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## Meetings, Workshops and Conferences

### SAPP Drought Resilience Assessment Meeting

The SAPP and the World Bank held a clarification meeting with the Consultant on drought resilience assessment.

The objectives of the Drought Sensitivity and Resilience Assessment for the SAPP are:

- (i) To assess the potential impacts of increasing future droughts on the SAPP's security of electricity supply, at the pool and domestic levels;
- (ii) To elaborate opportunities for improving drought resilience through soft and/or physical regional integration infrastructure projects;
- (iii) To prioritize investments for addressing energy shortfalls and bottlenecks in the SAPP energy systems, and for increasing the systems' drought resilience; and
- (iv) Assess the potential benefits of increased power trading in the SAPP region.

### SAPP Workshop with PLEXOS from Energy Exemplar

The SAPP held a side event with the Energy Exemplar (PLEXOS service provider) during the ENLIT Africa Conference held in Cape Town, South Africa on 9<sup>th</sup> June 2022.

Four main topics were covered during the discussions, namely:

- (i) **Introduction to PLEXOS** - How PLEXOS is facilitating regional energy system planning around
- (ii) **Review of global best practices in regional energy system planning** – developing national energy plans and aligning those through projects of common interest.



- understanding and mitigating security of supply risk
  - evaluating renewable integration potential.
- (iii) **Energy Markets:** - enabling greater participation in power pool
- regional and national energy market design
  - encouraging private investment
- (iv) **Software demonstration** – how PLEXOS is being used today to model SAPP network.

### ENLIT Africa Conference

The SAPP attended the ENLIT Africa Conference in Cape Town, South Africa. The SAPP Coordination Centre Executive Director attended the Chief Executive Officers Forum.

### Africa Energy Forum

The SAPP exhibited at the Africa Energy Forum in Brussels, Belgium. Various sessions were also attended on project preparation.



*SAPP Staff with Partners*



*SAPP staff with some SAPP Utility Executives*

### SAPP - SAEP Meeting

The SAPP and the Southern African Energy Program (SAEP) held a meeting on 28 June 2022 to discuss progress on the SAPP activities and programs supported by SAEP.

### Zimbabwe's E-Mobility policy framework and roadshow awareness raising workshop

The Ministry of Environment, Climate, Tourism and Hospitality Industry in partnership with the Ministry of Energy and Power Development and Ministry of Transport and Infrastructure Development in Zimbabwe hosted a workshop named, E-mobility Policy Framework and Roadmap Awareness Raising. The main objectives of the workshop were to:

- (i) Raise stakeholder awareness on the E-mobility policy framework and roadmap
- (ii) Raise stakeholder awareness on the Intracity E-Bus feasibility study for Harare; and
- (iii) Highlight investment opportunities within the E-mobility space in Zimbabwe.



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### HCB-SNEL Exchange Visits

In February 2019 the SAPP Operating Sub-Committee (OSC) noted that recurrence of system disturbances emanating from HVDC systems showed that there is need to understand control and protection schemes implemented at Kolwezi, Inga and Songo HVDC converter stations and find ways of optimising their operations. From 13 to 17 June 2022, a technical team from SAPP and HCB visited Inga and Kolwezi in DR Congo to familiarize with the HVDC systems in DR Congo. Next month a technical team from SNEL will visit HCB. The technical teams will make recommendations to the OSC on optimizing the HVDC systems to enhance reliability of the SAPP interconnected power system.



At Inga PDS despatch substation



At Inga I Control Centre



HCB, SNEL and SAPP Technical Teams at Kolwezi HVDC Converter Station



Power transmission from Inga with the Congo River in the background



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## System Planning

### SAPP Database Management System

The SAPP is in the final stages of developing the database management system which aims to be a central depository box for all data related to project planning, markets, and SAPP key statistics. On the period under review the user acceptance testing exercise went underway after which the project will be completed.

### Continental Master Plan Update

The development of the African Continental Power System Masterplan is on-going.

During the period under review the following activities took place:

- Training on SPLAT power system modelling software for power pools under the African Continental Master Plan (CMP) project - 20th to 24th June 2022
- Consultations and Stakeholders' Hybrid Meetings on the Continental Power System Masterplan Modelling and the African Single Electricity Market (AfSEM) Strategic Planning and Modelling – 27th to 29th June 2022.

