SAPP and MSB
Market Access Guide
About the Southern African Power Pool (SAPP)
The Southern African Power Pool ("SAPP") is a regional organization of power utilities within the Southern African Development Community (SADC) that was created in August 1995 at the SADC summit held in Kempton Park, South Africa. The main purpose for its creation was enhancing energy trading and optimizing available electricity in the region. SAPP coordinates the planning and operation of the interconnected electric power system among member utilities, electricity trading and provides a forum for regional solutions to electric energy problems. The SAPP’s vision is to be a fully integrated, competitive energy market and a provider of sustainable energy solutions for the SADC region and beyond. The SAPP membership spreads over the 12 mainland SADC member countries. Current SAPP membership as of August 2023 comprises of 20 members (12 national power utilities, 5 operating members, and 3 market participants). The SAPP Coordination Centre ("SAPP CC") was established as the SAPP Secretariat in Harare, Zimbabwe. [sapp.co.zw](http://sapp.co.zw)

About the Electricity Control Board of Namibia (ECB)
The Electricity Control Board (ECB) is a statutory regulatory authority established in 2000 under the Electricity Act 2 of 2000; which has subsequently been repealed by the Electricity Act, 4 of 2007; the latter Act having expanded the ECB mandate and core responsibilities. The core mandate of the ECB is to exercise control over the electricity supply industry with the main responsibility of regulating electricity generation, transmission, distribution, supply, import and export in Namibia through setting tariffs and issuance of licenses. [ecb.org.na](http://ecb.org.na)

About NamPower
NamPower is Namibia’s national state-owned electricity utility, that powers the socio-economic development of Namibia through the provision of bulk electricity supply to all sectors of the economy and its people. The utility is mandated, as per the Electricity Act 4 of 2007, to generate, transmit, distribute, supply, and trade in electricity, which includes the importing and exporting of electricity. It is also mandated to serve as the supplier of last resort in the electricity sector and hosts the Modified Single Buyer office. NamPower is designated as a commercial public enterprise reporting to the Ministry of Public Enterprises (MPE) as per the provisions of the Public Enterprises Governance Act 1 of 2019 (PEGAA Act). NamPower also has a reporting obligation to the Ministry of Mines and Energy, as the Government entity responsible for establishing policy in the country’s energy sector. [nampower.com.na](http://nampower.com.na)

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# SAPP AND MSB MARKET ACCESS GUIDE

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<td>Agreement Between Operating Members</td>
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<td>Balancing Market</td>
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<td>BRPs</td>
<td>Balance Responsible Parties</td>
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<td>CCP</td>
<td>Central Counterparty</td>
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<td>Contestable Consumer</td>
<td>A licensee allowed to buy electricity through bilateral transaction (or through an organised national or regional market) from an Eligible Seller based on a set of regulated criteria.</td>
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<td>Day-Ahead Market</td>
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<td>ECC</td>
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<td>Eligible Seller</td>
<td>A licensee allowed to sell electricity through bilateral transaction (or through an organised national or regional market) from a Contestable Consumer based on a set of regulated criteria.</td>
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<td>Inter-utility Memorandum of Understanding</td>
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<tr>
<td>MET</td>
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<td>MSB</td>
<td>Modified Single-Buyer (MSB)</td>
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<td>MTP</td>
<td>Market Trading Platform</td>
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<td>NEPAD</td>
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<td>PSA</td>
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<td>RERA</td>
<td>Regional Electricity Regulatory Association</td>
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<td>SADC</td>
<td>Southern African Development Community</td>
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<td>Southern African Development Co-ordinating Conference</td>
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<td>SAPP</td>
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<td>SB</td>
<td>Single-Buyer</td>
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<td>TPA</td>
<td>Third-Party Access</td>
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<td>TSO</td>
<td>Transmission System Operator</td>
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1. INTRODUCTION AND BACKGROUND

1.1. BACKGROUND

The Southern African Power Pool (SAPP) was established in 1995 to enhance the co-operation between the SADC member countries. Since its formation, more than 20 years ago, SAPP has been successful in promoting the co-operation and co-ordination of the member states’ power sectors.

One of the big successes of SAPP has been the establishment of the competitive markets. These markets have become a reference for other emerging regional markets and offer a wide range of medium to short-term physical markets for its members to trade.

