller	TECHNICIANS AND ASSOCIATE PROFESSIONALS	71
		671101	Electrician (Engineering)	SKILLED WORKERS	
		311301	Electrical Engineering Technician	TECHNICIANS AND ASSOCIATE PROFESSIONALS	
2	Financial Management (18)	121101	Finance Manager	MANAGERS	18
		121101	Finance Manager	MANAGERS	
		134603	Financial Markets Business Manager	MANAGERS	
3	Computer literacy (16)	214101	Industrial Engineer	PROFESSIONALS	16
		325705	Safety Inspector	TECHNICIANS AND ASSOCIATE PROFESSIONALS	
		422501	Enquiry Clerk	CLERICAL SUPPORT WORKERS	
4	Management (16)	242101	Management Consultant	PROFESSIONALS	16
		121901	Corporate General Manager	MANAGERS	
		132404	Warehouse Manager	MANAGERS	
5	Advanced IT and software (15)	251201	Software Developer	PROFESSIONALS	15
		252901	ICT Security Specialist	PROFESSIONALS	
		311401	Electronic Engineering Technician	TECHNICIANS AND ASSOCIATE PROFESSIONALS	

3.3. EXTENT AND NATURE OF SUPPLY

The state of education and training provision in South Africa is discussed below.

3.3.1. STATE OF EDUCATION AND TRAINING PROVISION IN SOUTH AFRICA

This section discusses the state of education and training provision in South Africa. The state of education and training provision in South Africa is broad, ranging from basic education to post-school education and training (PSET). As a point of departure, the following table indicates the number and share of persons in the population aged 25–64 years by the highest level of educational attainment in the country in 2010 and 2020 comparatively.

Table 11: Number and share of persons in the population aged 25–64 years by highest level of educational attainment in South Africa

Highest level of educational attainment	Q3 2010		Q3 2020	
	Thousands	Percentage (%)%	Thousands	Percentage (%)
No schooling	1 255	5.4	639	2.2
Less than primary schooling	2 948	12.8	2 031	7.0
Primary schooling	1 410	6.1	1 156	4.0
Some secondary schooling	8 524	36.9	11 119	38.5
Secondary (Grade 12 or equivalent) schooling	5 708	24.7	9 281	32.1
Certificate	546	2.4	991	3.4
Diploma	1 274	5.5	1 737	6.0
Degree	1 112	4.8	1 730	6.0
Other	305	1.3	224	0.8
Total	23 082	100.0	28 908	100.0

Source: Adapted from (DHET, 2021b)

It is evident from the table above that significantly more South African adults had primary and secondary education as their highest level of educational attainment in 2020 compared with 2010. Though there appears to be a growing trend in secondary education completions, only 6% of South African adults had a degree as their highest level of education in 2020.

3.3.1.1. Basic Education

The basic education system plays a crucial role in the supply of young learners to the higher levels of the education system constituencies, such as post-school education and training (PSET). The successful development of young learners during the formative years determines the quality and quantity of learners entering the PSET system and then moving on to undertaking critical job roles in the world of work. The below provides a brief overview of basic education in South Africa.

3.3.1.1.1. Matric Pass Rates for 2021

Following a challenging year in 2020, the ongoing COVID-19 restrictions and regulations remained in place in 2021. Not only did the pandemic cause significant disruptions to businesses and livelihoods all over the world, but it also adversely hindered education. Subsequently, many learners did not attend classroom learning for most of the school calendar year. Despite the realities, matric learners across the country continued to make every effort to complete this extremely critical stage of development. As part of ongoing government commitment to young learners, the overall 2021/22 Medium-Term Expenditure Framework (MTEF) budget allocation was R27billion, representing an increase of 15.5% compared with the 2020/21 revised overall baseline budget allocation.

The following table presents a summary of matric passes per province from 2018 to 2021 and also shows the class of 2021 attained a pass rate of 76.4%, a slight improvement on the previous year. Various technical vocational specialisations, Technical Mathematics and Technical Sciences were offered for the fourth year since their introduction in 2018. Remarkable improvements in 2021 national senior certificate (NSC) results were noted, particularly in Technical Sciences and Technical Mathematics.

Table 12: Comparison of National Senior certificate (NSC) passes per province from 2018-2021

Province	2018			2019			Province	2020			2021		
	Total Wrote	Total Achieved	% Achieved	Total Wrote	Total Achieved	% Achieved		Total Wrote	Total Achieved	% Achieved	Total Wrote	Total Achieved	% Achieved
Eastern Cape	65 733	46 393	70 .6	63 198	48 331	76 .5	Eastern Cape	72 926	49 691	68 .1	91 500	66 770	73 .0
Free State	24 914	21 806	87 .5	25 572	22 602	88 .4	Free State	27 928	23 779	85 .1	35 055	30 037	85 .7
Gauteng	94 870	83 406	87 .9	97 829	85 342	87 .2	Gauteng	110 191	92 285	83 .8	127 523	105 526	82 .8
KwaZulu-Natal	116 152	88 485	76 .2	116 937	95 017	81 .3	KwaZulu-Natal	135 225	104 938	77 .6	166 570	127 990	76 .8
Limpopo	76 730	53 254	69 .4	70 847	51 855	73 .2	Limpopo	78 695	53 634	68 .2	105 101	70 124	66 .7
Mpumalanga	44 612	35 225	79 .0	43 559	34 995	80 .3	Mpumalanga	53 391	39 367	73 .7	66 756	49 133	73 .6
North West	29 061	23 578	81 .1	26 819	23 272	86 .8	North West	36 871	28 093	76 .2	41 081	32 143	78 .2
Northern Cape	9 909	7 264	73 .3	9 138	6 990	76 .5	Northern Cape	11 608	7 665	66 .0	12 726	9 089	71 .4
Western Cape	50 754	41 350	81 .5	50 404	41 502	82 .3	Western Cape	51 633	41 250	79 .9	57 709	46 875	81 .2
National	512735	400 761	78 .2	504 303	409 906	81 .3	National	578 468	440 702	76 .2	704 021	537 687	76 .4

Source: Adapted from (DBE, 2022)

Notably, 704,021 learners wrote matric exams in 2021 compared with 578,468 in 2020 nationally, which resulted in a higher number of learners achieving a pass in 2021. This outcome may have been, at least in part, attributable to the harder COVID-19 national lockdown periods in 2020.

3.3.1.1.2. Gateway Subjects Passed (Matric Learners)

The table below is a summary of matric learner national performance in 2021 concerning gateway subjects - percentage (%) pass mark achieved at 30% and above.

Table 13: Performance (%) across selected gateway subjects (2015-2021)

Gateway Subjects	2015	2016	2017	2018	2019	2020	2021
Accounting	59.6	69.5	66.1	72.5	78.4	75.5	74.7
Agricultural Sciences	76.9	75.4	70.4	69.9	74.6	72.7	75.4
Business Studies	75.7	73.7	68.0	64.9	71.0	77.9	80.5
Economics	68.2	65.3	71.0	73.3	69.3	68.8	67.9
English First Additional Language	97.1	97.4	97.1	97.2	97.6	99.2	98.9
Geography	77	76.5	76.9	74.2	80.5	75.3	74.3
History	84	84	86.0	89.7	90.0	92.1	89.5
Life Sciences	70.4	70.5	74.4	76.3	72.3	71.0	71.5
Mathematical Literacy	71.4	71.3	73.9	72.5	80.6	80.8	74.5
Mathematics	49.1	51.1	51.9	58.0	54.6	53.8	57.6
Physical Science	58.6	62.0	65.1	74.2	75.5	65.8	69.0
Overall (%)	71.6	72.4	72.8	74.8	76.8	75.7	75.8

Source: adapted from (DBE, 2021) | (DBE, 2022)

The overall averages in the table above indicate an upward trend concerning the pass rate across “gateway” subjects between 2015 and 2021. It is important to note that gateway subjects provide access to a broader scope of tertiary level education faculties, which ideally lead to more career options in the energy and water sector.

3.3.1.2. Post-School Education and Training (PSET)

The post-school education and training (PSET) system constitutes public higher education institutions (HEIs), technical and vocational education and training colleges (TVETs), private higher education institutions (PHEIs), private colleges (PCs), community education and training colleges (CETCs), and private TVET colleges. Supportive structures include the National Skills Authority (NSA), the Department of Higher Education and Training (DHET), Sector Education and Training Authorities (SETAs), and regulatory bodies responsible for qualifications and quality assurance, namely, the South African Qualifications Authority (SAQA) and the Quality Councils (QCs). As demonstrated in the previous section, the basic education system is responsible for supplying quality learners with appropriate learning outcomes to the PSET system. Access to appropriate higher learning opportunities is imperative for learners aspiring to embark on careers in the energy and water sector since many related occupations require formal qualifications.

With a sustained upward trend in the number of successful Grade 12 completions and increasing investment into education and training, the South African workforce is becoming more educated and skilled.

3.3.1.3. Extent of occupational supply in the sector

The extent of occupational supply in the energy and water sector is affected by the outputs and outcomes of the PSET system. The following section seeks to extrapolate PSET outcomes in measuring occupational input to the sector.

3.3.1.3.1. Supply from [Public] Higher Education Institutions (HEIs)

Public higher education institutions (HEIs) are responsible for equipping learners with the necessary knowledge, skills and competencies in many fields and disciplines such as engineering, technology, and so on. Thus, HEIs can be linked directly to outcomes prescribed in the NSDP, such as Outcome 1 (particularly sub-outcomes 3 and 4), which responds to the need for education and training in targeted priority occupations; and Outcome 3, which emphasises the overall improvement of the level of skills in the South African workforce.

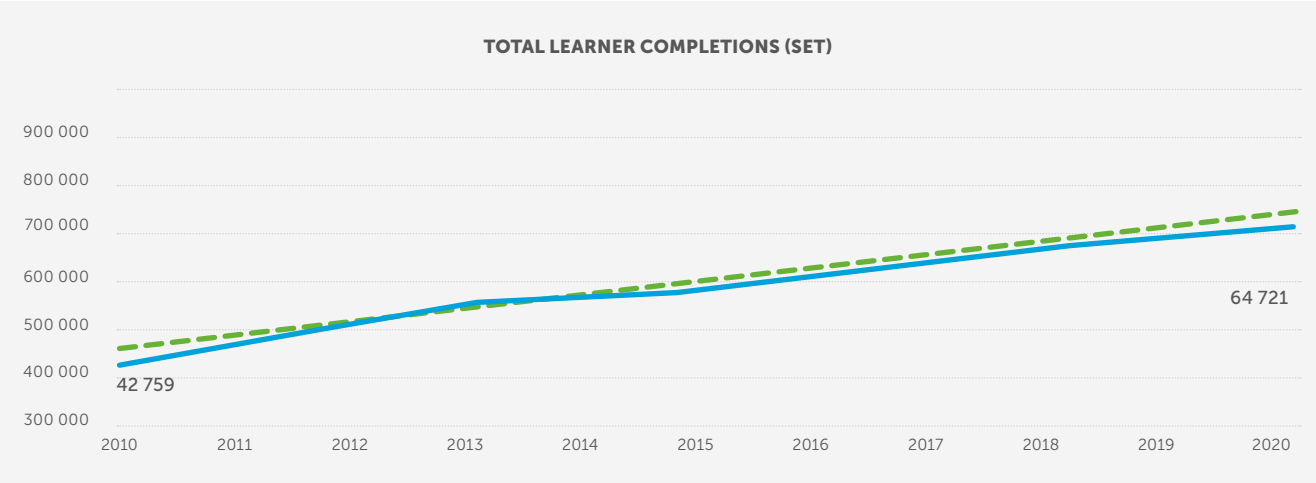
At the time of updating of this SSP, the data indicated in this section was deemed correct as received from the Department of Higher Education and Training (DHET).