### Transmission Pricing Model Review

The SAPP continued with the refinement of the proposed Transmission Pricing Model. The major milestone achieved during the period under review was the demonstration of the final tool to the Transmission Pricing Task Team, Planning Sub-Committee and Market Sub-Committee as well as presentation of the preliminary results from the model.

It must also be noted that further engagement is being done with members which needs further clarification on the model. Discussions were held with the HCB and CEC.

## Update on SAPP Projects

### Angola – Namibia Interconnector Project

In preparation to conclude delivery on Part 2 objectives, the Consultant Zutari has submitted the final feasibility study report for the Portuguese language version.

The final climate change deliverable on the Environmental Study was also submitted. The SAPP Project Advisory Unit has confirmed outputs on Climate Change evaluations and Final Feasibility study report (Portuguese version).

Regarding implementation of the Part 3 deliverables, the Consultant has continued to make progress on several deliverables as follows:

#### 1) Joint Development Agreement (JDA):

- The RNT legal team is still reviewing the draft JDA and has proposed to make their submission to the Consultant in the second week of July 2022.
- The Project team is expected to agree on a schedule to harmonise in-country requirements, through bilateral meetings

#### 2) Environmental Reports:

- The Consultant submitted the draft Terms of References for developing the Resettlement Action Plan which will form part of PART 3 Deliverables.
- The Environmental Experts team comprising of the SAPP, NamPower and RNT submitted comments on the TORs.
- A harmonisation meeting is planned for early July 2022.



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### 3) Tender Documents and Support:

- NamPower completed the review and update of the draft Procurement Strategy and has since submitted their feedback to the Consultant.
- It was agreed that RNT submit their feedback by the first week of July 2022.
- The Project team agreed to hold two separate meetings for RNT and NamPower respectively, to discuss in-country and utility public requirements and project financing policies, regulation, and arrangements as regards the project, with the view to aligning and harmonising the draft Procurement Strategy to such requirements.
- It was therefore agreed that RNT will hold a bilateral meeting with the Consultant on 5 July 2022, and that NamPower will hold a bilateral meeting on 6 July 2022.

#### **Baynes HPP Transmission Lines Project**

The Baynes HPP Transmission Lines Project is for a feasibility and ESIA study, for the integration of the proposed 600MW Baynes hydropower plant to the Angola, Namibia, and SAPP networks.

Project status is at procurement stage for both the Technical and ESIA studies, as follows:

#### **Technical Study:**

The NamPower, RNT and SAPP technical study project team conducted a tender evaluation exercise from 20 to 24 June 2022, in Johannesburg, South Africa for the six RFP bids received. It is planned that a bid evaluation report is to be submitted to NEPAD-IPPF for a no-objection decision by early July 2022.

#### **ESIA Study:**

The NamPower, RNT and SAPP ESIA study project team conducted a tender evaluation exercise from 29 June to 2 July 2022, in Johannesburg, South Africa for the four EOI bids received, for the prequalification of preferred bidders to the RFP stage. Results of the pre-qualification exercise shall be announced in early July 2022.

#### **Independent Panel of Experts:**

The AfDB has approved the release of an EOI onto the market, for the procurement of Consultancy services for an Independent Panel of Experts (IPOE) comprising the following skills set:

- Hydrologist and hydraulic specialist.
- Dam specialist.
- Mechanical specialist.
- Electrical specialist.
- Geotechnical specialist.

#### **Kolwezi – Solwezi Interconnector Project**

The SNEL, ZESCO and SAPP held a joint meeting in Johannesburg, South Africa from 30 June to 1 July 2022 to review and discuss the way forward on the Kolwezi-Solwezi transmission interconnector, since the Technical and ESIA studies were completed in 2019 and 2021 respectively. The following were some of the meeting outputs:

- SNEL and ZESCO agreed to utilise the SAPP Transaction Advisory services, to explore the various financing options available on the market.
- SNEL and ZESCO will continue bilateral engagements towards achieving financial closure on the project.
- SNEL and ZESCO are both sourcing finances to implement in-country reinforcement projects that are necessary for higher transfer capacity across the Kolwezi-Solwezi transmission interconnector.



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- SNEL and ZESCO informed SAPP of high interest from DRC mining companies in Katanga province, interested in financing full development of the interconnector, under a PPA agreement for 200MW, with power supplied from the ZESCO network.

### **Mozambique – Zambia Interconnector Project**

The techno-economic and ESIA studies for the Mozambique – Zambia Interconnector are funded by the NEPAD-IPPF and the World Bank under the AREP Programme.

