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of Independent Power Producers and the SAPP market trading arrangements.

SAPP Training on SCADA ICCP

The SAPP Coordination Centre has commissioned an online power system viewer. The measurements and status of equipment are obtained through the Inter-Control Centre Protocol (ICCP) of the SCADA systems, currently only from Eskom (South Africa), ZESA (Zimbabwe), and ZESCO (Zambia). A training on ICCP was organised for SCADA engineers from the first group of SAPP member utilities in Massy, France from 6 to 10 March 2023. The second and last group would be trained in April 2023.



Training session on ICCP in Massy, France, for first group of SAPP member utilities

Visit to SAPP by APUA

The APUA Vice Chairperson, Mr Joaquim Ventura and his delegation representing PRODEL, the generation company in Angola visited the SAPP Coordination Centre in Harare, Zimbabwe to familiarise with the operations of SAPP and explore future areas of cooperation. He expressed the need for more SAPP members to participate in APUA activities.

Kafue Gorge Lower Power Station Official Ceremony

The SAPP CC Executive Director attended the official switch-o ceremony of the Kafue Gorge Lower power station in Zambia on 24 March 2023. It was officiated by the President of Zambia. The attendees included representatives from ESCOM

Meetings, Workshops and Conferences

International Renewable Energy Conference and Expo

The International Renewable Energy Conference and Expo was held in Victoria Falls, Zimbabwe from 21 to 24 March 2024 and was officially opened by the President of Zimbabwe Honourable E.D. Mnangagwa who is the patron.

The SAPP represented by the Chief Engineer (Planning and Operations) presented on the role of renewable energy in Southern Africa, the role



and Eskom as well as the former Managing Directors of ZESCO. The event marked the completion of the 750 MW plant which is a critical addition to power supply in Zambia and the Southern African region.

System Planning

SAPP Transmission Pricing Methodology Development

The development of the SAPP transmission Pricing Model has been completed. Ongoing activities now include carrying out sensitivity analysis of the model as well as impact analysis of the prices on the SAPP auction market and bilateral trades.

During the period under review, the Transmission Pricing Task Team continued to carry out the following tasks:

- Review additional technical analysis done following the recommendations made by the joint PSC, MSC and OSC meeting held in February 2023.
- Review impact analysis of the TPM on the SAPP Auction Markets and Bilateral Trades.
- Investigate double charging on proposed charging arrangements.
- Vigorous testing of the engine of the model (python code).

The results of the analysis will be discussed during the upcoming Transmission Pricing Task Team meeting scheduled for 10th to 11th May 2023 in Harare.

The resolutions from the Task Team meeting will be discussed at the joint PSC, MSC and OSC meeting scheduled for 30 May to 1 June 2023.

Continental Power System Master Plan

The development of the Continental Power System Masterplan modelling is on-going. During the period under review, the major milestones achieved are as follows:

- (i) The delivery and adoption of the second part of the Integrated Continental Demand Forecast – Scenario Analysis.
- (ii) The delivery of the 2020-2040 Baseline and Reference Case Planning Scenario Results.
- (iii) 4th SPLAT Training, Kigali, Rwanda, 13th to 17th March 2023.
- (iv) Consultations and Stakeholder consultative meetings on CMP, AfSEM and AfEES.

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 will be held in Cotonou, Benin from the 3rd to 5th July 2023.

Update on SAPP Projects

Angola-Namibia Interconnector Project

In the month under review the Transaction Advisory (TA) team continued to work on the six in-progress deliverables. However, processing of two deliverables has been concluded, and draft final reports are ready for submission before the project Management Committee (MANCO) for their decision. Further, lack of information related to sources of project financing, financing conditions and donor requirements led to delays in the processing of the Financial Model and Project Information Memorandum (PIM). RNT formally informed SAPP that the Government of Angola had written to the World Bank, expressing its interest for a financing agreement, for the engineering, procurement, and construction of the ANNA project. A project MANCO meeting has been proposed for May 2023. The following is a status report on the six ongoing deliverables:

(i) Final Joint Implementation Agreement (JIA):

The draft final Joint Implementation Agreement (JIA) report has been concluded and is ready for



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presentation to the project MANCO for a decision on the joint project governance solutions and integrated safeguards. The report has proposed for the financing, construction, and commercial operation phases of the project.

(ii) Updating of the Market Analysis report:

The draft final Market Analysis report has been concluded and is ready for presentation to the project MANCO, for a decision on the recommended sustainable energy market scenarios and trends across the project's commercial service life.

(iii) Updating of the Financial Model report:

Processing of this deliverable has been delayed by about 4 months, due to the lack of information on preferred project lenders, especially for the Angola transmission corridor, which holds about 92% of the proposed line route length. The recent announcement by RNT that the World Bank and the Government of Angola are likely to agree on project financing arrangements will facilitate completion of this deliverable. Furthermore, the announcement by RNT is likely to influence a source of financing decision by NamPower, as the project sponsor has not concluded on the source of project financing coming from the market or NamPower balance sheet.