Currently, almost all trading is done by the national utilities as most of the countries are still vertically integrated. The SAPP has, however, reviewed its membership category, and this has resulted in three new members, under the ‘market participant’ category, as of June 2023. SAPP member states are, however, looking at deregulating their national markets and are also open for the regional market participation of new members.

After the launch of the Modified Single-Buyer (MSB) market in Namibia in 2019, there have been a lot of requests for support with the SAPP market access. Most of these requests stem from a lack of access to information in a structured manner. The questions can be divided into different sub-requests:

- How to become a market participant in the MSB market?
- How to become a member in the SAPP market?
- How do I trade in the SAPP?
- What are the forecasts for future prices in the SAPP?

There is clearly a need to support this process from a holistic point of view, in order to facilitate access to market information for a range of potential new investors.

Currently, most requests for support originate from Namibia because the MSB market model is already defined and implemented and allows for exports into the SAPP markets. However, over time, it is anticipated that this need will also arise in other SAPP member countries once their national market opening/development will allow access to the SAPP regional markets.

For example, there are ongoing reforms in Zambia and South Africa, and other countries are also taking their first steps towards allowing other members (such as IPPs), other than the national utilities to trade in the SAPP.
The SAPP itself has already taken key steps to allow more participation in their markets, but encouraging real access depends on national market regulations. It is expected that, when one of the SAPP members successfully allows international trade as part of their national market, it will accelerate similar processes in the other countries.

It is therefore opportune to prepare supporting material in assisting (and potentially accelerating) this process for the region, as well as for individual countries, where this guide will be a part of this.

1.2. PROJECT CONCEPT

The target is that this guide shall be extended and adapted to ultimately cover all the SAPP member countries, starting with countries that have taken concrete steps towards national market opening in which Namibia acts as a pilot country; the first phase thereof includes the development of the initial guide covering the SAPP and Namibian requirements. This guide will be launched in an international conference in Windhoek, Namibia in August 2023.

1.3. READING INSTRUCTIONS

This guide has three main parts; the first part in chapter 2 discusses the SAPP markets and how to become an active participant in their markets, and the way this is structured. The second part in chapter 3 covers the national requirements for Namibia; how to become an Eligible Seller and Contestable Consumers. These two chapters establish the background for the processes, and also explain in detail what both markets contains and their historical development.

The third part in chapter 4 is the essential part of the guide in which the combined process of becoming a regional market participant in the SAPP considers the national rules of Namibia.

In addition, there is an appendix that contains a list of the starting points for development of this guide, and those items which were perceived as potential barriers and improvement proposals to ease access to both the SAPP, as well as the Namibian MSB market.
2. SAPP PHYSICAL MARKETS

2.1. SAPP CURRENT GOVERNANCE

2.1.1. HISTORY

Prior to the establishment of the Southern African Power Pool, the Southern African region was divided into two non-interconnected power systems. The northern region (comprising the DRC, Zambia, part of Mozambique, and Zimbabwe) operated a hydropower-dominated grid, with only Zimbabwe having some thermal generation. The southern region (comprising Botswana, South Africa, Namibia, Lesotho, Eswatini and the other portion of Mozambique) operated a thermal power-based grid, with South Africa’s Eskom as the main supplier. Countries/utilities on each network traded power among themselves on a long-term (ranging from 5 to more than 15 years) bilateral basis under strict take-or-pay contracts which also required high load factors. These were inherently inefficient as utilities were, at times, required to purchase power they did not need. Trade, in other words, was not linked to market requirements.

The fact that these two main networks were unconnected meant that, when one network experienced a disturbance, the other could not assist. The impact of system disturbances on the separated, weaker networks was higher, resulting in higher unserved energy and an overall negative economic impact on the affected countries. The northern systems suffered power shortages whenever there was an extended drought. In fact, it was the drought of the early nineties, in combination with the political change in South Africa, which triggered the concept of resource pooling, sharing and mutual assistance between the two parts of the region. Thus, the formation of an integrated and consolidated power pool came into being.

As noted above, the SAPP was formed in 1995. The northern and southern grids, however, only became interconnected the year after, in 1996, via a 400 kV AC transmission line between South Africa and Zimbabwe. Botswana connected to the same line in 1997. All the power utilities (at this time, from nine countries) were now able to trade electricity among themselves. This brought immediate relief, in the form of thermal power from Eskom, which helped the drought-stricken northern utilities keep the lights on.