#### **Feasibility Study**

The Consultant for the technical studies completed the studies in December 2021. The reports have been under review by the utilities. The final reports were submitted on 23 February 2022. In March 2022, the two utilities approved the final reports.

There are ongoing efforts to secure funding for the preparation of specifications and tender documents for the project. The initial funding was insufficient to accommodate this scope.

#### **ESIA Study**

The Final Environmental Impact Assessment Report (including the Environmental and Social Management Plan) and the Resettlements Policy Framework Report was submitted to the Mozambique Environmental Authority for review and approval.

For the Zambian component, Final Draft Environmental Impact Assessment Report (including the Environmental and Social Management Plan) and the Resettlements Policy Framework Report was submitted for initial review by the Zambian Environmental Management Agency (ZEMA).

The next step will entail receipt of instruction from ZEMA for the Consultant to either submit

a final report for approval or make amendments based on the comments that might arise.

### **Malawi – Zambia Interconnector Project**

Both the feasibility and ESIA studies for the proposed Malawi – Zambia Interconnector are funded under the SAPP Program for Accelerating Regional Energy/Transformational Projects.

#### **Feasibility Study**

Technical and financial evaluations were completed. The approval of the draft contract is under consideration.

#### **ESIA Study**

The ESIA will also be split into two phases. The first phase will be funded by the World Bank while Swedfund will cover the second phase. The review of the proposal from the preferred bidder for the Phase I of the study was completed. The draft contract for this phase is yet to be concluded between the parties.

The delay in concluding the procurement of consultants is due to changes in the financing of the studies.

### **Mozambique – Tanzania Interconnector Project**

The Mozambique – Tanzania Interconnector Project (MOTA) is supported by the NEPAD-IPPF. The financial support caters for both the techno-economic feasibility and ESIA studies. A revised Letter of Agreement for the grant was submitted by NEPAD-IPPF for final review by SAPP and the utilities, thereafter, the final Letter of Agreement will be issued and executed

The review and update of the ToRs for both the feasibility and ESIA studies have been completed. A workshop for the update of the



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ToRs for the ESIA was held on 5 April 2022. The next step is to commence the procurement process once the draft EOI and the ToRs have been reviewed by the funder.

A revised Inter-Utility Memorandum of Understanding is expected to be signed by TANESCO. EDM has already signed the agreement.

### **Mozambique – Zimbabwe Interconnector Project**

The Mozambique - Zimbabwe transmission interconnector project technical team held a progress reporting and planning meeting in Johannesburg, on 15 June 2022. The meeting was attended by EDM, ZESA and SAPP. The following were some of the meeting outputs:

#### **1) Project Concept Note:**

- SAPP was tasked to update the Project Concept Note with added information that would bring about clarity on the target transmission corridor. The initial scope had presented two options that had specified the proposed routes. Since a longer section of the proposed transmission corridor is in Mozambique, the meeting tasked EDM to consult extensively on the final proposed project area and scope of work.
- ZESA clarified that the proposed transmission corridor extended from the border to Orange Groove substation.
- EDM and ZESA proposed to provide a map showing the proposed transmission line routing for further analysis.

#### **2) IGMOU and IUMOU:**

- EDM and ZESA legal task team proposed to the meeting that the current MOZISA project IGMOU was still valid to govern undertakings in the MOZI project. The team was, however, investigating the validity of the IUMOU application on the

project since the existing document had been signed under a tripartite arrangement and now only two utilities are participating in the project.

### **Technical and ESIA Study TORs:**

The Draft TORs for both ESIA and Technical Studies were shared. EDM and ZESA to share a map illustrating the initial transmission line routes for further analysis. The joint meeting agreed to provide feedback by 27 June 2022.

### **Inga-Soyo Interconnector Project**

The revised and phased TORs for the Technical Feasibility study and ESIA Study were finalised and submitted to the World Bank, for a 'NO-Objection' decision. SAPP was required to assess the scope of work for the Feasibility and ESIA Studies that can be implemented and completed 30 November 2022, when the World Bank funding window under the AREP Program is expected to close.

### **Zambia – Tanzania Interconnector Project**

On the Zambian side, the preparation of specifications and tender documents for the project was completed in October 2021. The World Bank supported the studies using the AREP facility at SAPP. An update of the ESIA was also completed under the same support by the World Bank in 2021. The next steps include resource mobilisation by ZESCO/Government of Zambia for the implementation of the project.

The status of the project has remained the same during the period under review.

