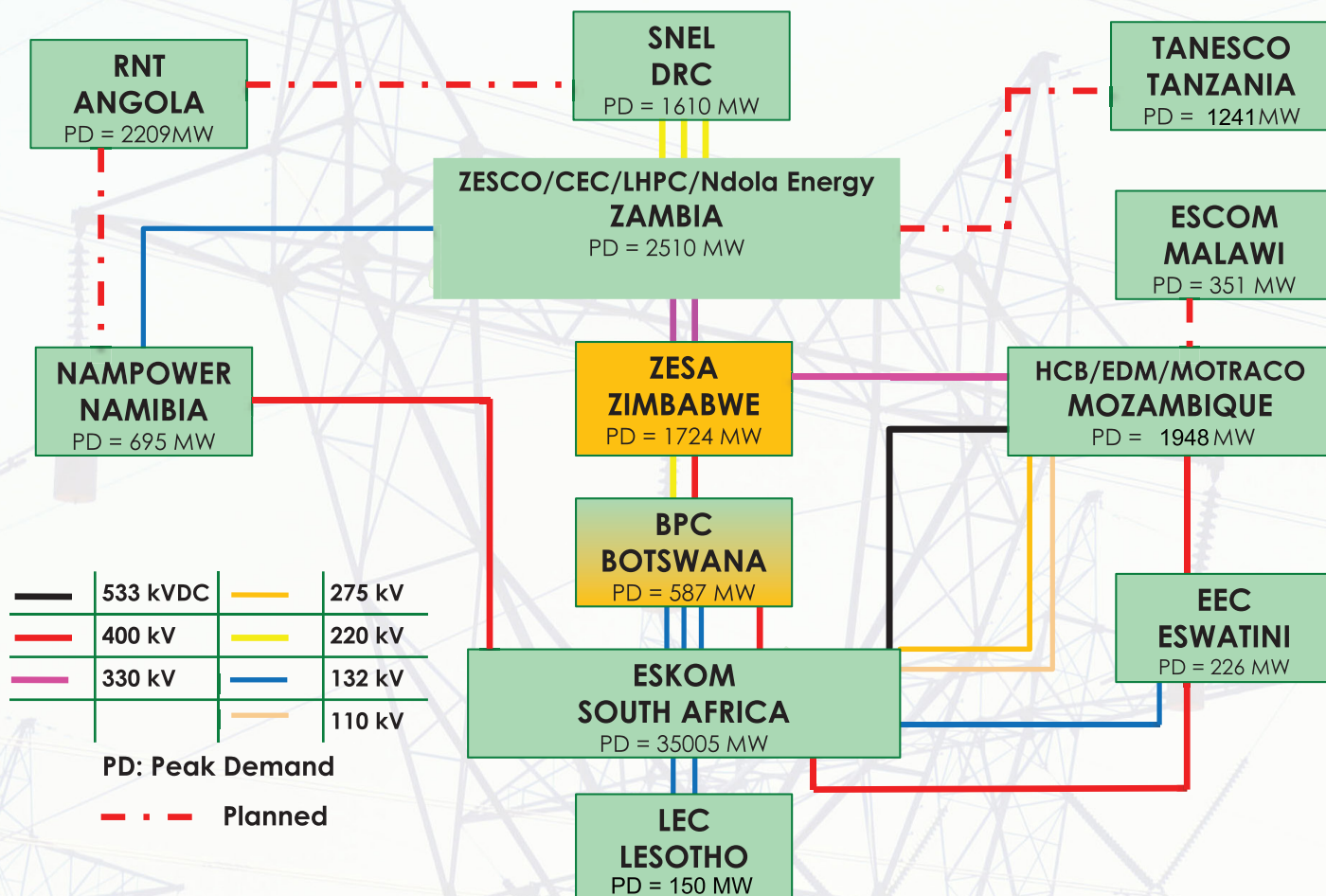




ANNUAL REPORT 2022

SOUTHERN AFRICAN POWER POOL

SAPP International Power Grid



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- The SAPP was created in August 1995 at the SADC summit held in Kempton Park, South Africa, when member governments of SADC (excluding Mauritius) signed an Inter-Governmental Memorandum of Understanding for the formation of an electricity power pool in the region under the name of the Southern African Power Pool. The ministers responsible for energy in the SADC region signed the Revised Inter-Governmental Memorandum of Understanding on 23 February 2006.
- The SAPP is governed by four agreements: the **Inter-Governmental Memorandum of Understanding** which enabled the establishment of SAPP; the **Inter-Utility Memorandum of Understanding**, which established SAPP's basic management and operating principles; the **Agreement Between Operating Members** which established the specific rules of operation and pricing; and the **Operating Guidelines**, which provide standards and operating guidelines. The SAPP Inter-Utility Memorandum of Understanding, Agreement Between Operating Members and the Operating Guidelines are under review.
- The SAPP has twelve member countries represented by their respective electric power utilities organised through SADC.
- The highest decision level of SAPP is the Executive Committee which is made up of the CEOs of the member utilities.
- SAPP Management Committee which reports to the Executive Committee oversees the SAPP Coordination Centre Board and four technical sub-committees: the Environmental Sub-Committee, the Markets Sub-Committee, the Operating Sub-Committee and the Planning Sub-Committee. The Markets Sub-Committee was created in April 2007 following the signing of the Revised Inter-Utility Memorandum of Understanding by the SAPP Executive Committee on 25 April 2007. Also created in April 2007 is the Coordination Centre Board to govern the activities of the SAPP Coordination Centre.
- The SAPP coordinate the planning and operation of the electric power system among member utilities.
- The SAPP provides a forum for regional solutions to electric energy problems.
- The SAPP established the Short-Term Energy Market in April 2001. From January 2004, the SAPP started the development of a competitive electricity market for the SADC region. This market now has four trading portfolios, namely Forward Physical Market – Monthly (FPM-M), Forward Physical Market – Weekly (FPM-W), Day-Ahead Market (DAM) and Intra-Day Market (IDM).
- SAPP, with the assistance of the World Bank set up a Project Advisory Unit in 2015 initially located in South Africa to coordinate the preparation and development of power projects.

Vision & Objectives



Vision

- To be a fully integrated, competitive energy market and a provider of sustainable energy solutions for the SADC region and beyond.



Objectives

- Provide a forum for the development of a world class, robust, safe, efficient, reliable and stable interconnected electrical system in the southern African region.
- Coordinate and enforce common regional standards of quality of supply, measurement and monitoring of systems performance.
- Harmonise relationships between member utilities.
- Facilitate the development of regional expertise through training programmes and research.
- Increase power accessibility in rural communities.
- Implement strategies in support of sustainable development priorities.



Mission

- To provide energy associated services in the region and beyond.



Strategy

- To be the most preferred region for investment for value for money by energy intensive users.



Values

- Customer Centric
- Innovation
- Teamwork
- Reliability
- Integrity



Culture

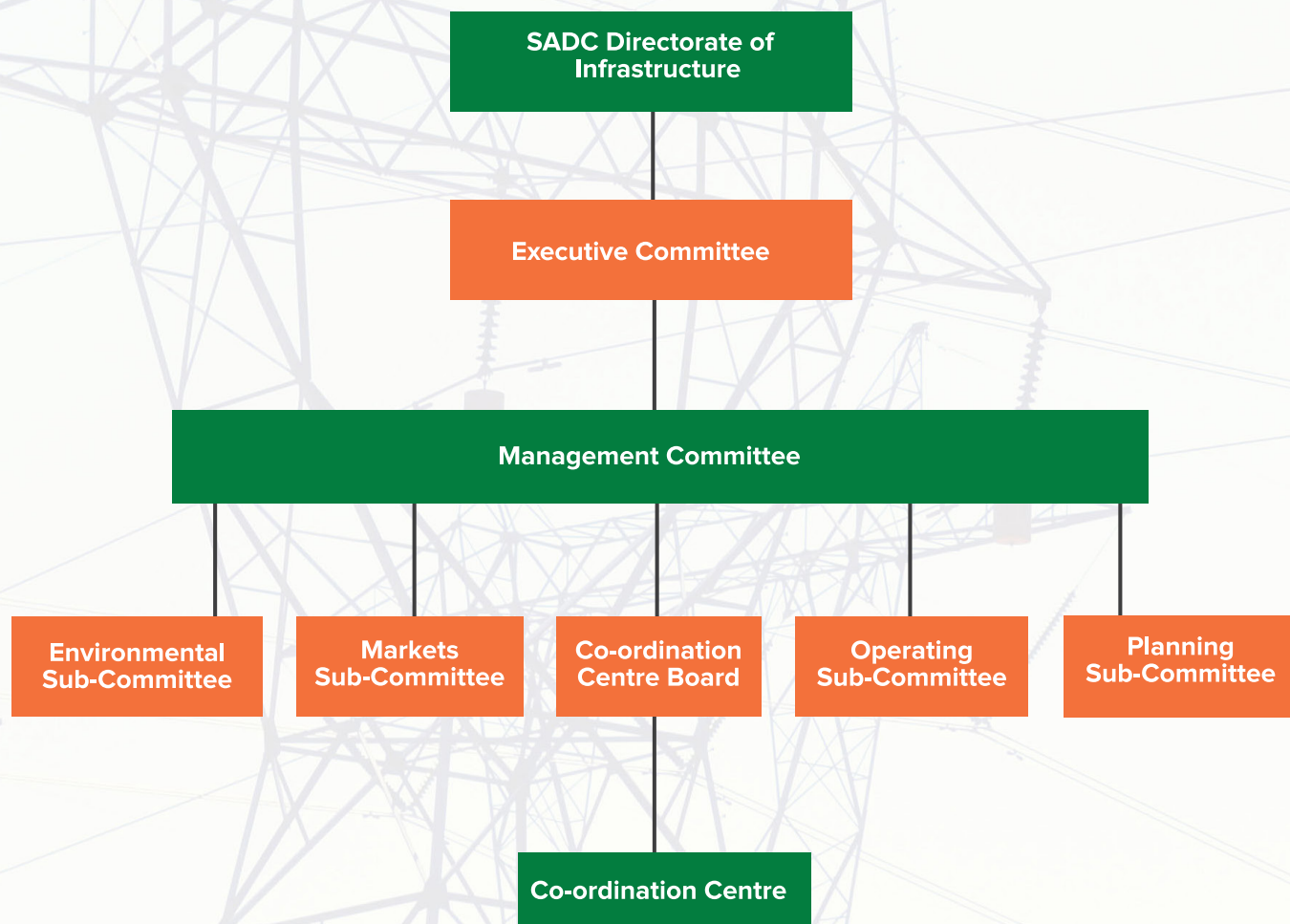
- Dynamic
- Innovative
- Promotes Teamwork
- Values People
- Openness and Psychological Safety
- Transparency
- Consultative
- Professional



Value Drivers

- Growth and Innovation
- Market Growth
- Regional Supply and Demand Balance
- Interconnection
- Transparency
- Governance and Compliance
- Human Capital
- Operations
- Information Technology

SAPP Organogram



SAPP Membership

No	Full Name of National Power Utility	Status	Abbreviation	Country
1	Botswana Power Corporation	NPU	BPC	Botswana
2	Electricidade de Mocambique	NPU	EDM	Mozambique
3	Electricity Supply Corporation of Malawi	NPU	ESCOM	Malawi
4	ESKOM	NPU	Eskom	South Africa
5	Eswatini Electricity Company	NPU	EEC	Eswatini
6	Lesotho Electricity Corporation	NPU	LEC	Lesotho
7	NAMPOWER	NPU	NamPower	Namibia
8	Rede Nacional de Transporte de Electricidade	NPU	RNT	Angola
9	Societe Nationale d'Electricite	NPU	SNEL	DRC
10	Tanzania Electricity Supply Company Ltd	NPU	TANESCO	Tanzania
11	ZESCO Limited	NPU	ZESCO	Zambia
12	ZESA Holdings	NPU	ZESA	Zimbabwe
13	Copperbelt Energy Corporation	OM	CEC	Zambia
14	Hidroelectrica de Cahora Bassa	OM	HCB	Mozambique
15	Lunsemfwa Hydro Power Company	OM	LHPC	Zambia
16	Mozambique Transmission Company	OM	MOTRACO	Mozambique
17	Ndola Energy Corporation	OM	NECL	Zambia
18	GreenCo Power Services Limited	MP	GPCL	Zambia

OM = Operating Member
 NPU = National Power Utility
 MP = Market Participant

The Annual Report covers the fiscal year from 1 April 2021 to 31 March 2022. The activities continued to be done with most meetings and workshops being conducted virtually. The main SAPP achievements for the period under consideration were as follows:

1. SAPP Membership

SAPP continues to review SAPP membership applications. GreenCo Power Services Limited of Zambia was admitted as the first Market Participant in October 2021.

2. Generation Capacity Expansion

- A total of 1,147 MW of new generation capacity was commissioned in 2021 which was a decline from 2,781 MW commissioned in the previous year. The impact of COVID-19 contributed to the delay in the delivery of equipment.
- Installed generation capacity for all 12 SAPP countries was 69,216 MW with operating capacity of 44,405 MW against a demand and reserve of 50,074 MW resulting in a generation capacity deficit of 5,669 MW.
- Renewable energy resources continue to grow.

3. Projects Preparation

SAPP facilitation of project preparation continued momentum through the Project Advisory Unit

(PAU) funded by the World Bank under the Advancing Regional (Transformational) Energy Projects (AREP) program. Several technical and environmental feasibility studies were completed.

4. System Operations

SAPP members continue to comply to the requirements of the SAPP Operating Guidelines. The SAPP Online System Viewer is a computer system for monitoring the SAPP power system in near real time, like a SCADA system, but it does not have controls. The system was handed over to SAPP in the period under review. The number of reported SAPP system disturbances increased by 5, from 57 to 62. In the period under review, compared to the previous year

5. Environmental Management

Notable improvements have been made in the implementation of Environmental Management Systems in the SAPP member utilities.

6. Competitive Electricity Market in SAPP

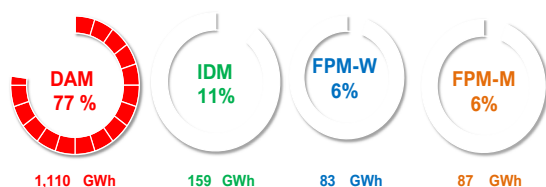
The SAPP Competitive Electricity Market highlights are:

- A total of 121.6 million USD was exchanged on the market in 2021/22 compared to 91.1 million

USD exchanged in 2020/21.

- This represents 33.5% increase from the previous year.

Total Traded Volumes for 2021/22 Financial Year : 1,439GWh

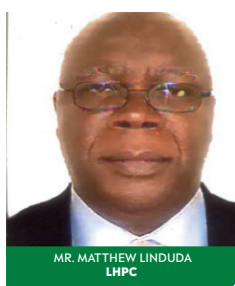
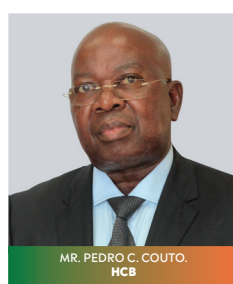


Distribution of Energy Traded on the SAPP Competitive Market for the Year Ended 31st March 2022

7. Stakeholder Engagement

SAPP continued to engage with key stakeholders that include industry, regulators, governments and the International Cooperating Partners (ICPs). Through various forums, including conferences and workshops SAPP has been presenting its achievements and highlighting areas of improvement.

Executive Committee 2021/2022



Executive Committee Report 2021/2022



MR KAHENGE SIMSON HAULOFU

Managing Director, NamPower
SAPP Executive Committee Chairperson

1. Introduction and Highlights

- Installed generation capacity for all 12 SAPP countries was 69,216 MW with operating capacity of 44,405 MW against a demand and reserve of 50,074 MW resulting in a generation capacity deficit of 5,670 MW.
- Angola, Tanzania and Malawi were still not interconnected to the SAPP grid. This resulted in 2,190 MW of excess generation capacity in Angola not being accessed by other SAPP Members.
- The construction of the Mozambique – Malawi Interconnector is in progress and planned for commissioning in 2024.
- Significant progress was made on the study to establish a Regional Transmission Infrastructure Financing Facility (RTIFF)
- The development of the SAPP balancing market continued. It is a priority to operationalize the balancing market in the next financial year.

2. Impact of the COVID-19 pandemic on power supply

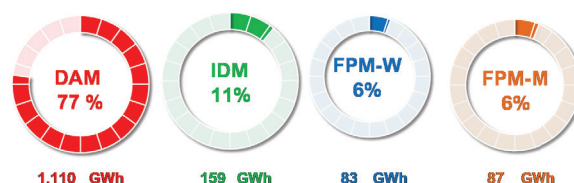
- As most countries started to relax the

restrictions due to the COVID-19 pandemic, there has been a notable increase in the electricity demand in most countries as compared to the previous year.

3. SAPP Competitive Electricity Market

- Activity on the competitive market slightly decreased in 2021/22 where a total of 1,439.5 GWh was traded compared to 1,498.55 GWh traded in 2020/21. Figure below gives monthly traded volumes on the SAPP competitive market in 2021/22.

Total Traded Volumes for 2021/22 Financial Year : 1,439GWh



- The Day-Ahead Market (DAM) continued to dominate the SAPP competitive electricity market taking 77% of the total energy traded and the remainder was Intra-Day-Market (IDM) 11%, Forward Physical Market – Weekly (FPM-W) 6% and Forward Physical Market – Monthly (FPM-M) 6%.
- A total of USD 121.6 million was exchanged on the market in 2021/22 compared to USD 91.1 million exchanged in 2020/21.

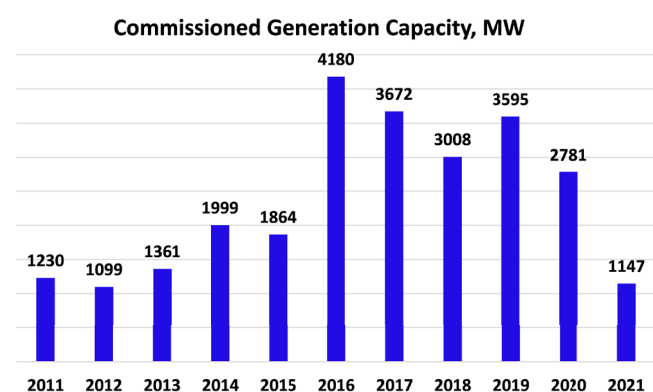
4. Review of SAPP Membership

- Four applications were received and processed from Frazium Energy (Eswatini), Vutomi Energy (South Africa), GreenCo Power Services Limited (Zambia) and Energy Information Logistics (Zimbabwe).

- GreenCo Power Services Limited of Zambia was admitted as the first Market Participant in October 2021. The rest did not fulfill the minimum requirements.

5. Power Supply

- A total of 25,936 MW new generation capacity was installed in the SAPP region in the last 11 years from 2011 to 2021 giving an annual average of 2,358 MW of new generation capacity installed.



Commissioned Generation Projects

- There has been a decline in the new generation capacity commissioned in 2020 and 2021 due to COVID-19 pandemic. Projects could not be commissioned on time due to delays in delivery of electrical equipment.

6. SAPP Regional Transmission Infrastructure Financing Facility

- A Task Team on the Regional Transmission Infrastructure Financing Facility (RTIFF) was formed to identify any risks from the proposed RTIFF on utilities. SAPP EXCO acknowledged the detailed diagnostic and design work that had been conducted to establish how a new facility could provide a solution through new financing approaches, and how it should be structured to have transformative impact.

- SAPP EXCO committed USD 20 million anchor investment from the SAPP Congestion Management fees into RTIFF.

7 SADC Meetings

7.1 SADC Energy Sub-Committee Meetings

- The SADC Energy (Electricity, Petroleum and Gas) Sub-Committees meetings took place virtually from 13 to 15 October 2021. Issues discussed included the review of the SADC Protocol on Energy, status of power supply and demand in the Region, progress on the implementation of power infrastructure projects, barriers to energy trading, energy regulatory aspects and operationalization of the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE).

7.2 SADC Joint Energy and Water Ministers Meeting

SAPP participated in the SADC Joint Energy and Water Ministers meeting that was held in Blantyre, Malawi. Key issues covered include the following:

- The status of the power supply and demand situation in the region;
- Progress on regional generation and priority cross border interconnector transmission projects;
- Progress on the regional electricity market;
- Theft and vandalism of power equipment;
- Progress on the Regional Transmission Infrastructure Financing Facility.

8. SAPP Executive Committee Meetings

- The SAPP Executive Committee meetings were done virtually due to COVID-19. This proved to be a good platform to get the business going.

8.1 51st SAPP Executive Committee Meeting

- The 51st SAPP Executive Committee (EXCO) meeting was held virtually on 7 October 2021. The meeting approved the adoption of standard, peak and off-peak time of use periods in the SAPP Forward Physical Market – Monthly as a way of increasing flexibility on this market portfolio. EXCO admitted GreenCo Power Services of Zambia as a new member of SAPP in the Market Participant category.

8.2 52nd SAPP Executive Committee Meeting

The 52nd SAPP Executive Committee meeting was held virtually on 17 March 2022. Various issues were discussed including the approval of the SAPP budget for the 2022/23 financial year.

8.3 The African Energy Forum

The SAPP participated in the African Energy Forum that took place in London, UK. Presentations were done and sessions were attended in the following areas:

- Matching generation to the market;
- The situation of cross border transmission projects in the region;
- Session on Energy Transition post COP26;
- Launching of the power markets report focusing on accelerating electricity trading in the region;
- Attended the Africa Utilities Roundtable where the utilities performance handbook was launched.

9 Review of SAPP governing documents

The SAPP Executive Committee finalized the review of the SAPP Inter Utility Memorandum of

Understanding (IUMOU) and the SAPP Agreement between Operating Members (ABOM). Both documents are being signed, but this has been slow due to COVID-19.

10 Cooperating Partner Support to SAPP

- SAPP continued to receive support from International Cooperating Partners to facilitate the fulfilment of its objectives particularly in project preparation.

11 Acknowledgement

I would like to take this opportunity and thank the members of the SAPP Executive Committee for the support that I have received from them as the Chairperson of the SAPP Executive Committee. I would also like to acknowledge the Management of the SAPP Coordination Centre for driving the agenda of SAPP forward.

I would also like to wish the incoming Chairperson from ZESCO and the Vice Chairperson from SNEL success.



Mr Kahenge Simson Haulofu
Chairperson, Executive Committee

Management Committee Report 2021/22



MR. B.J. MBUERE UA MBUERE

NamPower,
Management Committee Chairperson

1. Introduction

We continued to provide strategic guidance to the SAPP Planning, Environmental, Operating and Markets Sub-Committees as well as the Coordination Centre Board during the year under review.

2. SAPP Membership

The following SAPP Membership applications were processed for the category of Market Participant:

- i. Frazium Energy, Eswatini
- ii. Vutomi Energy, South Africa
- iii. GreenCo Power Services Limited, Zambia
- iv. Energy Information Logistics, Zimbabwe

GreenCo Power Services Limited of Zambia was admitted as the first Market Participant in October 2021.

The following applications were also received and are at various stages of processing.

Item	Name of Company	Country	Category
1	Innosun Energy Holdings	Namibia	Market Participant
2	Solnam Energy (Pvt) Ltd	Namibia	Market Participant
3	Zimbabwe Zhongxin Electrical Energy Company	Zimbabwe	Market Participant
4	Trade Power	DRC	Market Participant

3. Management Committee Meetings

Despite lockdowns and travel restrictions the Management Committee managed to hold its statutory meetings virtually.

3.1 57th SAPP Management Committee Meeting

The 57th SAPP general meetings were held, starting with sub-committee meetings on 14 September 2021, then Coordination Centre Board meeting on 21 September 2021, and lastly Management Committee meeting on 28 September 2021.

Updates on various markets, planning, projects preparation, operations, and environmental issues of SAPP were shared.

3.2 58th SAPP Management Committee Meetings

The 58th SAPP Management Committee meetings were held virtually, starting with sub-committee meetings on 22 February 2022 and ending with the Management Committee on 25 February 2022. SAPP members deliberated on various power system planning, system operations, energy markets, environmental, and governance

issues.

4. Legal Review of Documents

The SAPP Management Committee completed the review of the SAPP Inter Utility Memorandum of Understanding (IUMOU) and the Agreement Between Operating Members (ABOM).

5. Acknowledgement

May I take this opportunity to thank the SAPP Coordination Centre, members of the SAPP Management Committee and our cooperating partners for their contribution to the SAPP achievements during the year.



B.J. MBUERE UA MBUERE

Management Committee Chairperson



MR. HOWARD CHOGA

ZETDC Transmission & Distribution Director
SAPP Coordination Centre Board Chairperson

1. Introduction

In the year under review from 1 April 2021 to 31 March 2022, the SAPP Coordination Centre Board managed to hold all its statutory meetings despite the Covid-19 pandemic. The meetings had to be held virtually through Microsoft Teams due to Covid-19 related travel restrictions.

2. Focus Areas

The Board continued to provide oversight on the SAPP Coordination Centre through strategic guidance to the operations of the Centre thus enabling it to deliver on its mandate. The key focus areas for the year were:

- i. Co-ordination of demand and energy forecasting in the region
- ii. Assessing the transmission pricing methodology and implementation arrangements
- iii. Capacitation and operationalisation of the market surveillance function
- iv. Review of SAPP governance documents
- v. Integration of SAPP and EAPP including

- vi. development of energy exchange mechanisms
- vi. Benchmarking with similar international organisations
- vii. Compliance to environmental standards, guidelines and environmental management and social systems safeguards
- viii. Promotion of the competitive electricity market
- ix. Implementation of a balancing market for SAPP
- x. Preparation, development & coordination of implementation of regional generation and transmission projects
- xi. Investigation and implementation of financing of regional generation and transmission projects

3. Meetings and Workshops

3.1. SAPP Coordination Centre Board Meetings

The Coordination Centre Board held its four statutory meetings virtually through Microsoft Teams during the year.

At its meeting held virtually on 27 July 2021, the CC Board approved five revised SAPP CC Human Resources policies and approved the extension of the office lease agreement for the SAPP PAU offices in Sandton, South Africa.

At its meeting held virtually on 21 September 2021, the SAPP CC Board approved the allocation of additional funds for the SAPP Offices power supply upgrade and solar PV installation at the offices. The Board also approved revisions to two Human Resources Policies for the SAPP CC and adopted the audited financial statements for SAPP CC, SAPP PAU-IDA and SAPP PAU-MDTF for the year ended March 2021.

The Board granted authority to the SAPP CC Executive Director to sign the Instrument of

Accession to the African Legal Support Foundation (ALSF) at its meeting held virtually on 9 December 2021.

At its meeting held on 23 February 2022, the CC Board recommended the SAPP CC 2022/23 budget to the Management Committee, approved the adoption of the SAPP Risk Management Policy and approved the signing by the Coordination Centre Executive Director of the DBSA-SAPP Memorandum of Understanding on behalf of SAPP and overseeing its execution.

3.2 SAPP Human Resources Working Group



MR JOHN SIMACHEMBELE

SAPP HRWG Chairperson

The Human Resources Working Group, which was chaired by Mr John Simachembele of CEC, met twice virtually during the year. They revised ten SAPP CC HR policies during the year. They continued to coordinate the SAPP CC Job Evaluation exercise that took place during the year.

3.3 SAPP Finance Working Group

The Finance Working Group (FWG) was chaired by Ms. Celma Satar Leal Esmael of EDM and continued to support the SAPP CC Board with financial related matters. The FWG met virtually on 16 September 2021 and recommended to the SAPP CC Board for approval the Audited Financial Statements of the SAPP Coordination Centre

and the two World Bank Grants for the period 2020/2021.

A second meeting was held virtually on 28 January 2022. The main objective of the meeting was to review the SAPP CC and Project Advisory Unit budgets for the year April 2022 to March 2023 as well as reviewing the Internal Audit report.

3.4 SAPP Legal Working Group

The SAPP Legal Working Group (LWG) was chaired by Ms Doreen Chongo Machona of ZESCO during the period under review. The main focus was on the review of the SAPP governance documents to ensure their relevance and alignment with current SAPP strategies. The revisions of the Inter Utility Memorandum of Understanding (IUMOU) and the Agreement Between Operating Members (ABOM) were completed and approved by the SAP Executive Committee in October 2021. Thereafter the review of the SAPP CC Constitution was initiated to align it with the changes in the other documents.

4 Acknowledgement

I would like to take this opportunity to thank members of the Board for their support and contributions during the year. I also would like to extend my gratitude to the previous Chairperson, Mr B.J. Mbuere ua Mbuere for a smooth handover to me in September 2020.

A handwritten signature in dark ink, appearing to read 'H. Choga'.

HOWARD CHOGA

Coordination Centre Board Chairperson



MR. PEGO MOSALAKATANE

PLANNING SUB-COMMITTEE CHAIRPERSON

Planning Sub-Committee Chairperson

1. Introduction

It is my ultimate pleasure to present the Planning Sub-Committee (PSC) 2021/22 Annual Report. I would like to thank the outgoing PSC chairperson Eng. Joseph Ncwane from EEC for leading the PSC in the past two years.

A total 1,682 MW of new generation capacity was commissioned in 2021 compared to 2,480 MW commissioned in 2020. About 2% of the new generation was from variable renewable energy generation while hydro and coal fired had 19% and 79% respectively. The SAPP plans to commission a total of 17,105 MW within the next 5 years between 2022 and 2026 of which a total of 2,044 MW is planned to be commissioned in 2022.

2. SAPP Key Figures and Facts

The SAPP demand and supply status as per in March 2020 is as shown in Table 1:

During the period under review there has been an increase in deficit generation capacity for interconnected members from 1,904 MW recorded in March 2021 to 6,301 MW recorded in March 2022. The reduction in surplus generation capacity was due to the reduced operating generation capacity in Eskom, South Africa. Overall, the SAPP has deficit generation capacity of 4,048 MW and it must be noted that Angola has an excess generation capacity of 2,268 MW and is yet to be interconnected, thus showing the need for the SAPP to speed up the interconnection of all non-interconnected members.

All SAPP Members	Installed Generation Capacity (MW)	67,759
	Operating Capacity (MW)	47,227
	Maximum Demand (MW)	45,327
	Peak Demand including reserves (MW)	51,275
	Deficit Generation Capacity (MW)	4,048
Interconnected Members	Generation Capacity Deficit	59,468
	Operating Capacity (MW)	40,715
	Maximum Demand (MW)	41,426
	Peak Demand including reserves (MW)	47,016
	Deficit Generation Capacity (MW)	6,301

Table 1: SAPP Demand and Supply situation as in March 2022

3 SAPP Demand and Supply Situation

nuclear, wind, gas biomass and landfill. Figure 1 below shows the current installed capacity contributions by generation technology.

3.1. Current Power Supply Situation and Landscape

The SAPP's generation mix is currently dominated by thermal (coal) with 56% and followed by hydro with 24%. Other generation technologies available in SAPP are hydropower, solar, distillate, nuclear, wind, gas biomass and landfill.