(iv) Preparation of a Project Information Memorandum:

Revision and harmonisation of this deliverable is ongoing. However, work on this deliverable depends on the confirmation by RNT and NamPower on their sources of project financing, so that the TA then structures a relevant PIM to promote and motivate the project further.

(v) Tender Documents and Support:

In the month under review, RNT provided feedback on the draft prequalification documentation.

(vi) Contract and Financial Support:

In the month under review, not much work was done on this deliverable, as much of the inputs to harmonise and finalise the deliverable are expected to come from RNT and NamPower.

Baynes HPP Transmission Lines Project

In the month under review, Procurement of the techno-economic study and ESIA study consultancy services significantly advanced. The following is the progress recorded on the project:

Techno-Economic Feasibility Study:

Contract negotiation took place between SAPP and ZUTARI on the project. Steps to conclude the process were initiated during the month.

ESIA Study:

Contract negotiation with SRK of South Africa took place on 9 March 2023. The two studies (techno-economic and ESIA studies) are intentionally aligned to kick-off within the same period. The techno-economic study will lead exploration of the proposed transmission corridor to identify possible transmission line routes, and at the same time the two studies interfacing information exchange right from inception phase through to project completion.

Inga-Soyo Interconnector Project

Procurement of techno-economic study and ESIA study consultancy services is still in progress.

Kolwezi-Solwezi Interconnector Project

Procurement of an audit firm to assess financial performance of the project has progressed. The project funder has given consent and is awaiting kick-off of the actual financial assessment.

Mozambique - Zimbabwe Interconnector Project

The project activities currently ongoing include finalisation of the letter of mandate by the two sponsors: EDM and ZESA/ZETDC. As of 31



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March 2023, EDM Board had endorsed the Letter of Mandate.

The following is the readiness to initiate project implementation:

- (i) IGMOU is valid.
- (ii) Draft final IUMOU ready for validation and signature.
- (iii) Draft final techno-economic and ESIA study TORs ready for validation and approval.
- (iv) Project Implementation Framework ready for validation and approval.
- (v) Funding agreement awaiting application by SAPP.

Mphanda Nkuwa Technical Assistance

Norconsult, the techno-economic study Consultant updating the STE feasibility study has since submitted a draft inception report to the GMNK project office for review and harmonisation. SAPP has received the draft inception report and is participating in the review.

Regional Transmission Infrastructure Financing Facility (RTIFF)

SAPP and SADC Secretariat made significant progress across one of the critical workstreams during the reporting period, which covers March 2023. The SADC Council of Ministers meeting took place from the 18th to the 20th of March 2023 in Kinshasa, DRC where deeper, in-person engagements with Council members took place. To this end, the SADC Council endorsed the recommendation of the Ministers of Finance and Investment and directed the SADC Secretariat and the Southern African Power Pool to:

- (i) Proceed with the establishment of Regional Transmission Infrastructure Financing Facility; and
- (ii) Develop instruments for establishing and operationalising the Regional Transmission Infrastructure Financing Facility and present them to the Ministers of Finance and Investment at their next meeting.

Building on the positive response from the SADC Council, SAPP CC held a fruitful meeting with potential investors led by the IFC where a draft concept note was presented to SAPP for review.

System Operations

System Disturbances

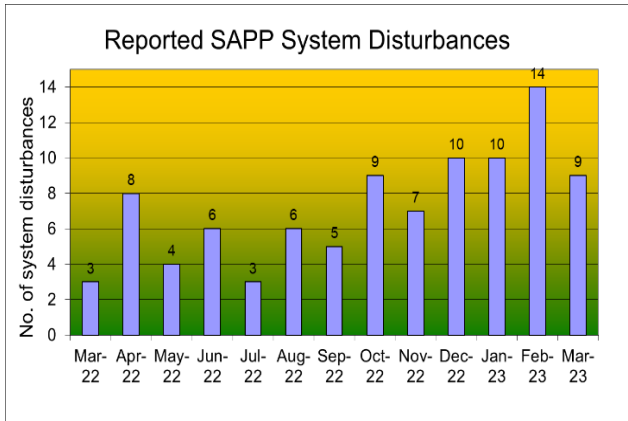
In the month of March 2023, nine (9) SAPP system disturbances were reported. In the first disturbance, a 220 kV transmission line tripped in DR Congo. The DR Congo and Zambian power systems experienced voltage, power flow and power frequency fluctuations, as a result. In the second disturbance, the 220/330 kV transformer in Mozambique on the 330 kV Mozambique - Zimbabwe interconnector tripped due to over-excitation. In the third disturbance, the Zambia - DR Congo interconnectors tripped on directional over-power protection due to supply-demand imbalance in DR Congo. In the fourth disturbance, one generator tripped from 727 MW in South Africa and frequency dipped to 49.45 Hz.