### **Luapula Hydro Electric Power Scheme**

The detailed Feasibility study for one site, the Mumbotuta Site CX received funding from the



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NEPAD IFFP. The review and update of the TORs for the ESIA studies was completed in May 2022. However, the ESIA Study awaits the mobilisation of funding. The NEPAD-IPPF, NEPAD-AUDA and Swedfund are being engaged for possible financial support for the detailed studies.

A meeting was held with the two utilities, SNEL and ZESCO on 30 June 2022, to discuss the status and way forward on the project. The utilities were of the view that the studies should cover all the three sites instead of the one site.

The governments of the DRC and Zambia signed a revised IGMOU in June 2022 following the expiry of the previous agreement. Similarly, SNEL and ZESCO signed a revised IUMOU for the Luapula Hydropower Project as the previous agreement had also expired.

The techno-economic studies for the Mumbotuta Site CX may have to be delayed until funding for the ESIA is secured. The status of the project will be discussed further with the NEPAD-IPPF.

The utilities and SAPP will continue to engage other partners for funding of the studies.

### Regional Transmission Infrastructure Financing Facility (RTIFF)

Deeper, in-person engagements with potential investors in RTIFF were the primary focus this month. To this end, SAPP and the Consulting Team led a roadshow across Europe and presented at the Africa Energy Forum (AEF) in Brussels, Belgium. Building on the work delivered in May 2022, more than 22 sessions were held between 13<sup>th</sup> June and the 30<sup>th</sup> of June 2022.

Work on the establishment plan also progressed in earnest, with a complete draft

submitted to SAPP on 06 July 2022 for review before circulation to the RTIFF Steering Group.

The SADC Ministers of Finance and Investment are scheduled to meet between 24 and 29 July 2022 in Lilongwe, Malawi. This is a critical opportunity to secure their no-objection for RTIFF to proceed. The Consulting Team is working closely with SAPP-CC and the SADC Secretariat to plan and coordinate the required inputs, to ensure that material can be covered in the appropriate level of depth while also maintaining stakeholder engagement and attention.

### System Operations

### System Disturbances

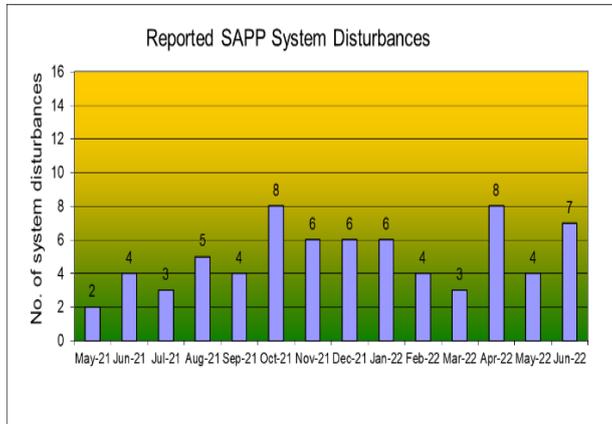
In the month of June 2022 six (6) SAPP system disturbances were reported. The first three were power frequency excursion incidences. Power frequency temporarily fell below 49.50 Hz when 1) a generation unit tripped; 2) load suddenly grew during morning peak; and 3) carrying out load-shedding rotation in South Africa. The fourth and fifth disturbances were characterised by undamped power swings in the central corridor and tripping of the 400 kV Botswana - Zimbabwe interconnector. These power swings were triggered by the action to rotate load-shedding schedule in South Africa and tripping of a converter bridge in Mozambique. The sixth one was caused by collapsing of an HVDC line tower in Mozambique. South Africa lost part of the power output from the HVDC link from Mozambique. Un-damped power swings were triggered in the central corridor of SAPP and the 400 kV interconnection between Botswana and Zimbabwe tripped due to these power swings. This disturbance caused wide area voltage and power frequency excursions affecting many SAPP



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countries. In the seventh disturbance, all the three 220 kV lines between Zambia and DR Congo tripped on over-power protection. Refer to figure below for an outlook of SAPP system disturbance in the last 12 months.



### Power Supply – Demand Situation

The table below shows the power supply and demand situation in SAPP in June 2022.