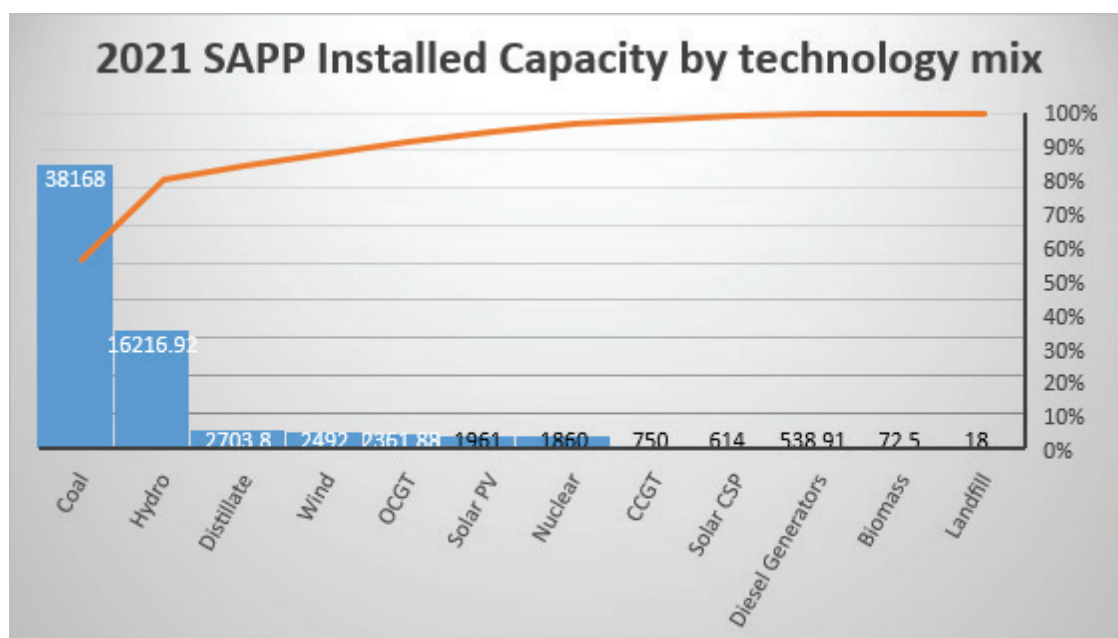


Figure 1: SAPP Installed Generation Mix as in March 2021

3.2. History of New Generation Capacity

The SAPP has commissioned a total of 25,728 MW of new generation capacity in the past 10 years from 2012 to 2021 against planned new

generation capacity of 34,438 MW for the same period, thus 8,710 MW less than what was planned. Table 2 compares the planned and actual generation capacities commissioned since 2012.

Table 2:Planned vs Actual Generation Capacity Commissioned by SAPP since 2010

YEAR	Planned Capacity (MW)	Actual Capacity Commissioned (MW)	Actual minus Planned Capacity (MW)
2012	3,552	1,099	-2453
2013	1,992	1,210	-782
2014	2,737	1,999	-738
2015	2,763	1,864	-899
2016	3,058	4,180	1122
2017	3,616	3,008	-608
2018	4,842	3,874	-968
2019	4,873	4,332	-541
2020	3,215	2,480	-735
2021	3,790	1,682	-2108
TOTAL	34,438	25,728	-8,710

3.3. Generation Supply and Project Tracking

A total of new generation capacity of 1,682 MW was commissioned in 2021 against a planned 3,790 MW, thus meaning about 2,108 MW has been deferred to upcoming years. The projects were commissioned by both national utilities and

Independent Power Producers (IPPs). The IPPs contributed 100 MW (6 %) of the new generation capacity.

The generation projects commissioned in 2021 are shown in the Table 3 below and figure 2 shows new generation capacity mix by technology:

Table 3: Generation Projects Commissioned in 2021

Generation Projects Commissioned in 2021					
No.	Utility	Country	Name	Type	Capacity (MW)
1	RNT	Angola	Lubango	Thermal	25
2.	EEC	Eswatini	Lavumisa	Solar PV	10
3.	ESCOM (EGEN-CO)	Malawi	Tedzani	Hydro	19.5
4.	NAMPOWER (IPP)	Namibia	Khan	Solar PV	20
6.	NAMPOWER (IPP)	Namibia	Unisun, Okatope	Solar PV	5
7.	ESKOM	South Africa	Kusile	Thermal	1247
8.	ZESCO	Zambia	Kafue Gorge Lower	Hydro	300
9.	ZESA (IPP)	Zimbabwe	Zhongxin	Thermal	50
10.	ZESA (IPP)	Zimbabwe	Solgas	Solar PV	5
TOTAL					1 681.5

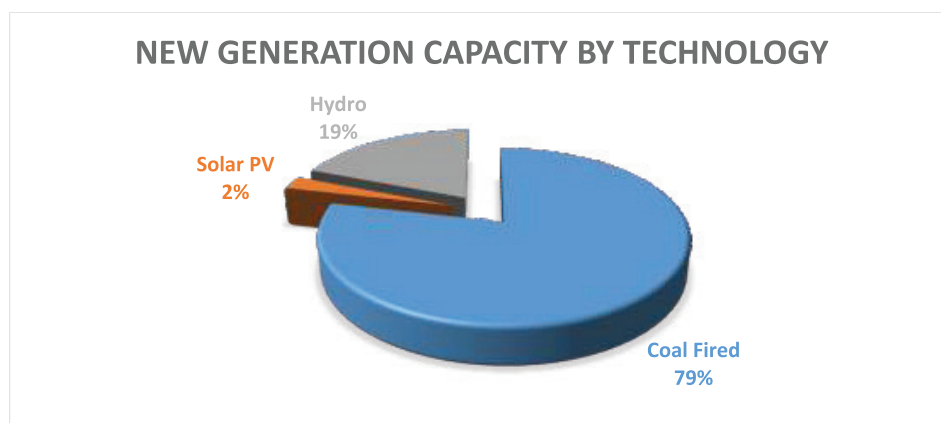


Figure 2: New Generation Capacity mix by technology

3.4. Outlook

The SAPP continued to monitor and track the status of generation and transmission projects. A total of 17,105 MW is planned to be commissioned in the next five years from 2022 to 2026 whilst a

total of 5,134 MW is planned to be decommissioned during the same period. Table 5.4 shows the planned committed generation capacity country by country.

Table 4: Committed Generation Capacity - 2020 to 2023

Planned New Generation Capacity 2020 to 2023								
No	Country	2022	2023	2024	2025	2026	Total	%share
1	Angola	344.5	179	76.55	504	530	1,634	15.1%
2	Botswana	0	135	0	10	0	145	3.1%
3	DRC	0	0	0	0	0	0	2.2%
4	Eswatini	0	0	0	0	68.6	68.6	0.1%
5	Lesotho	-	30	-	-	40	70	0.1%
6	Malawi	20	100	410	200	0	730	2.6%
7	Mozambique	30	95	1,750	470	0	2,345	3.5%
8	Namibia	64	100	80	0	475	719	1.6%
9	South Africa	822	720	0	0	0	1,542	35.7%
10	Tanzania	124	95	800	1945	1012	3,976	23.4%
11	Zambia	300	150	206	0	0	656	7.2%
12	Zimbabwe	339	300	1,970	1,410	1,200	5,219	5.5%
Total		2,044	1,904	5,292	4,539	3,325	17,105	100.00%
Plants Planned to be decommissioned		75	1870	2280	909	6650.60	5134	

3.5. Electricity Access Rate

The SAPP continued to monitor and track the access rate of electricity within the region. Most of the SAPP members are carrying out Rural

electrification projects in a bid to improve the access rate of electricity. Figure 3 below shows the level of electricity access per country.

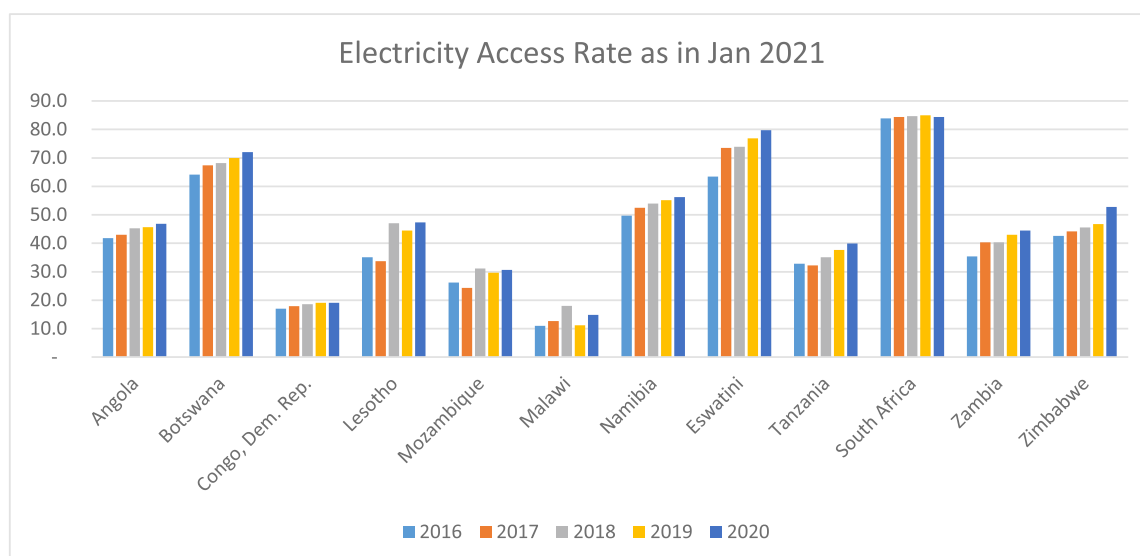


Figure 3 : Electricity Access Rate

3.6. SAPP Utility Peak Demand (MW) Forecast

The SAPP has adopted the EViews as the tool that

will be used when carrying out load forecasting exercises for regional planning purposes. Table 5 shows the SAPP forecasted peak demand for the next 5 years.

Table 5: SAPP Utility Peak Demand (MW) Forecast 2022-2026

Year / Utility	BPC	EDM	RNT	ESCOM	Eskom	LEC	NamPower	EEC	SNEL	TANESCO	ZESA	ZESCO
2022	855	2,350	2,441	795	39,893	183	816	283	2,024	2,430	1,896	3,573
2023	914	2,484	2,592	878	41,040	188	842	294	2,117	2,690	2,601	3,724
2024	942	2,608	2,783	967	42,102	196	869	306	2,212	2,980	2,752	3,886
2025	971	2,679	3,009	1,064	43,269	201	899	317	2,358	3,300	2,947	4,060
2026	1,057	2,752	3,183	1,169	44,535	204	931	329	2,465	3,660	3,077	4,247

4. SAPP Generic Production Costing Model

The SAPP has embarked on a project “SAPP Generic Production Costing Model” which intends to enhance the planning capabilities and skills within the SAPP members’ planning and market operations teams, towards enhancing regional harmonization and cross border trade. The program is being supported by the USAID Southern African Energy Program (SAEP).

The roll-out of the model is divided into two phases, both incorporating workshops with training sessions. Phase 1 has been completed and a workshop was held on the 10th June 2021 with the SAPP Planning Sub-Committee (PSC). The main objective of the workshop was to introduce the models to the PSC, discuss and decide on enhancements, training specifically on data requirement and use thereof in the models. The second phase includes updating the model with decisions made during the first workshop and the finalization of the models and User Manual. A second workshop was held on the 5th to 6th August 2021 to present the final models and carry out hands-on training on the use of the model. The PSC Members are free to adopt the model for their internal use.

5. Review of SAPP Load Forecasting Methodology

The SAPP has embarked on a project to benchmark and evaluate the different load forecasting methodologies that are being used by the various SAPP members. Credible long-term electricity demand forecasts are essential for the strategic planning of the electricity sector across the generation, transmission, and distribution sectors. The forecasts are intended to reasonably reflect the electricity demand required to support and

underpin the economic growth targets of a country or a region and are used in the planning process to determine the sizing, timing and type of electricity infrastructure investment required to meet the electricity demand. Demand forecasts that do not reasonably reflect the future demand in the economy can have significant consequences for the economy of a country or region as it may result in over or under-investment in the sector.

For regional planning purposes, the SAPP has developed a uniform load forecasting methodology based on accepted industry practice to be used by SAPP members and SAPP CC when preparing country-level and regional forecasts, respectively. The project has been completed and during the period under review the following deliverables were achieved:

Delivery of the Final report – November 2021

- Delivery of the load forecast model and manuals - July 2021
- Training workshop on the use of the model and manuals – July 2021

There was a recommendation for SAPP to acquire the EViews load forecasting software for all utilities. This would be the standard tool that utilities will use to determine the country load forecasts for SAPP regional planning purposes. The SAPP has procured the EViews software and was delivered to the members in February 2022.

6. Setting up of SAPP Data Management System

The SAPP is setting up a Data Management System (DMS) which aims to enable SAPP to have a central depository of all data related to planning, project preparation and development, operations, markets, and environment. This will be assisting

the SAPP to easily access the data for any future requirements or studies.

The project is divided into two phases and phase 1 was completed in February 2021. All sets of documentation were finalized during the month of February 2021. The documents included the Data Management System Recommendations Report, DMS Specifications report and the Standard Operating Procedure. Phase 2 of the project included the procurement of the data portal. Expressions of interest were issued through the SAPP website and submissions were received from 6 firms and out of the six, four firms were short listed. A kick-off meeting with the preferred bidder was held on the 6th December 2021 to discuss data requirements issues and other technical issues. The inception report was issued in January 2022. The draft report was delivered in February 2022 and the project is expected to be completed in June 2022.

7. Development of SADC Regional Grid Code for the Electricity Supply Industry

The Market and Investment Framework for SADC Power Projects (M&I Framework) approved by the SADC Ministers responsible for Energy in June 2016 identified a series of challenges to regional trading, including the following:

- transmission congestion management,
- a lack of harmonization between Member State grid codes, technical legislation, planning, metering, and communications.
- dispatch and curtailment issues.
- inadvertent power flows and draw; and
- ineffectual monitoring of compliance and adherence to rules that do exist.

In the context of the framework for co-operation between the SAPP CC and the Regional Energy Regulators Association of Southern Africa (RERA) on the implementation of a portion of the SAPP Program for Accelerating Regional Energy/Transformational Projects, an Operating Framework has been proposed in the M&I Framework, which includes:

- a Regional Grid Code,
- tools to manage inadvertent power flows, and
- common approaches to grid connection procedures and requirements, connection charging methodologies, dispatch rules and agreements, network congestion management rules, TSO/TSO agreement, and other areas.

With support from the World Bank the SAPP together with the RERA is developing a regional grid code for the SADC region. The project started in August 2021 and a letter of introduction of the Consultant was shared with the PSC and MANCO in August 2021.

The key objectives of a regional grid code are:

- I. Promoting non-discrimination and creating a level playing field among regional power market participants.
- II. Providing certainty and helping to reduce regulatory and investor risks to participate in the regional power market, and
- III. Serving as a more effective instrument than bilateral agreements, particularly when more independent players are introduced and when further reforms are undertaken by Member States.

The project is expected to be completed in June 2022.

8. Continental Power System Masterplan Modelling

The overall objective of the Continental Master Plan (CMP) development is to carry out modelling and planning studies for the African continental power system. The specific objectives of the assignment include establishment of a harmonised and integrated continental transmission system that will interconnect regional transmission networks, and identification of priority power generation and transmission projects up to year 2040.

The project is on-going, and it is on the CMP Model Development phase. On the 17th -18th November 2021 a joint power pool meeting was held in Johannesburg, South Africa to discuss

the overview CMP development and approach, as well as the tools and methodology for CMP modelling. In depth discussions were held on the demand forecast and planning scenarios. A consultation meeting was held with the Planning Sub Committee on the 10th of October 2021. The main objectives of the meeting were:

- To verify and adopt the assumptions to be used in the study,
- To present the approach and methodologies of demand forecast (Deliverable 2) and planning scenarios (Deliverable 4)

As part of the capacity building efforts accompanying the development of the Continental Power Systems Masterplan (CMP) for Africa, a virtual advanced training on the use of EViews Software for electricity demand forecasting was conducted from 24th to 26th January 2022 for 40 SAPP utility representatives. This training was the first in a series of capacity building workshops that will involve training of planning officials from the five African power pools (CAPP, COMELEC, EAPP, SAPP, WAPP) and AUDA-NEPAD during the first quarter of 2022. The next phases are:

- Phase 3: Modelling Runs for CMP – May 2022
- Phase 4: Assessment of Results, Sensitivity Analysis and Cost Benefit Analysis – December 2022
- Phase 5: Synthesis of Results – June 2023

One of the benefits of the CMP is that it will integrate the vision of the AU as expressed in various Ministerial meetings, including African Single Electricity Market (AfSEM), the AfDB New Deal for Energy in Africa and the concept of Clean Energy Corridors. The CMP will be the ‘blueprint’ of the AfSEM and will act as the central pillar to solve Africa’s energy challenge. The priority projects that will emerge from the CMP will make it possible for countries to take advantage of the complementarities between national systems, with surpluses from some countries off-setting the deficits in others, by leveraging on national and regional diversity in resources and demand patterns. It will create a common and harmonized platform that will assist in project decision-

making regarding the location, size, and timing of investments in generation and transmission infrastructure to unlock cross-border power exchanges and inter-power pool trade. The following are one of the major benefits for SAPP from this project:

- Training and skills transfer on EViews software, SPLAT, iMessage and PSS/E
- Licenses for SPLAT and iMessage and 1 additional PSS/E
- Updated SAPP Pool Plan

9. SAPP New Entrant Requirements

The USAID-funded Southern Africa Energy Program (SAEP), a Power Africa initiative has been working with the PSC to develop new entrant guidelines for independent power producers. A detailed guideline that highlights the SAPP membership categories and requirements was developed and published on the SAPP website in September 2021. The SAPP has since received several membership applications due to the publications of the membership guidelines. This exercise required the ABOM, SAPP Book of Rules and SAPP Market Guidelines to be reviewed as well. For the period under review, the SAPP received five membership applications from the following entities which were applying for the Market Participant category:

1. Frazium Energy from Eswatini
2. Innosun Energy Holding from Namibia
3. Solnam Energy (Pvt) Ltd from Namibia
4. Zimbabwe Zhongxin Electrical Energy Company from Zimbabwe
5. Trade Power from DRC

10 Transmission Pricing Model Development

The SAPP is continuing with the development of the Nodal Transmission Pricing model as per MANCO’s directive. Special training workshops were arranged for the Planning and Markets Sub Committee members covering the following areas:

- Workshop to discuss the load flow scenarios.
- Training Session 1 (Theoretical basis for transmission pricing model including the background to the methodology and principles of the model)
- Training Session 2 (Recap of Python and overview of source coding in the model)
- Training Session 3 (Key building blocks of the Transmission Pricing tool and the overview of using Python for manipulating PSS/E)
- Training Session 4 (Hands-On training on use of the model)

The following activities took place during the period under review:

- The development of 8 planning scenarios for the development of 8 PSSE casefiles
- Update and signing off assets cost database.
- Testing of the scenario data files with the Transmission Pricing Model
- Model Simulation and analysis of the results by the Transmission Pricing Task Team
- Calculation of a trial set of TSO charges for external network use
- Demonstration of the final tool to the Transmission Pricing Task Team, PSC, OSC and MSC.

Upcoming Activities include the final workshop with the PSC, MSC and OSC as well as the presentation of the model and results to the SAPP MANCO and EXCO for adoption. The project is expected to be completed in October 2022.

11. Impact of the Integration of Renewable Energy Technologies on SAPP Grid

The current electricity generation within SAPP is dominated by coal-fired generation, and comprises of the following resource mix:

- Coal-fired generation = 56%
- Hydroelectric generation = 24%
- Wind = 4%
- Solar PV = 3%
- Solar CSP = 1%

- Nuclear = 3%
- OCGT = 3%
- CCGT = 1%
- Diesel Gen = 1%
- Biomass = 1%

This situation is not sustainable since coal-fired power stations produce greenhouse gases such as carbon dioxide which result in climate change. SAPP has realised the need to increase the contribution of renewable energy in line with global trends to reduce the carbon footprint. Renewable energy is sustainable with little or no waste such as CO₂ and other chemical pollutants. Increasing renewable energy's contribution will also result in increasing primary energy diversification and increasing security of supply. The increased penetration of renewables requires that SAPP analyses the increasing impact of such renewables.

The SAPP had then embarked on a project to assess the impact of Renewable Energy Technologies in the Operations of the SAPP interconnected network. The project was in two phases, Part 1 was completed in December 2019 and Part 2 was completed in January 2021.

Part 1 was focussing on high level techno-economic and regulatory issues. The main objective of the study was to support the SAPP to prepare the interconnected system for the integration of variable renewable energy (VRE) generation in a secure, reliable, and economic manner. The outcome of Part 1 was used as an input to Part 2. This study also used other studies undertaken by the SAPP as a base of the analysis. These studies included the 2017 SAPP Pool Plan, SAPP Balancing Market, SAPP-EAPP Integration Study, SAPP Regional Transmission Infrastructure Finance Facility Study as well as the National Integrated Resource Plans from the member countries. The Namibia Modified Single Buyer Market study was also used as a reference point.

The primary focus of the Part 2 work is on detailed simulations of the operation of the SAPP power systems with a higher level of variable renewable energy (VRE) penetration. This includes the definition of the procedures and investments required to implement modified

dispatch processes in the region. A range of sensitivity studies have been completed to investigate contingency situations in the power system associated with significant increases and decreases in the output of the VRE generation.

The study outcome gave satisfactory results for the target set for VRE generation by 2027. For SAPP, and excluding South Africa, the potential annual average VRE generation percentage is 18% of total demand in 2027. An hourly maximum RE generation penetration of 45% of total energy demand is reached in 2027 for both SAPP and South Africa. The VRE share varies substantially from country to country – 122% share in 2027 for Namibia and 5% or less for Angola North, DRC, Tanzania, and Zimbabwe. As for the impact of the VRE on the SAPP system, the output from the various study cases provided sufficient information to analyse these matters. The aspects where no problems were experienced when adding the 7 000 MW of VRE by 2027. These are related to the variability of VRE.

- No problems with reservation of capacity for reserves in any of the Study Cases in any year
- No significant change in scheduling of peaking plant in any of the Study Cases in any year
- No ramping issues from one hour to the next in any Study Case in any year.

11.1. Conclusions from the study of typical days with high renewable penetration using GDAT.

The GDAT studies demonstrate the PLEXOS results are implementable in real time. The conclusions from the minute-to-minute studies are:

- The regulation reserves allocated are sufficient to control both the frequency and as well as keep the inter zonal power flows within limits (most of the time) even with 40% renewable penetration in some hours of the day.
- The GDAT controller is tuned to control the zonal limits when they are exceeded by 10 MW and at a rate of 60 MW/min. Where the power zonal limits are due to dynamic voltage collapse the

exceeding of limits might not be desirable even if for a short period of time. Investigating solutions to improve power line control or change the stability limit is required for the cases where limits cannot be exceeded. Through a central controller it will be easy to increase generation in one zone and decrease in the other zone to reduce the zonal power flow. Specifically, the current SAPP individual control area controllers are not designed to reduce intra control areas power flow limits and so a central frequency controller will certainly reduce the possibility of power lines between control areas being overloaded.

11.2. Conclusions from the transmission studies for each Zone

The transmission studies demonstrate the PLEXOS results are implementable in the interconnected SAPP network. The conclusions from assessing each Zone are:

- Each identified Zone can accommodate the proposed amount of VREs.
- A typical off-peak-high-VRE scenario was selected for 12th December 2027 at 11h00, which presents the most onerous operation condition from the power evacuation and network stability point of view.
- Most of the Zones do not require any network reinforcement, under N-O security of supply. However, reinforcement is required almost for all Zones to increase the security of supply level from N-O to N-1.

11.3. Recommended changes to the SAPP regional trading environment

The key developments that would be required to facilitate the higher penetration of VRE in the first stage of this project were identified. The key enablers from a regional trading perspective that would support the future integration of VRE, were identified as follows:

- Increase the ability for third party access to the SAPP Physical Markets.

- Implementation of the first version of the SAPP Balancing Market – and the further development of this to support more regional procurement of new products.
- Introduction of an appropriate regional transmission pricing methodology that can effectively support cost recovery as well as give the right incentive for trading.
- Supporting greater harmonisation of national grid codes; and
- Enforcing current rules on Congestion Management & Transmission capacity allocation.

11.4. Proposed secondary reserve methodology for calculation of reserve requirements.

SAPP system wide regulation reserves are proposed to be calculated on the principles developed in Europe and USA. The regulation reserves to control the frequency via automatic generation control are calculated from:

- probability demand will change within the next 10 minutes,
- probability wind power will change within the next 10 minutes,
- probability solar power will change within the next 10 minutes, and
- known disturbances that occur more than 5% of the time.

11.5. VRE forecasting and measured variability

SAPP members are responsible for their own balancing and thus are advised to have their own VRE forecasting when they have significant VRE penetration.

11.6. Centralised real-time dispatch system

A centralised real time dispatch (SAPP AGC) system will save almost half secondary regulation reserve requirements on the overall system, reduce the movement of units on AGC and provide a better economic dispatch. These benefits are the main

reason control areas in Europe are merging and forming centralised real-time dispatch systems. The SAPP AGC system installation costs are estimated to be in the region of US\$0.5-1.0m per country or a total cost of between US\$5-10m for the whole of SAPP. The SAPP AGC system is to be operated 24/7.

12. SAPP - EAPP Transmission Integration Impact Study

The PSC completed the SAPP-EAPP Transmission Integration impact study in October 2018. The main objective of the study was to assess the dynamic stability of interconnecting the two Power Pools. The next step is to address the key challenges and milestones identified for the interconnection to operate in a safe and reliable way. The recommendations from the study was discussed jointly between EAPP and SAPP and some of the activities identified will be presented to cooperating partners for funding.

The SAPP and EAPP met in March and July 2019 and setup an Implementation Governance Structure to implement the recommendations from the SAPP-EAPP Integration study and mitigation of risks. The implementation structure which will comprise of representatives from EAPP and SAPP is shown in figure 3:



Figure 3: SAPP-EAPP Implementation Structure

The detailed terms of reference and composition of Teams were developed, and the Capacity building needs assessment were carried out for TANESCO as it will be key between EAPP and SAPP.

13. SAPP Transmission Maps Development

The SAPP have completed the development and updating of the transmission grid maps (existing and future) including the siting of existing and future power plants. These interactive maps will help stakeholders to easily visualize the current state of the interconnected systems, projects under consideration and future proposed projects.

Five software were analysed i.e. ArcGIS, MapInfo, Global Mapper, DigPro and QGIS. Based on the Belyk' and Feist's software evaluation criteria it was recommended that the SAPP use the ArcGIS. The procurement of the ArcGIS software was completed in November 2020 and the SAPP grid maps have been developed and packaged into the software. The SAPP members and other stakeholders can now visualise the grid maps on the ArcGIS online portal. The final report for this project was delivered on the 28th April 2021.

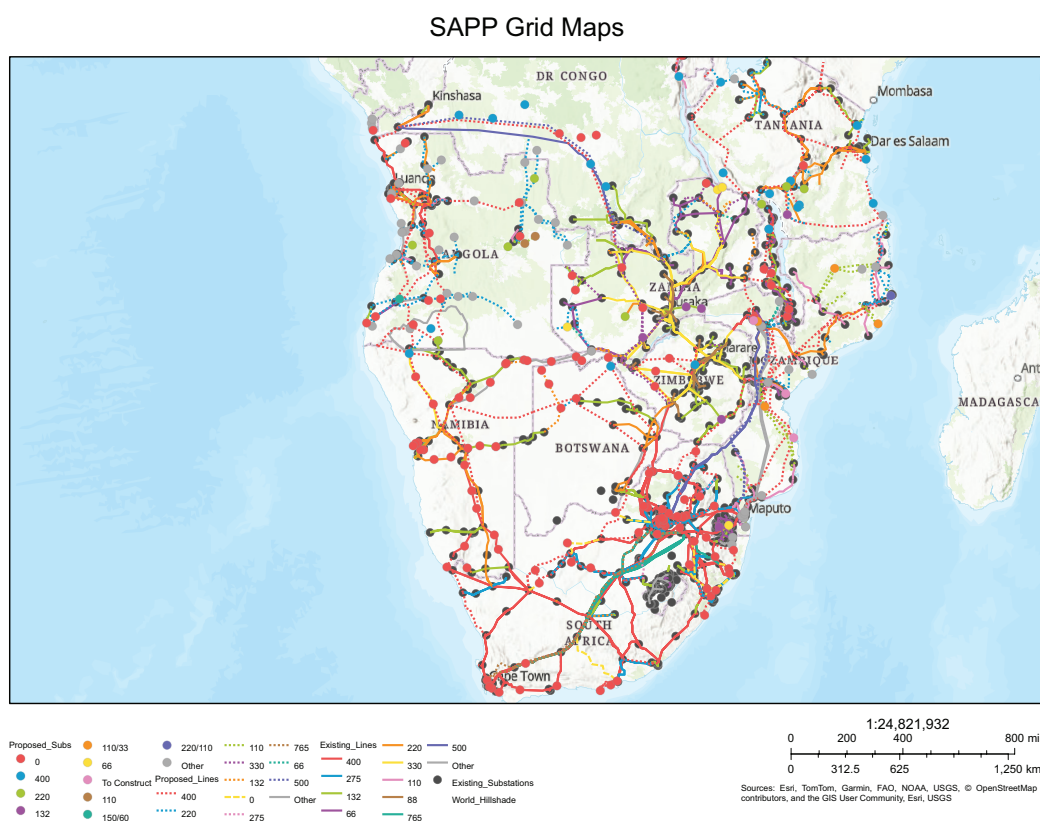


Figure 1 above was presented to the PSC to show a snapshot of the Grid Map.

the PSC secretariat, Eng. Brian Mloni Dlamini for making my chairmanship duties sails smoothly.

14. Acknowledgements

I would like to take this opportunity to thank members of the SAPP Planning Sub-Committee for their support during my first year as Chairperson of the Planning Sub Committee. With your support we will be able to meet the objectives of SAPP. Special thanks also goes to

MR. PEGO MOSALAKATANE
Planning Sub Committee Chairperson

Operating Sub-Committee (OSC) Report



MR. MARATHON NTUSI,

Chief Engineer, Eskom, South Africa,
Operating Sub-Committee Chairperson

1. Introduction

This report covers key issues and activities of the SAPP Operating Sub-Committee (OSC). The period under review is from 1 April 2021 to 31 March 2022. Highlights for this period are as follows:

1.1 Power System Demand

Despite prevalence of restrictions on economic and social activities in some SAPP member countries including South Africa and Zimbabwe in the year under review, all member utilities reported some increase in power system annual peak demand in 2021 compared to 2020, although not major. The peak demand in Eskom of South Africa increased from 31470 MW to 31952 MW. By percentage, Zambia registered the highest increase in peak demand of about 300 MW from 1880 MW in June 2020 to 2192 MW in June 2021. From September 2021 to

December 2021, some utilities experienced a decline of peak demands. This was attributed to general end-of year slowdown of economic activities. For example, Eskom's monthly peak demand dropped from 31953 MW in July 2021 to 27288 MW in December 2021; LEC from 182 MW to 139 MW. The monthly peak demand for ZESA did not change much because it was constrained on the supply side.

1.2 The COVID-19 situation

All SAPP power utilities continued to implement enhanced security, hygiene, and emergency-alert procedures at their National Control Centres in accordance with guidelines laid down by national health authorities. The back-room staff at National Control Centres mostly worked from home to de-congest control centres and minimise chances of infection. However, in the period under review, unlike the previous one, power system maintenance activities were carried out according to normal schedules.