According to the Minister of Higher Education, Science, and Innovation, the total projected enrolments within public universities stood at 1,110,361 learners for the 2022 academic year. Furthermore, the government forecasted 69,069 learner enrolments into public universities for critical and scarce skills areas (i.e., hard-to-fill vacancies). These areas included disciplines such as engineering (17,085 learners), life and physical science (17,584 learners), and teacher education (22,788 learners), to name a few (Government of South Africa, 2022). However, such disciplines typically require a national senior certificate (NSC) Mathematics pass mark of at least 60%, whilst many learners still do not achieve the minimum pass mark required to access the related faculties. This demonstrates the crucial role that basic education plays when considering the PSET environment.

Based on the Higher Education Management Information System (HEMIS), 1,094,808 learners enrolled for various qualifications across national higher institutions in 2020. Additionally, data analysis indicated 290,261 learner enrolments into 1st Bachelor’s degree (3-year) learning programmes at national institutions in 2020, whilst enrolments for science, engineering, and technology (SET) disciplines accounted for 87,965 in the same period. Furthermore, female learners accounted for the largest share of enrolments into various faculties in the same period, demonstrating a progressive propensity for female learner support in the PSET system. An ongoing trend of learner enrolments, especially within SET qualifications, shows the continued commitment of public higher institutions to educate and develop learners in response to the many skills needs that will support economic reconstruction and recovery in South Africa.

In terms of completions, since 2010, there has been considerable growth, with a total of 237,882 learners who fulfilled the requirements for a degree/diploma/certificate according to major or area of specialisation and qualification type at national institutions. Moreover, completions across SET qualifications increased from 42,759 learners in 2010 to 64,721 in 2020, indicating a substantial increase. The figure below graphically depicts learner completions across SET qualifications between 2010 and 2020 at national HEIs.

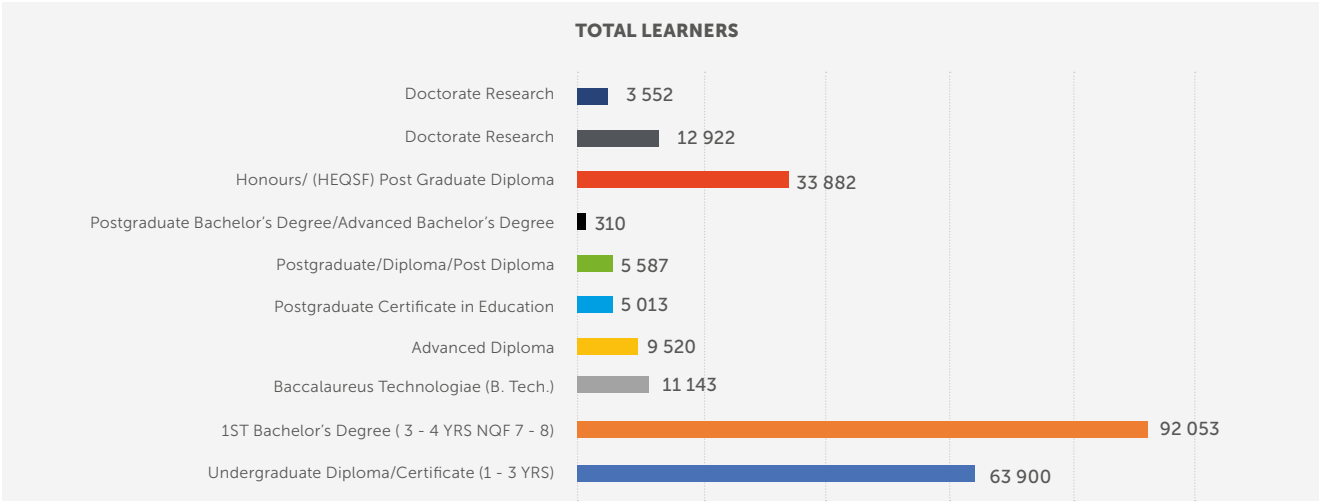
Figure 16: Number of learners completing SET qualifications at national institutions



Source: Adapted from DHET HEMIS Data (2021)

In addition, and regarding the figure below, reported learner completions throughout the various qualification types in 2020 (which shows the total number of students who fulfilled the requirements for a Degree/Diploma/Certificate according to specialisation and qualification type) were reported as follows:

Figure 17:Learner completions at national institutions by qualification type in 2020



Source: Adapted from DHET HEMIS Data (2021)

The data revealed that more learners (92,053) completed 1st Bachelor’s degree qualifications (3 or 4 years at NQF levels 7 or 8) than any other qualification type at national institutions in 2020, followed by Undergraduate Diploma/Certificate qualifications (63,900) and Honours qualifications (33,882) in the same period. Master’s Research and Non-Research qualifications accounted for 12,922 learner completions respectively in the same period. It was encouraging to note high completion rates for such qualifications as the energy and water sector requires many qualified workers to embark on challenging careers that seek to address the numerous problems faced by the country. However, the EWSETA should continue to support more completions.

3.3.1.3.2. Supply from Private Higher Education Institutions (PHEIs)

Private Higher Education Institutions (PHEIs) provide learning programmes equivalent to those offered by public HEIs that fall under the Higher Education Qualifications Sub-framework (HEQSF). PHEIs remain aligned to NSDP Outcome 1 (particularly sub-outcomes 3 and 4); and Outcome 3. The total completions registered across PHEIs in South Africa between 2018 and 2019 are as follows:

Table 14: Total learner completions across PHEIs in South Africa by qualification type (2018 to 2020)

Qualification Type	Completions (2018)	Completions (2019)	Completions (2020)	Variance (%) (2018-2019)	Variance (%) (2019-2020)
Higher Certificate	7 790	11 197	13 134	43.74	17.30
Advanced Certificate	393	1 032	1 739	162.60	68.51
Diploma (240-Credits)	1 905	1 624	1 543	-14.75	-4.99
Diploma (360-Credits)	7 297	8 264	10 227	13.25	23.75
Advanced Diploma	891	1 137	1 138	27.61	0.09
Postgraduate Diploma	1 008	2 757	2 500	173.51	-9.32
Bachelor's degree (360-Credits)	11 068	1 2817	12 704	15.80	-0.88
Bachelor's degree (480-Credits)	1 207	874	1 059	-27.59	21.17
Honours Degree	1 394	1 226	1 616	-12.05	31.81
Master's Degree	988	1 575	1 383	59.41	-12.19
Master's Degree (Professional)	0	0	0	-	-
Doctoral Degrees	31	23	42	-25.81	82.61
Doctoral Degrees (Professional)	0	0	0	-	-
Total	33 972	42 526	47 085	25.18	10.72

Source: Adapted from (HEMIS 2018) | (DHET, 2021b) | (DHET, 2022)

The table above shows increases in completions across seven (7) of the thirteen (13) listed qualification types between 2018 and 2019 (25.18% overall average increase) and 2019 to 2020 (10.72% overall average increase) at PHEIs respectively. Notably, Doctoral Degree qualification completions accounted for the highest (82.61%) increase between 2019 and 2020, followed by Advanced Certificate (68.51%) and Honours Degree (31.81%). It is encouraging to note a growing trend of completions across the different qualification types at PHEIs, which significantly contribute to skills development.

3.3.1.3.3. Supply from TVET Colleges

Administered in terms of the Further Education and Training Colleges Act 16 of 2006, TVET Colleges can be associated with NSDP outcomes such as NSDP Outcome 1 (sub-outcome 3 and 4); Outcome 2; Outcome 3; Outcome 4 (sub-outcome 2); and Outcome 5 (sub-outcome 1). The table below provides a summary of completions in 2019 and 2020 by qualification category at TVET colleges as follows:

Table 15: Number of learners in TVET Colleges who completed TVET qualifications in 2019 and 2020

TVET Qualification	Completions (2019)	Completions (2020)	Variance (%)
NC(V) Level 2	(2019 – 2020)	28 811	11.30
NC(V) Level 3	16 869	18 706	10.89
NC(V) Level 4	10 920	12 507	14.53
Report 190/1 N1 (Engineering Studies)	42 355	33 282	-21.42
Report 190/1 N2 (Engineering Studies)	54 092	46 085	-14.80
Report 190/1 N3 (Engineering Studies)	37 863	34 558	-8.73
Report 190/1 N4 (Part-Qualification Engineering Studies)	45 785	26 522	-42.07
Report 190/1 N5 (Part-Qualification Engineering Studies)	31 996	18 615	-41.82
Report 190/1 N6 (Part-Qualification Engineering Studies)	27 343	14 571	-46.71
Report 190/1 N4 (Part-Qualification Business Studies)	116 175	62 348	-46.33
Report 190/1 N5 (Part-Qualification Business Studies)	95 527	45 737	-52.12
Report 190/1 N6 (Part-Qualification Business Studies)	86 050	42 674	-50.41
Total	590 861	384 416	-34.94

Source: Adapted from (DHET, 2021a) | (DHET, 2022)

The Technical and Vocational Education and Training Management Information System (TVETMIS) showed a significant decline in completions of 206,445 between 2019 and 2020. This outcome may have been attributable to the national lockdown restrictions and regulations due to the COVID-19 pandemic. Be that as it may, NC(V) qualifications accounted for increases in completions between 2019 and 2020 at TVET colleges.

3.3.1.3.4. Supply by CET Colleges (CETCs)

CETCs play a critical role in bridging the gap between community-based learning and the broader vision of further education as underpinned by the NSDP, particularly NSDP Outcome 3; and Outcome 5 (sub-outcome 2). CETCs provide a learning pathway to other PSET institutions such as TVET Colleges and universities and support learners who do not have access to basic education and further education and training. The table below summarises qualification enrolments at CETCs in 2019 and 2020.

