

## CONTENTS

Meetings, Workshops and Conferences.....	1
SAPP Executive Committee Meeting.....	1
African Women in Energy and Power Webinar..	2
SAPP SCADA ICCP Training.....	2
System Planning.....	2
SAPP Transmission Pricing Methodology	
Development.....	2
Continental Power System Master Plan.....	2
Capacity Building from the Continental	
Masterplan Development Project.....	3
Update on SAPP Projects.....	3
Angola-Namibia Interconnector Project.....	3
Baynes HPP Transmission Lines Project.....	3
Inga-Soyo Interconnector Project.....	4
Kolwezi-Solwezi Interconnector Project.....	4
Luapula Hydro Electric Power Scheme.....	4
Mozambique - Tanzania Interconnector Project	
Mozambique - Zimbabwe Interconnector Project	
.....	4
Mphanda Nkuwa Technical Assistance.....	4
Regional Transmission Infrastructure Financing	
Facility (RTIFF).....	4
System Operations.....	5
System Disturbances.....	5
Power Supply – Demand Situation.....	5
Electricity Trading.....	5
Traded Volumes.....	5
Market Revenue.....	6
Market Surveillance (MS).....	6
Market Monitoring and Surveillance.....	6
Environmental Corner.....	6
PCB Awareness.....	6
Drought Sensitivity RAS for SAPP.....	6
Upcoming Events – 2023.....	6

Inter-Utility Memorandum of Understanding (IUMOU) to allow the SAPP Coordination Centre to coordinate, cooperate, facilitate, or participate in the financing of regional transmission infrastructure, or in a fund or financing facility established for that purpose. The Executive Committee approved revisions to the SAPP CC Constitution to align it to the changes that have already been made in the SAPP IUMOU and Agreement Between Operating Members (ABOM). Mr Victor B. Mapani, Managing Director of ZESCO was re-elected as the Executive Committee Chairperson and Mr Fabrice Lusinde was re-elected as Vice-Chairperson.



*SAPP Executive Committee Members  
Kinshasa, DRC General Secretary in the Ministry of  
Water Resources and Energy of the Democratic  
Republic of Congo*

## Meetings, Workshops and Conferences

### SAPP Executive Committee Meeting

The 54<sup>th</sup> SAPP Executive Committee meeting was held in Kinshasa DRC on 4 April 2023. The meeting was officially opened by the General Secretary in the Ministry of Water Resources and Energy of the Democratic Republic of Congo. The meeting was chaired by the Executive Committee Vice Chairman, Mr Fabrice Lusinde, SNEL Managing Director. The meeting approved the 2023/24 SAPP Budget, revisions to the SAPP



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*Vote of Thanks by Eng. Ernest Mkhonta, Managing Director of Eswatini Electricity Company*

### African Women in Energy and Power Webinar

The African Women in Energy and Power in collaboration with SAPP held an online webinar on advancing the SADC electricity system for regional energy security. The SAPP Chief Engineer Planning and Operations made a presentation on the developments in energy security in the region. The SAPP utilities also made presentations highlighting the key challenges they face in energy security.

### SAPP SCADA ICCP Training

The SAPP SCADA training on Inter-Control Centre Communication Protocol (ICCP) was held in Massey, Paris, France, for the second group of SAPP utilities, including SNEL, CEC, LHPC, Ndola Energy, HCB, TANESCO, ESCOM, NamPower and RNT. SAPP Operating Members are required to share agreed power system data in real time using ICCP. This training was delivered by GE of France, who implemented the SAPP SCADA system at SAPP Coordination Centre.



*SAPP ICCP Training Participants in Massey*

### System Planning

#### SAPP Transmission Pricing Methodology Development

The Transmission Pricing Task Team continued with the review of the SAPP transmission Pricing Model. As per the recommendations made during the joint MSC, OSC and PSC meeting held in February 2023 as well as MANCO meeting held in Maseru, Lesotho in March 2023, the Task Team has been carrying out sensitivity analysis of the model as well as impact analysis of the prices on the SAPP auction market and bilateral trades.