2. Reported SAPP System Disturbances

A SAPP system disturbance is the one which interrupts scheduled energy interchange among SAPP member utilities and/or leads to excursion of power system frequency outside the 50 ± 0.50 Hz band. In the period under review, compared to the previous year, the number of reported SAPP system disturbances increased by 5, from 57 to 62. The biggest number of system disturbances occurred in the month of April 2021. In this month, the 400 kV interconnector between South Africa and Botswana alone tripped nine times due to earth

faults attributed to birds' activities and faulty insulation.

2.1 General statistics of disturbances

Refer to Figure 1 for the general outlook of the disturbances per month. Table 1 below gives the causes and originating utilities of the disturbances.

Figure 1: Reported SAPP System Disturbances

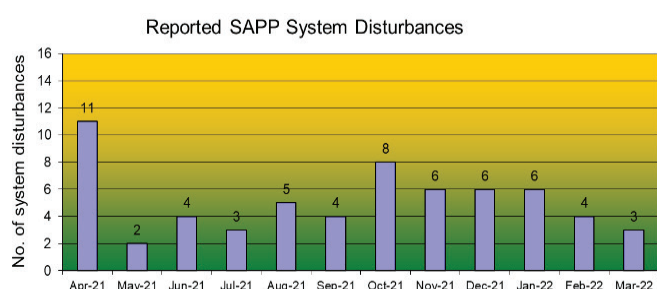


Table 1: Causes and originating utilities of SAPP system disturbances

ORIGINATING SAPP MEMBER UTILITY		EDM	HCB	Eskom	BPC	ZESA	ZESCO	CEC	SNEL
CAUSE									
A	Birds activities / broken insulator discs				13				
B	Turbine/generator fault			15	1				
C	Faulty AC transmission equipment				1	2	1	1	1
D	Lightning			1		1	1		
E	Faulty HVDC equipment			1					5
F	Loss of big load								4
G	Overload				1				
H	Undamped power swings				2				
I	Surplus generation and increased tie line transfers	1							
J	Loss of auxiliary supplies						1		

K	Impact of switching operation					1		
L	Protection maloperation					2		
M	Faulty protection link		1					
N	Insufficient operating reserves			3				
O	Bush fire		1	1				

To mitigate these system disturbances, the following were some of the measures which were taken:

- Birds' nests were re-located, bird guards were installed, and some insulators were replaced on the 400 kV Matimba (Eskom) – Phokoje (BPC) interconnector.
- Hot spots were repaired on the 330 kV Kabwe – Kitwe transmission lines in Zambia.
- In SNEL (DR Congo), corrective maintenance was carried out on HVDC Converter 21 and 11 and associated equipment at Kolwezi Converter Station.
- Various equipment repair and maintenance works were carried out both on generation and transmission equipment by all member utilities.

2.2 Major system disturbances

Three disturbances led to collapse of some power systems and wide-area interruption of electric power. On 28 June 2021 at 01:16 Hrs, the Zimbabwe, Mozambique-North and DR Congo-South power systems collapsed. This was caused by surplus generation and high-power transfers from south to north in the central corridor during off-peak hours. Subsequently, one key circuit breaker in Mozambique tripped on over-frequency. Then, power oscillations were triggered in the central corridor, leading to cascaded tripping of interconnectors.

On 08 August 2021 at 14:21 Hrs, Zambia and DR Congo-South power systems collapsed following tripping of generators at a major power station in Zambia. The root cause was a switching operation on a generator transformer that caused in-rush currents into other

generator transformers which subsequently tripped on differential protection.

On 06 November 2021 at 07:25 Hrs, the Zambia power system collapsed. Electric power supply was also interrupted in some parts of Zimbabwe, DR Congo, and Mozambique. In the Zimbabwe power system, one transmission line in the route between Kariba South Power Station and Harare was out of service due to planned maintenance works. Thus, the main Zimbabwe power system remained connected to the Kariba South power station and Zambia by only two lines. The first one tripped on over-current protection and the second one tripped on power oscillation protection in the same minute. Acute imbalance of generation and load was experienced in Zambia as Zimbabwe's Kariba South Power Station remained connected to the Zambian power system, which eventually collapsed. The South African power system temporarily supported the Zimbabwean power system. The declaration of blackout in Zambia was cancelled at 13:40 Hrs when power was restored to almost all loads. Normal SAPP energy trading involving the Zambian power system resumed at 15:00 Hrs.

2.3 Protection system coordination task team

Following major system disturbances that occurred in June 2021 and August 2021 leading to collapse of power systems, OSC formed a task team to evaluate and review coordination of protection systems on the SAPP interconnected power system. The focus area of the task team are islanding schemes on interconnectors and automatic under-frequency load shedding schemes. The main objectives of the coordination are:

to minimise or prevent cascaded trips; and, to optimise protection systems so that areas assist each other to stabilise the interconnected power system in the event of disturbances.

3. Power Supply Emergency and Blackstart Preparedness

Having finalised the SAPP Emergency Communication Protocol and the SAPP Power Supply Risk Assessment Guideline, the SAPP Power Supply Emergency and Blackstart Preparedness Working Group, led by Mr. Siju Joseph of Eskom, continued working on the SAPP Regional Power Supply Restoration Plan. Once finalised, a drill would be arranged to practice emergency operations on the interconnected power system.



MR. SIJU JOSEPH

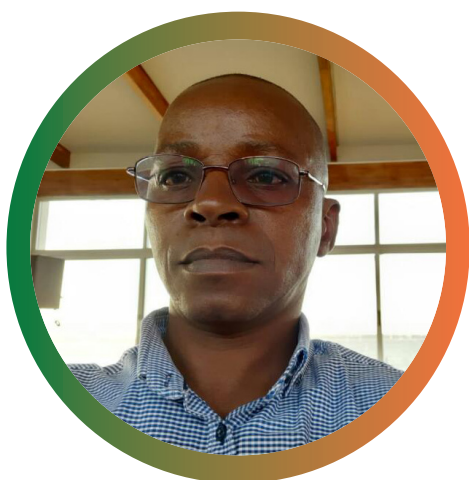
from Eskom, Emergency and Blackstart Preparedness Working Group Chairperson

4. Compliance with SAPP Operating Guidelines

Monitoring of compliance with requirements of the SAPP Operating Guidelines is underway. Results for the 2020/2021 financial year were presented to OSC and signed off. Congratulatory letters, warning letters, and/or financial penalties were given to the utilities as applicable. In that period, results showed that one Control Area Operator was non-compliant with Control Performance Standard 1 (CPS1) and another was non-compliant with Disturbance Control Standard (DCS). The rest were compliant in all categories.

5. SAPP Quality of Power Supply

In the year under review, the SAPP Power Quality Working Group, led by Mr. Mário Houane of EDM, continued sharing power quality data on monthly basis. Apart from voltage dips and unplanned outages, the interconnected power system is performing well in terms of monitored power quality parameters. Almost all utilities now have online power quality databases. The Working Group is still working on the guide for energy metering on interconnectors. The document is aimed at specifying minimum requirements for energy metering at border points. It is also aimed at providing technical specifications of an energy meter and stipulating data sharing, reconciliation, archiving, error adjustment, and handling of any data discrepancies.



MR. MÁRIO HOUANE

from EDM, Power Quality Working Group Chairperson

6. Joint meetings with other sub-committees

The OSC held joint meetings with other sub-committees, as follows:

6.1 Joint meeting with Markets Sub-Committee (MSC) on Control Area Services

SAPP implemented a methodology for charging Control Area Services. In this methodology some unique data from utilities like generation capacity and annual peak system demand are employed. On 20 May 2021 the OSC and MSC held a virtual meeting to track progress on implementation of the Control Area Services charges.

6.2 Parallel Operation of the 220 kV ZESA - BPC interconnector

ZESA of Zimbabwe and BPC of Botswana are interconnected by two lines; one at 400 kV and another at 220 kV. The one at 220 kV has been out of service due to metering discrepancies. On 09 November 2021, the MSC and OSC met jointly and discussed preparations for parallel operation of the 400 kV and 220 kV Botswana - Zimbabwe interconnectors (the 220 kV interconnector is out of parallel operation). They also discussed methodologies for settlement of imbalance energy after opening of the balancing market.

7. SAPP Telecommunications Network

The SAPP Telecommunications Working Group (TWG), currently led by Mr. Evodius Rweyemamu of TANESCO, is the oldest working group under OSC. The TWG has implemented several projects in SAPP, including the SAPP optic fibre telecommunication network, the SAPP system online viewer, and the SAPP video conferencing system.



MR. EVODIUS RWEYEMAMU

From TANESCO, TWG Chairperson

7.1 SAPP Telecommunications Network

The SAPP optic fibre telecommunication link (from South Africa via Namibia to Zambia and Zimbabwe) was fully in service for voice and data telecommunication. The link via the central corridor (Botswana and Zimbabwe) was also in service with isolated temporal outages. The TWG has worked on configuration of the automatic fail-over scheme on the two parallel

routes, one via Namibia and the other via Botswana in the central corridor. Automatic fail-over has been enabled for SAPP Coordination Centre, ESKOM, BPC, ZESCO and ZESA.

7.2. SAPP Video Conferencing Project

This project was under implementation in the year under review. SAPP video conferencing equipment had been deployed at remote sites of fourteen member utilities and at SAPP Coordination Centre. The equipment was yet to be sent to one utility, pending confirmation of delivery address. Another utility received the equipment, but installation was pending upgrades of their boardroom. Yet another utility received the equipment, but installation was pending easing of COVID-19 travel restrictions for the contractor to travel. At the hub (SAPP Coordination Centre), the equipment had been installed at the new office. 'End-point provisioning' was almost complete.

7.3. Cyber Security

SAPP has implemented online computer system projects, including the video conferencing and system viewer. In line with best practice, SAPP would like to secure its online computer systems from cyber-attack. On 04 October 2021, the OSC held a meeting on cyber security. Members of the TWG and persons responsible for cyber security in the SAPP utilities participated in the meeting. The draft SAPP Cyber Security Procedure was reviewed and finalised. Also, the SAPP specification for a cyber security system was finalised. SAPP Coordination Centre was due to procure and install a cyber security system at the centre.

7.4 SAPP Online System Viewer

The SAPP Online System Viewer is a computer system for monitoring the SAPP power system in near real time, like a SCADA system, but it does not have controls. The project kicked-off in October 2020. The contract was awarded to GE of France. Key activities in the year under review included:

- **Factory Acceptance Tests (FAT):** FAT for the SAPP Online System Viewer were held between SAPP and the contractor (GE). The tests were observed online from 14 to 22 June 2021. All key components passed the tests. GE then proceeded to arrange dispatch of the equipment from France to site.
- **Training:** From 2 to 6 August 2021 and from 16 to 17 August 2021, GE, the contractor for the new SAPP online system viewer, delivered training on modelling substations in the e-terra environment. The training was delivered virtually.
- **Site Acceptance Tests (SAT):** SAT ran from September 2021 up to December 2021. Apart from the wall monitor and UPS, the system was handed over to SAPP. See Figure 2 below.

1. Servers



2. Operator Consoles



3. UPS

8. Crime Prevention Working Group

The SAPP Crime Prevention Working Group (CPWG), led by Ms. Bernice Bothate from BPC, held one meeting in August 2021. Members shared progress on implementation of agreed measures in combating crime and theft of electricity infrastructure. These measures are:

- Establishing network equipment crime committees;
- Establishing controlled disposal of non-ferrous metals and transformer oil;
- Establishing 24-hour national equipment

crime control rooms;

- Branding all new equipment;
- Enhancing partnership policing and industry coordination and cross-border operations and
- Community involvement

It was noted that member utilities are at different levels of achievement of these measures. In the period under review, progress was hampered by COVID-19 prevention restrictions.



MS. BERNICE BOTHATE

from BPC, CPWG Chairperson

It was reported that the recent states of unrest in Eswatini and South Africa in June 2021 and July 2021 did not adversely affect electricity infrastructure at utility level.

However, SAPP member utilities are still losing revenue and investment through theft of electricity at metering points and vandalism of equipment. In the period under review, cross-border or interconnecting lines were not affected by vandalism, but some transmission and distribution infrastructure were affected (See Figure 3, 4 and 5). Some perpetrators are driven by economic problems mainly due to loss of income because of the prevailing COVID-19 restrictions. The CPWG made the following specific recommendations:

- Vetting new employees and carrying out due diligence on sub-contractors before

engagement.

- Introduce rewards for informers / whistle blowers.
- Partnerships / collaboration with other national security agencies or law enforcement agencies.
- Use of social media to name and shame.
- Installation of security alarms and CCTV at major substations.
- Power system planners should involve security officers in the design and location of infrastructure.
- Provide adequate resources to the security function.
- Embrace new technology in security operations e.g., drones, GIS.



Figure 3: Vandalised tower in Eskom, South Africa



Figure 4: Stolen conductors and tower members in BPC, Botswana



Figure 5: Repairing a vandalised HV tower in CEC, Zambia

9. SAPP 18th Annual Energy Traders and System Controllers Forum

The 18th SAPP Energy Traders and System Controllers Forum was held from 20 to 21 October 2021 virtually on Microsoft Teams platform. Various energy trading and power system operational issues were discussed including system disturbances and the proposed balancing market. SAPP Coordination Centre was requested to engage cooperating partners and obtain financial support to hold common training workshops for SAPP System Controllers and Energy Traders.

10. Acknowledgements

Control and operation of the SAPP interconnected power system was challenging in the year under review. This was mainly because of the deficiency in generation capacity, leading to load shedding, and transmission constraints, leading to curtailment of some energy interchange. The impact of COVID-19 restrictions, including very low loads during off-peak, were still prevalent, leading to high power system frequency. Further, in the year under review, system disturbances led to collapse of some power systems and interruption of electric power supply in wide geographic areas. Despite the challenges, OSC members, power system controllers, and other operational staff worked hard and diligently to achieve safety and reliability of the interconnected power system, for which I am very grateful. Lastly, I call upon all OSC members and all operational staff to remain vigilant, keep up the good work, and stay safe in these challenging times.

MR. MARATHON NTUSI

Operating Sub-Committee Chairperson



MR DOCTOR SIMELANE

EEC(Eswatini)

Markets Sub Committee Chairperson

1. Introduction

It is my pleasure, on behalf of the Markets Sub Committee (MSC), to present the SAPP 2022 annual report on SAPP trading issues. During the 2021/22 financial year, most SAPP member countries were still operating under the Covid-19 induced restrictions. The restrictions were however relaxed for most SAPP countries towards the end of the end of the 2020/21 financial year. The competitive market performance remained suppressed due to the Covid-19 pandemic. The competitive market share for 2021/22 was at 18%. The same figure was registered during the previous financial year of 2020/21. The competitive market share traded volumes were 1,439 GWh. This signifies a decline in traded volumes by 4% when compared to the previous financial year in which 1,498 GWh were traded.

During the year 2021/22, the main focus areas for the MSC in addition to promoting trade in the competitive market, was to ensure that the SAPP Market Trading Platform (SAPP-MTP) is up to date with the latest technological

enhancements and trends as well as the development of the SAPP Balancing Market.

I am happy to report that the above key activities for the SAPP market were successfully completed. It should also be noted that although trading was subdued due to the Covid - 19 and supply challenges, trading occurred in all the competitive markets namely the month ahead, week ahead, day ahead and intra - day markets.

Despite these notable achievements recorded in the financial year 2021/22, a lot is still to be done to take the SAPP market to next levels. There was generally an increase in transmission access for the SAPP competitive markets largely due to the revised transmission capacity allocation criteria and the reduction in bilateral trade volumes.

Below is a summary report on the SAPP trading issues covering the financial year 2021/22.

2. Development of a Balancing Market for SAPP

The development of the SAPP Balancing Market began on the 1st of September 2019 upon signing the contract with NordPool. The consultancy assignment was divided into three (3) tasks:

- i. An assessment of Global Balancing Market Trading arrangements and options for the SAPP,
- ii. Preparation and detailed design of agreed option, and
- iii. Operationalizing of the chosen option by developing a trading system for use by SAPP including development of rules, procedures for the smooth operation of the system, and capacity building.

The consultants kept their plan for the system development and testing and both the SAPP CC team as well as the Consultant team were ready with the final preparations for go-live on October 1st, 2021. However, the planned go-live was postponed to the 1st of April 2022 as per a decision by the SAPP Executive Committee.

The project has been able to conclude its deliverables under special circumstances due to the Covid - 19 pandemic.

3. Establishment of a SAPP Transmission Infrastructure Financing Facility (RTIFF)

SAPP and the Consulting Team progressed efforts across all critical workstreams during the reporting period. Most crucially, senior SAPP Committees were engaged and approved the proposed technical recommendations for the institutional structure and legal domicile of RTIFF, paving the way for pre-establishment analysis to be developed, and for deeper SADC and Utility engagements. The finalization of the models and deeper engagement with potential project sponsors was the primary focus for this period.

Key achievements are summarised below.

a. RTIFF institutional structure and legal domicile: MANCO & EXCO meetings and recommendations

In recent months, the Consulting Team has been working closely with the SAPP Team, the Steering Working Group, and the RTIFF Oversight Task Team (via fortnightly meetings) to finalize RTIFF's proposed institutional and governance structure, to present them for approval to SAPP MANCO and EXCO.

These efforts were primarily, but not exclusively, channeled through the "RTIFF Blueprint" and later summarised in a report, and accompanying presentation, also incorporating aspects of the

Resourcing Strategy and First Movers Portfolio Review. The material was submitted and presented to SAPP MANCO for consideration and approval in late February 2022, with a follow-up session in March 2022. These two engagements were most productive, providing opportunities for extensive question and answer and deliberation on key decision points. Following a detailed and lively discussion, MANCO members approved all key decision items and recommended progression to SAPP EXCO.

b. Modelling (resourcing strategy and first movers)

Extensive engagement with the SAPP Team and other key stakeholders, including the Steering Working Group and the RTIFF Oversight Task Team was conducted to debate the draft financial and energy models, with several targeted workshops taking place over March.

The financial model is a sophisticated tool built in Microsoft Excel, structured to replicate how funds will flow into and out of RTIFF and the supported projects, according to the currently proposed commercial and organizational structuring of RTIFF. The model will be used as a decision-support tool by key RTIFF stakeholders to articulate RTIFF's financial performance and sustainability, subject to input values relating to its key features. Discussions held in March largely focused on specific, yet highly important, commercial considerations related to RTIFF's (and priority projects') financial form(s), such as the order in which different debtors should be paid back and what should happen with any excess returns to equity shareholders.

The detailed energy model encompasses the existing and planned future demand and generation as well as existing and planned interconnector projects for the entire SAPP region to estimate energy flows across existing and future interconnectors. The development of the energy model has been an iterative and detailed process subject to review as

additional project-related information has come to light and been shared. The model was thereby iterated throughout March 2022 and workshopped with key stakeholders with a view to its finalization in mid-April.

4. System Enhancement Project

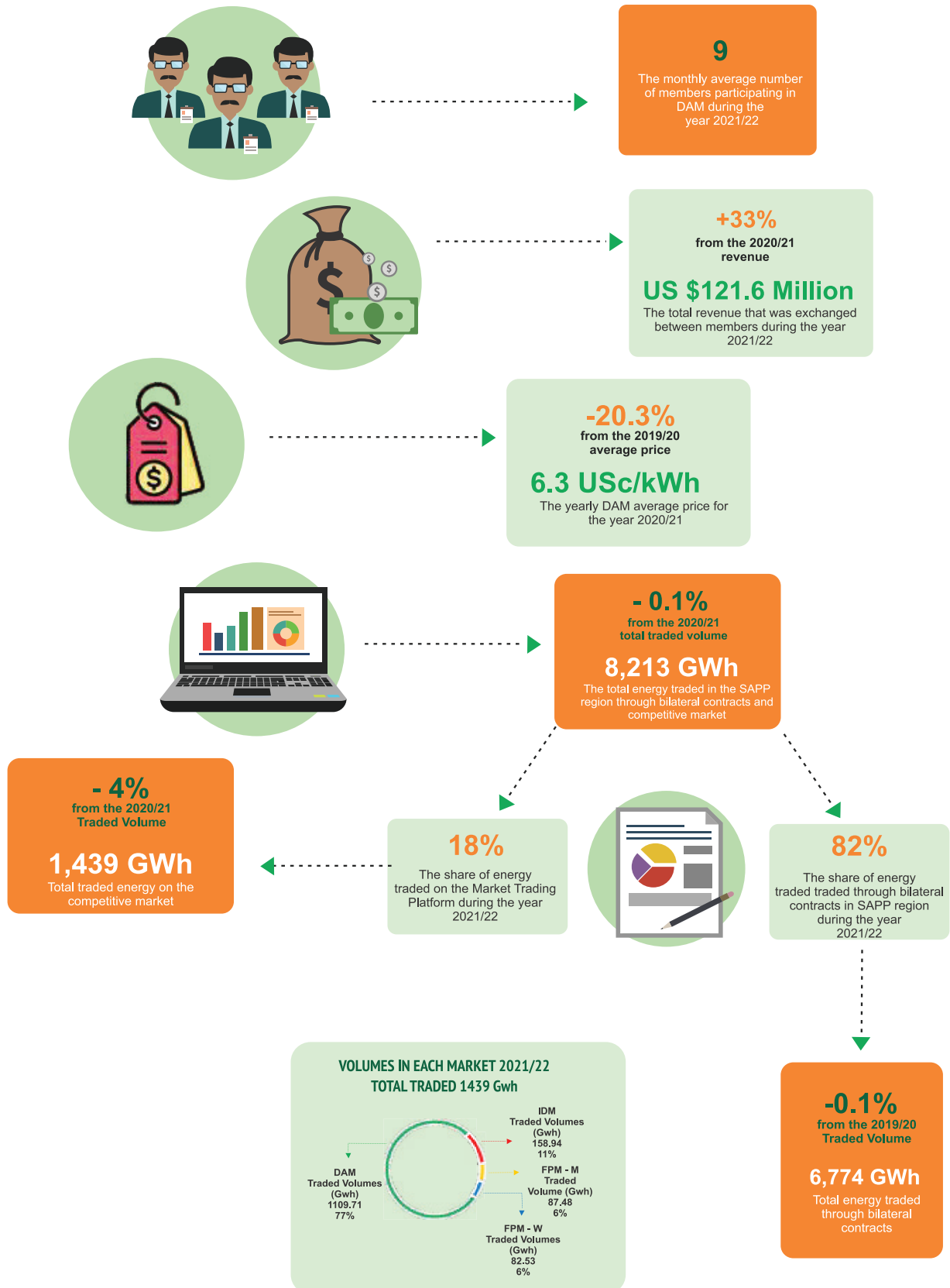
The SAPP completed a technology upgrade on the Market Trading Platform (MTP). The primary reasoning behind this system upgrade was that the existing MTP software technology was based on the leading web technologies that were available at the time in 2014. Since then a lot of advancements in web technologies have taken place. Included in these initiatives are the following:

- a. Market Surveillance Functional and Reporting capabilities.
- b. Software Technology Upgrade based on new web-based application technology best practices.
- c. Built-in issue tracing functionality to enable participants to capture market and trading-related queries for the attention of the SAPP CC through a formal and traceable mechanism.
- d. A document management portal that allows the Market Operator to upload documents relevant to participants onto the MTP platform.

The new trading platform was commissioned to the SAPP Traders and Operators on the 1st of November 2021.

Market Performance Highlights

DAM Member Participation



5. SAPP Members Trading Participation Levels on the Competitive Market

Below is a summary of the average monthly number of participants in the competitive market for the year April 2021 to March 2022

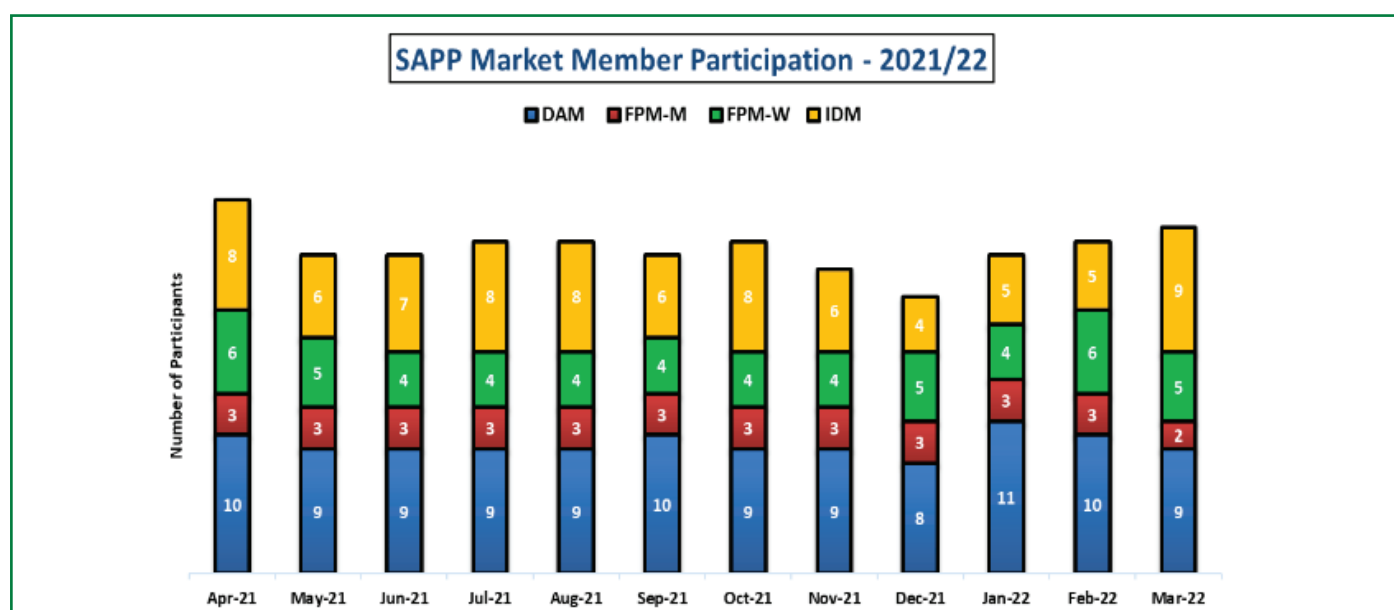


Fig 5.1 Participants on the Competitive Market for the Year Ended 31st March 2022.

On average, three (3) members participated in the FPM-M each month during the year of 2021/22. There was also an average number of three (3) participants each month in the FPM-M during the previous year of 2020/21. The participation in the FPM-W for the year 2021/22 ranged from the minimum number of 4 participants with some months reaching a maximum number of 6 participants. During the year 2020/21 there was an average number of five (5) participants each month. The participation in the DAM is generally higher as compared to other markets. In DAM, monthly participation ranged from a minimum of eight (8) participants to a maximum of ten (10) participants during the year 2021/22. During the year 2020/21 the monthly member participation ranged from nine (9) members to eleven (11) members each month. In the IDM, the monthly participation levels ranged from four (4) to nine (9) members during the 2021/22 financial year. During the previous year of 2020/21, the participation ranged from three (3) to seven (7) members.

6. SAPP Market Performance Highlights

6.1 Bids Submitted and Matched on the Competitive Market

Figure 6.1 below gives a summary of the bids and offers submitted and matched volumes on the SAPP Competitive market in 2021/22.

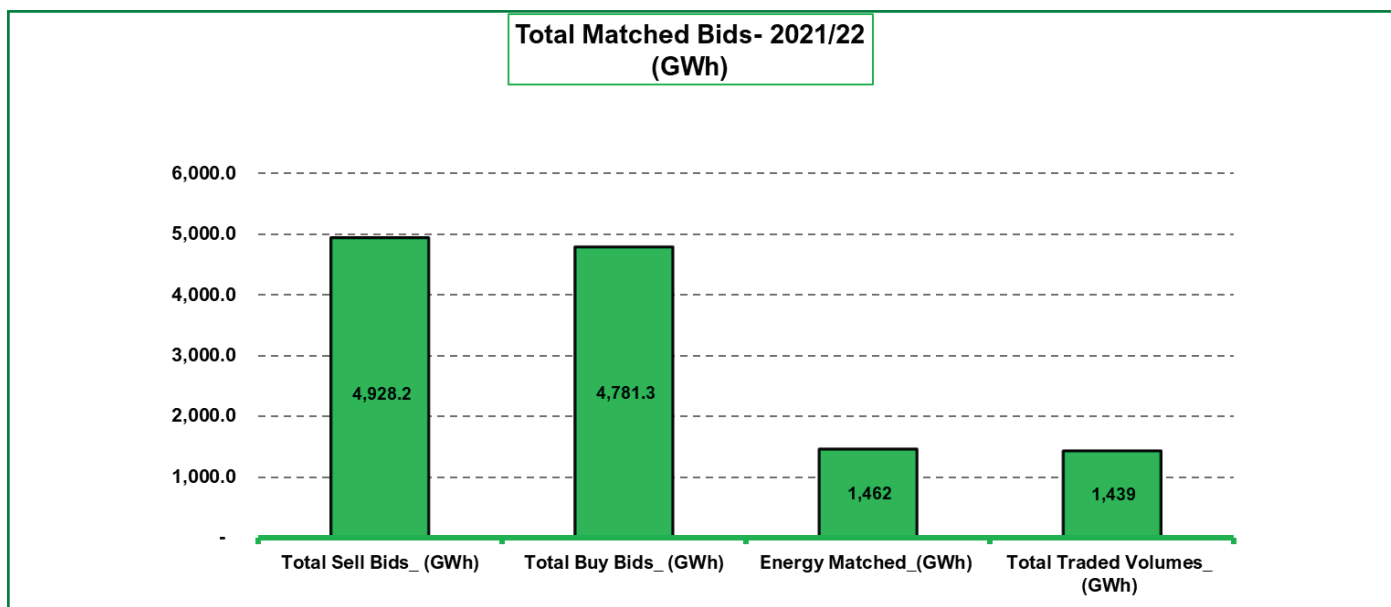


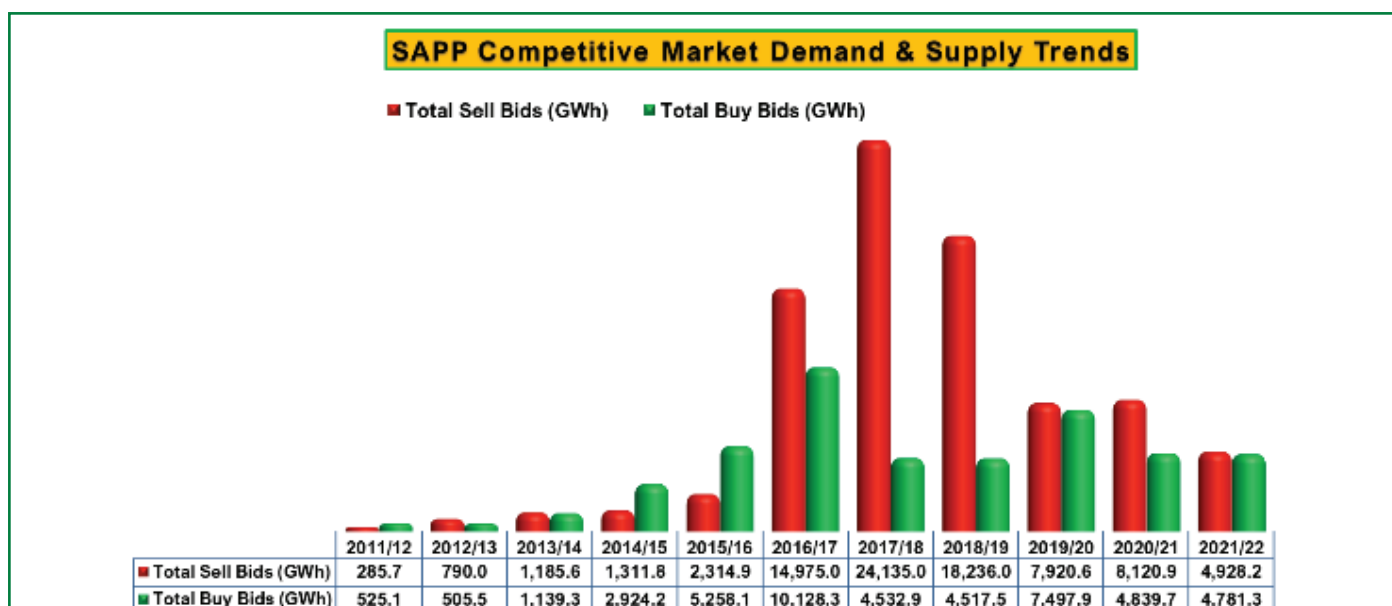
Fig 6.1 Bids submitted and Matched on the SAPP Competitive Market for the Year Ended 31st March 2022.