Table 16: Number of students enrolled in CET colleges by programme in 2019 and 2020

Programme	Enrolments (2019)	Enrolments (2020)	Variance (%) (2019 – 2020)
AET Level 1	3 050	2 906	-4.72
AET Level 2	6 189	3 747	-39.46
AET Level 3	9 892	7 423	-24.96
GETC: ABET Level 4 (NQF Level 1)	75 704	62 078	-18.00
Grade 10 ((NQF Level 2)	0	265	-
Grade 11 (NQF Level 3)	2	351	17450.00
Grade 12 (NQF Level 4)	72 735	60 105	-17.36
Non-formal programmes	3 333	3 596	7.89
Occupational Qualifications	504	2 067	310.12
Total	171 409	142 538	-16.84

Source: Adapted from (DHET, 2022)

In 2020, the total number of learners enrolled at CETCs stood at 142,538 representing a decline of 28,871 (or 16.84%). GETC: ABET Level 4 (NQF Level 1) programmes continued to account for the most enrolments (62,078) in 2020, closely followed by Grade 12 (60,105). There were stark improvements in enrolments into CETCs for Occupational Qualifications (2,067), Grade 11 (351), and Grade 10 (265) compared with the previous year. The government and the EWSETA must encourage local communities to embark on the available learning programmes.

3.3.1.3.5. Supply by Private Colleges (PCs)

Private Colleges (PCs) are governed by the Continuing Education Act, 2006 (No. 16 of 2006), which mandates private college registrations through DHET. PCs offer qualifications or part-qualifications registered on the National Qualifications Framework (NQF) at Levels 1 – 4, which can be associated with NSDP Outcome 3 and Outcome 5 (sub-outcome 2) - although PCs may also offer higher-level qualifications such as diplomas and degrees. The table below provides a summary of completions at PCs in 2020.

Table 17: Number of learners in Private Colleges who completed qualifications in 2020

Qualification Category	Total completions (2020)
NC(V) Level 2	258
NC(V) Level 3	131
NC(V) Level 4	70
Report 191 N1 part qualifications for Engineering Studies	8 695
Report 191 N2 part qualifications for Engineering Studies	22 100
Report 191 N3 part qualifications for Engineering Studies	21 794
Report 191 N4 part qualification for Engineering Studies	13 582
Report 191 N5 part qualification for Engineering Studies	10 701
Report 191 N6 part qualification for Engineering Studies	9 479
Total	86 810

Source: Adapted from (DHET, 2022)

According to DHET (2022), 121,372 learners completed qualifications at PCs in 2020. Qualification completions included NC(V) Level 2-4 (459 completions), and Report 191 N1-N6 part qualifications for Engineering Studies (86,351 completions) in 2020.

3.3.1.3.6. SETA-supported learning programmes

The following section provides an overview of the number of workers and unemployed learners registered and certificated in SETA-supported programmes from 2016/17 to 2020/21 for Learnerships , Internships, and Skills programmes.

Table 18: SETA-supported programmes from 2016/17 to 2020/21

Table 18: SETA-supported programmes from 2016/17 to 2020/21

Year	Registered				Completed/Certificated			
	Learnerships	Internships	Skills Programmes	Total Registered	Learnerships	Internships	Skills Programmes	Total Completed
2016/17	101 447	17 216	131 017	249 680	58 080	6 777	116 141	180 998
2017/18	111 681	12 935	144 531	269 147	48 002	6 496	122 979	177 477
2018/19	105 548	15 482	150 674	271 704	61 841	6 123	144 460	212 424
2019/20	81 988	11 784	128 438	222 210	57 888	7 711	114 032	179 631
2020/21	46 546	6 022	65 973	118 541	37 684	7 405	81 636	126 725

⁶ The category “Learnerships” refers to a learning programme that leads to an occupational qualification or part qualification and includes an apprenticeship and cadetship. The data above excludes registrations and certifications in trade-related programmes, which form part of the official list of artisan occupations as per Schedule 2 Gazette 35625, 31 August 2012.

Source: Adapted from (DHET, 2021a) | (DHET, 2022)

A significant decline in SETA-supported registrations and completions was evident in 2020/21. Presumably caused by regulations and restrictions due to the COVID-19 pandemic, this outcome hindered skills supply to the sector. Nonetheless, 126,725 learners completed SETA-supported learning programmes in the period under review. The table below summarises the EWSETA-supported learning programmes for 2020/21.

Table 19: EWSETA-supported learning programmes (2020/21)

Learner type	Registered					Completed and/or Certificated				
	Learnerships	Apprenticeships	Internships	Skills Programmes	Total Registered	Learnerships	Apprenticeships	Internships	Skills Programmes	Total Registered
Workers	256	-	-	1 658	1 914	334	-	-	787	1 121
Un-employed Learners	281	-	0	486	767	183	-	0	142	325
Artisanal	-	467	-	-	467	-	1 631	-	-	1 631

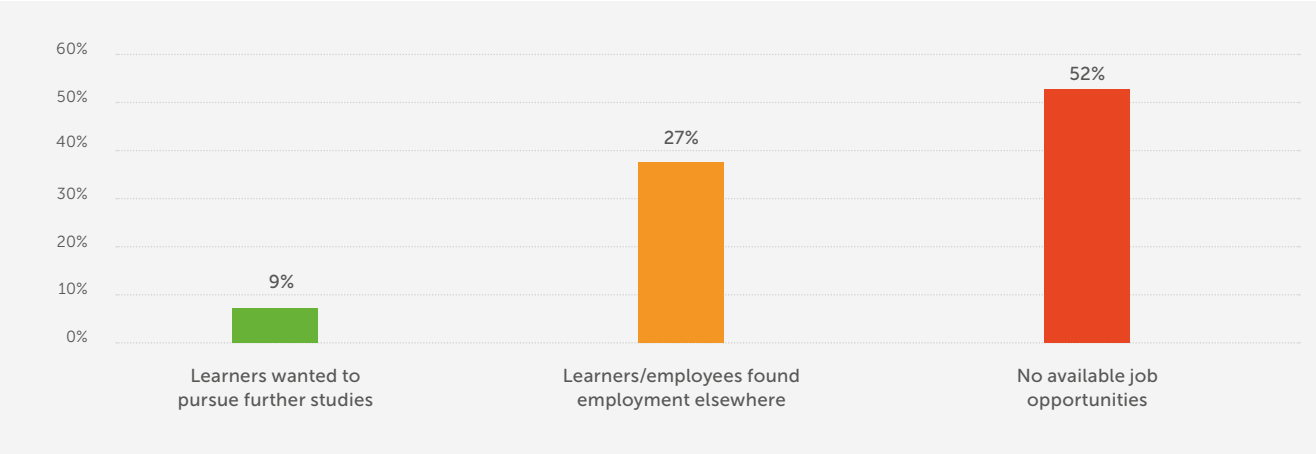
Source: Adapted from (DHET, 2021a) | (DHET, 2022)

According to the data, the highest number of learners registered for EWSETA learning programmes were workers (1,914) in 2020/21; whilst on the other hand, Apprenticeship learners accounted for the highest number of completions/ certifications (1,232) in the same period.

3.3.1.4. Supply challenges experienced by employers

According to the latest tracer study conducted by the EWSETA, employers that participated in the research expressed the following challenges concerning reasons for not employing learners upon completion of respective learning programmes (note each employer could indicate more than one challenge):

Figure 18: Top three (3) supply challenges cited by employers



Source: Adapted from (EWSETA, 2022)

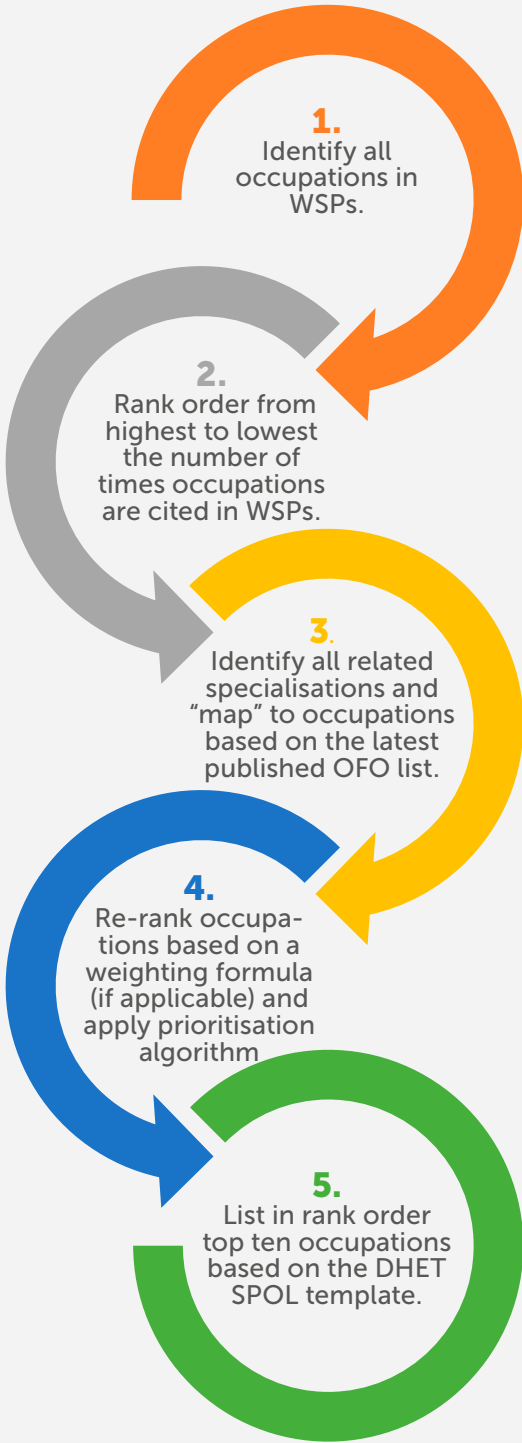
Of the top three (3) reasons for employers not recruiting learners, more than half (51.5%) of employers (participants) indicated “no available job opportunities” as the primary reason. Almost one third (27.3%) of employers stated that learners found employment elsewhere after completing their respective learning programmes. This finding showed a propensity for competition amongst employers where learners are potentially “poached” by competitors post-training. To a lesser extent, additional reasons included the need to pursue studies in other fields/disciplines, low salary packages, unsuitable work locations, and a mismatch in organisational culture fit.

In the previous year other supply challenges experienced by employers included: (1) A lack of the required technical skills in respective disciplines where learners were not suitably qualified to undertake specific job roles; (2) An insufficient number of graduates entering the job market; (3) A lack of experienced candidates where available incumbents did not have the required level and type of experience needed for specific work activities; and (4) Equity considerations. Skills planning efforts must seek to address as many of the related supply challenges experienced by employers as possible.

3.4. SECTORAL PRIORITY OCCUPATIONS

The EWSETA uses a 10-step methodology to develop the energy and water sectoral priority occupations and interventions list (SPOL) previously known as the PIVOTAL list. Two critical indicators inform the quantities in the EWSETA SPOL, namely (1) the quantitative values derived from the sector through WSP/ATR submissions; and (2) the quantitative values that the EWSETA plans to support. Since the EWSETA 10-step SPOL methodology involves a lengthy and technical algorithm, the below instead summarises the methodology into five (5) broad steps as follows:

Figure 19: The summarised methodology of the EWSETA SPOL, and not Figure 19: The summarised methodology of the EWSETA SPO



⁷ The listed interventions serve only as examples of potential qualifications available at various PSET institutions.

