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Meetings, Workshops and Conferences

SADC Energy and Water Ministers Meeting

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

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 focussing on accelerating electricity trading in the region;
- Attended the Africa Utilities Roundtable where the utilities performance handbook was launched.

Joint SAPP MSC and OSC Meeting

On 09 November 2021, the SAPP Markets and Operating Sub-Committees (MSC and OSC) met jointly. They 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 imbalance energy market.

Skills for Energy in Southern Africa

Participated in discussions on Skills for Energy in Southern Africa. The overall development objective is for increasing the uptake of renewable energy, energy efficiency and regional energy integration through skills development in the SADC region.

The International Labour Organisation (ILO) regional office (based in Zambia) received funding from Sweden to build capacity of companies dealing with renewable energy in the Southern African Region, through a programme called SESA (Skills for Energy in Southern Africa). Kafue Gorge Regional Training Centre (KGRTC) was identified as the training centre of choice for this programme. ILO plans to train stakeholders in renewable energy on a broad range of skill areas. Trainees will be drawn from small scale installers all the way to utility scale IPPs. SESA programme will run up to 2023.

System Planning

Transmission Pricing Model Review

The SAPP continued with the review of the Transmission Pricing Model which is intended to be implemented on the 1st April 2022. During the period under review 2 project meetings were held with the Consultant to discuss progress on 2 key issues:

- (i) The development of 8 transmission pricing scenarios on PSS/E
- (ii) Update of the SAPP cost database



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The project is expected to be completed in February 2022.

SAPP Database Management System

The project's objective is to set up a Data Management System which aims to enable SAPP to have a central depository of all data related to planning, project preparation and development, operations, markets, and environment. The project is divided into two phases and phase 1 was completed in February 2021.

The contract was signed for phase 2 work and the kick-off meeting was held. Data collection is in progress.

Development of SADC Grid Code

This project is 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.

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 on-going, and the inception report was issued. The next steps are:

- Develop Draft Regional Grid Code based on outline/core content;

- Present the draft regional grid code for review/comments;
- Draft final regional grid code, draft final report and hold validation workshop;
- Submit final report.

The project is expected to be completed in March 2022.

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 its 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. The next phases are:

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

Update on SAPP Projects

ANNA Transmission Project

Technical Study:

The Angola-Namibia (ANNA) project team held a Management Committee (MANCO) meeting on 25 November 2021, to discuss approval of the final Feasibility Study report and Part 3 Scope of works.

By the decision of the MANCO:

- The Feasibility study report was approved
- The Part 3 scope of works was also approved.

A pre-kick off meeting was agreed to be done on 17 January 2022.

The Part 3 Scope of Works include the following deliverables:

- Updated Financial Model
- Contract Support (Variable cost)
- Kunene Preliminary design Update
- Tender Documentation
- Environmental & Social Governance

Baynes Hydro-Power Plant Transmission Project

Technical Study:

Revision of Technical terms of references has been done and the updated document due to be submitted to the NEPAD-IPPF procurement team for review and approval. Following the reduction in grant funding commitment toward the technical study by the NEPAD-IPPF, the SAPP-PAU has been probing alternative sources of support to close the funding gap. There is a funding gap on the project. Therefore, the SAPP-PAU and EIB held bilateral discussions to explore the possibility of co-funding the technical studies. To this effect, the SAPP-PAU have initiated discussions around the potential collaboration with the EIB to co-fund the



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project with the AfDB/NEPAD-IPPF. At present, SAPP and EIB have exchanged draft Non-Disclosure Agreement documents to mitigate the risk associated with sharing confidential project information, during and beyond the development cooperation period. Bilateral and tripartite meetings have been planned for early next year, to formulate practical approaches of actualising the co-funding arrangements.

Kolwezi – Solwezi Interconnector Project

The project feasibility study was completed in December 2019 and the ESIA study was completed in August 2021. To this end, the SAPP PAU is now compiling a project closing report, with the objective of assessing the relevance, effectiveness, efficiency, impact and sustainability of the project, to the two project participating countries and to the regional electricity market as a whole. The report is due for submission in December 2021.