When the drought ended, cheaper hydropower from the northern utilities became available to southern utilities, further increasing trade and opening-up opportunities for short-term trade contracts. Due to cost advantages, utilities optimised their power supply options and increased both supply reliability and profitability. Shorter bilateral power contracts became possible, and trading efficiency increased. Utilities that had previously only been able to rely on a single cross-border (neighbouring) supplier were now able to diversify their portfolios.

Development towards a more efficient and competitive market structure took form and the SAPP Co-ordination Centre then became the SAPP market operator. The SAPP Co-ordination Centre had been set-up at the beginning of the SAPP, but it initially had more of a Secretariat role, co-ordinating the
activities in the different working groups and committees. After its responsibilities grew, its staff increased as well, in order to take on the task of daily market operations.

The Legal Agreements and the Book of Trading Rules were developed to bind and guide market participants in their operations. A trading system to match buy-and-sell bids, with invoicing capabilities, was developed and implemented. Penalties for non-compliance had to be formulated. The market model shifted away from one based on co-operation, to one based on competition, with buyers and sellers bidding into the marketplace.
2.1.2. SAPP GOVERNANCE

The Southern African Power Pool (SAPP) was created on 28th August 1995, with the primary aim of providing a reliable and economical electricity supply to consumers in each of the SAPP member countries, consistent with reasonable utilisation of natural resources and minimised negative impact on the environment. SAPP consists of 12 countries, covering a population of approximately 300 million people. As of 2023, the SAPP has 20 members active in cross-border power trade (please refer to annexure B for full listing). There are ongoing applications from new members, under the market participant category, that are currently being assessed.

The approximate consumption in the SAPP area is 400 TWh, although traded volumes are significantly lower at 8.2 TWh, whereby 81.74% was traded bilaterally, and 18.24% was traded in the competitive market (source: SAPP Annual Report 2021). This was a reduction of 12.7% from the previous year but, as reported in the annual report, Covid-19 had an effect on the trading activities.

The SAPP organisational structure is comprised of various committees that enable full participation by members and the protection of their interests at all levels. At the government level, a Council of Energy Ministers meets at least once a year to address policy issues, provide political leadership and, where necessary, establish institutions. At the SADC Secretariat, the Division of Infrastructure Services is the link between the ministers and the utility CEOs. The Southern African Development Co-ordinating Conference (SADCC), established on 1st April 1980, was the precursor of the Southern African Development Community (SADC). The SADCC was transformed into the SADC on 17th August 1992 in Windhoek, Namibia, where the SADC Treaty was adopted, redefining the basis of co-operation among Member States from a loose association, into a legally binding arrangement. The main objectives of SADC are to achieve development, peace and security, and economic growth, to alleviate poverty, enhance the standard and quality-of-life of the people of Southern Africa, and support the socially disadvantaged through regional integration, built on democratic principles and equitable and sustainable development.

An executive committee (ExCo), made up of the CEOs of the national power utilities, became the highest SAPP management decision-making body. The ExCo meets at least once a year, and a Division of Infrastructure Services representative has to attend. Below the ExCo, is the management committee (MANCO), which directs the functions of the subcommittees and decides on subcommittee issues, referring matters beyond its jurisdiction to the ExCo for resolution.

Four expert area subcommittees have been established to address matters related to operations, markets, environment, and planning. The MANCO, and the various subcommittees, meet at least twice a year. The Co-ordination Centre (CC) Board addresses policy issues related to the Co-ordination Centre, and reports to the MANCO. The SAPP CC is the SAPP legal entity which implements projects, undertakes research, and advises committees on expert matters. It also operates the competitive market, monitors system operations, conducts system planning, co-ordinates environmental issues, provides project

1 More information can be found at: https://www.sadc.int/
preparation\textsuperscript{2} and carries out any studies that may be required. The SAPP CC reports on member performance/compliance according to set criteria, and it keeps records and exchanges of information between members. Furthermore, the SAPP CC also acts as the face of SAPP, regionally and internationally.

Below, the organogram and the main governing documents are listed.

Figure 1. SAPP Organogram\textsuperscript{3}

\textsuperscript{2} This is done through the SAPP project advisory Unit.

\textsuperscript{3} According to the SAPP website, April 2023
2.1.3. REGULATORY ENVIRONMENT

The SAPP was conceptualised out of strong political will for regional economic and social integration through the sharing of resources among the twelve mainland SADC member countries. Its governance structure is, therefore, anchored at national government level at which a founding agreement had to be promulgated to pave the way for facilitative agreements towards establishment of the organisation.