Matched Volumes (GWh)				
	Total Sell Bids	Total Buy Bids	Matched Bids	Traded Volumes
Apr-21	551.04	515.25	108.76	108.08
May-21	520.31	326.94	101.13	99.99
Jun-21	329.74	419.91	111.35	111.34
Jul-21	492.33	395.03	131.58	131.25
Aug-21	577.84	410.35	160.55	158.76
Sep-21	497.56	415.24	137.76	134.77
Oct-21	279.49	407.10	99.68	97.74
Nov-21	418.08	508.44	170.77	166.53
Dec-21	376.96	360.97	106.57	106.40
Jan-22	568.81	437.12	140.07	133.22
Feb-22	276.82	399.03	111.65	109.23
Mar-22	39.23	185.87	82.49	81.31
	4,928.2	4,781.3	1,462.3	1,438.6

Table 6.1 Monthly Bids submitted and Matched on the SAPP Competitive Market for the Year Ended 31st March 2022.

29.7% of power offered and **30.6%** of power requested from the market was matched on the competitive market in 2021/22.

Below is a summary of the demand and supply trend on the SAPP competitive market since the market was opened to date.



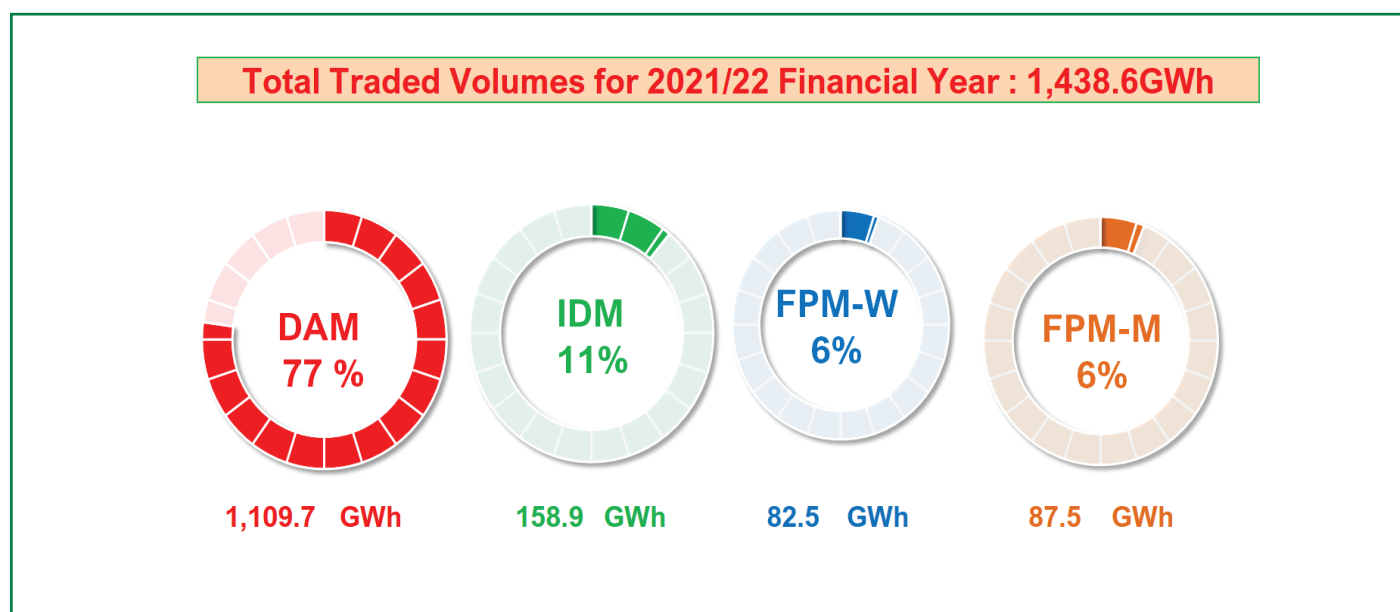
Demand for power on the SAPP competitive market was lower in 2020/21 when compared to power supply offered on the market during the same period. There was a decrease of power offered on the competitive market during the period 2021/22 as compared to the previous period. This is attributed to the power generation challenges that were faced by some SAPP members.

6.2 Traded Volumes on the Competitive Market (FPM-M, FPM-W, DAM & IDM)

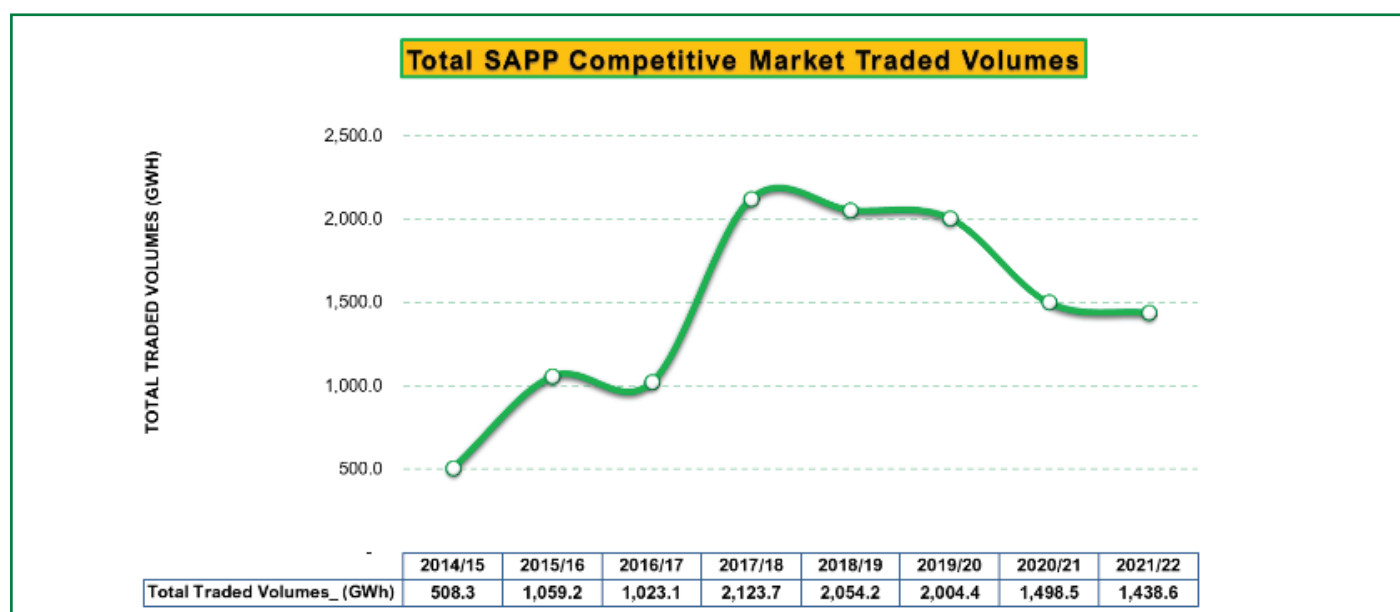
Activity on the competitive market decreased in 2021/22 where a total of 1,438.6 GWh were traded compared to 1,498.5GWh traded in 2020/21. Figure 6.2 below gives monthly traded volumes on the SAPP competitive market in 2021/22. Also included is the distribution of trades by market and the total traded volumes on the market since 2015.

Traded Volumes (GWh)					
	FPM-M	FPM-W	DAM	IDM	Total
Apr-21	7.3	9.4	81.1	10.3	108.1
May-21	7.5	7.9	78.6	6.0	100.0
Jun-21	13.6	6.8	73.7	17.3	111.3
Jul-21	7.1	7.1	99.9	17.1	131.3
Aug-21	7.2	7.2	124.4	19.9	158.8
Sep-21	6.7	6.7	111.8	9.6	134.8
Oct-21	7.2	7.2	74.5	8.9	97.7
Nov-21	6.7	8.0	119.5	32.3	166.5
Dec-21	7.1	9.9	85.1	4.3	106.4
Jan-22	7.6	7.5	107.3	10.8	133.2
Feb-22	9.5	2.6	86.7	10.4	109.2
Mar-22	-	2.3	67.2	11.9	81.3
	87.5	82.5	1,109.7	158.9	1,438.6

Fig 6.2 Total Energy Traded on FPM-M, FPM-W, DAM and IDM for the Year Ended 31st March 2022.



77% of the total power traded on the SAPP competitive market was traded through DAM and the remainder was through the IDM (11%), FPM-W (6%), and FPM-M (6%).



Power Traded on the SAPP Competitive Market from 2014/15 to 2021/22

6.3 Impact of Transmission constraints on the Competitive Market 2021/22

Generally, there was improved transmission access to the competitive market. **1.6%** of the energy that was matched in FPM-M, FPM-W, DAM and IDM in 2021/22 could not be traded due to transmission constraints. This was lower than the **1.8%** recorded in the previous year of 2020/21. Figure 6.3 gives the impact of transmission constraints from 2016/17 to 2021/22.

Energy Matched and Energy Traded (GWh)

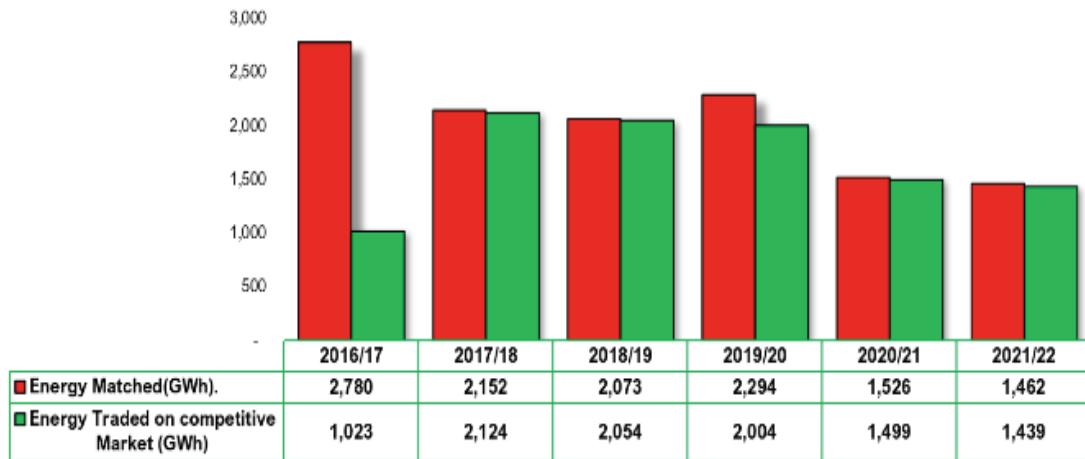


Fig 6.3 Impact of Transmission Constraints from 2016/17 to 2021/22

6.4 Competitive Market Share

The competitive market share for 2021/22 was 18%. This was also the same figure witnessed during the 2020/21 financial year. Below is a summary of the competitive market share from 2012/13 to 2021/22.

COMPETITIVE MARKET SHARE

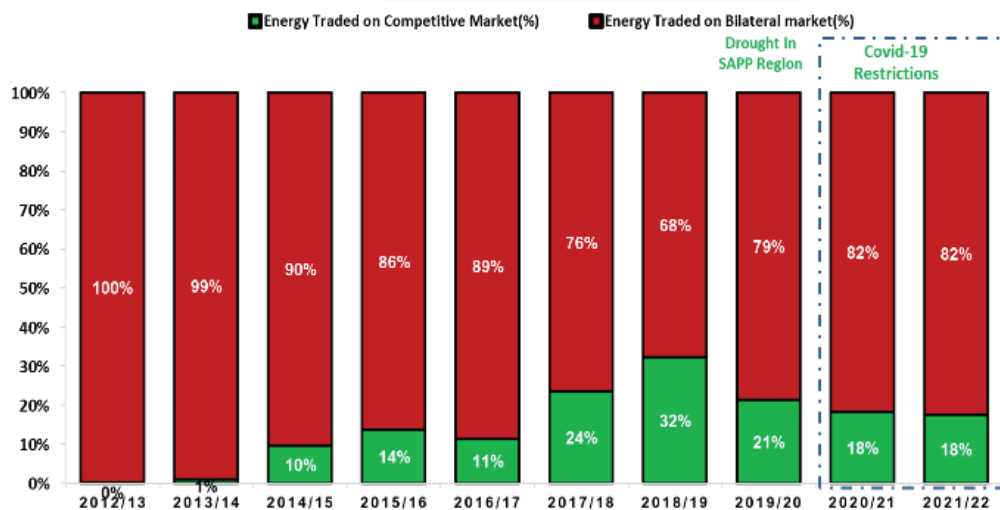
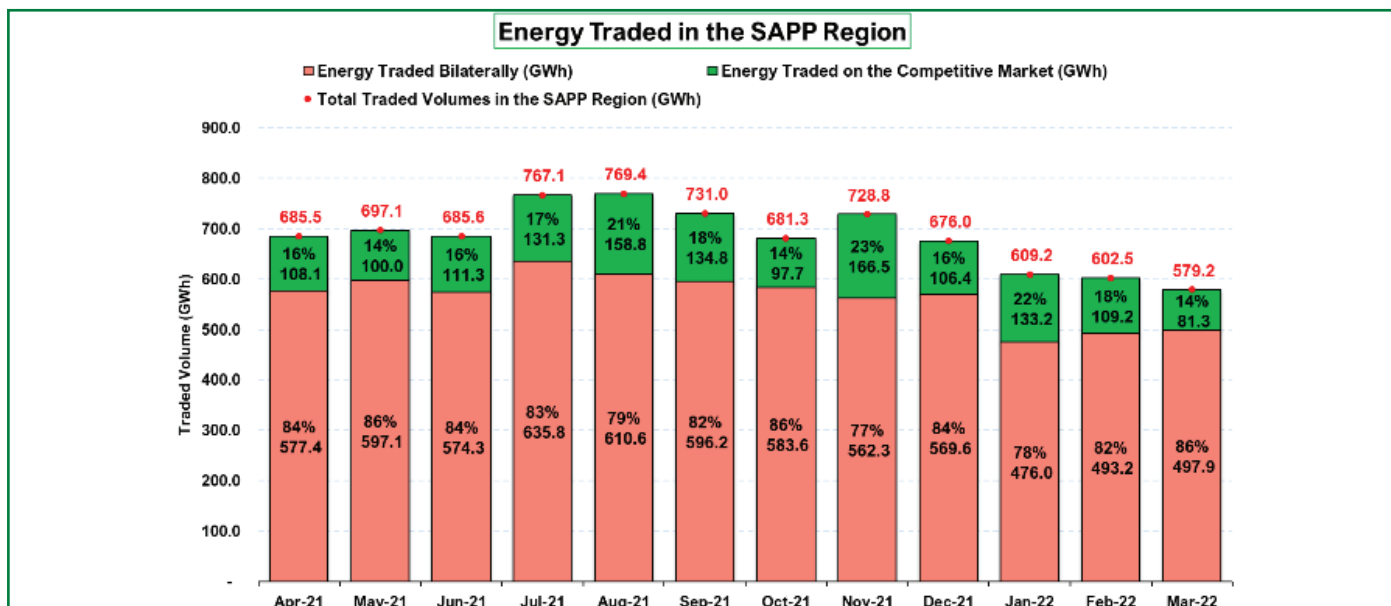
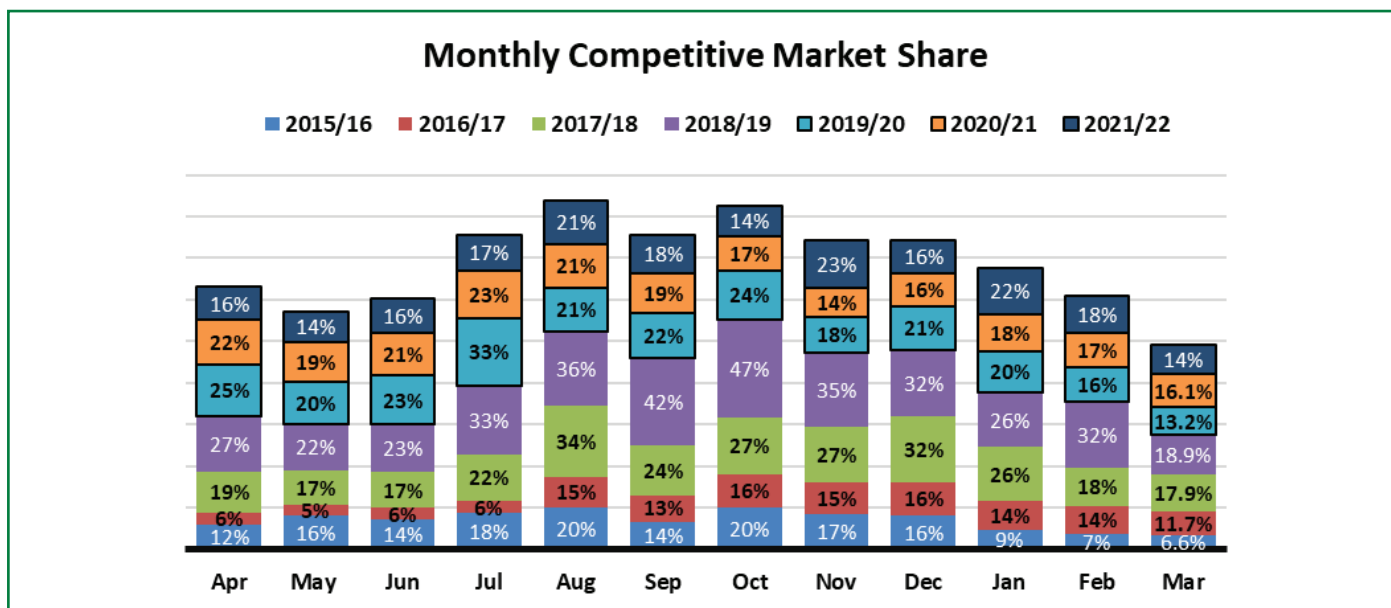


Fig 6.4 Competitive Market and Bilateral market share (2012/13 to 2021/22)



Monthly Market Share for the Competitive Market for the Year Ended 31st March 2022

Highest competitive market share achieved in a month in 2021/22 was **23%** which was achieved in November 2021. Below is a comparison of the month-on-month market shares from 2015/16 to 2021/22.



6.5 Market Clearing Prices

The section below provides a summary of the average market clearing prices for FPM-M, FPM-W and DAM respectively for the year 2021/22.

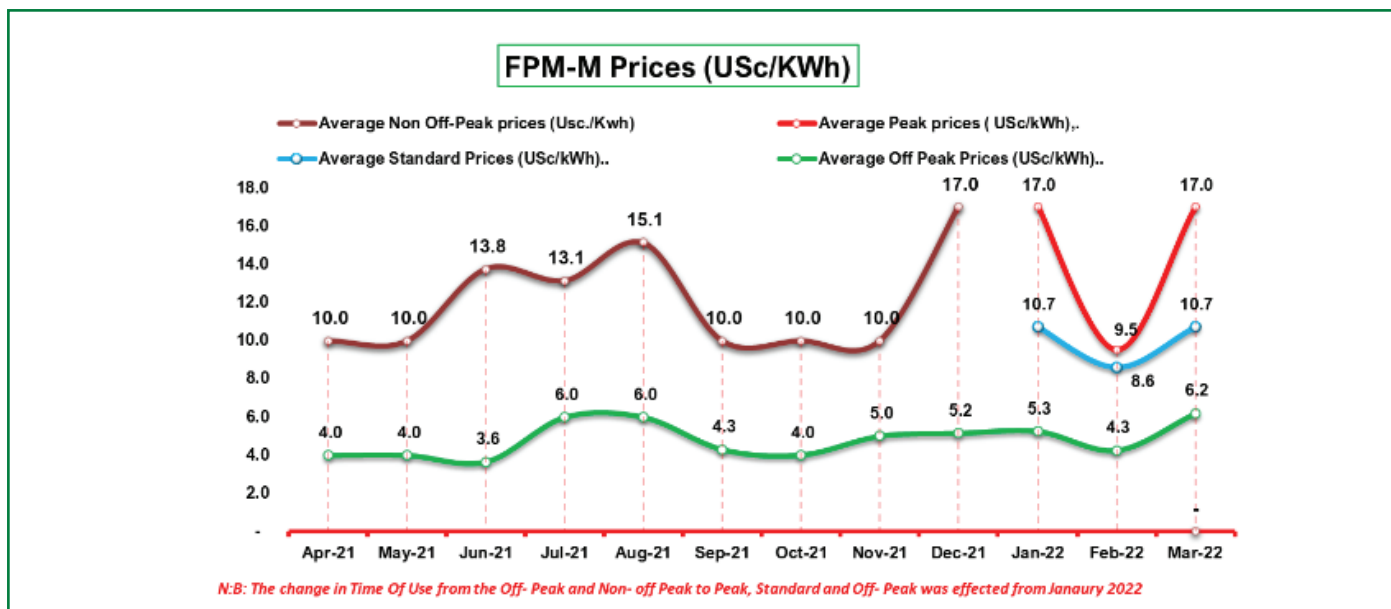


Fig 6.5.1 Market Clearing Prices (MCP) on the FPM-M Market for the Year 2021/22

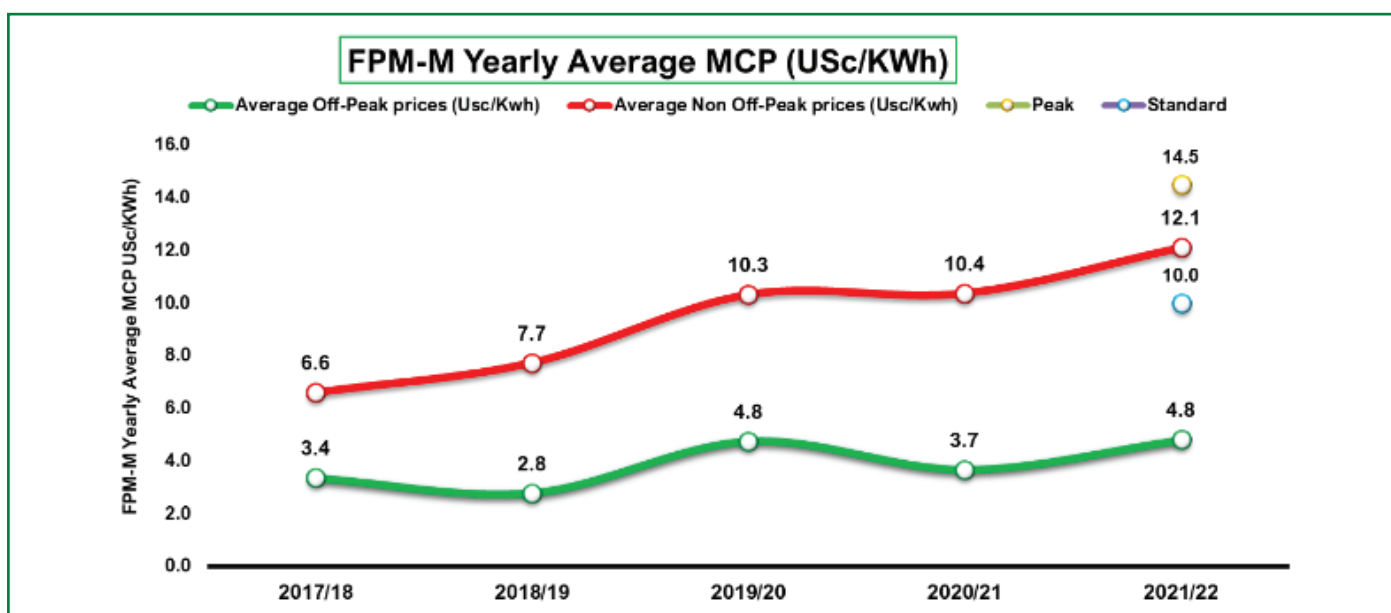


Fig 6.5.2 Market Clearing Prices (MCP) on the FPM-M Market for the Year 2021/22

The average non-off-peak price for the months from April 2021 to December 2021 was 12.1 USc/kWh as compared to the previous year of 2020/21 in which the average non-off peak price was 10.4 USc/kWh. The time of use change came into effect in January 2022. The average peak, standard and Off-Peak prices from January 2022 to March 2022 was 14.5 USc/kWh, 10USc/kWh and 4.8USc/kWh respectively.

Figure 6.5.3 below gives the market clearing prices for the FPM-W market for year 2021/22. The average yearly FPM-W market clearing prices for the Off-Peak periods increased by 38% from 3.4USc/kWh in 2020/21 to 4.6USc/kWh in 2021/22. The FPM-W yearly average price for standard periods increased from 7.4USc/kWh in 2020/21 to 9.1USc/kWh in 2021/22. The yearly average peak price for the FPM-W increased by 25.5% to 18.2 USc/kWh in 2021/22 from 14.5USc/kWh in 2020/21.

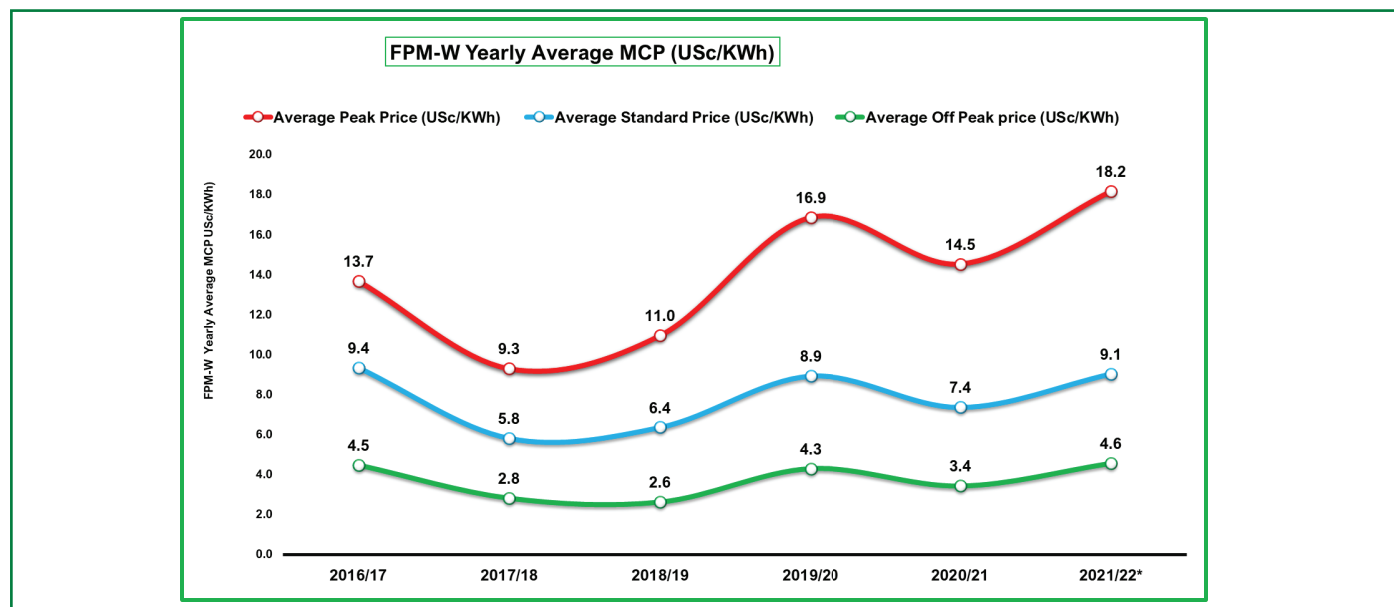


Fig 6.5.3 Market Clearing Prices (MCP) on the FPM-W Market for the Year 2021/22

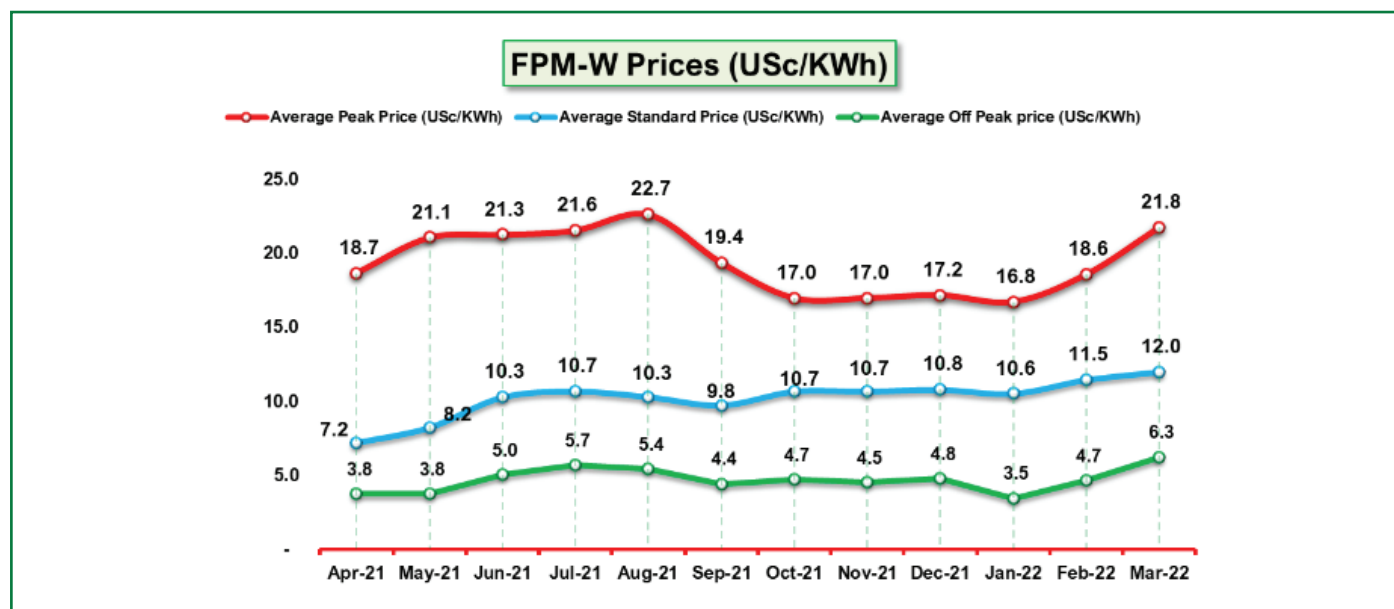


Fig 6.5.4 Market Clearing Prices (MCP) on the FPM-W Market for Year 2021/22

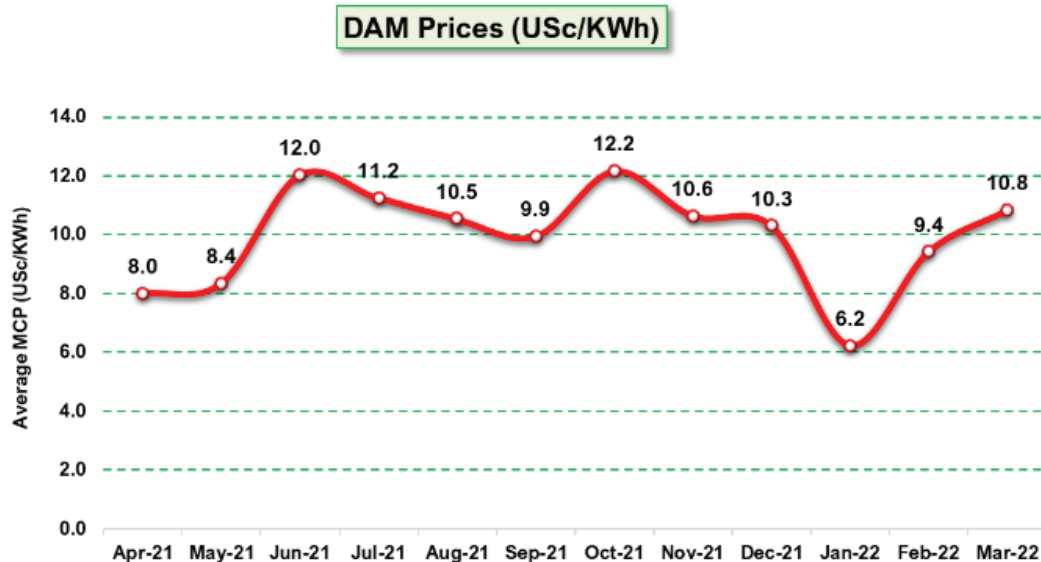


Fig 6.5.5 Market Clearing Prices (MCP) on the DAM Market for Year 2021/22.