Malawi – Zambia Interconnector Project

Technical Study:

The Request for Proposal which was earlier issued on 30 September 2021 finally closed on 16 November 2021. A total of six firms/joint ventures submitted proposals. The evaluation of proposals commenced on 26 November 2021 and it was planned to seek a No Objection from the World Bank before mid December 2021. The evaluation team met virtually for the kick-off meeting. Both ESCOM and ZESCO staff participated in the evaluation.

ESIA Study:

The Request for Proposal (RfP) was issued to the seven (7) shortlisted firms on 30 September 2021. The original closing date was on 01 November 2021 and extended to

the 18 November 2021 following the request to extend from the potential Bidders. Evaluations will be conducted in December 2021.

Mozambique – Zambia Interconnector Project

Technical Study:

The feasibility study is almost completed. During the month, the following reports which are annexures to the feasibility report were submitted by the consultant:

- The draft transmission line design and line route report
- The draft substation design report
- The project cost estimates,
- Implementation schedule of the project

The utilities are in the process of reviewing the reports. The main report for the feasibility study including the network studies has been delayed and will be submitted in December 2021.

ESIA Study:

The final draft ESIA and the Resettlement Policy Framework Reports are under review. The final reports are expected to be submitted to the Authorities in Zambia and Mozambique during the first quarter of 2022.

Zambia – Tanzania Interconnector Project

On the Zambian side, the preparation of tender documents for the project was completed in October 2021. The next steps include resource mobilisation by ZESCO/Government of Zambia for the implementation of the project.

Luapula Hydro Electric Power Scheme

The prefeasibility study and preliminary environmental scanning were completed in



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2019. The technical studies were funded under the SADC PPDF while the environmental studies were supported by the World Bank using the AREP facility. Commencement of the detailed feasibility study and the ESIA await the mobilisation of funds. The World Bank, NEPAD-IPPF, NEPAD-AUDA and Swedfund are being engaged for possible financial support for the detailed studies.

Regional Transmission Infrastructure Financing Facility (RTIFF)

SAPP together with the consulting team held selected engagements with key partners to review the design approach and work plan to account for the delays in contracting and ensure a smooth progression of the work going forward. High priority engagements include the following:

- **SADC Industrialization Week** (23 November). SAPP and the consulting team participated in a focused event organised by SADC during SADC Industrialisation Week, as well as in additional ad hoc meetings (SAPP and SADC). The workshop provided an opportunity to share some background to RTIFF and progress to date, with a broader audience. It highlighted interest for (re)engagement by potential partners including the GCF and IFC.
- **SADC Energy Ministerial Meetings** (November 2021). RTIFF was included in the annotated agenda presented for the SADC energy ministerial meetings, with details provided on progress to date.
- **Roles and Responsibilities workshops** (November 2021). The consulting team has worked with SAPP and SADC Secretariat to develop a Roles and Responsibilities Framework that clearly outlines and delineates review and input processes, to ensure that the RTIFF can progress well through SAPP and SADC

approvals and ensure that due process is followed.

In December 2021 and January 2022, SAPP and the consultant will begin engagements with potential fund managers, based on the assessment outlined in the Blueprint.

System Operations

SAPP System Disturbances

In the month of November 2021, five (5) SAPP system disturbances were reported. On 06 November 2021 at 07:25 Hrs the Southern African Power Pool (SAPP) interconnected power system experienced a major power system disturbance. The member national power utility in Zambia, ZESCO, declared a national blackout. 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 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.

On 22 November 2021 at 03:22 Hrs the 400 kV South Africa - Botswana line tripped due



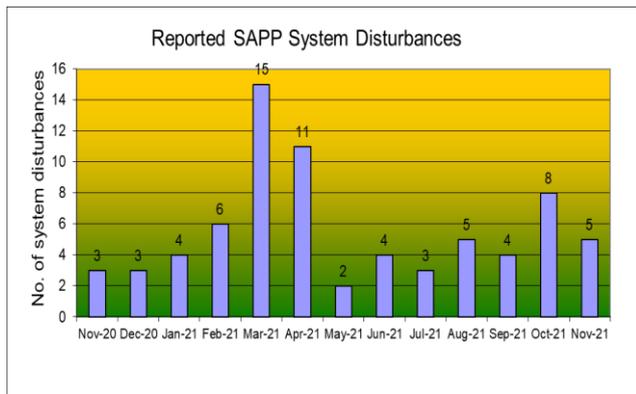
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to a transient single phase earth fault, attributed to adverse weather conditions.