The Intergovernmental Memorandum of Understanding (IGMOU), signed by SADC member ministers of energy in 1995, established the SAPP as an institution in the region and paved the way for the Inter-utility Memorandum of Understanding (IUMOU), to be signed by Chief Executive Officers of all the national power utilities in the same year. The IUMOU allowed the CEOs to establish the SAPP management structures. Through the use of specialist working groups, the CEOs produced and signed the Agreement Between Operating Members (ABOM) which set the SAPP functional structure, member obligations, functional expectations and operational modalities at a high level. The Operating Guidelines which stipulated specific member roles, obligations, rules, standards and procedures were then developed to guide the interconnected operations of the SAPP grid.

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4 Source: SAPP
The most important agreement, as regards trading in the SAPP, is the ‘SAPP Markets Book of Rules’ (MBOR) that has been refined and improved over time to keep pace with market developments. The most recent revision was developed in conjunction with the expansion of the Market Trading Platform in 2022, as part of the implementation of the new Balancing market. Another key supporting feature to support regional trading is the Third-Party Access (TPA) approach in the SAPP, which differs from other examples (e.g. the Nordic case), in that the main driver for TPA to the SAPP grid is the membership of SAPP itself, and the desire to trade electricity internationally. Individual SAPP member countries are at widely differing stages of electricity sector deregulation, and so the legal and regulatory arrangements permitting access to national networks vary between countries. The agreements entered into between SAPP members, including those IPPs who wish to trade with SAPP utilities, contain a number of specific provisions relating to TPA. The SAPP, in its rules, does not hinder this and is open for more direct trading, but most of these limiting regulations are national. As the national markets open-up (like in Namibia), it is expected that more market participants per country will be allowed to trade directly in the SAPP markets.
2.1.4. REGIONAL ELECTRICITY REGULATORY ASSOCIATION (RERA)

SADC has established a Regional Electricity Regulatory Association (RERA) whose main objective is to work towards the harmonisation of national rules and regulations. In terms of the SADC Protocol on Energy (1996), the SADC Energy Co-operation Policy and Strategy (1996), the SADC Energy Sector Action Plan (1997), the SADC Energy Activity Plan (2000) and, in pursuit of the broader initiative of the New Partnership for Africa’s Development (NEPAD) and the African Energy Commission, the SADC Ministers responsible for Energy approved the establishment of RERA at their meeting held in Maseru, Lesotho on 12th July 2002.

The Association was officially launched on 26th September 2002 in Windhoek, Namibia, which also happens to be the seat of the RERA Secretariat. Initially, RERA was incorporated as an Association (Not for Gain) under the 1973 Companies Act of the Laws of Namibia (Act 61 of 1973) in October 2003 and, was then, later on, granted diplomatic accreditation by the Government of the Republic of Namibia in March 2010.
RERA has its own Constitution stipulating the objectives, functions and other operational requirements of the Association. For more details, refer to the copy of the RERA Constitution. For the purpose of implementing this Constitution, the Members agreed on the following ‘Guiding Principles’ that:

<table>
<thead>
<tr>
<th>i.</th>
<th>The developments in the Energy Sectors across the SADC region are in line with broad international trends in which neighbouring countries agree to form integrated energy markets</th>
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<tr>
<td>ii.</td>
<td>There are benefits arising from economies of scale and shared resources which are economic imperatives to pursue the development of greater integration of the energy systems in southern Africa</td>
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<tr>
<td>iii.</td>
<td>The successful regional integration of energy systems requires clear frameworks to facilitate cross-border transactions, regional systems operations, a system of tariffs for use of a regional transmission infrastructure, as well as future investments in such infrastructure</td>
</tr>
<tr>
<td>iv.</td>
<td>The development of compatible regulatory frameworks is essential for harmonising and creating market structures that remove barriers to trade and attract investment in the energy sectors across the region</td>
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<tr>
<td>v.</td>
<td>The long-term objective is to create a financially self-sustaining RERA as an institution responsible for the facilitation of regional energy issues and transforming RERA into a regional energy regulator in line with the decisions of SADC institutions and</td>
</tr>
<tr>
<td>vi.</td>
<td>Ensuring that RERA adheres to principles of good corporate governance in conducting its affairs.</td>
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There are ongoing discussions to make RERA an authority to allow them to enforce this better in a regional context. If this is approved, RERA will be renamed SARERA.