DAM average market clearing price during the period 2021/22 was 10.0USc/kWh, with a minimum monthly average MCP of 6.2USc/kWh and a maximum monthly average of 12.2USc/kWh.

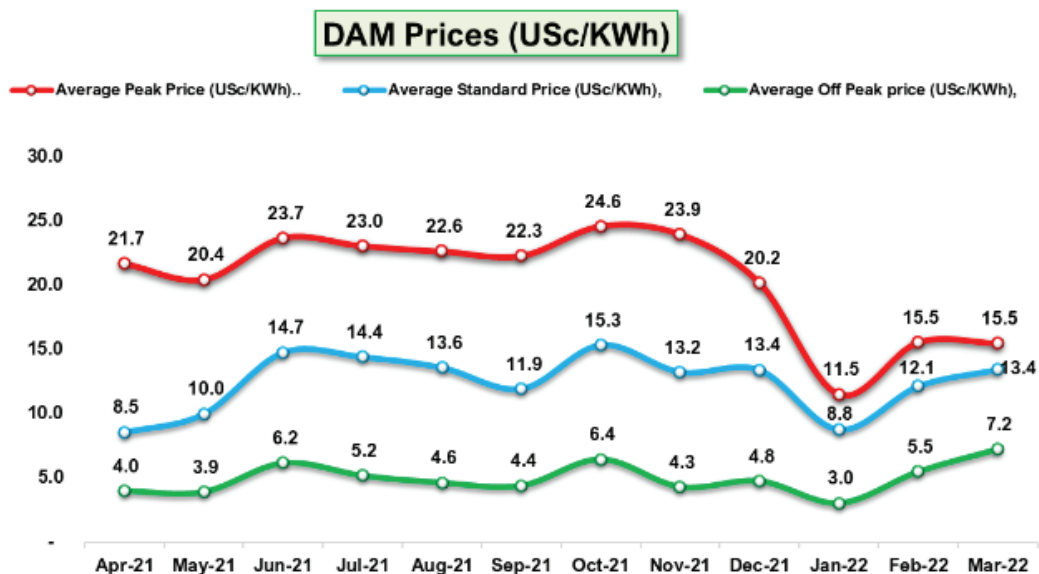


Fig 6.5.6: Average Monthly DAM Market Clearing Prices (MCPs) per time of use for 2021/22.

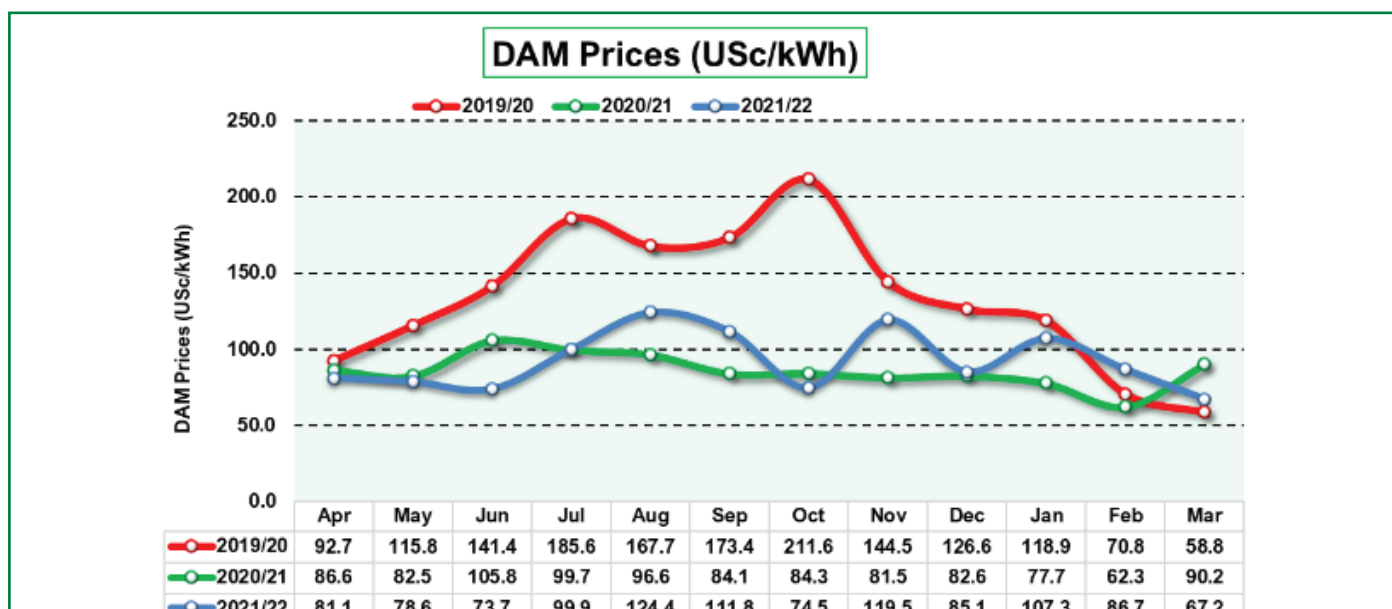


Fig 6.5.7: Average Monthly DAM Market Clearing Prices (MCPs) from April 2019 to March 2022

Average monthly DAM market clearing prices were generally higher in 2021/22 when compared to 2020/21. In 2021/22, the yearly average DAM market clearing price was 9.98USc/kWh when compared to the 6.25USc/kWh recorded in 2020/21. Below is the trend of the average yearly DAM market clearing prices.

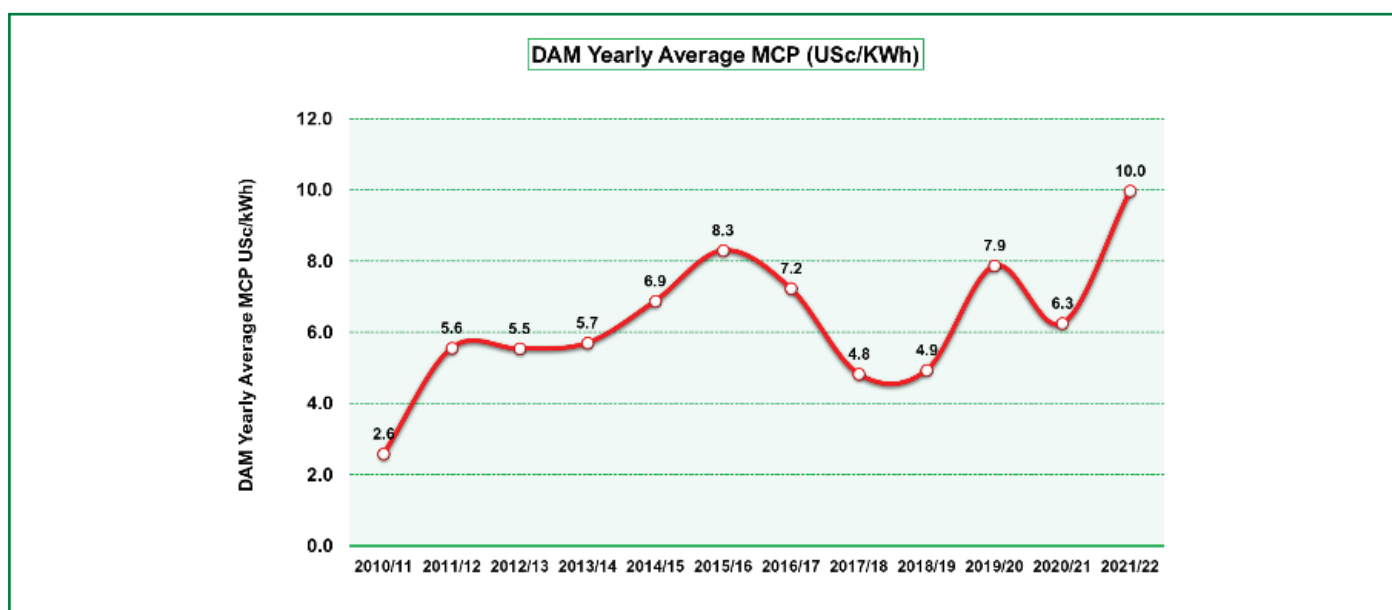


Fig 6.5.8: Average Yearly DAM Market Clearing Prices (MCPs) from April 2010 to March 2022.

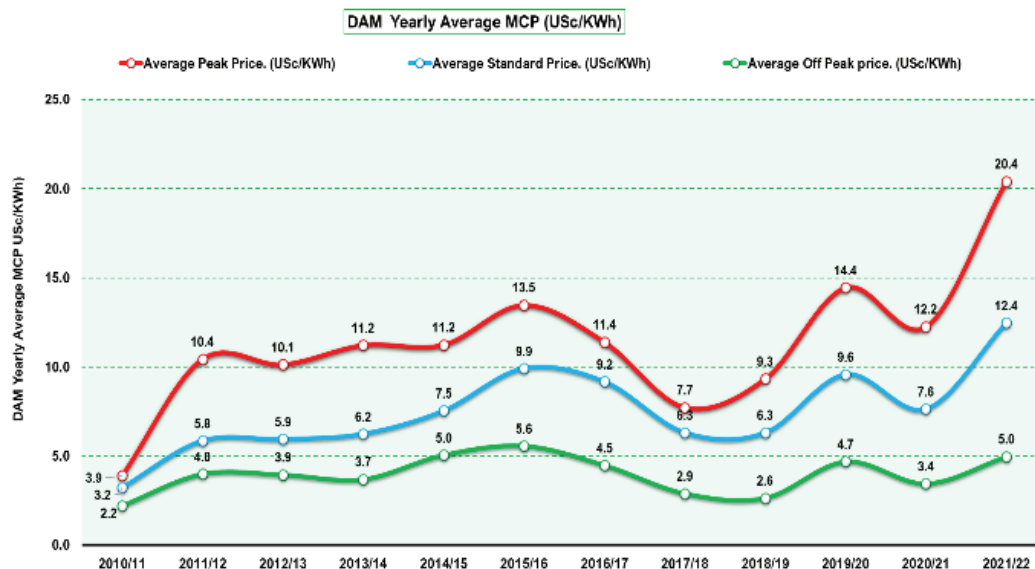
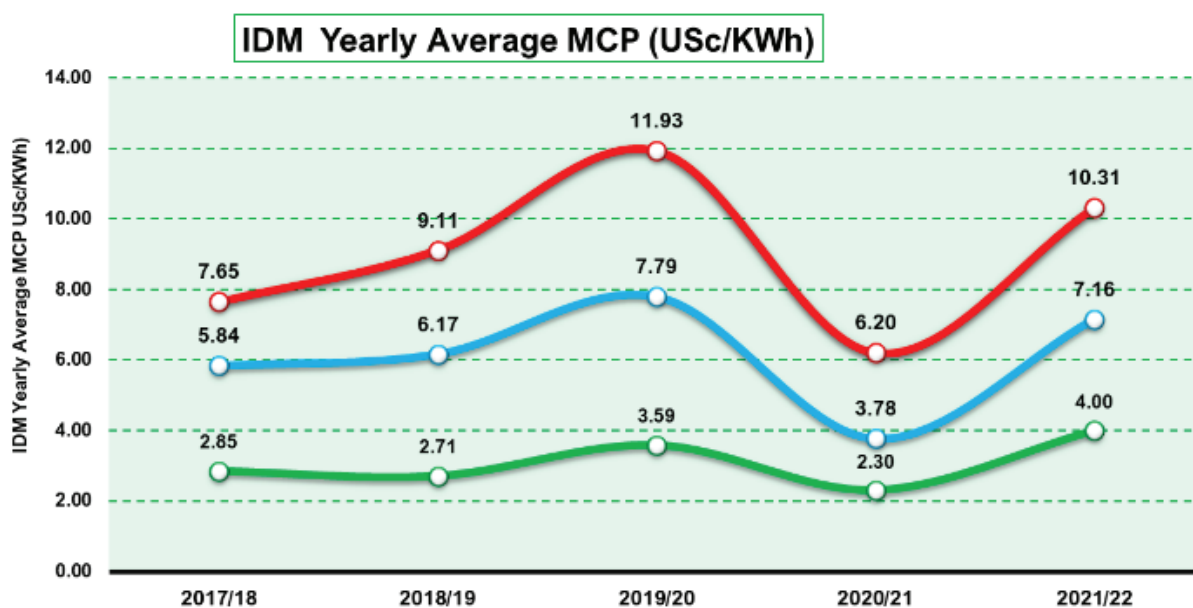


Fig 6.5.8: Average Yearly DAM Market Clearing Prices (MCPs) per time of use from 2010 to 2022.

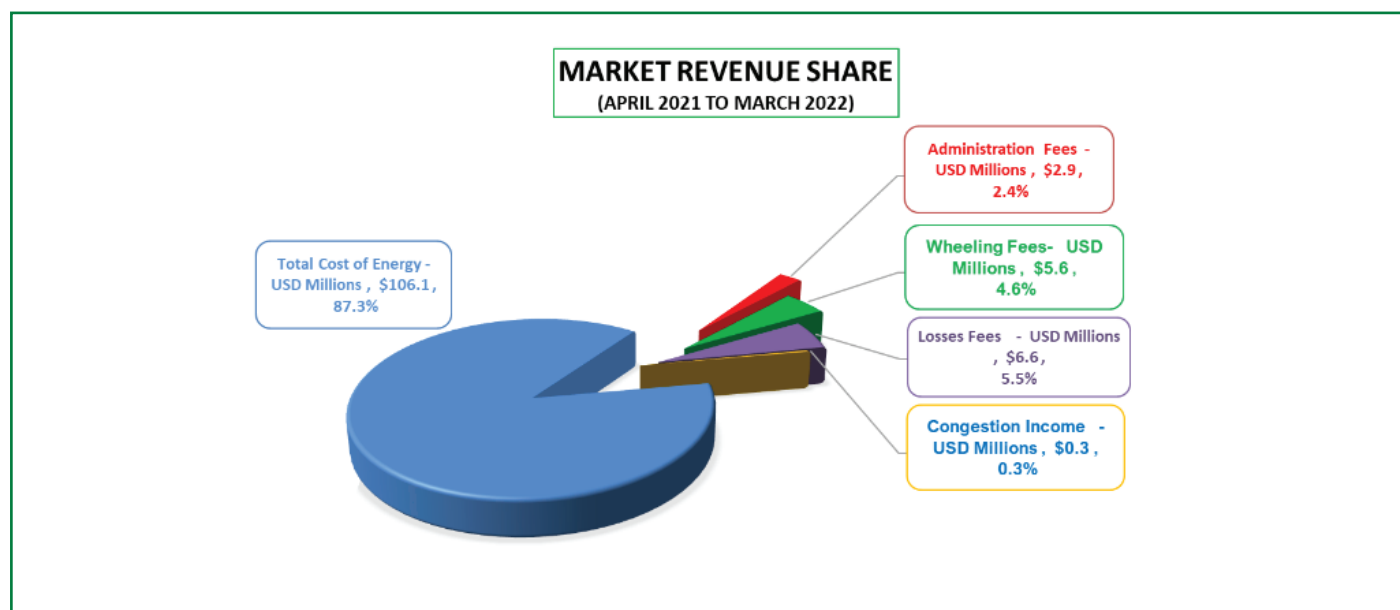
The yearly average DAM market clearing prices for the peak, standard and off-peak periods for 2021/22 were 20.4USc/kWh, 12.4USc/kWh and 5.0USc/kWh respectively. In 2020/21 the DAM market clearing prices for the peak, standard and off-peak periods were 12.2USc/kWh, 7.6USc/kWh and 3.4USc/kWh respectively.

The IDM yearly average market clearing price for the peak period was 10.31USc/kWh, 7.16USc/kWh for the standard time and 4.0USc/kWh for the off-peak period in 2021/22.

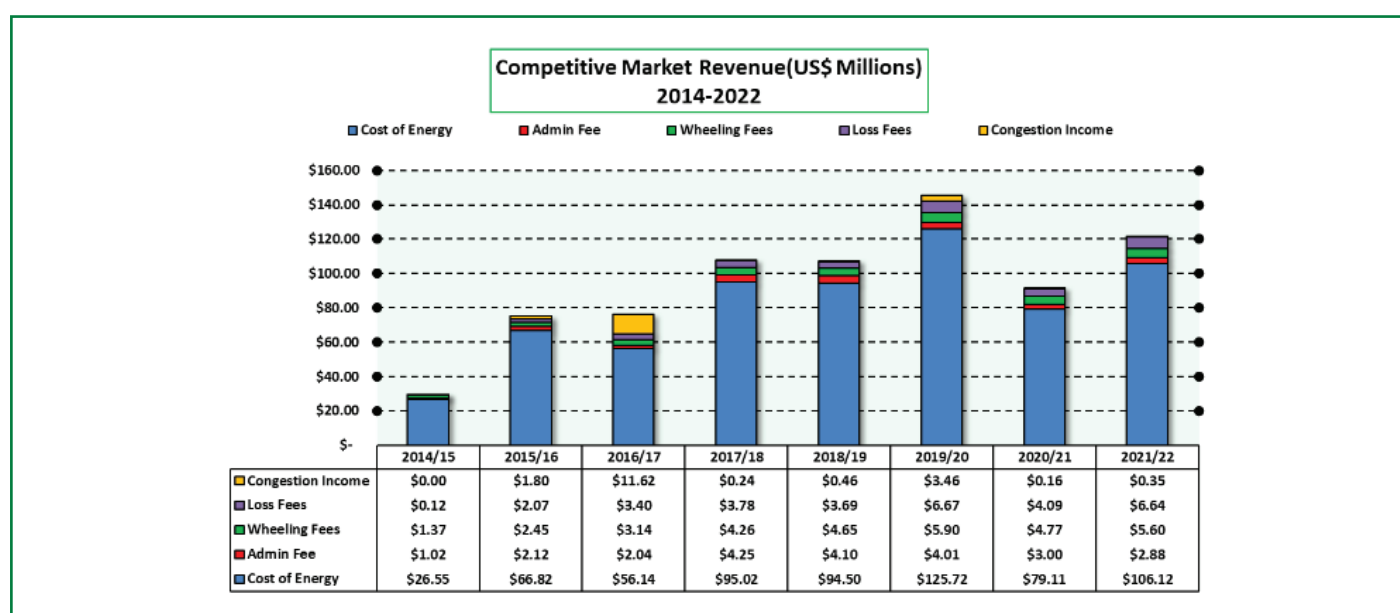


6.6 Competitive Market Revenues

A total of **USD121.6** million was exchanged on the market in 2021/22 compared to **USD91.1** million exchanged in 2020/21. A total of **USD 106.1 million or 87.3%** of the revenues from the market was exchanged between buyers and sellers while a total of **USD15.4 million or 12.7%** was collected as congestion income, wheeling, losses and administration fees in 2021/22. In comparison, in 2020/21 a total of **USD79.1 million** was exchanged between buyers and sellers on the market for the cost of energy traded while a total of **USD12.0 million** was collected as congestion income, wheeling, losses and administration fees. Below is the distribution of the total revenues exchanged on the SAPP competitive markets in 2021/22.



The distribution of market revenues from 2014/15 to 2021/22 is shown by the figure below.



7. SAPP Traders and Controllers Forum

The 18th SAPP Energy Traders and System Controllers Forum was held virtually using Microsoft Teams from the 20th to the 21st of October 2021. Energy Traders and System Controllers shared challenges and successes of their day-to-day duties. They made specific recommendations to both the Markets and Operating Sub-Committees for consideration.

8. Acknowledgements

I would like to express my sincere gratitude to the MSC, SAPP traders, the SAPP CC team and the entire SAPP whose efforts during the year contributed significantly to the good performance recorded on the competitive market during the year.

Our cooperating partners and in particular, the Government of Norway and Sida, the World Bank, etc. whose financial support to the various activities including the various capacity building programs, is very much appreciated.

It is this concerted effort that enabled the competitive market to record its continued growth.



MR DOCTOR SIMELANE

EEC(Eswatini)
Markets Sub-Committee Chairperson

Environmental Sub-Committee Report



BELARMINA MIRASSE (EDM)

Environmental Sub-Committee Chairperson.

1 Introduction

This report covers key issues and activities of the SAPP Environmental Sub Committee for the period 1 April 2021 to 31 March 2022. The SAPP continues to promote environmental sustainability and raise awareness.

Environmental and Social Impact Assessments are being strengthened to ensure that potential challenges of proposed development projects are foreseen and addressed at an early stage in the planning and design stages.

2 Environmental Management System

Notable improvements have been made in the implementation of Environmental Management Systems in the utilities. The following is the status of (EMS) implementation for the period under review:

- Five (5) utilities fully implemented ISO 14001:2015 – Eskom, EEC, ZESCO, CEC and HCB; and
- Eight (8) utilities were working towards

implementation and at various levels of development – LEC, ESCOM, SNEL, ZESA, EDM, TANESCO, BPC and NamPower.

Special recognition is made to CEC, that got ISO 14001 certification in June 2021. EEC, ZESCO and Eskom concluded their surveillance audits and retained certification.

Roadmaps were developed by utilities that were yet to implement the Standard, with plausible interventions identified to accelerate this process. Activities commenced to harmonise the workplan to establish a new deadline for the outstanding utilities that missed the 2019 deadline.

Absence of an EMS compromises the utility's environmental standing. It is imperative that Environmental Management ought to be embedded in the business processes, as this is the direction pursued by organisations that aim to uphold the tenets of sustainable development.

Continuous Management support is required in the implementation of the EMS, coupled with the provision of human and financial resources.

2.1 Environmental and Social Safeguards Reporting

Following the adoption of the SAPP Grievance Redress Mechanism (GRM) in collaboration with the World Bank, a template for Environmental and Social (E & S) reporting was developed to include GRM issues. This template was circulated to all utilities for use. The GRM will serve as a guide in the reporting of grievances associated with projects and means of redress. According to the World Bank Environmental and Social Framework (ESF), it is now a requirement to report on project grievances as part of the overall environmental and social safeguards reporting.

The SAPP GRM provides an overview of grievance management however, each utility is expected to develop its own GRM, while meeting the minimum requirements of the SAPP GRM.

3 Climate Change

3.1 Utility Climate Change Policies

Development of climate change policies in the utilities remains one of the key performance indicators as espoused by the ESC, to show commitment to dealing with climate change issues. Utilities continue to commit to address climate change either in formulation of climate change policies or inclusion in existing policy documents.

The ESC further pursues identifying alternative approaches in addressing climate change through:

- Understanding the vulnerability of infrastructure to climate change that would inform planning and thereby have more resilient infrastructure.
- Building capacity to enhance understanding of climate change and its management.
- Developing a clear understanding of strategic and operational issues associated with climate and align them to the role of the ESC.
- Developing a comprehensive listing of plausible climate change initiatives for the ESC.

3.2 Utility Climate Change Initiatives

Utilities continue to be engaged in various interventions to address the effects of climate change. These included, but not limited to:

- Development of solar PV projects, biomass, hydropower plants and other renewable energy projects, to diversify the energy mix and lower carbon emissions.

- Tree planting at river sources and in catchment areas.
- Creation of ecological parks to enhance conservation.
- National distribution of LED bulbs and interventions to ban the importation of incandescent bulbs.
- Implementation of Demand Side Management strategies and Energy Efficiency, coupled with community engagement.
- Adoption of pollution abatement technology in coal fired plants.
- Decommissioning of diesel power plants and extension of the power grid.

3.3 Africa Climate Week

The SAPP participated in the African Climate Week. The overall objective of convening the session on Sustainable Energy in Africa, with a theme of “Seizing Transformative Opportunities”, was to create a platform for African national and regional officials, the private sector, financial institutions, NGOs, civil society representatives and other informal sectors to showcase ongoing efforts and inspire additional actions to tackle the climate crisis through sustainable energy solutions.

4 SADC PCB Elimination Project

The Polychlorinated Biphenyls (PCB) Phase out, being implemented in line with the 2025 deadline of the Stockholm Convention, stalled in 2020 due to the COVID-19 pandemic. Nonetheless, country work plans were updated to capture the activities for 2021 aimed at accelerating the project activities.

The Africa Institute (AI), the executing agency of the SADC PCB Elimination project, convened a project meeting on 22nd September 2021. The following were the salient discussion points:

- A gender mainstreaming training workshop was held on 8th September 2021

- National consultants were scheduled to commence work in the respective countries on 1st October 2021, to assist with all outstanding activities on the Project.

5 Capacity Building

5.1 Nile Basin Development Forum

The 6th Nile Basin Development Forum (NBDF) hosted by Ethiopia, continued to host its series of webinars, from 9th March to 29th April 2021, assessing the implementation of water resources investments at a speed and scale commensurate with the growing demand for food, water and energy across the Basin. The SAPP, at the invitation of the NBDF, participated in webinars which included, but not limited to the following areas of discussion:

- Tools, approaches, and technologies to understand and enhance a state of water productivity to gain in food and nutrition security.
- Establishment and maintaining vigorous river basin monitoring.
- Integrating ground stations and earth observations.
- Multi-Track water diplomacy: Its role in bringing actors, institutions and processes together in the Nile Basin.
- Participation and inclusivity as success factors to the water governance in the Nile Basin.
- New analytical tools to understand and plan water-energy system linkages in East Africa.
- Transboundary water governance and regional economic cooperation.
- Enhanced collaboration between energy and water planners in the Nile region.

The discussions have thus far exemplified the importance of approaches, tools and technology in water management, while upholding the tenets of good governance and diplomacy.

5.2 World Bank Partnership for Market Readiness: Scoping of Regional Climate Market Support Needs for Southern Africa

The consultant on the World Bank Partnership for Market Readiness (PMR) drafted a Concept Note (CN) to explore creation of a Regional Climate Market/Platform. The expectation is that if a minimum of three (3) Member States agree to champion the creation of the Regional Climate Market platform, after which other Member States can join. The CN further proposes to start with the Power sector where some coordination platform already exists under SAPP leadership - then move on to other sectors as resources permit on a demand driven basis. The CN thus places SAPP in the coordination role for the proposed follow up activities towards a regional climate market. The World Bank would then have an MOU with SAPP for some support activities as defined in the CN.

5.3 Regional Workshop for Gender Focal Persons on Mainstreaming Gender in the SADC Renewable Energy Sector

The Southern African Research and Documentation Centre (SARDC) and the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) jointly convened a virtual workshop on Mainstreaming Gender in the Renewable Energy Sector for Gender Focal Persons (GFPs) on 27 May 2021. The purpose of the Workshop was to strengthen the capacity of GFPs from SADC Member States and regional energy institutions in mainstreaming gender in the formulation and implementation of programmes and projects in the SADC Renewable Energy Sector.

The objective was to build a critical mass of gender and energy stakeholders with increased capacity to ensure meaningful gender mainstreaming in the programmes that promote gender equality in the RE sector. The gender focal persons are strategically positioned to influence gender mainstreaming in the development of programmes and projects in respective ministries and institutions. The Workshop focused on gender and renewable energy as these are central to human and socioeconomic development as stipulated in various developmental frameworks such as the Sustainable Development Goals, the SADC Energy Protocol, the Revised SADC Protocol on Gender and Development as well as the SADC regions development blueprint, the Regional Indicative Strategic Development Plan 2020 - 2030.

Gender mainstreaming will advance equitable and sustainable distribution of benefits from RE for men and women at national and regional levels. The Regional Workshop directly benefited GFPs from SADC Member States by strengthening their capacity on how to understand the correlation between gender and renewable energy.

5.4 Second Program for Infrastructure Development in Africa Water Sector

AUDA-NEPAD, Global Water Partnership, and partners are collaborating on advancing the Program for Infrastructure Development in Africa (PIDA) Water Projects. These efforts are under the auspices of the Continental Africa Water Investment Program (AIP) which was adopted by the African Union Heads of State as part of PIDA-PAP II in February 2021. The Second PIDA Water session was virtually convened on 18 May 2021. Presentations were made on the following: Resource mobilisation strategy, and PIDA Service Delivery Mechanism and status of projects in the Small Island States; North, West and Central Africa; and Southern and Eastern Africa. AIP aims to transform the investment outlook for water security

and sustainable sanitation for a prosperous, peaceful and equitable Africa.

5.5 The Twenty-Fifth Annual Southern Africa Regional Climate Outlook Forum

The SADC Secretariat through the SADC Climate Services Centre convened the annual Southern African Regional Climate Outlook Forum (SARCOF-25). This year, the theme of SARCOF was “Impact of warming ocean on our weather and climate” to raise awareness of the effect of the warming ocean in the region due to the changing climate. The Forum was held virtually from 30 to 31 August 2021 to present a consensus outlook for the 2021/2022 rainfall season over the SADC region.

Climate scientists from the SADC National Meteorological and/or Hydrological Services (NMHSs), the SADC Climate Services Centre (CSC) formulated this Outlook. Additional inputs were acquired from the African Centre for Meteorological Application for Development (ACMAD) and Global Producing Centres (GPCs) namely, European Centre for Medium Range Weather Forecast (ECMWF), South African Weather Service (SAWS), National Oceanic and Atmospheric Administration (NOAA), Beijing Climate Centre (BCC), Météo-France, Australian Bureau of Meteorology (BoM), UK Met Office, Japan Meteorological Agency (JMA) and Korea Meteorological Agency (KMA). Inputs from International Research Institute for Climate and Society (IRI) and National Centre for Atmospheric Research (NCAR) were also used in this work.