#### Continental Power System Master Plan

The development of the Continental Power System Masterplan modelling is on-going and the SAPP as a major stakeholder is providing technical support to the studies. During the period under review the team, i.e. SAPP and SAPP AUDA\_NEPAD seconded expert for the project completed the development of CMP 2025, 2030 and 2035 PSS/E casefiles models which aligns with the 2020-2040 Baseline and Reference Case Planning Scenario Results.

Upcoming activities include consultations and stakeholder meetings to discuss and adopt the following deliverables:

- Deliverable 8: 2020-2040 Planning Scenario and Sensitivity Results Report
- Deliverable 9: Cost Benefit Analysis Report
- Deliverable 10: Network Studies Report

The next stakeholders meeting is scheduled for Cotonou, Benin from the 3rd to 5th July 2023.



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## Capacity Building from the Continental Masterplan Development Project

The SAPP continued to get benefits from the CMP project as the SAPP CC Planning Engineer and the Operations Engineer got capacitated on SPLAT and iMESSAGE models which are transmission modelling and generation expansion optimisation tools respectively. Upcoming activities include Advanced PSS/E training which is planned for 22<sup>nd</sup> to 25<sup>th</sup> May 2023.

## Update on SAPP Projects

### Angola-Namibia Interconnector Project

In the month of April 2023, the project outputs of the ANNA project included updating of the Financial Model, the Project Information Memorandum (PIM), Joint Implementation Agreement (JIA) and Market Analysis report. The following was the work done:

#### (i) Joint Implementation Agreement (JIA):

The draft final Joint Implementation Agreement (JIA) report has been concluded.

#### (ii) Updated Market Analysis report:

The draft final Market Analysis report has been concluded and is ready for presentation to the project MANCO.

#### (iii) Updated Financial Model report:

The draft final Financial Model report has been concluded, on the basis that the AfDB general lending requirements will apply in project financing of the Angola portion of the ANNA transmission study. However, with the recent developments in Angola regarding potential financing agreements between the Government of Angola and the World Bank, the document might need to be updated with the World Bank lending requirements, terms, and conditions, financing options, and new monetary estimates on costs and benefits distribution, cashflow forecasts, debt and equity levels.

#### (iv) Project Information Memorandum:

The draft final PIM document has been concluded and will be presented to the upcoming MANCO. However, with the recent developments in Angola, the document might require minimal updating to reflect the new reality as regards the potential financing options, economic and financial analysis to inform costs and benefits of the project.

#### (v) Tender Documents and Support:

Work on tender documentation and packaging has not advanced much, from last year's work inputs. Line and substation lots have been proposed by the Consultant and engagements with the project sponsors have taken place, to review and harmonise equipment standards and specification, procurement strategies, and sources of project financing.

### Baynes HPP Transmission Lines Project

Clarification on contractual matters took centre stage in the month under review for both the techno-economic study and ESIA study consultancy services. The following was the work done:

#### (i) Techno-Economic/ESIA Study Readiness:

Procurement clarification discussions and harmonisation meetings around the scope of the proposal works took much of the time and constituted the works agenda for the period under review, between SAPP and the potential consultants selected for the Techno-Economic and ESIA studies. All clarifications were finalised and submitted to the respect funders: NEPAD-IPPF and Swedfund for clearance to facilitate contract signature between SAPP and service providers.

#### (ii) Decision on IPOEs:

RNT, NamPower and SAPP revised and updated the evaluation report on individual Curriculum Vitae (CVs) of experts to be part of the Independent Panel of Experts (IPOE). Clearance



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is awaited from the AfDB, to proceed with final selection of experts.

### Inga-Soyo Interconnector Project

Project status is at pre-procurement stage and is awaiting clearance from the World Bank on the TORs of the Techno-Economic and ESIA Studies.

### Kolwezi-Solwezi Interconnector Project

The post implementation financial audit for the Feasibility Studies started in April 2023, and is planned to end in May 2023.

### Luapula Hydro Electric Power Scheme

SAPP signed the Letter of Agreement, with the NEPAD-IPPF to provide a grant for project preparation of the Techno-Economic Study for the Mumbotuta site CX. The letter was signed 20 April 2023. The grant covers the Technical Study and includes a component to fund the work of an ESIA Expert as part of Consultancy team.