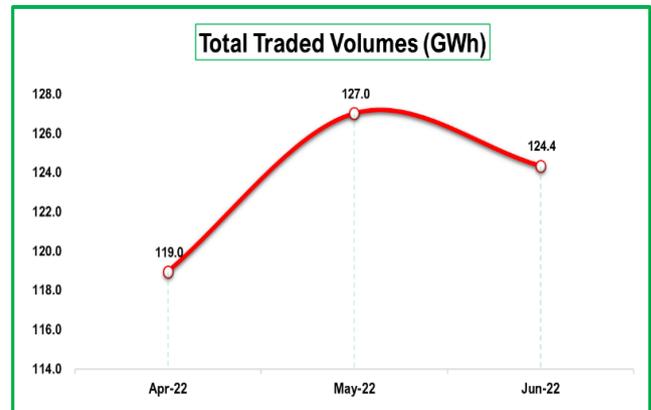
Country, Utility	Available capacity (MW)	Peak demand (MW)
South Africa, Eskom	28,628	30,808
Botswana, BPC	890	661
Eswatini, EEC	60	210
Mozambique, EDM	156	990
Mozambique, HCB	2,075	0
Zambia, ZESCO	2350	2213
Zambia, CEC	80	214
Zimbabwe, ZESA	2421	1674
Lesotho, LEC	74	190
DR Congo, SNEL	2739	1875
Tanzania, TANESCO	1,695	1341

### Electricity Trading

#### Traded Volumes

Market performance during the month of June 2022 was lower when compared to May 2022. 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 2% to 124.4 GWh in the month of June 2022, from the May 2022 volume of 127.0 GWh.



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

### Market Revenue

A total of USD 8.6 million was exchanged on the competitive market during the month of June 2022 compared to USD 7.0 million exchanged in May 2022. The change is mainly attributed to a change in prices. USD 12 million was exchanged on the competitive market during the same month of June in 2021.

### Market Monitoring and Surveillance

During the month under review there were no observed cases of market manipulation or use of insider information.

On year-on-year basis compared to June 2021, the average hourly DAM-Market Clearing Prices (MCPs) for June 2022 were higher for all the time periods reflecting the high demand season. The DAM continues to provide price reference to the FPM.

There were few participants for the IDM and FPM markets.



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According to the transmission allocation rules, transmission capacity utilisation was deemed to be efficient for the month under review.

The Market Operator observed its own processes and procedures. Capacity building of Market Surveillance Officers is now on-going for Market surveillance enhanced tools in the MTP.

### Upcoming Events – 2022

DATE	EVENT
July – August 2022	SAPP Market Roadshows
5-7 July 2022	EAPP – SAPP Coordination meetings, <b>Dar-es-Salaam, Tanzania</b>
8 July 2022	SAPP Market Roadshow, <b>Dar-es-Salaam, Tanzania</b>
7 July 2022	RenPower South Africa
11-15 July 2022	SAPP Crime Prevention Working Group Study Visit to Uganda and Training, <b>Kampala, Uganda</b>
15 - 21 July 2022	20 <sup>th</sup> APUA Congress and African Power Pool Forum, <b>Senegal</b>
26- 27 July 2022	AFSEC 8 <sup>th</sup> General Assembly, <b>Hybrid, Accra, Ghana</b>
9 August 2022	Legal Working Group Meeting
22-26 August 2022	IEEE Power Africa Conference, <b>Kigali, Rwanda</b>
28-31 August 2022	CIGRE 2022, <b>Paris, France</b>
29 August - 2 September 2022	EAPP Capacity building, <b>Harare, Zimbabwe</b>
1 to 3 September 2022	World Conference on Climate Change and

	Sustainability, Frankfurt, Germany
5-9 Sept 2022	59th SAPP Meetings, <b>Mozambique</b>
26 -28 September 2022	IAIA Climate Change Symposium: Cape Town, South Africa
7 September 2022	52 <sup>nd</sup> SAPP CC Board Meeting, <b>Mozambique</b>
14-15 September 2022	Controllers SAPP Markets Refresher Training, <b>South Africa</b>
21-22 September 2022	Traders SAPP Markets Refresher Training, <b>South Africa</b>
September 2022	SAPP ESC Study Tour, USA
20-24 September 2022	Market Surveillance Study Tour, <b>Norway</b>
3–7 October 2022	Green Energy Africa Summit, <b>Cape Town South Africa</b>
19 to 20 October 2022	53rd SAPP Executive Committee Meeting and AGM, <b>Harare, Zimbabwe</b>
7 – 18 November 2022	UN Climate Change Conference 2022 (COP 27) Sharm el-Sheikh, Egypt
7 December 2022	53 <sup>rd</sup> SAPP CC Board Meeting, <b>Harare, Zimbabwe</b>



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