This Outlook covers the major rainfall season from October 2021 to March 2022. The Outlook is presented in overlapping three-monthly periods as follows: October-November-December (OND); November-December-January (NDJ); December-January-February (DJF); and January-February-March (JFM). This Outlook is relevant only to seasonal

(overlapping three-monthly) timescales and relatively large areas and may not fully account for all factors that influence regional and national climate variability, such as local and month-to-month variation

The bulk of SADC is likely to receive normal to above-normal rainfall for most of the period October to December (OND) 2021, whilst north-western part of Angola, bulk of Democratic Republic of Congo, western and southern Madagascar, northern Malawi, northern Mozambique, western fringes of Namibia and South Africa, south-western United Republic of Tanzania and north-eastern Zambia where normal to below-normal rains are expected. The January to March (JFM) 2022 period is expected to have normal to above normal rainfall for most of the region except for, south-western fringes of Angola, western fringes of Namibia and South Africa. This information is aimed to assist various stakeholders in planning for various sectors of the economy.

6 Environmental Project Management

6.1 Environmental and Social Safeguards Reporting

Project preparation was generally on track although affected by COVID-19 restrictions, especially with respect to stakeholder engagement and public hearing meetings, field work and delayed review feedback from authorities. Virtual means were explored to address this.

7 World Environmental Day

World Environment Day (WED) 2021 was commemorated on 5 June 2021. The theme of WED 2021 was 'Reimagine. Recreate, Restore.'

as this year marks the beginning of the United Nations Decade on Ecosystem Restoration. Utilities participated in the commemoration of this day as utilities continue to promote environmental sustainability.

8 United Nations Framework Convention on Climate Change, Conference of Parties Side Event

The African Union Commission, hosted a virtual high-level side event at the United Nations Framework Convention on Climate Change 26th Conference of the Parties (COP 26) to discuss "Opportunities and Challenges for African Energy Transition: What will it take for Africa to reach net-zero emissions?" The said event was held virtually on 4 November 2021. Salient points of discussion include the following:

- Africa contributes less than 4% emissions, yet impacts are more severe and frequent with losses of about USD 200 billion per annum;
- Following a low carbon resilient pathway is no choice for Africa in response to climate change and will enable leapfrogging in energy development;
- Political will and commitment are required to develop renewable energy, which is now competitive in cost, to enable an energy transition;
- The Continent needs to develop the energy transition with ambition, scale, speed, coupled with appropriate technology and finance mechanisms;
- Policy actions may entail an enabling environment, incentives and removing subsidies from fossil fuels;

- Implement the connection of all power pools on the Continent to increase electricity access; and
- Prioritize and execute projects of significant regional impact.

9 International Engagements

9.1 International Forum for Energy Transition 2021

The SAPP participated, virtually, in the International Forum for Energy Transition 2021, on 9th September 2021, at the invitation of State Grid Corporation of China (SGCC). The theme of the forum was “A pathway towards carbon neutrality and sustainable energy future”. The Forum was hosted by SGCC and the International Renewable Energy Agency (IRENA), in collaboration with World Economic Forum, co-hosted by leading power utilities around the world, including Eskom from South Africa, EDF From France, ENEL from Italy, Eletrobras from Brazil, OAO Rosseti from Russia, and Energi Denmark A/S from Denmark. Salient points of discussion at the Forum, include the following:

a. The energy system will be reshaped in pursuit of climate ambition as espoused by the Paris Agreement:

- China expects to peak its carbon emission in 2030 and attain carbon neutrality in 2060
- The clean energy transition has accelerated significantly, imposing tremendous impact on traditional energy system, and new energy systems are taking shape in many countries. It will be a fundamental reform.
- Diversified energy consumption: Various new types of equipment have emerged, giving rise to more diversified, customized, integrated and interactive ways to use energy.
- New business opportunities: Energy transition will reshape the energy industry, giving birth to new businesses, business forms and business models, and form an

energy ecosystem never seen before.

b. Energy transition calls for the building of a power system based on new energy:

- The Power Sector is the key to Energy Transition: Electricity is the main carrier of new energy resources and development of future power systems will be based on new energy
- Provide viable solution to large-scale integration and accommodation of new energy: Improve grid structure, system flexibility and control capability
- Friendly to new types of power consumption: The power system based on new energy will increase resilience of the system which can well adapt to the profound changes on demand side.
- A powerful support to the efficient coordination and interaction of sources, grids, loads and storage: The system will become more visible, measurable, smart and user-friendly through digitalization.
- Promote sector coupling: A power system based on new energy will effectively play the coupling and complementary effect of different energy systems and improve the overall energy efficiency.

9.2 SARDC Virtual Conference on Gender and Renewable Energy

The Southern African Research and Documentation (SARDC) through its Beyond Inequalities Gender Institute convened a two-day conference, 10 – 11 November 2021, aimed at providing a platform to share innovations in the renewable energy sector that advance gender equality. The conference provided a platform that brought together stakeholders in the renewable energy sector to discuss success stories, innovations, experiences, challenges, lessons learned and how to carry them forward. The SAPP presented a paper at the conference dubbed, “Impact of Increased Renewable Energy Penetration in the SAPP.”

Salient discussions points from the Conference include the following:

- There is need to have a deliberate policy framework to mainstream gender in renewable energy development;
- Promote women's participation; in the renewable energy sector;
- Enhance women's education in renewable energy in tertiary institutions.

9.3 European Union Green Deal Training

Fifteen (15) Members of the Environmental Sub-committee were nominated to attend the European Union (EU) Green Deal eight-week course covering the fundamentals of energy and climate policy as reformulated in the context of the EU Green Deal. Participation was fully covered by SAPP under the SAPP - AREP Programme and SAPP - ENTSO-E Cooperation Beyond Membership arrangement on Capacity Building. The training was conducted virtually from 3rd May to 24th June 2021.

9.4 Consultative workshop on minimum energy performance standards and energy efficiency credit facility guidelines

The SAPP participated, virtually, in a Consultative Workshop on Minimum Energy Performance Standards, Energy Efficiency Credit Facility Guidelines, Demand Side Management Guidelines and Gender Mainstreaming Strategy and Action Plan, at the invitation of the Common Market for Eastern and Southern Africa (COMESA).

The COMESA and the European Union (EU) have a Delegation Agreement from 2017 for financing the five Regional Economic Communities (RECs) in the Eastern Africa, Southern Africa and Indian Ocean (EA-SA-IO) region, namely COMESA, EAC, IGAD, IOC and SADC to implement a programme on

Enhancement of a Sustainable Regional Energy Market.

The programme is intended to enhance sustainable regional energy market conducive to investment and promoting sustainable development. The programme aims to address market governance and regulatory related challenges that are impacting on the implementation of energy development projects in the EA-SA-IO region, specifically through:

- a. Achieving an enhanced harmonized, efficient and gender-sensitive regulatory environment in the EA-SA-IO region; and
- b. Capacitating regional regulatory associations and power pools to oversee and stimulate increased regional power trade more effectively.

The workshop deliberations were based on the following areas of discussion:

- Gender Mainstreaming
- Demand Side Management
- Energy efficient Credit Facility Guidelines
- Standards and Labelling (S&L)

10 Acknowledgement

I would like to take this opportunity to thank members of the SAPP Environmental Sub Committee and the SAPP Management Committee for the tremendous support that I received during the year.



BELARMINA MIRASSE

Environmental Sub-Committee Chairperson



ENG. STEPHEN DIHWA

SAPP Coordination Centre Executive Director

1. Introduction

The SAPP Coordination Centre (CC) continued to provide secretarial services to the various SAPP Committees, Sub-Committees, Board and Working Groups.

2. Meetings and Workshops

2.1 SADC Energy Thematic Group Meetings

The SADC Energy Thematic Group meeting was held on 5 May 2021. The meeting received updates on the progress in the preparation of various initiatives in the Energy Sector in the SADC region.

2.2 SADC Technical Workshop on Project Gaps, Risks and Challenges

SAPP participated in a virtual workshop of

SADC Energy Officials organised by the SADC Directorate of Infrastructure from 27 to 28 April 2021 to discuss gaps, risks and challenges in development of power projects in the region. The aim was to come up with ways of addressing these leading to improved power infrastructure development in the Region.

2.3 EnergyNet Africa Utilities Round Table

The SAPP CC Executive Director participated in the Africa Utilities Round Table organised by EnergyNet on 13 May 2021. The discussions centred on the impact of COVID-19 on the operations of power utilities in Africa and was attended by CEOs of power utilities and regional energy institutions.

2.4 East African Energy Program Workshop

SAPP CC made a presentation at the East African Energy Program Workshop organised High Level Interconnection virtual training for Ethiopia, Somalia and Djibouti on 16 August 2021. The benefits and development of electricity trading in SAPP were shared.

2.5 IEEE Power Africa Conference

SAPP CC participated on the Regional Power Integration Panel at the IEEE Power Africa 2021 conference virtually on 23 August 2021.

2.6 APUA Meetings

The Association of Power Utilities in Africa (APUA) meetings were held in a hybrid form (physical and virtual) from 12 to 15 October

2021. This included the meetings of the Forum of African Power Pools.

A seminar with African Regional Power Pools on the “Platform for monitoring the performance and behaviour of African Power Utilities” was also organised. The study aimed to create a framework for assessing the performance of utilities in sub-Saharan Africa and understand the state of these utilities and look performance against financial, operational and accountability indicators.

2.7 AEEP Forum 2021

The Africa – EU Energy Partnership Forum for 2021 was held on 20 October under the theme Aligning Energies for a Green and Prosperous Africa. Key priorities for action were agreed to during the forum.

2.8 Regional Power Market in South Asia Webinar

SAPP made a presentation sharing its experiences at a webinar entitled Establishing a Regional Power Market in South Asia on 26 October 2021. The participants were from Bhutan, Sri Lanka, Nepal, Bangladesh and India. The focus was identifying key requirements for establishing a power market in South Asia.

2.9 5th Africa Energy Market Place

The AfDB organised the 5th Africa Energy Market Place (AEMP) which was held virtually from 27 to 29 October 2021. The theme was “Identifying Opportunities across the energy value chain: Resolving bottlenecks and unlocking investments (Cameron, Kenya, Tunisia, Mozambique, Guinea)”. SAPP participated on the session focusing on Mozambique and made a presentation on the role of Mozambique in the SAPP.

2.10 Med-TSO/MedReg Workshop

SAPP attended and made presentations at the Med-TSO/MedReg Workshop looking at Mediterranean region trading in electricity. Areas covered during the workshop included the role of TSOs, role of Grid Codes and role of regulators. Other presentations were from DG Energy, ENTSO-E, GCCIA and Energy Community.

2.11 Africa Energy Indaba 2022

The Africa Energy Indaba 2022 took place virtually from 1 to 3 March 2022. The SAPP Executive Director was part of a Panel on Grid Operator and Grid Management Capability.

2.12 International Renewable Energy Conference

SAPP CC participated in the AMH organised International Renewable Energy Conference held in Victoria Falls, Zimbabwe from 22 to 25 March 2022. SACREEE and SAPP highlighted the role of regional organisations in the development of renewable energy projects in a panel discussion at the conference.

2.13 Continental Master Plan Update

The momentum is building to establish interconnection of Africa’s continental energy infrastructure. The Continental Power System Master Plan (CMP), which designs a strategic roadmap for connecting Africa’s five regional power pools, is entering a decisive phase amid a deepening global energy crisis.

The project is on-going, and the following deliverables were achieved in the period under review:

- Baseline Demand Forecast report
- Resource Assessment and Techno-Economic Data Assumption Report

- CMP platform and database report

All the three reports were based on a common methodology and tools and were validated by the five power pools on 31st March 2022 in Harare, Zimbabwe. The participants also had an opportunity to visit the SAPP Offices in Harare.



Participants at SAPP Offices in Harare, Zimbabwe
(Front)



Participants at SAPP Offices in Harare, Zimbabwe

2.14 SAPP - EAPP Coordination Meeting

The SAPP - EAPP Coordination meeting was held on 19 November 2021 in Johannesburg, South Africa. The objective of the meeting was to discuss areas of common interest between SAPP and EAPP.

The SAPP and EAPP agreed to the terms of reference covering the following areas:

- Operational Readiness of Interconnectivity between SAPP and EAPP;
- Harmonisation of Operational Procedures between SAPP and EAPP;
- Development of Control Area Service Charges between SAPP and EAPP; and
- Development of an Energy Interchange Mechanism between SAPP and EAPP.

3 Technical Cooperation

The SAPP continued to receive support from various cooperating partners for Technical Assistance, project development and competitive market development.

Most capacity building programs and exchange visits had to be postponed due to the COVID-19 pandemic.

3.1 SAPP - JICA Meeting

SAPP held a meeting with the Japan International Cooperation Agency (**JICA**). The objective of the meeting was to discuss possible areas of technical cooperation.

4 Staff Issues

4.1 Head Count

The positions of Chief Engineer (Markets), System Support Officer and Market Surveillance Analyst at SAPP CC were filled during the current financial year. The Environmental Specialist at SAPP CC resigned during the same period.



WILSON MASANGO

Chief Engineer (Markets)



ZIMIRAWO SHUMBA

Market Surveillance Analyst



SUBDUE CHANDIPWISA

System Support Officer

As for the SAPP Project Advisory Unit, the following is the status of recruitment:

- I. Project Specialist – recruitment was concluded for the second Project Specialist with effect from 1 November 2021.
- II. The contract for the Accounts Officer was extended from 16 February 2022 to 30 November 2022.

The relocation of PAU staff from their respective home countries to Zimbabwe remained outstanding due to COVID-19 travel restrictions. The process will be finalised once the COVID-19 situation improves.

4.2 Reward, Performance and Recognition

A consultant was engaged to carry out a fresh job evaluation exercise for SAPP CC. The review is in progress.

4.3 Employee Wellness

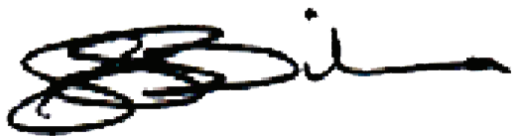
The SAPP CC continued to implement the following measures in response to the COVID-19 pandemic during the period under review: - following guidance from the WHO and local health authorities, temporary suspension of SAPP CC events and/ travel, video conferencing of meetings and flexible working conditions (telecommuting and working from home), decongestion of offices, education and communication on the subject, social distancing, temperature testing and voluntary screening and testing, hygienic measures (to include the wearing of facemasks, PPE, respiratory etiquette, “deep cleaning” of offices, compulsory sanitising and washing of hands) and encouraging paid sick and special leave utilisation.

Following a decline in the number of recorded COVID-19 cases, the level 2 lock-down measures were reviewed on 28 January 2022 in Zimbabwe to allow the following which may impact on SAPP operations – lifting of quarantine for fully vaccinated incoming travellers, working from offices and extended hotel catering services.

5 Acknowledgement

I would like to appreciate the leadership provided by the SAPP Executive Committee, the strategic guidelines provided by the Management Committee, the oversight provided by the Coordination Centre Board with the support of the Human Resources Working Group, Finance Working Group and the Legal Working Group.

The technical support provided from the Planning, Operating, Markets and Environmental Sub-Committees during the year is greatly appreciated. I would like also to express my gratitude to the staff members for their commitment during this period.

A handwritten signature in black ink, appearing to read 'S. Dihwa', with a stylized flourish at the end.

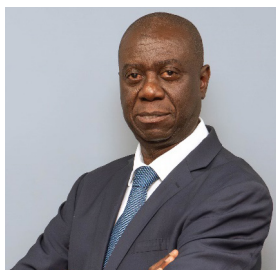
ENG. STEPHEN DIHWA

SAPP Coordination Centre Executive Director

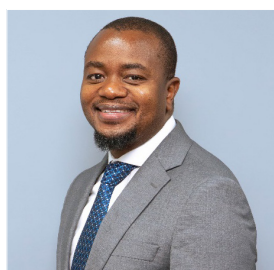
Staff Members



Eng. Stephen Dihwa
Coordination Centre Executive Director



Eng. Alison Chikova
Chief Engineer Planning and Operations



Eng. Wilson Masango
Chief Engineer Markets



Mr. Mziyanda Mbuseli
Market Surveillance Manager



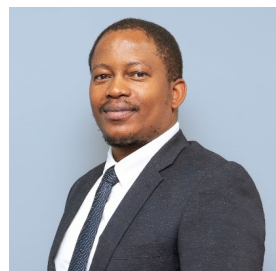
Mrs. Daisy Gombera
Finance and Administration Manager



Mrs. Caroline Muringai
IT Specialist



Eng. Sydney Zimba
Operations Engineer



Eng. Brian Dlamini
Planning Engineer



Mr. Chrispen Zifuke
Human Resource Specialist



Mr. Bongani Ndlovu
Market Surveillance Analyst



Ms. Mildred Hamusonde
Administrative Assistant



Mrs. Edeline Kamba
Secretary/ Receptionist



Mr. Elisha Mutambudzi
Electricity Trading Officer



Mr. Lincorn Pindai
Accounts Officer



Mr. Subdue Chandipwisa
System Support Officer



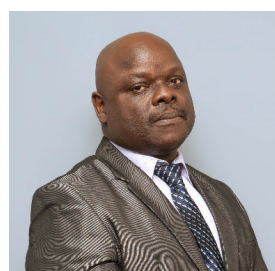
Mr. Simbarashe Pasipamire
Electricity Market Analyst



Mr. Zimirawo Shumba
Market Surveillance Analyst



Mr. Simon Jaricha
Messenger/ Driver



Mr. Michael Nhachi
Caretaker

1. Executive Summary

In the period under review, from April 2021 to March 2022, the Project Advisory Unit (PAU) managed a pipeline of nine (9) regional priority projects. The projects comprised One (1) Generation development project; the Luapula Hydropower plant project between DR Congo and Zambia, and Eight (8) Transmission interconnector projects comprising:

- (i) Angola-Namibia Interconnector.
- (ii) Baynes's HPP Transmission lines.
- (iii) Inga - Soyo (Interconnector) project.
- (iv) Kolwezi - Solwezi Interconnector project.
- (v) Luapula HPP and transmission lines project.
- (vi) Malawi - Zambia Interconnector.
- (vii) Mozambique - Zambia Interconnector project.
- (viii) Mozambique - Tanzania Interconnector project.
- (ix) Zambia - Tanzania Interconnector project.

Challenges encountered in project preparations limited to the following:

- (i) Impact of the Covid-19 pandemic, which inhibited field works and public engagements in project areas. Therefore, most work implemented virtually, leading to delays in project preparation activities.
- (ii) Lack of project preparation funds to finance project preparation and structuring, by way of procurement of consulting services.
- (iii) Delayed financing and construction of projects, thereby rendering the Feasibility study reports outdated.

Table 1 below reports on the status of the priority energy projects that have been implemented in the period under review and the Development Financing Institutions

providing financial support to project preparation activities.

Table 1: Status of SAPP Priority Projects

NO	PROJECT NAME	TYPE	DFI (FUNDER)		STATUS
			TECHNICAL STUDY	ESIA STUDY	
1	ANNA ¹	Transmission	SADC-PPDF	SADC-PPDF	Structuring ongoing
2	Baynes HPP lines	Transmission	NEPAD-IPPF	Swedfund	Procurement ongoing
3	Inga-Soyo	Transmission	World Bank	World Bank	Lacks Funds
4	Kolwezi-Solwezi	Transmission	NEPAD-IPPF	NEPAD-IPPF	Feasibility completed
5	Luapula HPP	Generation	NEPAD-IPPF	World Bank	Lacks Funds
6	MAZA ²	Transmission	World Bank	World Bank	Contracting Pending
7	MOZA ³	Transmission	AfDB/WB	NEPAD-IPPF	Feasibility Study completed
8	MOTA ⁴	Transmission	NEPAD-IPPF	NEPAD-IPPF	Pending Procurement
9	ZAMTAN ⁵	Transmission	World Bank	World Bank	Feasibility Study completed

1 ANNA: Angola - Namibia

2 MAZA: Malawi - Zambia

3 MOZA: Mozambique - Zambia

4 MOTA: Mozambique - Tanzania

5 ZAMTAN: Zambia - Tanzania

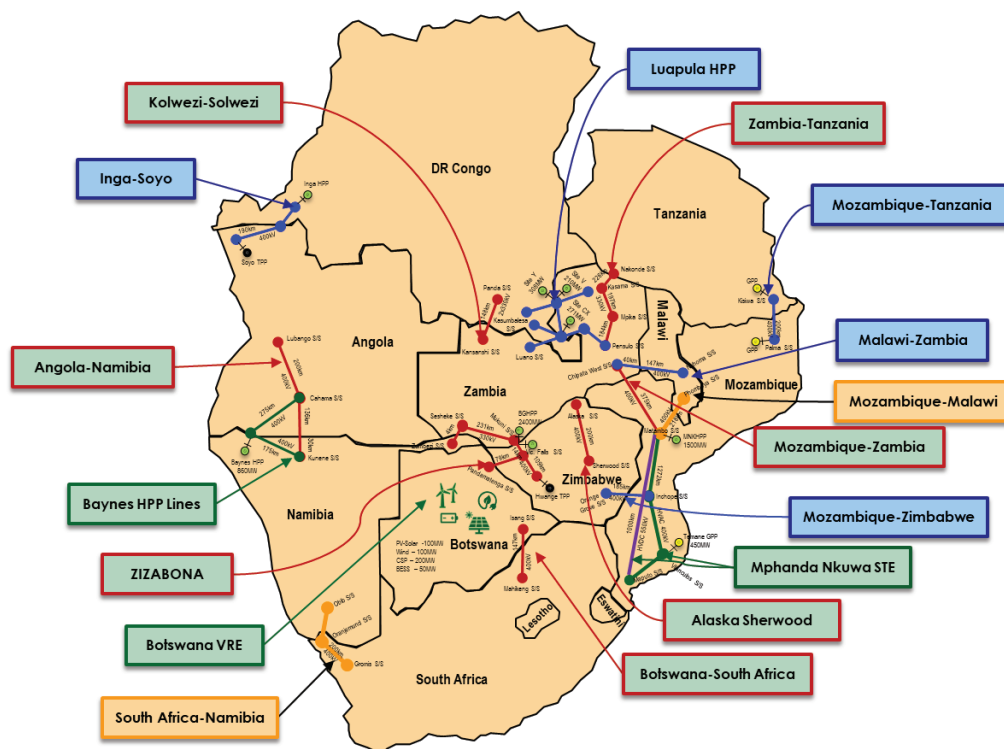


Figure 1: SAPP Regional Energy Projects

1. The Angola-Namibia (ANNA) Interconnector Project

The ANNA transmission interconnector project is for the integration of Angola to the SAPP network, thereby rendering the country a SAPP operating member, that can contribute to power trading on SAPP electricity market and stability of network reliability and security of supply. The Project is sponsored by RNT of Angola and NamPower of Namibia, and comprises study of 366km, 400kV line corridor emanating in Southern Angola, from the proposed Lubango substation to the proposed Cahama substation and up to the border with Namibia, covering 336km and a 30km across the border into Namibia and terminating at the existing Kunene substation, in northern Namibia. The Project received funding from the SADC-PPDF, through DBSA and will close in December 2022, when all deliverables have been reached.

2.1 Progress to date

Overall progress on project Implementation stood at 73% as of 31 March 2022. The ANNA Project was divided into three parts, namely Part 1 – the Prefeasibility study stage completed in 2020, Part 2 – the Feasibility study stage completed in 2022 and Part 3 – the Transaction Advisory stage commissioned in February 2022. Table 2 below reports overall progress to date:

No.	Deliverables	Start	Finish	% Complete	Comment
1	ANNA Project	2018	27/02/2024	73%	Ongoing
1.1	Part 1	2018	02/12/2020	100%	Completed
1.2	Part 2	02/12/2020	2/17/2022	100%	Completed
1.3	Part 3	17/02/2022	27/02/2024	20%	Ongoing
1.3.1	Part 3 Kick-off	17/02/2022	17/02/2022	100%	Completed
1.3.2	Market Analysis	25/02/2022	06/07/2023	0%	Completed
1.3.3	Financial Analysis	05/09/2022	06/07/2023	0%	Completed
1.3.4	Contract Support	11/07/2022	27/02/2024	0%	Ongoing
1.3.5	Tender Support	08/11/2022	21/11/2023	0%	Ongoing

Table 2: Progress to Date

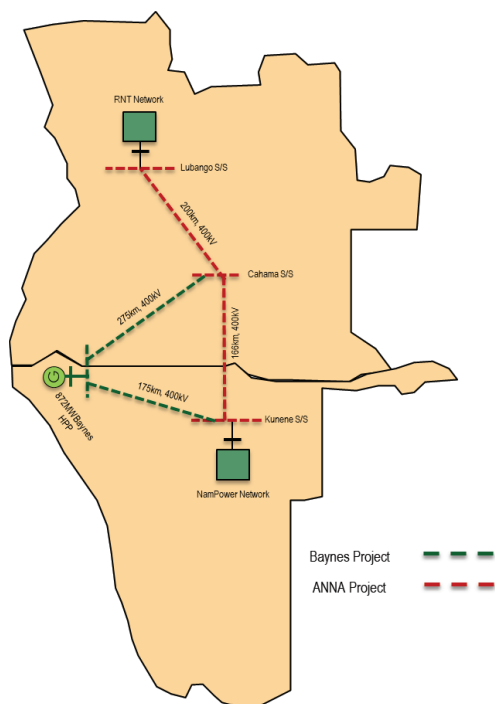


Figure 1: Concept of ANNA Transmission Interconnector Project

- The Project MANCO approved the draft Feasibility study report on 25 November 2021.
- The Project MANCO the final Feasibility study on 17 February 2022, marking the end of Part 2.
- The Project MANCO commissioned the start of Part 3 on 17 February 2023.

2.2 Risks and Mitigation Actions

Table 3 below reports on some perceived Project risks and mitigation actions.

No.	Risk	Impact	Mitigation
1	Termination of funding.	Extremely High	SAPP maintain a contingency fund to cover project costs.
2	Delayed review of deliverables.	High	Strengthen Project coordination.
3	Withdrawal of sponsors.	Extremely High	Demonstration of Project benefits to partners/countries and the region.
4	Poor performance by consultant.	Very High	Strengthen Project Coordination.

Table 3: Project Risks and Mitigation

3 Baynes Hydropower Plant Transmission Lines Project

The Baynes Hydropower Plant (HPP) transmission lines project is for the integration of the proposed 872MW Baynes Hydropower Plant (HPP), located on the Cunene River, between Angola and Namibia. The Technical Feasibility study project is for the preparation of a bankable Feasibility study and environmental and social safeguards, through an Environmental and Social Impact Assessment (ESIA) Study, for the proposed 275km, 400kV transmission corridor from Cahama substation in Angola to the Baynes HPP site, and a 175km, 400kV transmission corridor from Kunene substation in Namibia, to the Baynes HPP site, for power evacuation to electricity markets. The project is sponsored by RNT of Angola and NamPower of Namibia and is funded by grant facilities from NEPAD-IPPF (Feasibility study for 18-months) and Swedfund (ESIA study for 16-months).

3.1 Progress to date

NEPAD-IPPF has agreed to provide project preparation funding to the technical Feasibility study, through a grant facility. Further, the SAPP is in discussions with the Swedfund to support the ESIA studies with a grant facility. Terms of reference for the Technical and ESIA studies have been drafted and submitted to relevant DFIs for no-objection decisions. Table 4 reports progress to date on the project.

The Technical Feasibility study implementation timeline is 18-months and the ESIA study timeline is 16-months. The two studies will be implemented in alignment to reach a bankable report and recommend realistic environmental and social safeguards.

No.	Task	Status
1	Funding Agreements	- Technical Feasibility study: Signed with NEPAD-IPPF. - ESIA study; discussions with Swedfund ongoing.
2	Study Terms of References	- Technical Feasibility study pending no-objection by NEPAD-IPPF. - ESIA study pending no-objection decision by Swedfund.
3	Procurement	Procurement plan submitted to NEPAD-IPPF for a no objection decision.

Table 4: Progress report end of Q4, FY2022

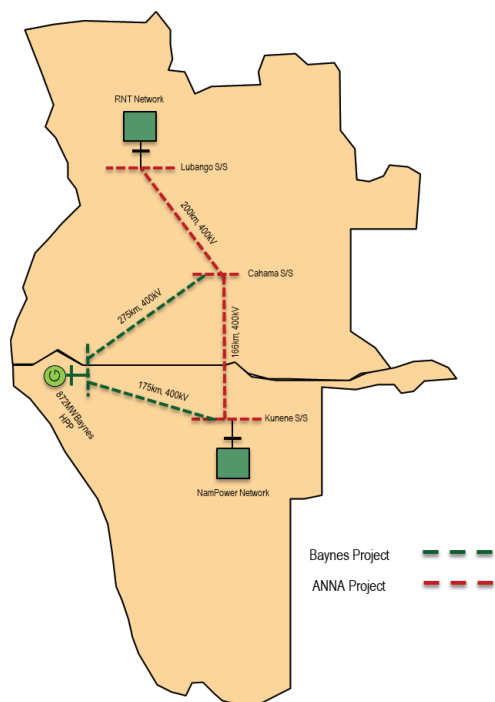


Figure 2: Concept of Baynes Hydropower Plant Transmission Lines Project

The high-level scope of works for the Technical Feasibility studies and the ESIA studies are reported in tables 5 and 6 below.

No.	Deliverables	Period (Months)
1	Start of Feasibility Study Services	0
2	Inception Report	1.5
3	Data Collection Report	4
4	Draft Preliminary Study Report	7
5	Preliminary Study Report	9
6	Draft Feasibility Study Report	12
7	Feasibility Study Report	16
8	Draft Conceptual Design Report, PIM, and Tender Documents	17
9	Conceptual Design Report, PIM, and Tender Documents	18
10	End of Feasibility Study Services	18

Table 5: Technical Feasibility Study Scope of Works

No.	Deliverables	Period (Months)
1	Commencement date of ESIA services	0
2	Inception report	1.5
3	Draft Scoping report (ESIA and RCAP) and TORs	4
4	Final Scoping report (ESIA and RCAP) and TORs	5
5	Draft ESIA and ESMP	14
6	Final ESIA and ESMP	16

Table 6: ESIA Study Scope of Works

Table 7 below reports the Baynes HPP transmission study anticipated risks and management actions.

No.	Risk	Impact	Mitigation
1	Termination of funding agreements.	Extremely High	SAPP must maintain a contingency fund to cover project preparation costs.
2	Delayed review of TORs and procurement plans by funders.	Very High	Effective planning and coordination with DFIs.
3	Withdrawal of sponsors.	Extremely High	Demonstration of Project benefits to partners/ countries and the region.
4	Selected Consulting services not available due to delayed contracting.	Medium	- Call upon the next selected successful bidder for negotiation and contracting. - Timely procurement of consultancy services to avert loss of selected bidders and associated key experts. - Improved efficiency and effectiveness in procurement submissions and responses to DFI requirements.

Table 7: Project Risks and Mitigation

4. Inga-Soyo Transmission Interconnector

The Inga-Soyo transmission study is for the interconnection of DRC to Angola, by the integration of the Inga hydropower plan to the Soyo thermal power plant, through a proposed 190km, 400kV transmission line.

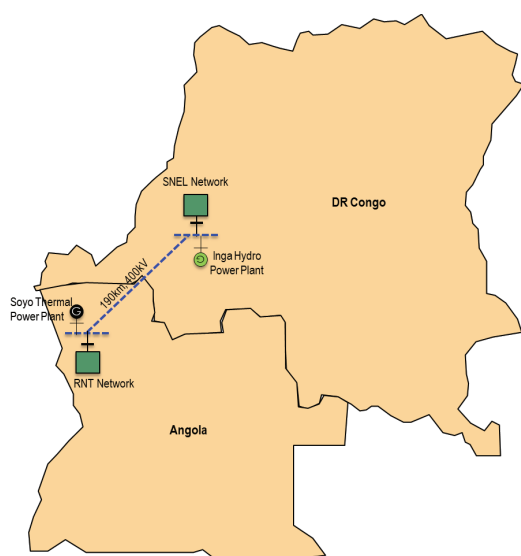


Figure 3: Concept of Inga-Soyo Transmission Interconnector Project.