Since energy and water-related skills demand is derived from the sector, it is critical to note that advanced qualifications are emphasised in the sectoral priority occupations and interventions list (SPOL), such as those at NQF levels 7, 8, 9 and 10. Furthermore, higher-level qualifications are in need as the aspirations of the ERRP continue to guide sector skills planning. National plans and strategies also continue to be supported by the EWSETA.

The EWSETA supports many learning interventions, including interventions that are unrelated to the national qualifications framework (NQF). Thus, it is critical to note those levels of education and training that will serve to address the urgent needs of the sector and the South African economy most appropriately (as outlined in the ERRP and related national plans and strategies).

Many traditional occupations across the energy and water sector are “green” since they contribute to preserving or restoring the environment. Some occupations in the sector not technically considered “green” should therefore be reclassified since they also contribute to the preservation or rehabilitation of the environment enforced through, for example, prevailing laws and regulations.

The table below presents the EWSETA SPOL. Various analyses informed the related interventions listed in the SPOL, such as analysis of WSP submissions; analysis of various secondary data sources, e.g., career advice portals and SAQA-related databases; and external and internal stakeholder engagements, including approval by the EWSETA Accounting Authority.

Note how the letter “G” in parenthesis “()” appearing next to each applicable occupation name represents a green occupation. Seven (7) of the top ten (10) energy and water sector occupations identified represent green occupations. The EWSETA SPOL is comprised of the top ten (10) occupations identified in the sector, including:

- 1. Electrical engineering technician (G);
- 2. Industrial engineer (G);
- 3. Electrical engineer (G);
- 4. Draughtsperson;
- 5. Millwright;
- 6. Energy engineer (G);
- 7. Engineering manager;
- 8. Environmental scientist (G);
- 9. Geologist(G); and
- 10. Civil engineering technologist (G).

(See Annexure 1 for the detailed EWSETA SPOL)

3.5. CONCLUSION

The identified occupations listed in the SPOL support the ERRP and related national plans and strategies. Though the SPOL does not represent a complete list of occupations that the EWSETA has identified (since it only shows the top ten occupations and related specialisations), it nonetheless remains the intention of the EWSETA to continue to address as many identified skills needs as possible.

CHAPTER 4

SETA PARTNERSHIPS

4.1. INTRODUCTION

The EWSETA continues to explore ways to maximise skills development through partnerships. In this light, partnerships support, e.g., research, learner development, and employer skills imperatives. Though there have been challenges, EWSETA partnerships continue to develop within the sector. Internal departments responsible for the establishment and monitoring of EWSETA partnerships assisted with the updating of the existing and planned partnership sections contained in this chapter. The table below provides examples of the existing EWSETA partnerships.

4.2. EXISTING SETA PARTNERSHIPS

Table 20: Existing EWSETA Partnerships

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Bambili Advisory	04/2021 to 03/2030 (119 months -long term)	• Provide skills development support for the Hydrogen economy. • Provide skills development support for the Implementation of the IRP. • Ensure the implementation of the industry ERRP skills gaps.	• In partnership with Bambili, DSI and UP, 18 graduates from TVETs and UoTs were awarded a Hydrogen Fuel Cells Technology course offered by UP. • Three learners were awarded a twelve-month Internship programme. • The partnership is on track.	• The main challenge is the lack of a registered curriculum. • However, the curriculum registration process is underway in effort to address this challenge.	• Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 6 [particularly sub outcome(s): 6.1].
Central University of Technology (CUT)	03/2020 to 03/2023 (36 months - medium term)	• Develop courses within the renewable energy subsector (with solar energy as the primary focus). • Develop a learning programme for the optimisation of renewable energy in communities. • Conduct research for collecting data in the field of solar energy. • Support renewable energy innovation.	• The MOA was signed on 31 March 2021.	• It took a while to finalise the Collaborative Agreements, however, this challenge was subsequently addressed.	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 6 [particularly sub outcome(s): 6.1]. • Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Chemical, Energy, Paper, Printing, Wood, and Allied Workers' Union	04/2021 to 03/2030 (119 months -long term)	- Capacitate workers in the energy sector through skills development interventions. - Provide enterprise development for workers that seek to provide support services in the energy value chains. - Implement skills development interventions that are worker initiated to respond to energy industry needs.	- Awarded skills programmes for workers. - The partnership is on track.	No challenges have been experienced with the partnership thus far.	- Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 7. - Outcome 8.
Eastern Cape Community Education and Training College (ECCETC)	03/2020 to 03/2030 (120 months -long term)	- Support the growth of the college system. - Increase support for Community Education and Training (CET) Colleges responding to NSDP outcomes. - Provide infrastructure support for the colleges.	- EWSETA purchased 20 Computers for the College. - In addition, the EWSETA donated 20 printers to the College. - The partnership is on track.	- The college has 242 centres across the province which all require ICT infrastructure. - EWSETA committed 40 computers and only managed to provide 20. - The EWSETA is therefore committed to providing the remaining 20 computers. - ECCETC advised approaching other SETAs for further infrastructure support as a way to mitigate the risk of not being able to provide the required funding support.	Outcome 5 [particularly sub outcome(s): 5.2].

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Eskom	04/2021 to 03/2030 (119 months -long term)	- Increase synergies between the EWSETA and South Africa power utility by fostering a collaborative culture conducive to the support of employers, particularly levy payers, and create an opportunity for improved information sharing capabilities between the SETA and the sector. - Increase the level and nature of sector support in terms of appropriate skills provision and factors sustaining value creation. - Offer bursaries aimed at increasing the number of graduates with engineering degrees. - Offer Internship, Learnership and Work-Integrated Learning opportunities to increase access to workplaces. - Support Apprenticeship programmes responding to national goals in National Development Plan. - Offer skills programmes for re-skilling and upskilling workers to respond to the Just Energy Transition.	- Awarded Learnerships to unemployed learners. - Awarded Bursaries to unemployed learners. - Awarded Apprenticeships. - The partnership is on track.	It took a while to finalise the Collaborative Agreement(s), however, this challenge has been addressed.	- Outcome 1 [particularly sub outcome(s): 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.2]. - Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
National African Energy Association Wholesalers of South Africa (NAEWASA)	04/2021 to 03/2030 (119 months) (long term)	- Support skilling opportunities identified in the manufacturing, repair, and maintenance, including retailing of LP Gas Cylinders in SA - Ensure Cooperatives will be skilled to establish a bottom-up approach to energy provision within rural/ township areas. - Award bursaries in energy leadership - Establish a strategic transformational partnership with the association to increase the EWSETA levy base within the oil and gas industry.	- Awarded Bursaries: Master of Management in Energy Leadership and Postgraduate Diploma in Energy Leadership. - Cooperatives Skills Programme: NAEWASA previously submitted a proposal from Tembisa Women in Energy Association (TWEA) for several Cooperative members. - Internships and Learnerships: SMMEs provided bursaries at the WBS Centre for Energy Leadership. - The partnership is on track.	- SMMEs awarded bursars struggle to run small businesses and studies at the same time. - SMMEs and Cooperatives struggle to keep up with compliance requirements. - SMME and Cooperatives research finding will provide scientific solutions to challenges experienced by these entities. - The partnership is on hold due to the following reasons: - Payment challenges for bursaries. - Impact of Covid 19 for physical events. - Mentorship provided to SMMEs will better equip them to implement WBL programmes. - Furthermore, plans have been put in place to resolve the additional challenges identified.	- Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Northern Cape Community College	04/2021 to 03/2030 (119 months) (long term)	- Increase support for Community Education and Training (CET) Colleges responding to NSDP outcomes. - Provide infrastructure support for the college. - Provide management and Lecturer capacitation through bursaries/ skills programmes.	- Awarded Skills Programmes: Management and Lecturer support in Facilitating Social Learning and Stakeholder Engagement in Natural Resource Management. - Awarded AET Programme. - EWSETA purchased 50 laptops for the College. - The partnership is on track.	No challenges have been experienced with the partnership thus far.	Outcome 5 [particularly sub outcome(s): 5.1; 5.2].
Nuclear Industry Association of South Africa	04/2021 to 03/2030 (119 months) (long term)	- The partnership seeks to increase skills development opportunities identified in the sector. - Develop qualifications that will respond to emerging skill needs for the nuclear industry. - Award learning programmes for EWSETA funded or co-funded interventions. - Capacitate TVET and CET Colleges. - Support school interventions targeted at increasing awareness of nuclear careers. - Support strategic transformational partnerships with the association to increase women's participation in the nuclear industry.	- The partnership awarded bursaries for Executive Development Programmes for Women in Nuclear. - The partnership is on track.	It took a while to finalise the Collaborative Agreements, however, this challenge has been resolved.	- Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. - Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Proconics (The EWSETA's flagship partnership)	03/2020 to 03/2030 (120 months - long term)	• Increase synergies between the EWSETA and levy payers by fostering a collaborative culture conducive to the support of employers, particularly levy payers, and create an opportunity for improved information sharing capabilities between the EWSETA and the sector. • Increase the level and nature of sector support in terms of appropriate skills provision and factors sustaining value creation. • Offer bursaries aimed at increasing the number of graduates with engineering degrees. • Offer candidacy programme support for increasing the number of ECSA registered engineers (professional registrations).	• Successfully launched the internship programme. • Additional (top-up) funding has been allocated to the employer to ensure successful completion of the learning programme through retention of the engineering learners. • Offering bursaries aimed at increasing the number of graduates with engineering degrees. • Candidacy programme support aimed at increasing the number of ECSA registered engineers (professional registrations). • The partnership is on track.	• The challenges identified early on in the inception of the partnership have been since resolved. This collaboration is currently EWSETA's flagship partnership.	• Outcome 1 [particularly sub outcome(s): 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
South African Wind Energy Association	04/2021 to 03/2030 (120 months -long term)	• The partnership seeks to increase skilling opportunities identified in the sector. • Develop qualifications that will respond to emerging skill needs for the wind industry. • Award learning programmes for EWSETA funded or co-funded interventions. • Capacitate TVET and CET colleges. • Support strategic transformational partnerships with the association to increase the EWSETA levy base within the wind industry.	• Awarded Internships programme for the Wind Industry Internship Programme. • The partnership is on track.	• Project implementation was delayed due to COVID-19, affecting employer onboarding into the programme; however, implementation of the programme has now commenced.	• Outcome 1 [particularly sub outcome(s): 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. • Outcome 8.
South West TVET College	04/2021 to 03/2030 (119 months -long term)	• Support infrastructure development through the provision of laptops. • Ensure lecture and management skills development support through work-integrated learning (WIL) programmes and bursaries. • Promote lecturer exposure to the related industries.	• Five lecturers were awarded bursaries. • integrated learning programmes to unemployed learners. • Provided lecturers with industry exposure. • The partnership is on track.	• No challenges have been experienced with the partnership thus far.	• Outcome 5 [particularly sub outcome(s): 5.1]. • Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
The Innovation Hub	04/2021 to 03/2030 (119 months -long term)	- Ensure the capacitation of SMMEs to participate in Small Scale Embedded Generation SSEG (Microgrids and Battery Energy Storage Solutions). - Support enterprise development and placement of learners for work-based learning (internship, learnerships programmes and Work Integrated Learning). - Support skills development for entrepreneurial activities and establishment of new enterprises and cooperatives.	- Awarded Internship programme for graduate placement with innovative SMMEs. - The partnership is on track.	It took a while to finalise the Collaborative Agreement, however, this challenge has been addressed.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.2]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 8.
University of Cape Town	04/2021 to 03/2030 (119 months -long term)	- Increase synergies with universities for programmes geared towards improving energy security in the national grid and water and sanitation service provision. - Ensure awarded Bursaries for improving technical skills to power plant practitioners.	- Awarded bursaries on Postgraduates Diploma in Plant Engineering. - All awarded Bursaries are planned to be completed during 2022. - Awarded bursaries on special funding for the “missing middle”. - The partnership is on track.	- It took a while for EWSETA and UCT to implement areas of collaboration due to the partnership approach. - Implementation of the Postgraduate Diploma in Plant Engineering was delayed, which caused most of the learners to register for other learning programmes. - EWSETA has since reviewed its partnership model as part of its mitigating measures and the partnership is now back on track.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.2]. - Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
University of Witwatersrand	03/2020 to 03/2030 (120 months -long term)	- Identify occupations in high demand. - Enhance access to occupationally-directed qualifications. - Promote research, development, and innovation (RDI). - Support transformation for the previously marginalised.	- Awarded bursaries: Executive Development Programme for women. - Bursaries for “missing middle” is on track. - Bursaries for Postgraduates Studies in Energy with Centre for Energy Leadership. - Awarded bursaries: Executive Development Programme for Women in Nuclear. - Despite challenges related to the COVID-19 pandemic and subsequent delays, the partnership remains on track.	COVID-19 caused delays in the implementation of partnership deliverables; however, the partnership is back on track.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 8.