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6 [https://www.comesa.int/esrem-supports-creation-of-energy-regulator-for-southern-africa/](https://www.comesa.int/esrem-supports-creation-of-energy-regulator-for-southern-africa/)
2.2. REGIONAL INTEGRATION

The SAPP Co-ordination Centre (CC) is the SAPP market operator and co-ordinates the market activities from Harare in Zimbabwe where all the SAPP markets are operated. The currencies used for the regional trading is USD and ZAR. As in most other international markets, the Day Ahead Market (DAM) is the key market and hence the most liquid one, contributing 69% to 85% of the total energy traded on the SAPP competitive market. 1,269.8 GWh (80% of total competitive market traded volumes) were traded in the DAM from April 2022 to March 2023. The remaining volume traded was in the Forward Physical Market Weekly (FPM-W) at 8% (125.3 GWh), the Forward Physical Monthly (FPM-M) market at 3% (51.3 GWh), and the Intraday Market (IDM) at 9% (144.5 GWh). The average competitive regional market share during 2022/23 was around 22%, the rest of the trading was conducted on a bilateral basis. The highest competitive market share achieved, since the competitive market formation, was in 2018/19 with a market share of 32%. Bilateral trading has been decreasing steadily over recent years (the competitive market share in 2017 was 11%, compared to 32% in 2019) during the 2012 to 2019 period. The average competitive market share, however, declined from the highest market share of 32% in 2018/19, to an average market share of 20%. The decline in market share was a result of climate-change-induced droughts (which resulted in low water levels for power generation), the Covid-19 pandemic-induced restrictions (which resulted in low power demand and hence traded volumes), and the generation constraints experienced by some SAPP members (which resulted in less power being offered to the competitive market). As noted in section 0 above, the volumes decreased during the Covid-19 pandemic period, and the competitive market was down to 18.24% in 2021.

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7 As per the SAPP annual reports
Figure 3: Competitive market performance by market

Figure 4: Competitive market share
In general, the SAPP member countries are not deregulated and consist of vertically integrated national utilities which manage the national power sector. Currently, the SAPP market is therefore mostly trading excess generation capacities (or deficit consumption) between national utilities, as well as handling emergencies; the total traded volume thereby is a smaller part of the total consumption as it is, in essence, only utilising the cross-border trading capacity limited by the available transmission capacity on the interconnections. Longer-term considerations for the further development of the SAPP include a coupling project with Eastern African Power Pool (EAPP) and further expansion of the product offerings in the markets. Another important ambition is to allow for further participation from national buyers and sellers when the national markets open-up.

When speaking of regional collaboration, it is important to emphasise that increasing regional co-operation does not directly correlate with losing national control of the electricity sector. Both the European and SAPP collaborations are living examples of this ideology. The SAPP is a good example, as it can be seen that it is not always necessary to unbundle, privatise and have full national market deregulation to initiate effective cross-border trading. In the African regional market, many different national market types coexist and yet the flow on interconnectors can still be calculated using the implicit capacity allocation. This multi-type regional market structure is presented in Figure 6, where also a single-buyer (without a national market) is presented together with a national market. Both of these types of markets can bid on the cross-border capacities. The benefit of this model is that it allows the national markets to follow their own path at their own pace.

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*Source: SAPP Monthly report for March 2023*
Figure 6. Regional Co-operation with National Control[^9]

[^9]: Source: Bredesen Consulting
2.3. HIGH-LEVEL DESCRIPTION OF THE SAPP PHYSICAL MARKETS

The SAPP consists of several different organised markets which target different system needs. The ownership of the license for the SAPP Market Trading Platform (MTP) system resides with SAPP, and this underpins the organisation of all the various markets. This comes in addition to bilateral contracting that also is allowed for longer-term trading. The content of these bilateral contracts are agreed between the parties and thereby also confidential, but the traded volume and contract path is registered by SAPP and also entered into the MTP to be able to calculate the available transmission capacity for the organised markets. The system (and SAPP rules) does not preclude internal trading, but current practice is that all the trades are import/exports. This is expected to change very soon when Namibia opens-up to Eligible Sellers and Contestable Consumers \(^{10}\) to also join the SAPP regional markets, and there are also other countries which are following similar paths towards national market opening.

Figure 7. SAPP Market Segments \(^{11}\).