### Mozambique - Tanzania Interconnector Project

SAPP and NEPAD-IPPF signed a Letter of Agreement, for the Bank to provide grant funding for project preparation to interconnect the Mozambique and Tanzania networks.

### Mozambique - Zimbabwe Interconnector Project

In anticipation of submission of a letter mandating the SAPP to coordinate sourcing of project preparation funds, procurement and project management, the PAU has started work to prepare a Project Information Memorandum (PIM) document, for use in motivating grant funding from development cooperation partners.

The EDM Board of Directors signed a letter to mandate SAPP PAU to coordinate sourcing of project preparation funds, procurement and project management and the related IUMOU documentation during the month.

The following is the state of readiness to implementation:

- (i) The IGMOU validity has been confirmed.
- (ii) The IUMOU has been signed by EDM and is pending ZESA signature.
- (iii) The Techno-Economic and ESIA study TORs have been developed.
- (iv) Project Implementation Memorandum (PIM) is currently being prepared.
- (v) The Project Implementation Framework (PIF) is ready for validation and approval.
- (vi) The SADC-PPDF has been engaged on the possibility of providing a grant for project preparation.

### Mphanda Nkuwa Technical Assistance

The following is the overall progress on the project:

#### (i) Site Visits and Data Collection:

An initial site visit to Songo and Matambo was undertaken to collect further data and to ensure the consultant's team could be updated on the latest developments in the area.

#### (ii) Preparation of a Transmission Model:

A PSS/E model of the existing system has been provided by EDM and SAPP. The model is of key importance for the project in the interim phase, and the consultant has been working closely with EDM on updating and expanding the model for future scenarios, while coordinating with the team on the Market Study to ensure that demand figures and generation scenarios are aligned with the outcome of the Market Study.

### Regional Transmission Infrastructure Financing Facility (RTIFF)

SAPP continued to make progress across various critical workstreams during the reporting period. Notably, the following key RTIFF terms of references were progressed with procurement formalities now being initiated:



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- i. TORs for a consultant for the final phase of the project that will ensure the establishment and operationalization of the facility.
- ii. TORs for the Transaction Advisor to assist SAPP with expert analysis and advisory support on the work conducted by consultants on the appropriate legal, financial and operational structure of RTIFF, and other activities towards the establishment of RTIFF.
- iii. TORs for the Fund Manager/Investment Advisor.

There were also engagements with a range of third parties including potential investors in RTIFF.

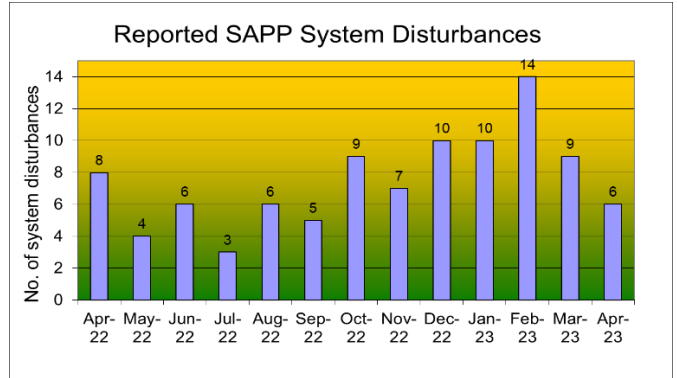
## System Operations

### System Disturbances

In the month of April 2023, six (6) system disturbances were reported, as follows:

- One generation unit tripped from 523 MW in South Africa and frequency dipped from 49.902 Hz to 49.480 Hz.
- While Stage 4 load-shedding was in progress, one generation unit tripped from 330 MW in South Africa and frequency dipped from 49.67 Hz to 49.490 Hz.
- The HVDC converter tripped in DR Congo and the interconnectors between Zambia and DR Congo tripped on directional over-power protection. Power swings were then observed in Zambia.
- One generation unit tripped from around 900 MW in South Africa and frequency dipped from 49.789 Hz to 49.463 Hz.
- The 400 kV Botswana - Zimbabwe interconnector tripped due to power swings. The power frequency in the southern island dipped from 49.88 Hz to 49.52 Hz.
- Power frequency oscillated between 49.815 Hz and 49.771 Hz and then dipped to 49.459 Hz due to load-shedding rotation activities.