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Tshwane University of Technology (TUT)	03/2020 to 03/2023 (36 months - medium term)	- Ensure the design of sustainable technologies for liquid & solid waste management. - Integrate waste management strategies and legislation focused on green economic growth. - Provide renewable energy courses to people within the Apprenticeship and Learnership programmes; courses will include entrepreneurial start-up courses such as recycling scraped tyres, handling, and processing e-waste, and developing and refining courses in solid waste management. - Increase focus on energy-form-waste (EfW). - Develop articulation pathways for students within the TVET sector. - Educate and engage the public on wastewater treatment and sustainability.	- Through a partnership with TUT, a research chair was established for wastewater and solid waste. - The project will contribute towards skills development within the sector by conducting research and developing support to establishing a sector skills pipeline with a positive impact on employment creation. - The research is ongoing, and the partnership remains on track.	COVID-19 caused delays in the implementation of partnership deliverables; however, the partnership is back on track.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 5 [particularly sub outcome(s): 5.1]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 8.
Randwater	03/2022 to 03/2023 (12 months - short term)	Bursaries awarded to employed learners in the water sector (i.e., water-related qualifications).	- Awarded 30 learners bursaries in water sector-related qualifications. - This is a new partnership established in March of 2022 and is therefore on track.	No challenges have been experienced with the partnership thus far.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2].

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Partnership Successes	Partnership Challenges	Linked to NSDP Outcome(s)
Mhlathuze Water	02/2022 to 02/2023 (12 months - short term)	Bursaries awarded to unemployed learners in the water sector (i.e., water-related qualifications).	- Awarded 20 learners bursaries in water sector-related qualifications. - This is a new partnership established in February of 2022 and is therefore on track	No challenges have been experienced with the partnership thus far.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 8.
Bloemwater	02/2022 to 02/2023 (12 months - short term)	Bursaries awarded to employed and unemployed learners in the water sector (i.e., water-related qualifications).	- Awarded 10 employed learners bursaries in water sector-related qualifications. - Awarded 50 unemployed learners bursaries in water sector-related qualifications. - This is a new partnership established in February of 2022 and is therefore on track.	No challenges have been experienced with the partnership thus far.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 8.
NEDLAC Community Trust	09/2021 to 09/2022 (12 months - short term)	Capacity building – stakeholder engagement, community outreach and public education and awareness.	Funded 20 Cooperatives / CBOs / NGOs / NPOs for skills that enhance the development and sustainability of their organisation activities.	No challenges have been experienced with the partnership thus far.	- Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 8.

4.3. PLANNED SETA PARTNERSHIPS

The table below presents examples of the partnerships the EWSETA seeks to establish in the foreseeable future.

Table 21: New partnerships required by the EWSETA

Partner/Stakeholder Type	Factors Necessitating Partnerships
Southern Africa Energy Efficiency Confederation	- The need to facilitate synergies with industry associations to enhance industry-led skills development interventions and increase the EWSETA levy base. - The need to support enterprise development and SMME support to increase economic participation in the sector). - The need to implement skills development interventions that increase skills for Energy Performance of buildings and energy efficiency.
South African Renewable Energy Technology Centre (SARETEC) under auspices of Cape Peninsula University of Technology	The related industry (including international territories) requires a specialised renewable energy curriculum.
South African National Energy Association	- The need for increased skilling opportunities in the sector. - The need to develop qualifications responding to emerging skill needs in the just energy transition.
Council for Scientific and Industrial Research	- The need to generate new knowledge to promote the country’s energy and water research, particularly competencies and capacity in the water sector. - The need to support energy and water research, development, and innovation (RDI).
University of Johannesburg & University of Venda	- The need to encourage research, development, and innovation (RDI). - The need to identify and increase the production of occupations in high demand. - The need to support access to occupationally directed qualifications. - The need to support transformation in favour of the previously marginalised.
South African Photovoltaic Industry Association	- The potential partnership seeks to increase skilling opportunities identified in the sector. - The need to develop qualifications that will respond to emerging skill needs in the solar industry. - The need to capacitate TVET and CET Colleges. - The need to strategically increase the EWSETA levy base within the solar industry.
LGSETA	- To explore potential synergies in supporting the implementation of the objectives envisioned by the District Development Model (DDM) through skills development. - To identify priority occupations in infrastructural development in support of the ERRP and local districts. - To potentially identify research opportunities informing occupations in high demand.

4.4. CONCLUSION

Though there have been some challenges, the EWSETA continues to explore ways of identifying and addressing potential risks to successfully implement partnerships with sector constituencies. The most successful EWSETA partnership in the current period is with Proconics, which where additional funding and related resources have been made available to ensure successful implementation. This partnership will facilitate the development and provision of professional engineers to the sector.

The EWSETA continues to identify and support collaborative efforts across the sector. It therefore remains the intention of the EWSETA to continually explore ways of expanding partnerships in support of sectoral skills development priorities.



CHAPTER 5

SETA MONITORING AND EVALUATION

5.1. INTRODUCTION

As an ongoing process, the EWSETA monitors and evaluates skills development implementation imperatives by assessing related interventions and learning programmes. Monitoring and evaluation (M&E) activities consider Strategic Plans (SPs), Annual Performance Plans (APPs), Quarterly Monitoring Reports (QMRs), Annual Operations Plans (AOPs) and Annual Performance Reports (APRs). These documents also served as primary sources of information in updating this chapter.

5.2. THE EWSETA APPROACH TO MONITORING AND EVALUATION

As indicated above, the EWSETA continues to follow its standard approach to monitoring and evaluation (M&E). Furthermore, the EWSETA intends to conduct an end-term assessment (i.e., after the current five-year cycle/period) which will measure the outcomes of the Strategic Plan. This assessment aims to build on the EWSETA mid-term evaluation.

5.3. HOW THE EWSETA MAKES USE OF M&E DATA TO SUPPORT RESEARCH AND PLANNING

Based on the EWSETA M&E cycle described below, research and planning activities are supported as follows:

- Step 1: Development of the EWSETA Sector Skills Plan (SSP) using evaluative data - inputs are derived from evaluative studies during the evaluation cycle of M&E. Primary and secondary data are collected and used as inputs into the skills planning cycle, including review of SPs, APPs, AOPs, QMRs, and APRs.
- Step 2: Monitoring the development of the SSP – through a monitoring tool, the EWSETA more accurately aligns the SSP with, e.g., NSDP prescripts, the DHET SSP framework and the EWSETA Accounting Authority recommendations, whilst measuring the development of the SSP itself. Thus, data and information derived from credible sources enhance all EWSETA planning documents.
- Step 3: Aligning the EWSETA SSP, SP, APP and AOP – the monitoring aspect of the EWSETA approach allows for effective alignment of the SP, APP and AOP to the sector skills plan by aligning respective data across all EWSETA planning documents. In this way, cohesion between these four critical planning documents optimises the implementation of EWSETA interventions.
- Step 4: Monitoring implementation of the SSP, SP, APP and AOP – Tools such as QMRs, APRs, and other feedback mechanisms monitor the EWSETA SSP, SP, APP, and AOP.
- Step 5: Evaluation – Through its Research Agenda, the EWSETA measures the effectiveness of EWSETA programmes, e.g., through evaluative studies and other forms of evaluation. Insight derived from such undertakings serves as input to skills planning, i.e., the development of the SSP (which feeds back into the first step of the M&E cycle).

5.4. THE EXTENT TO WHICH THE EWSETA HAS ADDRESSED THE PREVIOUS FINANCIAL YEAR'S STRATEGIC PRIORITIES

Table 22: Extent to which the EWSETA has addressed the Previous Financial Year's Strategic Priorities

Priority Action	Found Expression in SP and App?	Status	Plan of Action	Linked to NSDP Outcomes
1. Increase internal human resources to continue to enhance the research effort (continue to enhance skills demand articulation) [medium term]	Yes	- The EWSETA is currently exploring ways to increase the internal human resources of the research function through the revision of the organisational structure. - The EWSETA has established partnerships with various public institutions and organisations in attempt to enhance the research resources available for implementation of the research agenda. - The EWSETA is in the process of redesigning its management information system (MIS) which will enhance the research effort.	- Increase the number of researchers to carry out research functions, tasks, and activities; - Explore the establishment of collaborative research partnerships with public HEIs; - Continue to establish collaborative research aimed at achieving specified outcomes; - Redesign the EWSETA MIS to enhance the research effort.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 8.
2. Establish partnerships aimed at developing and supplying skilled incumbents to address sectoral needs [short to medium term].	Yes	- The EWSETA continues to identify and increase the production of priority occupations in high demand through sector stakeholders through evidence-based research (as per the EWSETA research agenda) and support learner development through various skills-related interventions. - The EWSETA has implemented a research study concerning the linkages between education and work. - Through the M&E studies conducted to date, the EWSETA evaluates the level of mentorship opportunities provided to learners; - The EWSETA continues to implement career guidance imperatives in support of skills development. - Research recommendations include life-long learning approaches to enhance supplementary skills development.	- The EWSETA must continue to establish EWSETA partnerships to identify and address skill needs, specifically through workplace learning, which serve to support national imperatives (i.e., national strategies and plans); - The EWSETA must continue to identify strategic partnerships aimed at effectively implementing skills development interventions. - The EWSETA must continue to promote skills and knowledge transfer through work-integrated learning opportunities, particularly those interventions responding to the ERPP and other national plans and strategies; - The EWSETA must continue to develop qualifications in support of sectoral skills needs; - The EWSETA must evaluate the level of mentorship opportunities provided to learners. - Provide career guidance information that can be made available to the youth through, for example, electronic portals and direct communication strategies.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. - Outcome 6 [particularly sub outcome(s): 6.1] - Outcome 7. - Outcome 8.