On 23 November 2021 at 19:17 Hrs and on 24 November 2021 at 13:32 Hrs the HVDC converter no. 1 tripped at Kolwezi in the Democratic Republic of Congo (DRC) due to commutation failure. Consequently, all the three 220 kV interconnectors between Zambia and DRC tripped out on directional over-power and under-voltage protection.

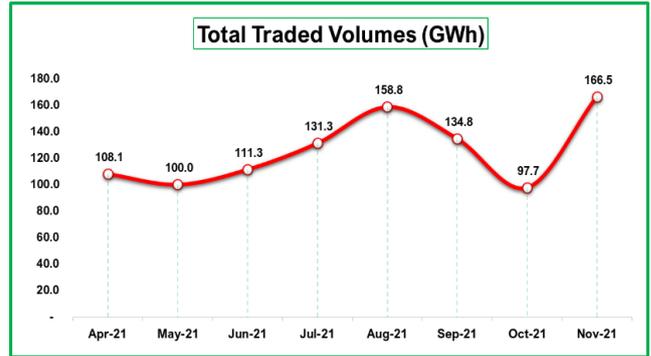
On 25 November 2021 at 14:46 Hrs a load of about 1138 MW tripped in South Africapower frequency rose from 50.03 Hz to 50.55 Hz for about 24 seconds and then settled 49.92 Hz. Refer to the figure below for the general outlook of reported SAPP system disturbances in the last 12 months.



Electricity Trading

Traded Volumes

Market performance during the month of November 2021 was high when compared to October 2021. 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 70% to **166.5 GWh** in the month of November 2021, from the October 2021 volume of **97.7 GWh**. This becomes the highest monthly volume this financial year as at 30 November 2021.



Monthly Traded Volumes (GWh) in DAM, IDM, FPM-W, and FPM-M (April 2021 to November 2021).

Market Prices

FPM Monthly Prices

The November 2021 market clearing price for the non-off-peak period was 10.0 USc/kWh, the same figure as witnessed in the month of October 2021. The price for the off-peak period increased to 5.0 USc/kWh in November 2021 from the October 2021 figure of 4.0 USc/kWh.

FPM Weekly Prices

The average market clearing price for the peak period was at 17.0 USc/kWh in November 2021. The same figure was witnessed during the month of October 2021. Standard period average market clearing prices was 10.7 USc/kWh, the same figure as recorded in October 2021. The average off-peak market clearing price for the month of November 2021 was 4.5 USc/kWh. During the month of October 2021, the average off-peak price was at 4.7 USc/kWh.

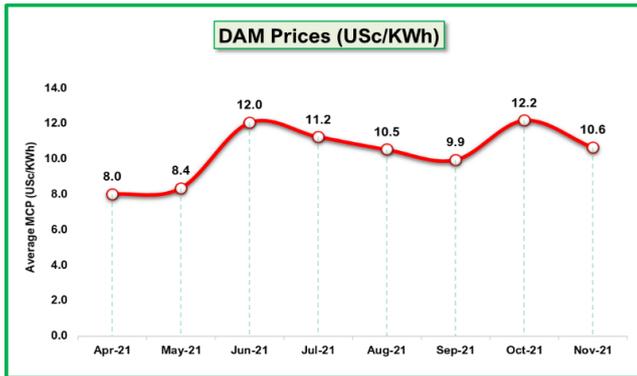
Day Ahead Market

The monthly average DAM market clearing price (MCP) was lower by 13% during the month of November 2021 at 10.6 USc/kWh when compared to 12.2 USc/kWh recorded in October 2021.



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Monthly Average Market Clearing Prices from April 2021 to November 2021.