The project is sponsored by SNEL of DRC and RNT of Angola and funded through the World Bank AREP programme, to provide funding support to the Technical Feasibility study and the Environmental and Social Impact assessment study.

4.2 Progress to date:

- Terms of reference for the technical Feasibility studies and the ESIA studies have been drafted.
- RNT and SNEL have reviewed and harmonised the TORs.
- The World Bank has reviewed and approved the TORs on condition that the TOR documentation is split to align with the funding support emanating from the AREP and Bridging funds respectively.
- The World Bank has recommended a two-contract approach covered by AREP and Bridging funds respectively.
- The PAU therefore resubmitted the split TOR documents and project cashflow requirements to demonstrate future project and expenditure over a predictable time series.
- Final approval for commencement of procurement of consulting services is pending a no objection decision by February 2022.

4.2 AREP funded Deliverables:

No.	Deliverables	Period (Months)	Duration (Months)
TD1	Commencement date of services	0	0
TD2	Inception report	1	1
TD3	Data Collection and Review Report	3	2
TD4	Demand-Supply Forecast Report	3	2
TD5	Line Route and Substation Layout Report	3	2
	Total		3

Table 8A: Technical Feasibility Study

No.	Deliverables	Period (Months)	Duration (Months)
ED1	Advance Payment	0	0
ED2	Final Inception Report	2	2
ED3	Line Route Report	3	1
			3

Table 8B: ESIA Study

4.3 Bridging Funded Deliverables

No.	Deliverables	Period (Months)	Duration (Months)
TD1	Commencement date of services	0	0
TD2	Draft prefeasibility study report	3	3
TD3	Final prefeasibility study report	4.5	1.5
TD4	Draft feasibility report	10	5.5
TD5	Final feasibility report	13	3
TD6	Project Information Memorandum (PIM)	15	2
TD7	Final Conceptual Design and Tender Documents	15	2
	Total		15

Table 9A: Technical Feasibility Study

No.	Deliverables	Period (Months)	Duration (Months)
ED1	Advance Payment	0	0
ED2	Draft Scoping Reports (ESIA and FRAP) and TORs	6	6
ED3	Final Scoping Report and TOR	7	1
ED4	Draft ESIA (with ESMP) and Draft FRAP	12	5
ED5	Final ESIA (with ESMP) and Final FRAP	13	1
			13

4.4 Risk Assessment

No.	Risk	Impact	Mitigation
1	Delayed approval of split Terms of Reference documents for the technical feasibility and ESIA studies.	Very High	task manager in the Bank to be pursued to ensure a decision is made on the submitted documentation.
2	Delayed procurement of consulting services.	Very High	Consulting services to be procured under the Bridging or RETRADE facility.

Table 10: Project Risks and Mitigation

5 Kolwezi-Solwezi Transmission Interconnector

The Kolwezi-Solwezi transmission interconnector project is for the development of additional transmission capacity between the DR Congo and Zambia. The project feasibility study was completed in December 2019 and the ESIA study

was completed in October 2021. The project was sponsored by SNEL of DR Congo and ZESCO of Zambia, with funding support from NEPAD-IPPF.

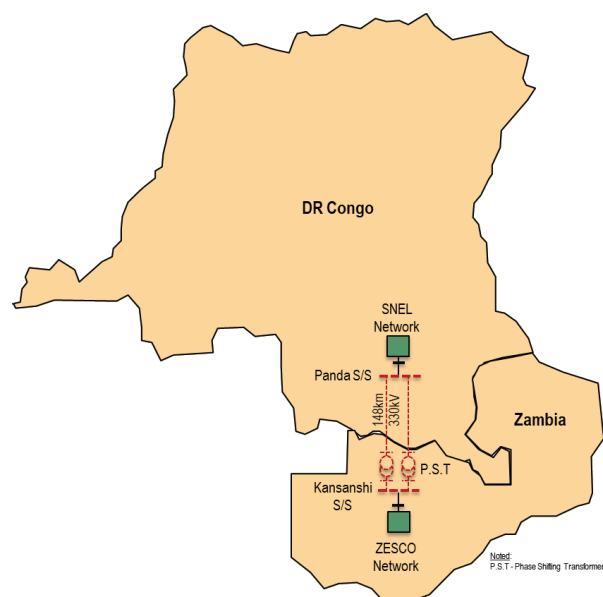


Figure 4: Concept of Kolwezi-Solwezi Transmission Interconnector project

5.1 Progress to date

The Environmental and Social Impact Assessment (ESIA) study successfully closed on 31 October 2021. Highlights of the project findings included the following:

- ESIA study was approved in DRC and Zambia.
- The ESIA study revealed sensitive impacts associated with social aspects such as influx of migrant workers, labour grievances.
- The implementation of a Grievance Redress Management Plan and a Labour Management Plan would assist in mitigating the impacts.
- The study also showed minimal impact on soil (soil erosion) with a potential to become significant if not well managed.
- No community along the line route was compensated as the preferred routing is not inhabited by communities on both sides of the border.
- The PAU prepared a Project Closing Report.
- The PAU concluded preparation of a project

prefeasibility studies took 24-months for the technical prefeasibility studies and 18-months for the ESIA screening activities. The sponsor utilities SNEL and ZESCO have expressed desire to carry out Feasibility studies for all the three selected hydropower sites.



Figure 5: Concept Luapula River Hydropower Project

6.1 Progress to date

Commencement of the detailed Feasibility and the ESIA studies for the three sites respectively await mobilisation of project preparation funds. The World Bank, NEPAD-IPPF, NEPAD-AUDA and Swedfund have been engaged by SAPP, for possibility of funding support to the studies.

- NEPAD-IPPF has since committed funds for a Feasibility study of one hydropower site, preferably the Mumbotuta site CXb. Mumbotuta site CXb has the lowest levelized cost, highest financial return and least number of households to be resettled.
- SAPP has commenced discussions with the Swedfund to support ESIA studies for the one hydropower site NEPAD-IPPF will support.
- The review of the TORs for the Feasibility and ESIA studies, for the one hydropower site is completed.
- NEPAD-IPPF promoted and motivated

assessment report, reviewing the relevance, efficiency, effectiveness, sustainability, and impact of results produced by the project.

- The PAU has procured external financial auditing services, to evaluate and report on project accounting and financial performance.

6.2 Risk Assessment

No.	Risk	Impact	Mitigation
1	Feasibility & ESIA studies becoming outdated, due to passage of time	Extremely High	• SNEL, ZESCO and SAPP promote the project for project financing, construction, and commercial operation. .
2	ZEMA does not approve the Zambia section Resettlement and Compensation Action Plan (RCAP)	Very High	• ZESCO to ensure the RCAP approval process is successful.
3	Failure by sponsor Governments/ Utilities to secure project financing	Extremely High	• Utilities engage their respective Governments to promote investment in the project through Public-Private-partnerships and offer sovereign grantees to investors. • Utilities find power off takers in DR Congo and Zambia to anchor the project and potentially guarantee upfront capital investment and required cashflows from the project, to meet debt and equity obligations, goods, and services revenue requirements.

Table 11: Project Risks and Mitigation

6 Luapula Hydropower Project

The Luapula Hydropower plant project combines generation and transmission development studies on three potentially viable hydropower sites on the Luapula river, between the DR Congo and Zambia and their associated transmission corridors. The proposed three hydropower sites are the Mumbotuta site CXb at 271MW, Mambilima site V at 210MW, and Mambilima site Y at 308MW respectively, selected under the 2020 prefeasibility study funded by the EU/KfW to support technical prefeasibility studies and environmental and social screening of the project area through a grant facility to the SADC-PPDF, administered by the DBSA. However, funding support to the project came to an end following the expiry of the funding period. Implementation of the

the project to other DFIs for possibility of project preparation funds to the remaining hydropower sites, at the 7th PIDA Week in Nairobi, Kenya, which took place from 28 February to 4 March 2022.

6.2 Risk Assessment

No.	Risk	Impact	Mitigation
1	Lack of funding for technical Feasibility studies and EISA studies.	Extremely High	SAPP to engage with other DFIs, to lobby for project funding, by demonstrating technical and economic/ financial benefits of the project.
2	Lack of TORs on work in wetlands and natural habitats.	Very High	ESIA TORs include a comprehensive biodiversity assessment instruction to bidders.

Table 12: Project Risks and Mitigation

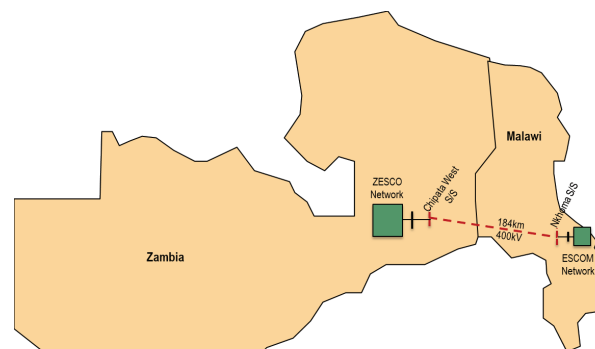


Figure 6: Concept of Malawi-Zambia transmission interconnector project.

7. Malawi-Zambia Transmission Interconnector Project

The Malawi-Zambia transmission interconnector project is for the development of transmission capacity in the East-to-West transmission corridor of the SAPP, for power transfer across the proposed 184km, 400kV East-West transmission corridor.

The project is sponsored by ESCOM of Malawi and ZESCO of Zambia, and it received project preparation funding support from the World Bank AREP⁶ programme.

7.1 Progress to date

Both the technical and ESIA studies for the proposed Malawi – Zambia Interconnector are funded by the World Bank.

- Technical Feasibility study and ESIA study TORs were issued a no-objection decision by the World Bank. The technical Feasibility study and the ESIA study are scheduled for 12-months and 10-months implementation period.
- Approval of the draft contract for the feasibility studies is still under consideration as of 31 March 2022.
- Contract negotiations with the successful bidder for the ESIA studies were held on 9 March 2022. The signing of the contract will follow once the required approvals are secured.

⁶ AREP is Program for Accelerating Regional Energy Transformational Projects.

7.2 Risk Assessment

No.	Risk	Impact	Mitigation
1	Lack of funding for technical Feasibility studies and EISA studies at the end of AREP	Extremely High	- SAPP to engage with other DFIs, to lobby for project preparation support, by demonstrating high level technical and economic/ financial benefits of the project. - SAPP to request utilities to cover full cost of project preparation.

8 Mozambique-Tanzania Transmission Interconnector Project

The project is for the development of transmission capacity between Mozambique and Tanzania. The project sponsors are the two project participating governments and their respective power utilities EDM and TANESCO respectively.

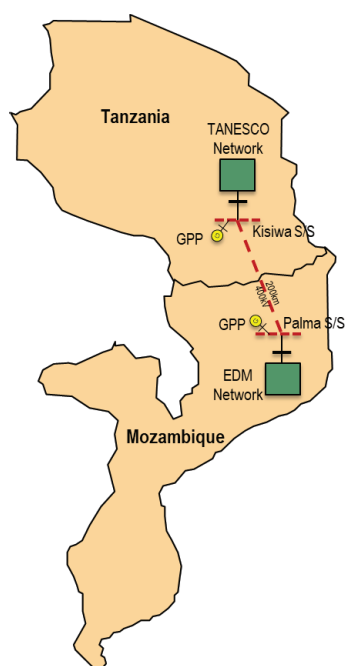


Figure 7: Concept of Mozambique-Tanzania transmission Interconnector project

8.1 Progress to date

The Mozambique – Tanzania Interconnector Project (MOTA) is supported by the NEPAD-IPPF. The financial support is towards the Technical Feasibility study and the ESIA studies.

- A draft Letter of Agreement for the grant facility from NEPAD-IPPF to SAPP was finalised by 31 March 2022.
- Draft TORs for the Feasibility and ESIA studies was ongoing as of 31 March 2022.
- The Governments of Mozambique and Tanzania signed the Inter-Governmental Memorandum of Understanding on 12 April 2021 and 23 June 2021 respectively.

9 The Mozambique-Zambia transmission Interconnector Project

The Project is for the development of transmission capacity between Mozambique and Zambia. The project is sponsored by the Government of Mozambique through Edm and the Government of Zambia through ZESCO. The technical Feasibility studies are cofunded by AfDB/NEPAD-IPPF and the World Bank through the AREP programme.

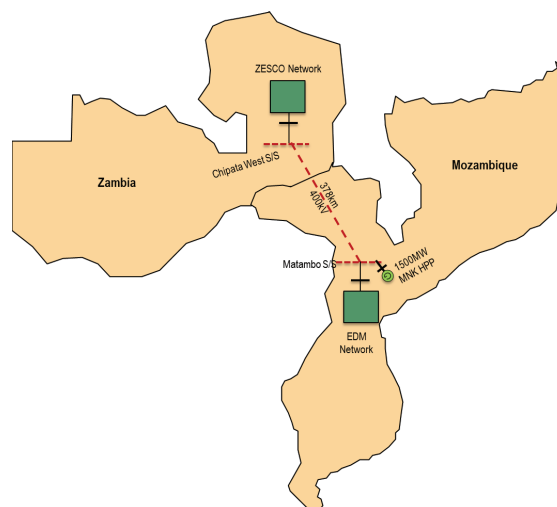


Figure 8: Concept of Mozambique-Zambia transmission Interconnector project

9.1 Progress to date

The technical Feasibility study was completed in December 2021 and in March 2022, the two utilities approved the final reports. The final Feasibility study report has since been

produced and submitted to the funders for final review and approval.

For the ESIA study report, all the field studies and drafting of reports were concluded in December 2021. A meeting of the EDM, ZESCO, SAPP and the World Bank was held on 3 March 2022 to discuss and harmonise comments from the World Bank, for the Mozambican section of the transmission corridor. Following the meeting, the Consultant revised and updated the ESIA study report. Approval has since been granted by EDM, SAPP and the World Bank.

9.2 Risk Assessment

No.	Risk	Impact	Mitigation
1	Feasibility & ESIA studies becoming outdated, due to passage of time	Extremely High	EDM, ZESCO and SAPP promote the project for project financing, construction, and commercial operation.
2	Environmental permits expire	Very High	Sponsors to ensure that they negotiate for permits that are renewable or expire after construction of the transmission infrastructure.

10 The Zambia Tanzania Transmission Interconnector Project

The Project was for the development of final transmission infrastructure designs and bidding documents. The project was sponsored by the Government of Zambia, through ZESCO, and funded through the World Bank AREP programme. SAPP was the implementing agency. The proposed Zambia-Tanzania transmission interconnector project comprises a 559km, 330kV transmission corridor, and upgrade of existing transmission substations on the Zambia section of the interconnector.

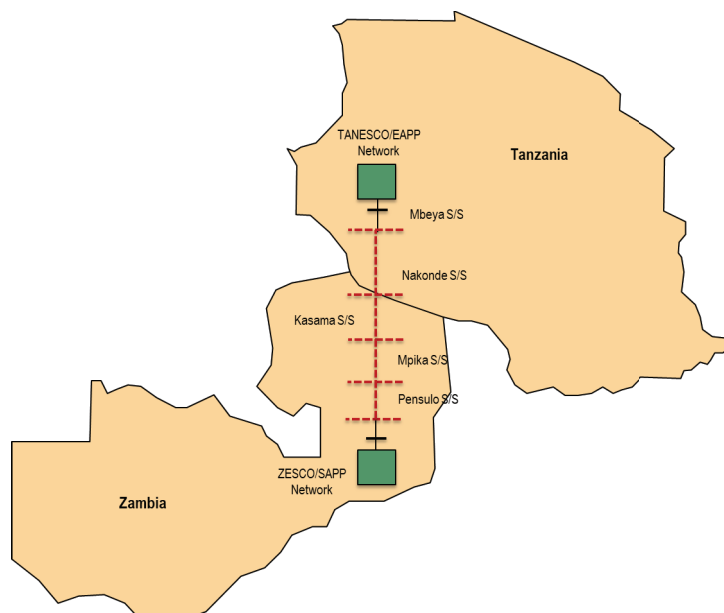


Figure 9: Concept of Zambia-Tanzania Transmission Interconnector Project

10.1 Progress to date

The project was successfully completed on 31 October 2021, and the following are some of the project results:

- The final preliminary design report was approved by ZESCO and SAPP.
- Final Overhead line design report approved by ZESCO and SAPP.
- Tender documents for Lots 1, 2, 3, 4 and 5 approved by ZESCO and SAPP.
- Lot 1 is for Pensulo - Mpika Transmission Lines & Line Bays.
- Lot 2 is for Mpika - Kasama Transmission Lines & Line Bays.
- Lot 3 is for Kasama - Nakonde Transmission Lines & Line Bays.
- Lot 4 is for Nakonde - Border Transmission Line.
- Lot 5 is for Pensulo Dynamic Voltage Support Devices.

PAU Staff Members



JEAN MADZONGWE
Programmes Manager



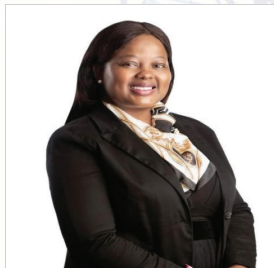
Ms Nomasonto Mnisi
Environmental Specialist



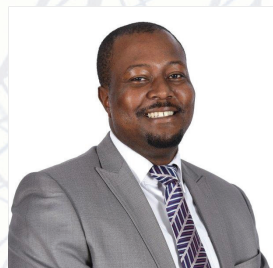
Ms Precious Manse
Accounts Officer



Mr. Chrispin L Kahongo
Project Specialist



Ms. Itumeleng Mokgatle
Office Administrator



Mr. Thembekani Luthuli
Procurement Specialist



Mr. Stanley Ngangula
Procurement Specialist

Financials

Nature of Business

SAPP Board Members:

Mr. Howard Choga (Board Chairman) (Zimbabwe Electricity Supply Authority)
Mr. S. Dihwa (Executive Director) (Southern African Power Pool)
Mr. Tebogo Thakadu (Botswana Power Company)
Mr. Martin Kasemuka (Copperbelt Electricity Corporation)
Mr. Luis Ganje (Electricidade de Mozambique)
Mr. Charles kagona (Electricity Supply Corporation of Malawi)
Mr. Andrew Etzinger (Eskom)
Mr. Raphael Masilela (Eswatini Electricity Company)
Mr. Maxcencio Tamele (Hidroelectrica de Cahora Bassa)
Mr. Mohlomi Seitlheko (Lesotho Electricity Company)
Ms Alice Muchena Fatchi (Lunsemfwa Hydro Power Company)
Mr. Aderito Sousa (Mozambique Transmission Company)
Mr. Berthold Mbuere ua Mbuere (NamPower)
Mr. Robie Kennedy (Ndola Energy)
Ms. Maria Clara G V De A E Carvalho Sanches (Rede Nacioal de Transporte de Electricidade)
Mr. Thiery Kapesa (Societe Nationale d'Electricidade)
Mr. Abubakari Issa (Tanzania Electricity Supply Company)
Mr. Thomas Miti (Zambia Electricity Supply Company)

Registered Office:

24 Golden Stairs Road
Emerald Hill
Harare, Zimbabwe

Independent Auditor:

Stanbic Bank Botswana Limited
Plot 50672, Off Samora Machel Drive
Fairground Office Park
Gaborone, Botswana

Principal Banker:

BDO Zimbabwe Chartered Accountants Stanbic Bank Botswana Limited
Kudenga House Plot 50672, Off Samora Machel Drive
3 Baines Avenue, Cnr Prince Edward Street Fairground Office Park
Harare, Zimbabwe Gaborone, Botswana

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Statement of financial position 83
Statement of income and expenditure 84
Statement of changes in members' funds 85
Statement of cash flows 86
Notes to the financial statements 87 - 107

Directors' Responsibility Statement

It is the directors' responsibility to ensure that the financial statements fairly present the state of affairs of the Organisation. The external auditors are responsible for independently auditing and reporting on the financial statements.

The directors have assessed the ability of the Organisation to continue operating as a going concern and believe that the preparation of these financial statements on a going concern basis is still appropriate. However, the directors believe that under the current economic environment, a continuous assessment of the Organisation's ability to operate as a going concern will need to be performed to determine the continued appropriateness of the going concern assumption used in preparing these financial statements.

In light of the current financial position, the directors are satisfied that the Organisation is a going concern and has continued to adopt the going concern basis in preparing the financial statements.

The financial statements set out in this report have been prepared by management in accordance with International Financial Reporting Standards ("IFRS"). They are based on appropriate accounting policies supported by reasonable and prudent judgments and estimates.

The Organisation's internal and accounting control systems are designed to provide reasonable assurance regarding the integrity and reliability of the financial statements, as well as to adequately safeguard, verify, and maintain accountability of its assets. Such controls are based on established written policies and procedures, and all employees are required to uphold the highest ethical standards to ensure that the organization's business practices are conducted in a manner which, in all reasonable circumstances, is above reproach. Issues brought to the attention of the directors have been addressed, and the directors confirm that the system of internal and accounting control is operating satisfactorily.

The Organisation's financial statements, which are set out below on pages 83 to 107, have, in accordance with their responsibilities, been approved by the directors and are signed on their behalf by:



Mr H. Choga
Board Chairman



Mr S. Dihwa
Executive Director

25 July 2025

Report of the Independent Auditors to the Directors of Southern African Power Pool

Qualified Opinion

We have audited the financial statements of SOUTHERN AFRICAN POWER POOL (hereinafter referred to as, “the Organisation”), set out on pages 83 to 107, which comprise the statement of financial position as at 31 March 2022, the statement of income and expenditure, statement of changes in members’ funds, and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, except for the effects of the matter discussed in the Basis for Qualified Opinion section of our report, the accompanying financial statements present fairly, in all material respects, the financial position of the Organisation as at 31 March 2022, and its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs).

Basis for Qualified Opinion

Unsupported exchange gains

Included in other income are exchange gains amounting to \$562,406, which had no supporting documents. There were no alternative procedures that we could perform to verify the existence, accuracy, and completeness of the exchange gains reported.

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the “Auditor’s Responsibilities for the Audit of the Financial Statements” section of our report. We are independent of the Organisation in accordance with the International Ethics Standards Board for Accountants’ Code of Ethics for Professional Accountants (Parts A and B), together with the ethical requirements relevant to our audit of the financial statements in Zimbabwe, and we have fulfilled our ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified opinion.

Responsibilities of the Directors for the Financial Statements

The directors are responsible for the preparation and fair presentation of the financial statements in accordance with International Financial Reporting Standards, and for such internal controls as the directors determine are necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the Organisation’s ability to continue operating as a going concern, disclosing, as applicable, matters related to going concern, and using the going concern basis of accounting unless the directors either intend to liquidate the Organisation or to cease operations, or have no realistic alternative but to do so.

Auditors’ Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s

report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with International Standards on Auditing (ISAs) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users based on the financial statements.

- As part of an audit in accordance with ISAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organisation's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the Organisation's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Organisation's ability to continue operating as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion.
- Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Organisation to cease to continue as a going concern.
- Evaluate the overall presentation, structure, and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- We also provide the directors with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.



BDO ZIMBABWE
Chartered Accountants
25 July 2025
Kudenga House
3 Baines Avenue
Harare

STATEMENT OF FINANCIAL POSITION
as at 31 March 2022

	Note	2022 US\$	2021 US\$
ASSETS			
Non-current assets			
Property and equipment	4	2,815,148	2,882,372
Intangible assets	5	1,628,669	8,985
		4,443,817	2,891,357
Current assets			
Accounts receivable	6	227,425	170,951
Members market trading platform bank accounts	7	71,955,858	50,422,611
Short term investments	8	-	32,487,077
Bank and cash	9	37,404,619	4,170,031
		109,587,902	87,250,670
TOTAL ASSETS		114,031,719	90,142,027
FUNDS AND LIABILITIES			
Members' funds			
General reserve		306,000	306,000
Members contributions to capital expenditure		861,690	861,690
Accumulated funds		21,576,533	19,782,772
		22,744,223	20,950,462
Special funds:			
Norwegian Government grant	10	-	183,668
ZIZABONA Project Grant	9.3	939,566	938,899
Africa institute deferred income		25,000	-
		964,566	1,122,567
Long term Liabilities			
Congestion income	11	18,057,080	-
Current liabilities			
Accounts payable	12	488,301	290,011
Members market trading platform creditors funds	13	71,777,549	67,778,987
		72,265,850	68,068,998
Total liabilities		91,287,496	69,191,565
TOTAL FUNDS AND LIABILITIES		114,031,719	90,142,027



Mr H. Choga
Board Chairman



Mr S. Dihwa
Executive Director

25 July 2025

SOUTHERN AFRICAN POWER POOL

STATEMENT OF INCOME AND EXPENDITURE

for the year ended 31 March 2022

	Note	2022 US\$	2021 US\$
INCOME			
Members contribution:			
Equal share for members		447,599	400,521
Imported energy		-	66,911
Exported energy		-	68,075
Peak demand		-	32,531
Thermal rating		-	66,753
Host member		-	33,377
Participation fees		10,000	74,170
Capital expenditure		2,000	40,378
Market Trading Platform - administration fees	14	2,877,258	2,997,070
Grants income		154,764	185,555
Other income	15	1,156,894	91,542
Total income		4,648,515	4,056,883
EXPENDITURE			
Communication costs	16	83,574	53,484
Market Trading Platform and SCADA expenses	17	51,334	207,375
Administration costs	18	752,920	275,530
Depreciation charge for the year	4	307,351	61,684
Amortisation charge for the year	5	17,375	8,984
Bank charges	19	32,812	22,466
Marketing and publicity	20	6,483	2,562
Motor vehicle expenses	21	4,846	5,047
Occupancy costs	22	58,500	96,568
Staff costs	23	1,466,271	1,365,133
Travel and subsistence	24	58,315	4,781
Recruitment costs	25	10,487	990
Capacity Building and Studies		3,985	-
Foreign exchange loss		-	189,879
Consultants		501	-
Total expenditure		2,854,754	2,294,483
Surplus for the year		1,793,761	1,762,400

STATEMENT OF CHANGES IN MEMBERS' FUNDS

for the year ended 31 March 2022

	General reserve US\$	Members' contribution for capital expenditure US\$	Accumulated funds US\$	Total US\$
Balance at 31 March 2020	306,000	858,712	18,020,372	19,185,084
Surplus for the year	-	-	1,762,400	1,762,400
Members contributions	-	2,978	-	2,978
Balance as at 31 March 2021	306,000	861,690	19,782,772	20,950,462
Surplus for the year	-	-	1,793,761	1,793,761
Balance as at 31 March 2022	306,000	861,690	21,576,533	22,744,223

SOUTHERN AFRICAN POWER POOL

STATEMENT OF CASH FLOWS

for the year ended 31 March 2022

	Note	2022 US\$	2021 US\$
CASH FLOWS FROM OPERATING ACTIVITIES			
Surplus for the year		1,793,761	1,762,400
Adjustments for:			
Depreciation charge for property and equipment		307,351	61,684
Amortisation of intangible assets		17,375	8,984
Loss/(profit) on disposal of assets		225	(170)
Interest earned		(3,914)	(7,398)
MTP administration fees receivable		(162,617)	(222,606)
Grant income		(154,764)	(185,555)
Unrealized exchange loss		102,203	190,049
Net cash generated before working capital changes		1,899,620	1,607,388
(Increase)/decrease in accounts receivable		(56,474)	842,846
Decrease in inventory		-	568
Increase in accounts payable		201,553	353,508
Increase in Members Market Trading Platform Creditors funds		3,998,562	-
Net cash generated from operations		6,043,261	2,804,310
CASH FLOWS FROM INVESTING ACTIVITIES			
Acquisition of property and equipment		(1,544,679)	(1,637,229)
Acquisition of intangible assets		(360,776)	-
Proceeds from disposal of property and equipment		1,151	678
Congestion income		18,057,080	-
Fixed deposit investments		32,487,086	(32,487,077)
Interest received		84,713	82,435
Net cash flows generated from / (utilised in) investing activities		48,724,575	(34,041,193)
CASH FLOWS FROM FINANCING ACTIVITIES			
Special funds utilised		-	1,244,068
Members contributions received		-	2,978
Net cash flows generated from financing activities		-	1,247,046
NET INCREASE / (DECREASE) IN CASH AND CASH EQUIVALENTS		54,767,836	(29,989,837)
CASH AND CASH EQUIVALENTS AT BEGINNING OF THE YEAR		54,592,642	84,582,479
CASH AND CASH EQUIVALENTS AT END OF THE YEAR	9.4	109,360,478	54,592,642

Report of the Independent Auditors

1. General Information

Southern African Power Pool (the “Organisation”) is a non-profit making organisation incorporated in Zimbabwe.

1.1 Nature of Business

The main objective of the Organisation is to co-ordinate the planning and development of the electricity interconnections between members’ respective networks and to expand the Interconnected Power System and electricity trading in the region.

1.2 Functional and Presentation Currency

The financial statements are presented in the United States of America dollar (“US\$”), which is the Organisation’s functional and presentation currency.

2. Summary Of Significant Accounting Policies

The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1 Basis of Preparation

The Organisation’s financial statements have been prepared in accordance with International Financial Reporting Standards, (“IFRS”) and International Financial Reporting Committee (“IFRIC”) interpretations. The financial statements are based on statutory records that are maintained under the historical cost convention.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Organisation’s accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the financial statements are disclosed in note 3. The accounting policies are consistent with the previous period.

2.2 Changes in Accounting Policies and Disclosures

a) New standards, interpretations and amendments effective from 1 January 2022

The following amendments are effective for periods beginning on or after 1 January 2022:

The Organisation applied these standards and amendments for the first-time, which are effective for annual periods beginning on or after 1 January 2022. These new amendments and interpretations issued by the IASB, have had no material effect on the organisation’s financial statements.

Onerous Contracts – Cost of Fulfilling a Contract (Amendments to IAS 37)

Report of the Independent Auditors (Continued)

IAS 37 defines an onerous contract as a contract in which the unavoidable costs (costs that the organisation has committed to pursuant to the contract) of meeting the obligations under the contract exceed the economic benefits expected to be received under it.

The amendments to IAS 37.68A clarify, that the costs relating directly to the contract consist of both:

- The incremental costs of fulfilling that contract- e.g. direct labour and material; and
- An allocation of other costs that relate directly to fulfilling contracts: e.g. Allocation of depreciation charge on property, plant and equipment used in fulfilling the contract.

Property, Plant and Equipment: Proceeds before Intended Use (Amendments to IAS 16)

The amendment to IAS 16 prohibits a organisation from deducting from the cost of an item of PP&E any proceeds received from selling items produced while the organisation is preparing the asset for its intended use (for example, the proceeds from selling samples produced during the testing phase of a manufacturing facility after it has been constructed but before start of commercial production). The proceeds from selling such samples, together with the costs of producing them, are now recognised in profit or loss.

These amendments had no impact on the year-end financial statements of the Organisation as there were no sales of such items produced by property, plant and equipment made available for use on or after the beginning of the earliest period presented.

Annual Improvements to IFRS Standards 2018-2020 (Amendments to IFRS 1 and IFRS 9).