Priority Action	Found Expression in SP and App?	Status	Plan of Action	Linked to NSDP Outcomes
3. Implement Recognition of Prior Learning (RPL) programmes [medium to long term].	Yes	- The EWSETA continues to promote formal qualifications amongst learners through RPL-related learning programmes. - Career guidance initiatives are rolled out on an annual basis informing learners about learning opportunities within the energy and water sector.	- Promote the professionalisation of existing workers who do not possess formal qualifications; - Provide ongoing analysis of skill needs through formal research to align learner needs to sectoral requirements; - Align employee skills with those in high demand by training/retraining incumbents in relevant occupations/specialisations through, e.g., Learnerships, Apprenticeships and Skills Programmes. - Increase the number of partnerships geared towards life-long learning and continuous improvement, especially in support of the 'NEET' population.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 7. - Outcome 8.
4. Increase skills development support for SMMEs in the sector, especially in response to 4IR and entrepreneurship skills [short to medium term].	Yes	- During the 2021/22 financial year, the EWSETA implemented research to determine the skill needs of small and emerging enterprises in support of SMMEs. - Furthermore, the EWSETA continues to offer additional support to SMMEs through one-on-one engagements, roadshows, and other capacitation interventions.	- Continue to increase support for SMMEs through capacitation services (e.g., WSP/ATR capacitation sessions and one-on-one sessions with employers.) and skill needs analysis, particularly for new entrants (e.g., entrepreneurship development and digital skills capacitation enabled by 4IR); - Facilitate skills development opportunities for SMMEs in the form of grant funding and access to appropriate learning interventions; - Promote appropriate alignment between the skill needs of SMMEs and learning interventions through research.	- Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 8.

Priority Action	Found Expression in SP and App?	Status	Plan of Action	Linked to NSDP Outcomes
5. Support equity imperatives such as gender equality, especially in key professional and technical occupations [long term].	Yes	- The EWSETA continues to enrol many female learners across the various learning interventions supporting equity imperatives (as evidenced in some of the M&E impact/tracer studies conducted by the EWSETA). - Many learners, especially those from disadvantaged backgrounds, continue to complete EWSETA learning programmes annually. - However, more must be done by the EWSETA to support female enrolments into professional and technical qualifications.	- Maintain focus on balanced equity whilst ensuring fair practices concerning learner representation across EWSETA learning interventions, especially across professional and technical qualifications; - Increase female representation across professional and technical learning programmes; - Increase support for encouraging female completion rates across related learning interventions; - Promote learning interventions that serve to address transformation imperatives; - Encourage the previously disadvantaged to embark on learning interventions geared towards professional disciplines which support sustainable occupations within the sector.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 7. - Outcome 8.
6. Establish a formal EWSETA monitoring and evaluation (M&E) framework [short to medium term].	Yes	- The EWSETA continues to explore ways of further enhancing the M&E function within the organisation through organisational design and restructuring. - Development of a formal EWSETA M&E framework is underway. - The M&E cycle continues to support skills planning and implementation of learning interventions.	- Secure additional M&E human resources to enhance the M&E function; - Establish, update and maintain an appropriate EWSETA M&E framework; - Continue to implement M&E activities (i.e., ensuring data integrity and reliability) that facilitate evidence-based outcomes; - Continue to provide appropriate data inputs into the planning activities of the EWSETA; - Continue to ensure appropriate monitoring of the EWSETA Research Agenda; - Continue to conduct M&E studies/assessments at appropriate intervals, which serve as input into the EWSETA planning cycle.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2].

Priority Action	Found Expression in SP and App?	Status	Plan of Action	Linked to NSDP Outcomes
7. Support national plans and strategies [long term].	Yes	As a critical component, the EWSETA continues to support national plans and strategies on annual basis by, for example: - Identifying and responding to sectoral skill needs. - Establishing the linkages between education, training, and the world of work. - Identifying synergies concerning partnerships established in the sector.	- Continue to support national plans and strategies through skills planning and effective service delivery; - Continue to establish appropriate collaborative partnerships with related stakeholders operating within the sector, including institutions of higher learning; - Increase the supply of technical incumbents to address national prescripts such as the ERRP, NSDP, PSET White Paper, IPAP, IRP, NES, NWRS 2 and the National Water and Sanitation Master Plan; - Provide career guidance to increase awareness of learning opportunities across the energy and water sector.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 7. - Outcome 8.

5.5. INTERVENTIONS IMPLEMENTED IN SUPPORT OF THE ECONOMIC RECONSTRUCTION AND RECOVERY PLAN (ERRP)

Table 23: Interventions implemented in support of the Economic Reconstruction and Recovery Plan (ERRP)

Intervention(s) in Support of the ERRP	Description	Linked to ERRP Priority Interventions / Objectives / Goals	Linked to NSDP Outcomes
1. Identify and increase priority occupations to support infrastructural development and energy and water supply security.	The EWSETA supports infrastructural development and energy and water supply security through, for example, increased support for skills development in professional and more advanced fields and disciplines through bursaries. In addition, advanced qualifications such as those found across NQF levels seven (7) and above are emphasised in the Sectoral Priority Occupations List (SPOL) in support of the ERRP and related national plans and strategies due to an urgent need for highly qualified incumbents. Such disciplines include, for example, energy engineering and professional water sector-related qualifications, supported by continuous professional development (CPD) programmes to maintain the professional accreditation of specialists/experts in respective professions.	• Energy security and efficiency. • Water security and efficiency. • Green economy interventions.	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.2]. • Outcome 8.
2. Enhance sector research, innovation, and skills development through SETA partnerships.	The EWSETA has enhanced research and skills development through partnerships with sector-related stakeholders, for example: • Conducting sector research aimed at:- supporting energy security, water security, and the green economy (e.g., hydrogen fuel cell technology), and identifying the skill needs of enterprises and sector cooperatives; • Participating in curriculum development and related interventions not yet covered in the sector in support of the green agenda and the ERRP, including wastewater treatment, reuse technologies, and energy recovery from liquid and solid waste; and • Implementing sector skills imperatives to improve employer productivity through skills delivery in workplaces.	• Energy security and efficiency. • Water security and efficiency. • Green economy interventions	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 6 [particularly sub outcome(s): 6.1]. • Outcome 8.
3. Increase worker participation through recognition of prior learning (RPL) to align worker knowledge and experience with formal qualifications.	The EWSETA continues to promote and support RPL learning programmes that: • Formalise the skills and knowledge of workers who would otherwise not have the opportunity to access formal education and training; • Encourage upskilling/re-skilling workers; and • Promote the role incumbents play in the sector, for example, knowledge-sharing and skills application.	• Employment-oriented strategic localisation. • Green economy interventions.	• Outcome 1 [particularly sub outcome(s): 1.1; 1.2; 1.3; 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.2]. • Outcome 8.

5.6. CONCLUSION

The EWSETA remains committed to achieving the identified skills priorities. For example, enhancing the research effort to support skills planning activities, and establishing and maintaining the EWSETA’s M&E framework, remain critical priorities for the EWSETA. The EWSETA skills priorities will continue to be achieved over the remaining period of the five-year planning cycle. Through incremental achievement, the EWSETA will continue to support its skills development imperatives in light of the ERRP and related national prescripts.



CHAPTER 6

STRATEGIC SKILLS PRIORITY ACTIONS

6.1. INTRODUCTION

The purpose of this chapter is to inform the strategic intent of the EWSETA. The following section discusses key findings derived from the preceding chapters of this SSP and includes recommended priority actions synthesised from interpreted analysis. The EWSETA must continue to strive for attainment of the priority recommendations identified to achieve the ultimate vision of the organisation.

6.2. KEY SKILLS FINDINGS FROM PREVIOUS CHAPTERS

Table 24: Key Findings from Previous Chapters

CHAPTER	KEY FINDINGS
1. Sector Profile	- Despite the prevailing economic challenges faced by the country, the sector grew by approximately 7.75% on average between 2020/21 and 2021/22. However, decreases in employment were reported across all industries (except Finance) during the second and third quarters of 2021. - The EWSETA has recorded an upward trend in levy income since 2016/17, which indicates the potential to expand education and training opportunities across the sector. - More opportunities across several subsectors of the energy and water sector, such as the just energy transition (JET), the green economy, renewable energy, and innovative technological advancements, are becoming increasingly apparent. Therefore, new business markets and emerging technologies mean the EWSETA must continue to explore the related skills development possibilities.
2. Major Change Drivers and National Priorities	- COVID-19 remains one of the most influential change drivers of our time. Despite challenges such as learning intervention disruptions, job losses and business closures, the sector has remained committed to skills development. - Other major change drivers influencing the energy and water sector include economic reconstruction and recovery, technological advancement, climate change, legislation, and the just energy transition (JET). - There is a myriad of national plans and strategies that affect the sector; however, the national plans and strategies identified in this SSP include the NSDP, the White Paper on PSET, the New IPAP, the IRP, the NES, the JET, the NWRS 2, the NWSMP, and the ERRP.
3. Occupational Shortages and Skills Gaps	- There are many occupational shortages in the sector which indicate skills development opportunities at a broad level. - Examples of occupational shortages in the energy and water sector include electrical engineering technicians, electrical engineers, and others. - A notable decline in SETA-supported registrations and completions was evident in 2020/21, most likely caused by regulations and restrictions due to the COVID-19 pandemic, which hindered skills supply to the sector. - Be that as it may, 126,725 learners completed SETA-supported learning programmes in the period under review. - Some of the most pertinent reasons for employers not employing learners who previously completed EWSETA learning programmes included the non-availability of job vacancies, learners acquiring employment elsewhere, and learners wanting to pursue further studies.
4. SETA Partnerships	- EWSETA partnerships respond to National Skills Development Plan (NSDP) outcomes. - Partnerships include those responding to skill needs, infrastructural support (e.g., TVETs), lecturer development, and promoting gender equality (e.g., bursaries awarded for Executive Development Programmes for Women in Nuclear). - Some partnership challenges have been experienced, such as delays in finalising certain partnership agreements. However, some of these issues have been overcome by the EWSETA.

CHAPTER	KEY FINDINGS
5. EWSETA Monitoring and Evaluation	• The EWSETA intends to conduct an end-term assessment (i.e., after the current five-year cycle/period) measuring the implementation outcomes of the Strategic Plan. - Concerning the extent to which the EWSETA has addressed the previous financial year's strategic priorities, the EWSETA continues to: - enhance the research effort and implement supporting evaluations/assessments; - establish partnerships within the sector and monitor/evaluate progress and outcomes; - implement RPL programmes; - explore ways of increasing skills development support for SMMEs; - develop a formal M&E framework; - support equity imperatives; and - support national plans and strategies.