One of the two 533 kV HVDC lines from Mozambique to South Africa was out of service from the beginning of the month to 13 March 2023. When in service the HVDC systems assist in damping power oscillations. In this period, the 400 kV Botswana - Zimbabwe interconnector tripped 5 times because of undamped power oscillations. In the first one, power oscillations were triggered by loss of an output of 240 MW from the Mozambique-South Africa HVDC link in South Africa. In the rest, the 220 kV bus coupler circuit breaker at Songo in Mozambique tripped on over-frequency, under-frequency, or excess energy. These were triggered by loadshedding activities in South Africa of up to 6,000 MW. Refer to Figure below for the outlook of reported system disturbances in the last 12 months.



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Outlook of reported SAPP System Disturbances

Power Supply – Demand Situation

The table below shows the power supply and demand situation in SAPP in March 2023.

Country, Utility	Available (MW)	Recorded Peak Demand (MW) ¹	Load Shed (MW)
South Africa, Eskom	27,098	25,803	2,000
Botswana, BPC	630	616	-
Eswatini, EEC	71	233	-
Mozambique, EDM and HCB	2,246	1,035	-
Namibia, NamPower	369.5	616	-
Zambia, ZESCO, CEC	2,850	2,255	-
Zimbabwe, ZESA ²	1,388	1,300	350
Lesotho, LEC	74	151	-
DR Congo, SNEL	1,775	1,950	200

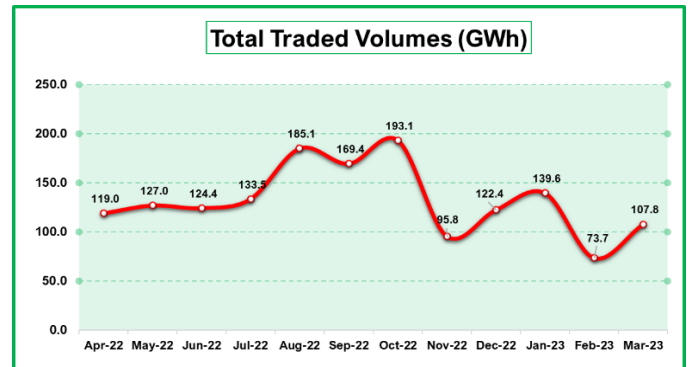
Notes: ¹Recorded peak demand – after load shedding
²Estimated figures

Electricity Trading

Traded Volumes

Market performance during the month of March 2023 was higher when compared to February 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) increased by

46% to 107.3 GWh in the month of March 2023, from the February 2023 volume of 73.7 GWh.



Monthly Traded Volumes (GWh) in DAM, IDM, FPM-W, and FPM-M (April 2022 to March 2023).

Market Revenue

A total of USD 7.9 million was exchanged on the competitive market during the month of March 2023 compared to USD 5.0 million exchanged in February 2023. The change is mainly attributed to a change in traded volumes. USD 6.7 million was exchanged on the competitive market during the same month of March in 2022.

Market Surveillance (MS)

Market Monitoring and Surveillance

During the period under review, the MS Unit observed potential abnormalities in DAM clearing prices and analysis revealed that the spikes were due to interplay between market supply and demand.

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

The Market Operator observed its own processes and procedures.

Environmental Corner

Earth Hour

On Saturday the 25th of March 2023, utilities and their stakeholders across the SAPP region



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commemorated the earth hour between 20:30-21:30hrs. This event was meant to popularise the significance of environmental stewardship through reduction of the carbon footprint by way of saving energy. Non-essential lights among other energy consuming devices were switched off during this period as a symbol of humankind's commitment towards sustaining mother nature.

In this perspective, conservation and sparing utilisation of electricity was recognised as a practice that should not only be confined to the Earth Hour Commemoration but embraced as a way of life. Demand side management of energy resources is undisputedly one of the initiatives that can help foster a sustainable economic headway as it saves not only the planet earth, but also financial strain associated with electricity bills. In case the significance of demand side management might be underestimated, in this year's commemorations, EEC managed to save 10 MWh.

PCB Awareness

Evaluation of prospective PCB Awareness Consultants commenced during the month. The successful organisation will assist with development of the SAPP Poly-Chlorinated Biphenyls (PCB) Standard Operating Procedure and training material for associated capacity building and awareness activities.

Upcoming Events – 2023

DATE	EVENT
25 - 26 April 2023	The Future Energy Africa Show 2023, Sandton, South Africa
25 – 27 April 2023	5th Edition of the Namibia International Energy Conference, Windhoek, Namibia.
26 - 27 April 2023	9 th Mozambique Mining and Energy Conference and Exhibition, Maputo, Mozambique
16 -18 May 2023	Enlit Africa, CTICC, Cape Town, South Africa

30 May – 1 June 2023	Joint MSC, OSC and PSC meetings, Johannesburg, South Africa.
5 - 9 June 2023	APUA Annual Meetings, Lilongwe, Malawi
15 June 2023	55 th SAPP CC Board meeting, Harare, Zimbabwe.
20 - 23 June 2023	25 th Africa Energy Forum, Nairobi, Kenya
28 - 31 Aug 2023	CIGRE 2023 Meetings
Aug / Sept 2023	61 st SAPP Meetings, Botswana
Oct 2023	55 th SAPP Executive Committee Meeting, Luanda, Angola



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