Refer to figure below for general outlook of SAPP system disturbances in the last twelve months.



## Power Supply – Demand Situation

The table below shows the power supply and demand situation in April 2023 in some SAPP member utilities.

Country, Utility	Available (MW)	Recorded Peak Demand (MW) <sup>1</sup>	Load Shed (MW)
South Africa, Eskom	25854	25,094	3,000
Botswana, BPC	630	591	-
Eswatini, EEC	71	228.7	-
Mozambique, EDM and HCB	2,246	1,035	-
Namibia, NamPower	369.5	616	-
Zambia, ZESCO, CEC	2,350	2,221	-
Zimbabwe, ZESA <sup>2</sup>	1,622	1,622	300
Lesotho, LEC	74	141	-
DR Congo, SNEL	1,775	1,950	200

**Notes:** <sup>1</sup>Recorded peak demand – after load shedding  
<sup>2</sup>Estimated figures

## Electricity Trading

### Traded Volumes

Market performance during the month of April 2023 was lower when compared to March 2023. Total traded volumes on the Day Ahead Market (DAM), Intra-Day Market (IDM), Forward Physical Monthly Market (FPM-M), and Forward Physical Weekly Market (FPM-W) decreased by 5% to



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102.4 GWh in the month of April 2023, from the March 2023 volume of 107.8 GWh.

### Market Revenue

A total of USD 7.3 million was exchanged on the competitive market during the month of April 2023 compared to USD 7.9 million exchanged in March 2023. The change is mainly attributed to a change in traded volumes. USD 7.9 million was exchanged on the competitive market during the same month of April in 2022.

### Market Surveillance (MS)

#### Market Monitoring and Surveillance

During the period under review, the MS Unit observed possible anomalies in DAM clearing prices, and the analysis reviewed that these were caused by the interplay between market supply and demand.

Of noting the DAM off-peak prices were exceptionally high for the first two weeks of the month under review, due to limited power supply in the SAPP market system.

There were no major generator outages and transmission capacity outages reported during the month under review.

The Market Operator observed its own processes and procedures. The MTP system generally performed according to expectations during the month of April 2023. The Unit received a case for investigation from one of the Market participants and investigations are currently in progress.

### Environmental Corner

#### PCB Awareness

The evaluation of technical and financial bids from prospective Poly-Chlorinated Biphenyls (PCB) Awareness Consultants is currently being finalised. The whole selection process is expected to be complete before end of May 2023. The successful organisation will assist with development of the SAPP PCB Standard

Operating Procedure and training material for associated capacity building and awareness activities during the continuous four months period.

### Drought Sensitivity RAS for SAPP

Drought Sensitivity Resilience Assessment for the SAPP (DSRAS) Phase I report is currently being finalised. The focus of this report will be on the sensitivity of hydro-energy generation to climate-induced drought. Principally Phase I aimed to create input data for power system modelling to be carried out in Phase II, covering over 100 Hydro Power Plants across the SAPP member countries.

### Upcoming Events – 2023

DATE	EVENT
10 – 11 May 2023	Transmission Pricing Task Team meeting, <b>Harare, Zimbabwe</b>
16 -18 May 2023	Enlit Africa, CTICC, <b>Cape Town, South Africa</b>
30 May – 1 June 2023	Joint SAPP MSC, OSC and PSC Sub Committee meetings, <b>Johannesburg, South Africa.</b>
5 - 9 June 2023	APUA Annual Meetings, <b>Lilongwe, Malawi</b>
15 June 2023	55th SAPP CC Board meeting, <b>Harare, Zimbabwe</b>
20 - 23 June 2023	25 <sup>th</sup> Africa Energy Forum, <b>Nairobi, Kenya</b>
28 - 31 Aug 2023	CIGRE 2023 Meetings
4 - 8 Sept 2023	61 <sup>st</sup> SAPP Meetings, <b>Botswana</b>
Oct 2023	55 <sup>th</sup> SAPP Executive Committee Meeting, <b>Luanda, Angola</b>



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