6.3. RECOMMENDED PRIORITY ACTIONS

Below is a list of recommended priority actions for the EWSETA. Critically, the intended outputs remain linked to the five-year planning cycle and incrementally achieved over the five years (aligned to the five-year EWSETA SSP). Through M&E and various plans and reporting tools, the EWSETA assesses the status of the identified priority actions. Therefore, the EWSETA remains committed to realising the outputs to be achieved.

The listed priority actions found expression in the previous EWSETA Strategic Plan (SP) and Annual Performance Plan (APP).

Table 25: Recommended Priority Actions

Priority No.	Priority Action	Found Expression in the SP and APP?	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Linked to NSDP Outcomes
1	Increase internal human resources to enhance the research effort (continue to enhance skills demand articulation) [medium term].	Yes	The EWSETA must achieve the following: • Increase the number of researchers to carry out research functions, tasks, and activities; • Prioritise establishment of collaborative research with public HEIs to support various research activities; • Redesign the Management information system (MIS) to support the research effort.	• Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 8.

Priority No.	Priority Action	Found Expression in the SP and APP?	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Linked to NSDP Outcomes
2	Establish partnerships aimed at developing and supplying skilled incumbents to address sectoral needs [short to medium term].	Yes	The EWSETA must achieve the following: • Continue to establish EWSETA partnerships to identify and address skill needs, specifically through workplace learning, which serve to support national imperatives (i.e., national strategies and plans); • Continue to mobilise multiple stakeholders to identify and respond to sectoral skill needs driven by change drivers such as technological advancement and 4IR; • Ensure skills and knowledge transfer through work-integrated learning opportunities, particularly those interventions responding to the ERRP and other national plans and strategies; • Continue to develop and promote qualifications in support of skills development imperatives; • Evaluate the level of mentorship activities experienced by learners (e.g., through evaluation studies); • Provide career guidance information that can be made available to the youth through, for example, electronic portals and direct communication strategies.	• Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. • Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. • Outcome 6 [particularly sub outcome(s): 6.1] • Outcome 7. • Outcome 8.
3	Implement Recognition of Prior Learning (RPL) programmes (including ARPL) [medium to long term].	Yes	The EWSETA must achieve the following: • Promote the professionalisation of existing workers who do not possess formal qualifications; • Provide ongoing analysis of skill needs through formal research to align learner needs to sectoral requirements; • Align employee skills with those in high demand by training/retraining incumbents in relevant occupations/specialisations through, e.g., Learnerships, Apprenticeships, and Skills Programmes; • Increase the number of partnerships geared towards life-long learning and continuous improvement, especially in support of the 'NEET' population.	• Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. • Outcome 2 [particularly sub outcome(s): 2.1]. • Outcome 3 [particularly sub outcome(s): 3.1]. • Outcome 7. • Outcome 8.

Priority No.	Priority Action	Found Expression in the SP and APP?	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Linked to NSDP Outcomes
4	Increase skills development support for SMMEs in the sector, especially in response to 4IR and entrepreneurship skills [short to medium term].	Yes	The EWSETA must achieve the following: - Continue to increase support for SMMEs through capacitation services (e.g., WSP/ ATR capacitation sessions, and one-on-one sessions with employers) and skill needs analysis, particularly for new entrants (e.g., entrepreneurship development, and digital skills capacitation enabled by 4IR); - Facilitate skills development opportunities for SMMEs in the form of grant funding and access to appropriate learning interventions; - Promote appropriate alignment between the skill needs of SMMEs and learning interventions through research.	- Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 8.
5	Support equity imperatives such as gender equality, especially in key professional and technical occupations [long term].	Yes	The EWSETA must achieve the following: - Maintain focus on balanced equity whilst ensuring fair practices concerning learner representation across EWSETA learning interventions; - Increase female representation across professional and technical learning programmes; - Increase support for encouraging female completion rates across related learning interventions; - Promote learning interventions that serve to address transformation imperatives; - Encourage the previously disadvantaged to embark on learning interventions geared towards professional disciplines which support sustainable occupations within the sector.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 7. - Outcome 8.
6	Establish a formal EWSETA monitoring and evaluation (M&E) framework [short to medium term].	Yes	The EWSETA must achieve the following: - Continue to enhance M&E capacity within the EWSETA system; - Update, and maintain the EWSETA M&E framework; - Continue to implement appropriate M&E activities (i.e., ensuring data integrity and reliability) that facilitate evidence-based outcomes; - Continue to provide appropriate data inputs into the planning activities of the EWSETA; - Continue to ensure appropriate monitoring of the EWSETA Research Agenda; - Continue to conduct evaluative studies/ assessments at appropriate intervals, which serve as input into the EWSETA planning cycle.	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2].

Priority No.	Priority Action	Found Expression in the SP and APP?	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Linked to NSDP Outcomes
7	Support national plans and strategies and change drivers [long term].	Yes	The EWSETA must achieve the following: - Continue to support national plans and strategies through skills planning and effective service delivery; - Identify and promote EWSETA interventions that respond to national plans and strategies, for example, the ERRP (as identified in chapter 2 of this SSP); - Continue to establish appropriate collaborative partnerships with related stakeholders operating within the sector, including institutions of higher learning; - Increase the supply of technical incumbents to address national prescripts such as the ERRP, NSDP, PSET White Paper, IPAP, IRP, NES, NWRS 2 and the National Water and Sanitation Master Plan; - Provide career guidance to increase awareness of learning opportunities across the energy and water sector. To address change drivers, the EWSETA must: - Promote knowledge and awareness of related legal and regulatory prescripts. - Encourage health and safety best practices through skills programmes and related awareness interventions. - Promote access to blended learning platforms for enhanced training. - Support economic reconstruction and development through the development of specialists and professionals by implementing interventions such as bursaries and candidacy programmes for technical qualifications (e.g., for engineers). - Provide re-training/re-skilling opportunities to align workers to technological advancements. - Develop qualifications that respond to the progression of technological applications. - Promote innovation through relevant interventions aimed at mitigating the effects of climate change. - Develop the required skills and competencies preparing learners for the just energy transition (JET).	- Outcome 1 [particularly sub outcome(s): 1.2; 1.3; 1.4]. - Outcome 2 [particularly sub outcome(s): 2.1]. - Outcome 3 [particularly sub outcome(s): 3.1]. - Outcome 4 [particularly sub outcome(s): 4.1; 4.2]. - Outcome 5 [particularly sub outcome(s): 5.1; 5.2]. - Outcome 6 [particularly sub outcome(s): 6.1]. - Outcome 7. - Outcome 8.

6.4. CONCLUSION

The above priority actions remain at the fore of EWSETA planning and implementation imperatives. The identified priority actions play a pivotal role in guiding the EWSETA in its mission of developing and training learners in areas that meet the current and future needs of the sector. However, there remains a need for a multi-stakeholder-led engagement strategy for such priority actions to be effectively realised. Finally, the EWSETA Sector Skills Plan must continue to find expression within its Strategic and Annual Performance Plans to maximise the effectiveness of goal-orientated planning and implementation.

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
EWSETA	2023/24	311301	Electrical Engineering Technician (G)	Hydraulic Power Controller	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y	13	100
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Electrical Engineering Technical Officer	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Turbine Room Controller	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Electrical Instrument Technician	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Electrical Engineering Laboratory Technician	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
		214101	Industrial Engineer (G)	Heavy Current Electrical Technician (Alternative Title)	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Supply Chain Management Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y	10	100
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Process Design Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Manufacturing Logistics Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
		215101	Electrical Engineer (G)	Safety Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Automation and Control Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Safety Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Value Engineering	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Operations Research Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Industrial Efficiency Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Plant Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Manufacturing Technology Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Quality Management Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Process Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Enterprise Resource Management Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Robotics and Production Automation Engineer	Bursary: Bachelor of Engineering in Industrial Engineering	8	Y		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Electrical Engineer (G)	Control Engineer	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y	9	100
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
		311801	Draughtsperson	Systems Engineer	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Power Transmission Engineer	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Postgraduate Diploma in Electrical Engineering	8	Y		
					Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Bursary: Master of Engineering in Electrical Engineering	9	Y		
					Bursary: Master of Engineering in Electrical Engineering in Smart Grid	9	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
					Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Electric Power Generation Engineer	Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					TVET Placement: National Diploma in Electrical Engineering	-	N		
					HET Placement: National Diploma in Electrical Engineering	-	N		
				Electromechanical Engineer	Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
					Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
				Power Distribution Engineer	Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
					Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
				Electrical Design Engineer	Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
					Bursary: Doctor of Engineering in Electrical Engineering (professional registration with ECSA is a requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
					Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					HET Placement: National Diploma in Electrical Engineering	-	N		
				Illumination Engineer	Candidacy: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
					Bursary: National Diploma in Electrical Engineering (professional registration with ECSA is requirement)	6	Y		
					Bursary: Master of Engineering in Electrical Engineering	7	Y		
				Engineering Draughtsperson	Bursary: Doctor of Engineering in Electrical Engineering	10	Y		
					Bursary: National Certificate in General Draughting	3	Y	7	100
					Learnership: Draughtsperson (Level 4)	4	Y		
				Civil Engineering Draughtsperson	Further Education and Training Certificate in Draughting	4	Y		
					Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
				Electrical Engineering Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Topographic Draughting Officer	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Mechanical Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Photographic Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Chemical Engineering Draughtspersons	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Petroleum Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Technical Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Technical Draughting Officer	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Design and Manufacturing Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Manufacturing Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Relays Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Substation Design Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Nuclear Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
				Electrical and Electronics Draughtsperson	Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
		671202	Geological Draughting Person		Bursary: National Certificate in General Draughting	3	Y		
					Learnership: Draughtsperson (Level 4)	4	Y		
					Further Education and Training Certificate in Draughting	4	Y		
			Millwright (Electro mechanician)		Apprenticeship: Millwright (Trade)	N/A	N	5	100
					Learnership: Electro-mechanics Level 2	2	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
					Apprenticeship: Millwright (Trade)	N/A	N		
					Learnership: Electro-mechanics Level 2	2	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
			Millwright (Electro mechanician)		Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
					Apprenticeship: Millwright (Trade)	N/A	N		
					Learnership: Electro-mechanics Level 2	2	Y		
			Ground Electro mechanician		Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
					Apprenticeship: Millwright (Trade)	N/A	N		
			Winder Technician		Learnership: Electro-mechanics Level 2	2	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
			Electro mechanician		Apprenticeship: Millwright (Trade)	N/A	N		
					Learnership: Electro-mechanics Level 2	2	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
			Machine Tool Millwright		Apprenticeship: Millwright (Trade)	N/A	N		
					Learnership: Electro-mechanics Level 2	2	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 3	3	Y		
					Learnership: Electro-mechanics (Engineering and Technology) Level 4	4	Y		
		215103	Energy Engineer (G)	Hydro Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y	5	100
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Renewable Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Nuclear Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Bio-energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Energy Services Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Solar Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Wind Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y		
					Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
		132104	Engineering Manager	Bankable Feasibility Study Manager	Bursary: Postgraduate Diploma in Engineering Management	8	Y	4	100
					Bursary: Master of Engineering in Engineering Management	9	Y		
					Bursary: Doctor of Engineering in Engineering Management	10	Y		
				Engineering Maintenance Manager	Bursary: Postgraduate Diploma in Engineering Management	8	Y		
					Bursary: Master of Engineering in Engineering Management	9	Y		
					Bursary: Doctor of Engineering in Engineering Management	10	Y		
				Surface Engineer (Alternative Title)	Bursary: Postgraduate Diploma in Engineering Management	8	Y		
					Bursary: Master of Engineering in Engineering Management	9	Y		
					Bursary: Doctor of Engineering in Engineering Management	10	Y		
				Section Engineer (Alternative Title)	Bursary: Postgraduate Diploma in Engineering Management	8	Y		
					Bursary: Master of Engineering in Engineering Management	9	Y		
					Bursary: Doctor of Engineering in Engineering Management	10	Y		
		213302	Environmental Scientist (G)	Environmental Consultant	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Environmental Auditor	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Water Use Specialist	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Environmental Advisor	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Environmentalist	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Environmental Research Scientist	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Environmental Waste Officer	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		