Intra Day Market (IDM)

The average IDM price for the peak period for the month of November 2021 was 10.7 USc/kWh, down from the October 2021 figure of 13.1 USc/kWh. The average IDM price for the standard period was 7.4 USc/kWh in November 2021, down from the figure of 7.6 USc/kWh recorded in October 2021. The average off-peak period price recorded for November 2021 was 3.4 USc/kWh, down from the October 2021 figure of 5.4 USc/kWh.

Market Revenues

A total of USD 13 million was exchanged on the competitive market during the month of November 2021 when compared to USD 9 million exchanged in October 2021. The change is mainly attributed to increase in traded volumes. USD 10 million was exchanged on the competitive market during the same month of November in 2020.

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 November 2020, the average hourly DAM-Market Clearing Prices (MCPs) for November 2021 were relatively similar. 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. The project on the development of the analytical tools is now in the development phase.

Environmental Corner

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



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- Prioritise and execute projects of significant regional impact.

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.

World Bank Partnership for Market Readiness: Regional Carbon Pricing for Southern Africa

The development of a proposal for a work program on ‘Regional Carbon Pricing Support,’ was concluded and presented to stakeholders at a meeting convened virtually on 18 November 2021. The Meeting aimed to award the stakeholders an opportunity to deliberate on the elements and provide feedback. The support needs for carbon pricing instruments in the SADC region, will commence with an emphasis on the power sector. Participation in the Meeting was drawn from the SAPP Environmental Sub-Committee of SAPP,

SADC Secretariat (Environment/Climate unit and Energy Division), Regional Collaboration Centre (RCC) / UNFCCC Secretariat, UNFCCC Climate Change focal points and World Bank.

The objective of the regional carbon pricing work program is to:

- Facilitate knowledge sharing across countries;
- Provide capacity building support related to carbon pricing; and
- Explore opportunities for harmonization.

Salient aspects arising from the Meeting include the following:

- The need to undertake assessments to understand the impact of implementing different carbon pricing instruments across the economy and different segments of society;
- The iterative nature of the process for choosing a suitable carbon pricing instrument for a country and determining the scope of application, which involves the groundwork for understanding the country’s emissions profile, stakeholder mapping, administrative capability, etc.;
- The importance of coordinating with different ministries and relevant laws to achieve the country’s long-term low carbon development goals and incentivize investments towards low-carbon emitting activities;
- The need for flexibility in the design of a carbon pricing instrument such as South Africa’s carbon tax scheme that allows industries to use carbon offsets, reduces their tax liability if such industries improve their energy efficiency within their production processes, provides allowances for entities that are trade-exposed, etc.;
- The benefits of utilizing existing infrastructure that is well established in



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the country, such as a country's emissions reporting system and a tax revenue collection system;

- The importance of ensuring balanced representation of stakeholders and communicating the rationale for implementing a carbon pricing instrument, potential benefits and impacts on different stakeholders, and plans to address/mitigate any negative impacts for smooth implementation of putting a price on carbon and minimize the pushback; and
- The need to ensure that the transition towards the low-carbon economy does not have regressive impacts and is just.
- Participants also noted the following potential benefits of a regional carbon pricing engagement, noting that it could:
 - Provide significant opportunities for knowledge sharing;
 - Enable a deeper regional collaboration on carbon markets in the future;
 - Provide readiness support for participating in Article 6 of the Paris Agreement and allow Southern African countries to develop Article 6 projects as a region maximizing economies of scale; and
 - Untap the potential for cost-effective greening of the common power pool through collaboration with different stakeholders.

Upcoming Events – 2021/22

DATE	EVENT
29 November – 2 December 2021	SADC Energy Ministers Meetings, Hybrid , Blantyre, Malawi.
9 December 2021	49 th SAPP CC Board Meeting
6-10 December 2021	PIDA Week, Hybrid , Nairobi, Kenya
December 2021 / Jan 2022	SAPP Finance Working Group Meeting
13 -16 Jan 2022	12 th Session of IRENA Assembly. Hybrid, Abu Dhabi, United Arab Emirates
Feb - March 2022	SAPP Sub Committee Meetings
Feb - March 2022	SAPP Management Committee Meeting
March 2022	SAPP Executive Committee Meeting



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