- A subsidiary that uses the exemption in paragraph D16(a) of IFRS 1 may elect, in its financial statements, to measure cumulative translation differences for all foreign operations at the carrying amount that would be included in the parent's financial statements, based on the parent's date of transition to IFRSs, if no adjustments were made for consolidation procedures and for the effects of the business combination in which the parent acquired the subsidiary. A similar election is available to an associate or joint venture that uses the exemption in paragraph D16(a).
- The amendment in IFRS 9 clarifies which fees a organisation includes when it applies the '10 per cent' test in assessing whether to derecognise a financial liability. A organisation includes only fees paid or received between the organisation (the borrower) and the lender, including fees paid or received by either the organisation or the lender on the other's behalf.

References to Conceptual Framework (Amendments to IFRS 3).

IFRS 3:11 amended to refer to the – 2018 version of the Conceptual Framework for Financial Reporting. IFRS 3 has also been amended in respect of the specific requirements for transactions and other events within the scope of IAS 37 or IFRIC 21:

For a provision or contingent liability that would be within the scope of IAS 37, the acquirer shall apply IAS 37 to determine whether at the acquisition date a present obligation exists as a result of past events.

Report of the Independent Auditors (Continued)

For a levy that would be within the scope of IFRIC 21, the acquirer shall apply IFRIC 21 to determine whether the obligating event that gives rise to a liability to pay the levy has occurred at the acquisition date.

The acquirer shall not recognise a contingent asset at the acquisition date.

b) New standards, interpretations, and amendments not yet effective

There are a number of standards, amendments to standards, and interpretations which have been issued by the IASB that are effective in future accounting periods that the Organisation has decided not to adopt early. These amendments are effective for the periods beginning on or after 1 January 2023.

The Organisation has not carried an assessment of whether the new standards and amendments will have a material impact on its financial statements.

The following amendments are effective for periods beginning 1 January 2023:

- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2);
- Definition of Accounting Estimates (Amendments to IAS 8);
- Deferred Tax Related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12); and
- Insurance Contracts (IFRS 17).

The following amendments are effective for periods beginning on or after 1 January 2024:

- IFRS 16 Leases (Amendment – Liability in a Sale and Leaseback);
- IAS 1 Presentation of Financial Statements (Amendment – Classification of Liabilities as Current or Non-current); and
- IAS 1 Presentation of Financial Statements (Amendment – Non-current Liabilities with Covenants).
- Annual Improvements to IFRS Standards 2018-2020 (Amendments to IAS 41).
- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2);
- Classification of Liabilities as Current or Non-current — Deferral of Effective Date (Amendment to IAS 1).

The entity applied certain standards and amendments for the first-time, which are effective for annual periods beginning on or after 1 January 2021. These new standards, amendments and interpretations issued by the IASB, have had no material effect on the entity's financial statements.

2.3 Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable in the ordinary course of the Organisation's activities. The Organisation recognises revenue when the amount of revenue can be reliably measured; when it is probable that future economic benefits will flow to

Report of the Independent Auditors (Continued)

the entity, and when specific criteria have been met for each of the Organisation's activities, as described below.

a) Members contribution

Funds income received is based on a set budget agreed upon by all members of the organisation. Contributions made by members are based on set percentages and proportions based on electricity usage. The income is brought to account per issued invoice to each of the member countries.

b) Interest income

Interest income is recognised when it is probable that the economic benefits will flow to the organisation and the amount of revenue can be measured reliably. Interest income and expense are recognised in profit or loss using the effective interest method. The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to the gross carrying amount of the financial asset. When calculating the effective interest rate for financial instruments, the organisation estimates future cash flows considering all contractual terms of respective financial assets, but not expected credit losses. The calculation of the effective interest rate includes transaction costs and fees and points paid or received that are an integral part of the effective interest rate. Interest income is earned on financial investments can be measured reliably.

c) Grant income

Grant income for specific projects is recognised when the respective expenditure has been incurred which is at a point in time. The funds are received when the grant contracts are agreed, and deferred income is recognised for the full amounts received. The organisation however recognises grant income using IAS 20, "Accounting for Government Grants and Disclosure of Government Assistance

d) Market Trading Platform - Administration fees

The Organisation earns revenue from charging administration fees on the Market Trading Platform. Revenue is recognised when electricity has been supplied to the buyer.

2.4 Foreign currency translation

Transactions in a currency other than the functional currency ("foreign currency") are translated into the functional currency using the exchange rates at the dates of the transactions. Currency translation differences resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at the closing rates at the reporting date are recognised in profit or loss.

2.5 Operating expenses

Operating expenses are recognised in statement of income and expenditure upon utilisation of the service or at the date of their origin.

Report of the Independent Auditors (Continued)

2.6 Property and equipment

Property and equipment are initially measured at cost. Cost includes expenditure that is directly attributable to the acquisition of the asset. Property and equipment are stated at historical cost less depreciation and any impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition and installation of the items.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Organisation and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to the income and expenditure statement during the financial period in which they are incurred.

2.6.1 Depreciation

Property and equipment are stated at cost or revalued amount less accumulated depreciation and any accumulated impairment losses. Depreciation is provided using the straight-line method in order to allocate the historical cost or valuation of property and equipment over their estimated useful lives. Depreciation is provided for at the following rates per annum:

Buildings	2.5%
Computer equipment	33.33%
MTP computer equipment	20%
Office equipment	20%
Office furniture and fittings	10%
Motor vehicles	20-25%
SCADA equipment	20%

Land is not depreciated. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the statement of income and expenditure in the year the asset is derecognised. The Directors make an assessment of the useful lives and residual values of the assets on an annual basis.

2.6.2 Impairment of Non-Financial Assets

Assets that have an indefinite useful life, for example land, are not subject to amortisation and are tested annually for impairment. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at each reporting date.

Report of the Independent Auditors (Continued)

2.7 Intangible Assets

The computer software licenses have a finite useful life and are carried at cost less accumulated amortisation. Amortisation is calculated using a straight-line method to allocate the cost of computer software licenses over their estimated useful life of 5 years.

2.8 Financial Liabilities

Financial liabilities comprise trade payables. Trade payables and other short-term monetary liabilities, which are initially recognised at fair value and subsequently carried at amortised cost using the effective interest method.

2.9 Special Funds

Funds granted for specific purposes are accounted for separately as Special Funds in the statement of financial position. They are maintained in a separate bank account. Any interest earned on the unused funds is credited to, and bank charges are debited to the Special Fund. The amount expended is recognised as income on a systematic and rational basis over the period necessary to match them with the related costs. Grants related to assets are capitalized with the amount utilized for the period amortised to the income and expenditure account.

2.10 Provisions

Provisions are recognised when the Organisation has a present legal or constructive obligation as a result of past events and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate of the amount of the obligation can be made. Provisions are measured at the Organisation's best estimate of the expenditure required to settle the obligation at the reporting date and are discounted to present value where the effect is material.

2.11 Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value.

2.12 Market Trading Platform (MTP) bank accounts

Market Trading Platform (MTP) bank accounts are maintained at Stanbic Bank Botswana Limited. The purpose of these accounts is primarily for clearing, accounting for market transactions, security custodial services, administration fees, wheeling fees and transmission losses.

2.13 Employee benefits

a) National Social Security Authority Scheme

Employees contribute to the National Social Security Authority (NSSA) statutory pension and benefits

Report of the Independent Auditors (Continued)

scheme, which is a defined contribution scheme. This scheme was promulgated under the National Social Security Act of 1989. The Organisation's obligation under the scheme is limited to specific contributions as legislated from time to time.

2.14 Congestion Income

Congestion income arises when transmission limits between two trading areas are reached during the market clearing process under constrained conditions. This typically occurs when it is not possible to allocate the matched power in a transmission path due to constraints, i.e., the available capacity being below the matched capacity. As a result, the market will split into different price areas with deficit areas having higher prices and surplus areas having lower prices. All power sold from the surplus (low price) area will attract the same (low price) even for power sold to the deficit (high price) area. This then leads to the generation of congestion income $[(\text{high price} - \text{low price}) \times \text{volumes traded between the areas}]$. This income does not belong to the SAPP Coordination Centre and is therefore recorded as a long-term liability. It is retained for reinvestment in studies and initiatives aimed at alleviating transmission bottlenecks and enhancing regional transfer capacity in line with the market's long-term development goals.

3. Critical Accounting Estimates and Judgements

Estimates and judgments are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

Critical accounting estimates and judgements

The Organisation makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below:

(a) Useful lives of property and equipment

The Organisation's management determines the estimated useful lives, residual values and related depreciation charges for its property and equipment. This estimate is based on projected life cycles for these assets. It could

change significantly as a result of technical innovation and other factors. Management will increase the depreciation charge where useful lives are less than previously estimated lives, or it will write off or write down technically obsolete or non-strategic assets that have been abandoned or sold.

b) Going concern

The Organisation's forecasts, taking into account reasonably possible changes in trading performance, show that the Organisation should be able to operate within the level of its current financing. Going concern assessment is an area involving significant management judgement requiring assessment

in determining the projected future cash flows. Management has a reasonable expectation that the Organisation has adequate resources to continue in operational existence for the foreseeable future. The Organisation therefore continues to adopt the going concern basis in preparing its financial statements.

NOTES TO FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

4 PROPERTY AND EQUIPMENT

	Land	Buildings	SCADA Computer Equipment	Computer Equipment	Office Equipment	Furniture and Fittings	Motor Vehicles	Video Conference	MTP Equipment	Works In Progress	Total
	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
Year ended 31 March 2022											
Opening cost	65,000	39,429	1,663,455	85,961	56,816	119,677	74,885	-	1,198,073	2,381,289	5,684,584
Additions	-	3,026	-	29,256	142	17,374	-	-	26,750	1,468,131	1,544,679
Transfers out at cost to property and equipment	-	-	-	-	-	-	-	-	-	(2,566,482)	(2,566,483)
Transfers in at cost	-	1,842,718	-	318,661	6,191	-	-	303,553	95,360	-	2,566,483
Transfers out at cost to intangible assets	-	-	-	-	-	-	-	-	-	(1,276,284)	(1,276,284)
Disposals at cost	-	-	-	-	(765)	(2,121)	-	-	-	-	(2,886)
Gross carrying amount as at 31 March 2022	65,000	1,885,173	1,663,455	433,878	62,384	134,929	74,885	303,553	1,320,183	6,654	5,950,094
Depreciation and impairment as at 31 March 2021	-	(4,016)	(1,658,084)	(57,279)	(42,145)	(58,339)	(37,193)	-	(945,158)	-	(2,802,214)
Prior period adjustment on depreciation	-	-	-	(3,497)	-	-	-	-	(24,265)	-	(27,762)
Depreciation on disposals	-	-	-	-	765	1617	-	-	-	-	2,382
Depreciation for the Year	-	(1,000)	(3,566)	(22,774)	(8,927)	(10,287)	(7,882)	-	(252,915)	-	(307,351)
Accumulated depreciation as at 31 March 2022	-	(5,016)	(1,661,650)	(83,551)	(50,307)	(67,009)	(45,075)	-	(1,222,338)	-	(3,134,946)
Closing carrying amount as at 31 March 2022	65,000	1,880,157	1,805	350,327	12,077	67,920	29,810	303,553	97,845	6,654	2,815,148
Year ended 31 March 2021											
Opening carrying amount	65,000	39,429	1,679,930	1,310,459	81,201	99,032	74,885	-	1,459,678	1,585,156	4,809,613
Additions at cost	-	-	-	26,434	3,271	22,368	-	-	-	796,133	1,637,229
Transfers at cost	-	-	-	-	-	-	-	-	-	-	796,133
Disposals at cost	-	-	-	(4,875)	(1,736)	-	-	-	-	-	(6,611)
Scrapped	-	-	(16,475)	(1,237,445)	(25,920)	(2,266)	-	-	(288,406)	-	(1,570,512)
Gross cost as at 31 March 2022	65,000	39,429	1,663,455	94,573	56,816	119,134	74,885	-	1,171,272	2,381,289	5,665,852
Accumulated depreciation as at 31 March 2020	-	(3,032)	(1,671,346)	(1,279,264)	(58,765)	(44,478)	(29,616)	-	(1,300,164)	-	(4,386,664)
Depreciation on disposals	-	-	-	4,875	1,474	-	-	-	24,265	-	30,614
Depreciation on scrapped	-	-	16,475	1,233,478	25,062	1,696	-	-	357,542	-	1,634,253
Depreciation for the Year	-	(984)	(3,213)	(24,979)	(9,916)	(15,014)	(7,578)	-	-	-	(61,684)
Accumulated depreciation as at 31 March 2021	-	(4,015)	(1,658,084)	(65,891)	(42,145)	(57,795)	(37,193)	-	(918,357)	-	(2,783,480)
Closing carrying amount	65,000	35,413	5,371	28,683	14,671	61,338	37,692	-	252,915	2,381,289	2,882,372

NOTES TO FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

5 INTANGIBLE ASSETS

	2022 US\$	2021 US\$
Gross carrying amount - cost		
Balance as at 31 March 2021	74,114	74,114
Additions	360,776	-
Transfers in	1,276,284	-
Balance as at 31 March 2022	1,711,174	74,114
Ammortisation and impairment		
Balance as at 31 March 2021	(65,130)	(56,145)
Amortisation for the year	(17,375)	(8,984)
Accumulated Ammortisation as at 31 March 2022	(82,505)	(65,129)
Net carrying amount as at 31 March 2022	1,628,669	8,985

6 ACCOUNTS RECEIVABLE

Other receivables	140,707	17,417
Allowance for expected credit losses	-	-
Total financial assets other than cash and cash equivalents classified as loans and receivables	140,707	17,417
Prepayments	275	49,239
Statutory receivables	86,443	104,295
	227,425	170,951

6 ACCOUNTS RECEIVABLE (Cont'd)

Impairment of accounts receivable

The organisation applies IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss provision for trade and other receivables. To measure expected credit losses on a collective basis, trade and other receivables are grouped based on similar credit risk and their aging.

No provision for credit losses has been made because historically the organisation's debtors cleared their arrears within three months after the preceding year end. Based on forward-looking information and the historical information, the organisation has assessed the risk of default by its debtors as low and no expected credit losses has been recognised.

7 MARKET TRADING PLATFORM ACCOUNTS

	2022 US\$	2021 US\$
SAPP Market Trading Platform Botswana Power Corporation USD	140,414	2,556,691
SAPP Market Trading Platform Copper Electricity Corporation	541,455	540,372
SAPP Market Trading Platform Electricidade de Mozambique USD	2,264,052	201,003
SAPP Market Trading Platform ESKOM ZAR	775,123	554,595
SAPP Market Trading Platform Hydroelectrica de Cahora Bassa USD	24,960,407	2,004,795
SAPP Market Trading Platform Lesotho Electricity Company USD	5,591,996	4,482,004
SAPP Market Trading Platform Lunsemfwa Hydro Power Company USD	4,963	4,960
SAPP Market Trading Platform NamPower USD	22,032,495	21,070,153
SAPP Market Trading Platform NamPower ZAR	4,166,806	6,231,658
SAPP Market Trading Platform Eswatini Electricity Company USD	572,924	544,653
SAPP Market Trading Platform Societe Nationale d'Electricidade USD	384,597	384,324
SAPP Market Trading Platform Transmission Losses USD	3,284	3,028
SAPP Market Trading Platform Wheeling USD	13,325	13,087
SAPP Market Trading Platform Zimbabwe Electricity Supply Authority USD	1,973,684	4,267,504
SAPP Market Trading Platform Zambia Electricity Supply Company	8,409,683	7,563,784
Africa Green Company Trading Account	5,070	-
Ndola Electricity Company Trading Account	115,580	-
	71,955,858	50,422,611

8 SHORT TERM INVESTMENTS

Opening Balance as at 1 April 2021	32,487,077	-
Additions	-	32,412,103
Interest received on investments	-	74,974
Disposals	(32,487,077)	-
	-	32,487,077

Nature of Investments

These are short term money market investments with commercial banks.

Impact on cash flows

The maturity of the investments has resulted in an increase in the cash and cash equivalents at the end of the year.

9 CASH AND CASH EQUIVALENTS

Co-ordination Centre funds (note 9.1)	36,464,053	3,202,227
Norwegian Government Grant (note 9.2)	-	28,905
ZIZABONA Project Grant (note 9.3)	939,566	938,899
SAPP-BAYNES HPP Stanbic	1,000	-
	37,404,619	4,170,031

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

	2022 US\$	2021 US\$
9 CASH AND CASH EQUIVALENTS (Cont'd)		
9.1 Coordination Centre Funds		
Petty cash USD	7,762	1,034
Stanbic SAPP Capital Account	661,387	1,657,528
Stanbic Market Trading Platform BWP	87,742	84,134
Stanbic Market Trading Platform USD	755	50
Market Trading Platform US Dollar Adm	3,382,261	648,570
Market Trading Platform USD Clearing Acc	2,432,764	448,660
Market Trading Platform Congestion Income	595,080	1,352
Stanbic USD	2,331,047	193,908
Stanbic USD High	64,589	64,544
Stanbic Zim Admin	4,038	14,818
Stanbic Zim Card	3,404	5,374
Stanbic ZW 4579	1,048	63,961
Stanbic ZW 5389	40,172	9,513
Stanbic BW Card	3,254	7,803
ABSA USD	26,848,750	978
	36,464,053	3,202,227
9.2 Norwegian Grant USD Botswana Account		
Balance as at 01 April 2021	28,905	-
Deposit from SAPP to open account	-	100
Transfer from Norwegian Kroner account	-	1,169,616
	28,905	1,169,716
Payments		
Refund to SAPP for payments made in advance	-	(1,140,763)
Bank charges	-	(48)
Transfer to Government of Norway	(28,905)	
Balance as at 31 March 2022	-	28,905
9.3 ZIZABONA Project		
Balance as at 1 April 2021	938,899	938,233
Interest received	667	666
Balance as at 31 March 2022	939,566	938,899
9.4 Cash and cash equivalents		
Cash and cash equivalents comprise the following for the purposes of the cash flow statement:		
Cash and bank balances	36,464,053	3,202,227
Market Trading Platform Accounts	71,955,858	50,422,611
SAPP-BAYNES HPP	1,001	-
Norwegian Grant USD Botswana Account	-	28,905
ZIZABONA Project	939,566	938,899
	109,360,478	54,592,642

	2022 US\$	2021 US\$
10 NORWEGIAN GOVERNMENT GRANT CREDITOR		
Balance as at 01 April 2021	183,668	1,435,245
Bank charges	-	(39,343)
Depreciation	-	(154,947)
Exchange gain	-	179,862
Exchange loss	-	(96,129)
Scrapping of assets	-	(356)
Settlement of SAPP CC debtor account	-	(1,140,664)
Transfer to Government of Norway	(28,904)	-
Current year depreciation MTP Equipment	(154,764)	-
	-	183,668
11 CONGESTION INCOME		
Transfer from members market trading platform creditors funds	17,980,400	-
Additions	-	-
Interest earned	-	-
Interest received on investments	76,680	-
	18,057,080	-
12 ACCOUNTS PAYABLE		
Trade	31,972	(34,438)
Provisions (note 11.1)	453,066	324,450
Other payables (note 11.2)	3,263	(1)
	488,301	290,011

12.1 Provisions

	Leave pay provision US\$	Gratuity provision US\$	Performance bonus provision US\$	Total US\$
Carrying amount at 1 April 2021	98,835	190,485	35,130	324,450
Additional provisions	42,492	298,983	45,788	387,263
Amount utilised	(14,060)	(215,942)	(28,645)	(258,647)
Carrying amount at 31 March 2022	127,267	273,527	52,273	453,066
Carrying amount at 1 April 2020	179,403	200,180	26,236	405,819
Additional provisions	49,186	122,285	35,130	206,601
Amount utilised	(129,754)	(131,980)	(26,236)	(287,970)
Carrying amount at 31 March 2021	98,835	190,485	35,130	324,450

12.2 Other payables

	2022 US\$	2021 US\$
Goods received not yet Invoiced	35	-
Net salaries	(6)	(1)
Pension payable	(1)	-
Opening balance clearing	3,235	-
	3,263	(1)

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

13 MEMBERS MARKET TRADING PLATFORM FUNDS

SAPP Market Trading Platform Botswana Power Corporation USD	131,135	2,526,844
SAPP Market Trading Platform Copper Electricity Corporation	491,336	477,208
SAPP Market Trading Platform Clearing USD	-	(448,660)
SAPP Market Trading Platform Congestion Income	-	18,027,641
SAPP Market Trading Platform Electricidade de Mozambique USD	2,210,843	135,894
SAPP Market Trading Platform ESKOM ZAR	737,178	538,344
SAPP Market Trading Platform Hydroelectrica de Cahora Bassa USD	24,960,357	2,003,395
SAPP Market Trading Platform Lesotho Electricity Company USD	5,588,937	4,481,459
SAPP Market Trading Platform Lunsemfwa Hydro Power Company USD	4,963	4,960
SAPP Market Trading Platform NamPower USD	22,022,987	21,068,754
SAPP Market Trading Platform NamPower ZAR	4,167,799	6,218,452
SAPP Market Trading Platform Eswatini Electricity Company USD	560,461	540,366
SAPP Market Trading Platform Societe Nationale d'Electricidade USD	384,564	384,324
SAPP Market Trading Platform Transmission Losses USD	3,286	3,028
SAPP Market Trading Platform Wheeling USD	13,340	13,087
SAPP Market Trading Platform Zimbabwe Electricity Supply Authority USD	1,962,900	4,266,927
SAPP Market Trading Platform Zambia Electricity Supply Company	8,408,198	7,536,964
Africa Green Company Trading Account	5,070	-
Ndola Electricity Company Trading Account	115,579	-
	71,768,933	67,778,987
MTP Transitory Clearing Account	-	-
DAM Clearing Account USD	8 616	-
	71 777 549	67 778 987

14 MARKET TRADING PLATFORM (MTP) ADMINISTRATION FEES

April	216,160	239,500
May	200,287	249,282
June	222,678	285,215
July	262,508	308,460
August	317,514	285,868
September	269,540	259,936
October	195,483	274,972
November	333,069	213,384
December	212,793	237,403
January	266,443	249,384
February	218,166	171,060
March	162,617	222,606
	2,877,258	2,997,070

15 OTHER INCOME

Interest on investments	80,799	74,974
Interest received	3,914	7,398
Sundry income	20,653	9,000
(Loss)/profit on disposals of assets	(225)	170
Foreign exchange gain	1,051,753	-
	1,156,894	91,542

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

	2022 US\$	2021 US\$
16 COMMUNICATION COSTS		
Cell phone allowances	14,734	13,193
Internet charges	58,552	35,185
Telephone and fax charges	10,288	5,106
	83,574	53,484
17 MARKET TRADING PLATFORM AND SCADA EXPENSES		
MTP/SCADA Software system support and maintenance	51,334	207,375
18 ADMINISTRATIVE COSTS		
Branded corporate gifts	-	250
Computer consumables and networks	22,723	23,435
Conferences workshops and seminars	51	12
Consultancy fees	(820)	7,035
Valuations, archiving	1,292	-
Generator expenses	1,705	445
Customs, storage and clearing charges	-	1,511
Grant utilised	-	80,251
Insurance	29,080	19,903
Loss in disposal of assets	(2,525)	14,306
Membership subscription	1,694	777
Newspapers, books and periodicals	2,591	1,466
Postages and couriers	4,502	4,611
Printing, photocopying and stationery	1,449	6,022
Repairs and maintenance - furniture and fittings	357	61
Repairs and maintenance - office equipment	852	1,972
SAPP annual report	10,457	-
Software licences and maintenance	155,766	109,868
Foreign exchange loss	520,115	-
Whistle blowing	3,631	3,605
	752,920	275,530

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

	2022 US\$	2021 US\$
19 FINANCE CHARGES		
Bank charges	32,812	22,466
20 MARKETING AND PUBLICITY		
Advertising and promotions	6,483	2,562
21 MOTOR VEHICLE EXPENSES		
Motor vehicle fuel	3,204	1,861
Motor vehicle insurance	-	2,158
Motor vehicle licences and parking fees	278	1
Repairs and maintenance - motor vehicles	1,364	1,027
	4,846	5,047
22 OCCUPANCY COSTS		
Cleaning expenses	23,695	9,609
Rates and water charges	3,881	3,097
Repairs and maintenance - buildings	6,323	-
Repairs and maintenance - grounds and tools	4,270	107
Repairs and maintenance- electricals	1,995	2,322
Rent	176	54,489
Relocation costs	7,358	10,940
Security	10,802	16,004
	58,500	96,568

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

	2022 US\$	2021 US\$
23 STAFF COSTS		
Covid-19	3,373	-
13th cheque	114,987	72,180
Availability allowance	16,131	17,610
Basic salaries	884,427	836,876
Cash in lieu of leave	36,815	35,766
Funeral cover	389	237
Gratuity	108,498	102,735
Group life assurance cover	11,829	7,785
Group personal insurance	-	4,473
Hardship allowance	75,828	71,714
Housing allowance	55,570	50,556
Market mobility incentive	16,959	14,215
Medical aid	38,655	35,756
Medical expenses (first aid box)	-	216
National Social Security Authority	1,957	628
Office provisions	6,275	6,908
Overtime	113	635
Pension	3,627	3,631
Acting allowance	2,643	4,012
Performance bonus	-	38,283
Staff training	38,319	20,199
Staff uniforms	3,277	3,666
Staff welfare	8,868	4,857
Subscriptions allowance	4,079	4,252
Transport allowance	18,480	18,136
Work permits	1,300	-
Workers compensation insurance	11,082	9,675
Corporate Wear	2,790	132
	1,466,271	1,365,133
24 TRAVEL AND SUBSISTENCE		
Accommodation and meals	12,454	1,313
Commission, VAT and administration charges	-	2
International conferences	1,200	-
Per diem allowance	7,430	400
Travel - international	33,772	2,026
Travel - local airfares	738	970
Visa applications	1,253	-
Travel-local taxis	1,468	70
	58,315	4,781

SOUTHERN AFRICAN POWER POOL
NOTES TO THE FINANCIAL STATEMENTS(Cont'd)
for the year ended 31 March 2022

	2022 US\$	2021 US\$
25 RECRUITMENT EXPENSES		
Advertising	365	900
Airfares	610	10
Accommodation and meals	4,095	-
Perdiems	320	80
Consultancy fees	867	-
Relocation costs	430	-
Work Permits	3,800	-
	10,487	990

26 MANAGEMENT OF CAPITAL

The Organisation's objectives when managing capital are to safeguard the Organisation's ability to continue as a going concern. The Organisation is funded out of members' contributions to capital and as such there are no borrowings to support the capital structure for which capital risk management would be considered necessary.

27 RELATED PARTY INFORMATION

The following are the related parties of the organisation:

27.1 Related party	Nature of relationship		
Stephen Dihwa	Key Management		
Alison Chikova	Key Management		
Wilson Masango	Key Management		
Jean Madzongwe	Key Management		
Mziyanda Mbuseli	Key Management		
		2022 US\$	2021 US\$
27.2 Related party transactions			
The following represent transactions with related parties during the year:-			
Related party	Nature of transaction		
Key management	Payments made to key management	593,919	620,425
27.3 Related party payables			
Included in accounts payable are the following balances:-			
Amounts owed by key management		6,018	132

28 FINANCIAL INSTRUMENTS - RISK MANAGEMENT

28.1 Risk

The organisation is exposed through its operations to the following financial risks:

1. Credit risk
2. Interest rate risk
3. Liquidity and cashflow risk
4. Exchange rate risk

In common with all other organisations, the organisation is exposed to risks that arise from its use of financial instruments. This note describes the organisation's objectives, policies and processes for managing those risks and methods used to measure them. Further quantitative information in respect of these risks is presented throughout these financial statements.

There have been no substantive changes in the organisation's exposure to financial instrument risks, its objectives, policies and processes for managing those risks or the methods used to measure them from the previous periods unless otherwise stated in this note.

28.2 Principal financial instruments

The principal financial instruments used by the organisation, from which financial instrument risk arises, are as follows:

- a) Cash and cash equivalents
- b) Accounts receivable
- c) Accounts payable
- d) Members market trading accounts

28.3 General objectives, policies and processes

The Board has the overall responsibility for the determination of the organisation's risk management objectives and policies and, whilst retaining ultimate responsibility for them, it has delegated the authority for designing and operating processes that ensure the effective implementation of the objectives and policies to the organisation's executive management.

A summary of the financial instruments held by category is provided below:

	2022 US\$	2021 US\$
Cash and cash equivalents	37,404,619	4,170,031
Accounts receivable	227,425	170,951
Members MTP accounts	71,768,933	67,778,987
	<u>109,400,977</u>	<u>72,119,969</u>
Financial liabilities		
Accounts payable	488,301	290,011
Members Market Trading Platform funds	71,777,549	67,778,987
	<u>72,265,850</u>	<u>68,068,998</u>

28.4 Credit risk

Financial assets which potentially subject the organisation to concentrations of credit risk consists primarily of cash and accounts receivable. The organisation's cash and cash equivalents are placed with high quality financial institutions. Credit risk arises from member countries receivables. The credit risk has been assessed as low as the member countries subscriptions have been constantly honoured.

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

29 FINANCIAL INSTRUMENTS - RISK MANAGEMENT (Cont'd)

29.1 Interest rate risk

This is the risk that arises from the adverse movement in the value of future interest receipts resulting from movements in interest rates. There is currently no interest rate risk as the organisation does not have any borrowings.

29.2 Financial assets not measured at fair value

Financial assets not measured at fair value include cash and cash equivalents, accounts receivable and trade and other payables. Due to their short-term nature, the carrying values of cash and cash equivalents, account receivable, trade and other payables approximate their fair value.

29.3 Foreign exchange risk

Foreign exchange risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The organisation is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the South African rand, Botswana Pula and the Norwegian Kroner. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities and net investments in foreign operations denominated in a currency that is not the organisation's functional currency. The organisation did not hedge its financial instruments.

	2022 US\$	2021 US\$
Assets		
Botswana Pula	90,996	91,937
South African Rand	4,941,929	6,786,253
	5,032,925	6,878,190
Liabilities		
South African Rand	4,941,929	6,786,253
	4,941,929	6,786,253

NOTES TO THE FINANCIAL STATEMENTS (Cont'd)
for the year ended 31 March 2022

30 LIQUIDITY RISK

Liquidity risk is the risk that an organisation will encounter difficulty in meeting its financial obligations. The organisation has sufficient liquid resources to meet its obligations as they fall due. The table below summarizes the maturity profile of the organisation's liabilities at 31 March based on contractual undiscounted payments:

At 31 March 2022

	Up to 3 months US\$	Between 3 and 12 months US\$	Between 12 and 24 months US\$	Over 24 months US\$	Total US\$
Accounts payable	488,301	-	-	-	488,301
Members Market Trading Platform funds	71,777,549	-	-	-	71,777,549
Congestion Income	-	-	-	18,057,080	18,057,080
	72,265,850	-	-	18,057,080	90,322,930

At 31 March 2021

	Up to 3 months US\$	Between 3 and 12 months US\$	Between 12 and 24 months US\$	Over 24 months US\$	Total US\$
Accounts payable	290,011	-	-	-	290,011
Members Market Trading Platform funds	67,778,987	-	-	-	67,778,987
	68,068,998	-	-	-	68,068,998

31 COMMITMENT AND CONTINGENCIES

There were no known commitments and contingencies as at the end of the year.

32 EVENTS AFTER REPORTING DATE

There were no significant events which occurred from the reporting date to the date of approval of these financial statements.

33 Approval of financial statements

These financial statements were approved by the Board for issue on 25 July 2025