SETA	PERIOD	OCCUPATION CODE	OCCUPATION	SPECIALISATION / ALTERNATIVE TITLE	INTERVENTION PLANNED BY THE SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
				Environmental Officer	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
				Climate Change Analyst	Bursary: Bachelor of Science in Environmental Science	7	Y		
					Bursary: Bachelor of Science Honours in Environmental Sciences	8	Y		
					Bursary: Master of Science in Environmental Science	9	Y		
					Bursary: Doctor of Philosophy in Environmental Sciences	10	Y		
		211401	Geologist (G)	Geohydrologist (Alternative Title)	Bursary: Bachelor of Science in Geology	7	Y	2	100
					Bursary: Bachelor of Science Honours in Environment and Water Science	8	Y		
					Bursary: Master of Science in Geology	9	Y		
		214202	Civil Engineering Technologist (G)	Environmental Technologist	Bursary: Advanced Diploma in Civil Engineering	7	Y	2	100
					Bursary: Bachelor of Engineering Technology in Civil Engineering	7	Y		
					Candidate Engineering Technologist: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Water and Wastewater Technologist	Bursary: Advanced Diploma in Civil Engineering	7	Y		
					Bursary: Bachelor of Engineering Technology in Civil Engineering	7	Y		
					Candidate Engineering Technologist: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		

ANNEXURE 1: THE EWSETA SECTORAL PRIORITY OCCUPATION LIST (SPOL)

REFERENCES

Bambili Energy, 2022. Introducing the Bambili Energy Fuel Cell System. [Online]
Available at: <https://www.bambilienergy.com/technology>
[Accessed 21 July 2022].

BusinessTech, 2021. South Africa’s GDP shrinks by 1.5% as lockdowns and looting bite. [Online]
Available at: <https://businesstech.co.za/news/business/544686/south-africas-gdp-shrinks-by-1-5-as-lockdowns-and-looting-bite/>
[Accessed 05 January 2022].

DBE, 2021. National Senior Certificate: 2020 Examination Report, Pretoria: The Department of Basic Education.

DBE, 2022. 2021 National Senior Certificate Examination Report, Pretoria: Department of Basic Education.

DBE, 2022. 2021 National Senior Certificate Results: Schools Subject Report 20 January 2022, Pretoria: Department of Basic Education.

Deloitte, 2022. Analysis: 2022 renewable energy industry outlook - new avenues are opening. [Online]
Available at: <https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/renewable-energy-outlook.html>
[Accessed 11 January 2022].

DHET, 2020. Statistics on Post-School Education and Training in South Africa: 2018, Pretoria: The Department of Higher Education and Training.

DHET, 2021a. Statistics on Post-School Education and Training in South Africa: 2019, Pretoria: The Department of Higher Education and Training.

DHET, 2021b. Post-School Education and Training Monitor: Macro-Indicator Trends (March 2021), Pretoria: The Department of Higher Education and Training.

DHET, 2021. Post-School Education and Training: Macro-Indicator Trends, Pretoria: Department of Higher Education and Training.

DHET, 2022. 2020 Stats Publication (Excel Tables), Pretoria: Department of Higher Education and Training.

DMRE, 2019. The South African Energy Sector Report 2019, Pretoria: The Department of Mineral Resources & Energy.

DPE, 2019. Roadmap for Eskom in a reformed electricity supply industry, Pretoria: The Department of Public Enterprises (DPE).

DWS, 2021a. Department of Water and Sanitation Annual Report 2019/20, Pretoria: The Department of Water and Sanitation.

DWS, 2021. NATIONAL WATER MONTH CAMPAIGN 2021, Pretoria: Department of Water and Sanitation.

EWSETA, 2022. The EWSETA Tracer Study: 2021/22, Johannesburg: The Energy and Water Sector Education and Training Authority.

Government of South Africa, 2022. Minister Blade Nzimande: Post-school education and training sector state of readiness for the academic year 2022. [Online]
Available at: <https://www.gov.za/speeches/minister-higher-education-science-and-innovation-dr-blade-nzimande-2-feb-2022-0000>
[Accessed 04 March 2022 March 2022].

GreenCape, 2021. Water Market Intelligence Report, Cape Town: GreenCape.

GreenCape, 2022. Assessment of local skills for the South African renewable energy value chain, Cape Town: GreenCape.

HSF, 2020. WATER SCARCITY IN SOUTH AFRICA: A RESULT OF PHYSICAL OR ECONOMIC FACTORS?. [Online]
Available at: <https://hsf.org.za/publications/hsf-briefs/water-scarcity-in-south-africa-a-result-of-physical-or-economic-factors>
[Accessed 12 January 2022].

J.D. Power, 2021. What’s the Difference Between Gray, Blue, and Green Hydrogen?. [Online]
Available at: <https://www.jdpower.com/cars/shopping-guides/whats-the-difference-between-gray-blue-and-green-hydrogen>
[Accessed 04 February 2022].

Mail&Guardian, 2021. Editorial: South Africa’s next big crisis is water. [Online]
Available at: <https://mg.co.za/editorial/2021-11-18-editorial-south-africas-next-big-crisis-is-water/>
[Accessed 12 January 2022].

Oxford Policy Management, 2018. The importance of energy security. [Online]
Available at: <https://www.opml.co.uk/blog/importance-energy-security>
[Accessed 07 January 2022].

PWC, 2020. Unlocking South Africa’s Hydrogen Potential. [Online]
Available at: <https://www.pwc.co.za/en/press-room/unlocking-south-africas-hydrogen-potential.html>
[Accessed 04 February 2022].

RES4AFRICA, 2022. Universal access to affordable, reliable and sustainable electricity is crucial for Africa’s future. [Online]
Available at: <https://www.res4africa.org/>
[Accessed 07 July 2022].

SA Tourism, 2021. Gauteng a globally competitive force in tourism. [Online]
Available at: <https://www.southafrica.net/gl/en/trade/press/gauteng-a-globally-competitive-force-in-tourism>
[Accessed 18 January 2022].

SARS, 2021. Skills Development Levy (SDL) Database, Pretoria: The South African Revenue Service.

Statista, 2020. South Africa: Unemployment rate from 1999 to 2020. [Online]
Available at: <https://www.statista.com/statistics/370516/unemployment-rate-in-south-africa/>
[Accessed 02 December 2020].

Statista, 2021. South Africa: Real gross domestic product (GDP) growth rate from 2016 to 2026. [Online]
Available at: <https://www.statista.com/statistics/370514/gross-domestic-product-gdp-growth-rate-in-south-africa/>
[Accessed 05 January 2022].

Stats SA, 2021. Five facts about the electricity, gas & water supply industry (2019). [Online]
Available at: <http://www.statssa.gov.za/?p=14643>
[Accessed 07 January 2022].

Stats SA, 2021. General Household Survey 2020. [Online]
Available at: <http://www.statssa.gov.za/publications/P0318/GHS%202020%20Presentation%202-Dec-21.pdf>
[Accessed 13 January 2022].

Stats SA, 2021. Quarterly employment statistics (QES). [Online]
Available at: https://www.google.com/search?q=P0277+-+Quarterly+Employment+Statistics+%28QES%29+december+2021&rlz=1C1GCEU_enZA894ZA894&ei=EHvmYeqFBo2X8gKK-qXQAQ&ved=0ahUKEwjzana8br1AhWNI1wKHQp9CRoQ4dUDCA4&uact=5&oq=P0277+-+Quarterly+Employment+Statistics+%28QES%29+dec
[Accessed 18 January 2022].

Stats SA, 2021. Quarterly Labour Force Survey (QLFS) - Q3:2021. [Online]
Available at: http://www.statssa.gov.za/publications/P0211/Presentation%20QLFS%20Q3_2021.pdf
[Accessed 07 January 2022].

StatsSA, 2020. Key findings: P0318 - General Household Survey (GHS), 2019. [Online]
Available at: http://www.statssa.gov.za/?page_id=1856&PPN=P0318&SCH=72766
[Accessed 16 March 2021].

StatsSA, 2020. Measuring the progress of development in SA. [Online]
Available at: <http://www.statssa.gov.za/?p=13908>
[Accessed 16 March 2021].

StatsSA, 2020. P0277 - Quarterly Employment Statistics (QES), 2nd Quarter 2020. [Online]
Available at: http://www.statssa.gov.za/?page_id=1854&PPN=P0277&SCH=7898
[Accessed 16 March 2021].

StatsSA, 2020. SA economy sheds 2,2 million jobs in Q2 but unemployment levels drop. [Online]
Available at: <http://www.statssa.gov.za/?p=13633>
[Accessed 02 November 2020].

StatsSA, 2020. SA loses more than 600K formal sector jobs during COVID-19 lockdown. [Online]
Available at: <http://www.statssa.gov.za/?p=13690>
[Accessed 16 March 2021].

StatsSA, 2021. GDP: Quantifying SA's economic performance in 2020. [Online]
Available at: <http://www.statssa.gov.za/?p=14074>
[Accessed 15 March 2021].

StatsSA, 2021. P0441 - Gross Domestic Product (GDP), 4th Quarter 2020. [Online]
Available at: http://www.statssa.gov.za/?page_id=1854&PPN=P0441&SCH=72708
[Accessed 15 March 2021].

StatsSA, 2021. Quarterly Labour Force Survey: Quarter 4 2020, Pretoria: Statistics South Africa.
StatsSA, 2022. Quarterly Labour Force Survey (QLFS) – Q4:2021. [Online]
Available at: <http://www.statssa.gov.za/publications/P0211/Media%20release%20QLFS%20Q4%202021.pdf>
[Accessed 21 April 2022].

Szent-Gyorgyi, A., n.d. s.l.:s.n.
United Nations, 2021. UN News: Global perspective Human stories. [Online]
Available at: <https://news.un.org/en/story/2021/06/1093182>
[Accessed 07 January 2022].