The Forward Physical Market (FPM) allows market participants to trade monthly and weekly products. The objective of the FPM is to facilitate the trading of longer-term physical contracts, and the traded volume in the market results in a traded contract based on physical delivery on an hourly basis. For the Forward Physical Monthly (FPM-M) market, currently three time-of-use products are defined: Off-peak,

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\(^{10}\) Contestable Consumers are not yet allowed to import, this will only be allowed when Namibia reaches 80% energy self-sufficiency.

\(^{11}\) Source: Bredesen Consulting
Standard and Peak, similar to the weekly market. For the Forward Physical Weekly (FPM-W) market, the products are more specifically designed to cover the participants’ weekly load profiles, also with predefined time-of-use products called Off-Peak, Peak and Standard. These are agreed between the SAPP members (please see annex B for details). Bilateral contracts can also constitute a portion of the participant’s total power commitments; to fulfil such commitments, the FPM can be used as an alternative, giving participants more flexibility in the planning phase. This approach can also secure prices for power deliveries to follow the price level in the market in the medium-term.

The **Day Ahead Market (DAM)** is often referred to as the cornerstone of the overall market concept. In fact, the DAM market price serves as a reference price for other markets, such as the Financial Derivative Market (yet to be established for the SAPP), and the Intraday Market and Balancing Market. The DAM allows market participants to trade hourly products for the next delivery day. The objective of the market is to facilitate trading hour-by-hour to balance the participants’ internal portfolios for production and consumption. The traded volumes in the DAM result in a binding contract for hour-by-hour physical delivery of electricity. The DAM is open for trade for every hour during a whole year.

The primary role of the Day Ahead Market is to establish an equilibrium between demand and supply, within each bidding zone, for each hour of the next day. Day-ahead prices are calculated and published for each hour of the coming day for each day of the year, in accordance with the individual market participant supply and demand orders, which are the two most important factors determining the electricity price.

A demand curve describes the willingness of consumers (and exporters) to buy electricity at a price they can afford. The generic theory behind a demand curve is that, while other factors remain constant, the higher the price of electricity, the less demand there is for it; and in reverse, the lower the price, the higher the demand and thus the demand curve is therefore typically descending. In electricity markets, demand mostly originates from the electricity consumers, such as large-scale customers like energy-intensive industries or retail sellers. In theory, demand is affected by the electricity consumers’ desire to maximise their benefit with their available budget. In addition, demand is affected by the variable and fixed costs of production (for industries) and by delivery obligations. However, demand in electricity markets is usually quite inelastic due to the essentialness of sufficient electricity supply, and the difficulty to replace it with an alternative source in the short-run. In other words, demand is not affected much by the market price, and consumers are willing to buy the required electricity at almost any price. Eventually, the aggregated demand curve is compiled by summing-up all the demand curves of the single consumers. Having said that, one of the success stories, especially from the Nordic market, is that demand actually takes an active part and provides some flexibility in their demand curves and that, at the current level of retail competition and with the introduction of smart metering, it can be observed that end-consumers will change their consumption pattern for some assets (e.g. dishwasher, charging of electric vehicles) based on the market price which is known in advance.

A supply curve describes the willingness of generators (and importers) to sell electricity at different prices and thereby reflects their cost for supply. The law of supply states that, while other factors remain constant, the higher the electricity price, the more electricity is produced; and in reverse, the lower the electricity price, the less generators are willing to produce electricity and thus the supply curve is typically ascending. In the electricity markets, supply originates from power producers. Supply is affected by multiple factors, such as the production method (including varying variable costs such as
start-up cost and fuel prices). In addition, free competition in the markets affects the pricing of the supply. Eventually, the aggregated supply curve for the market is compiled by summing-up all the individual supply curves of each power producer.

In the DAM, the aim is to derive the optimal price and volume daily for electricity for every hour of the next day. The optimal situation is always found at the intersection of the supply and demand curves, at what is called the market equilibrium (Figure 8). The price at this point is called the equilibrium price, and the volume is the equilibrium volume. The more competitive the market, the more you can be certain to maximise the overall social welfare, and it will also incentivise the sellers to bid their marginal cost, which can be viewed as the optimal bidding behaviour (with some exceptions). The exceptions could be where there is a peaking plant that would bid its scarcity price (that will be higher, but will also allow it to be in the market) and also market participants which have some kind of support schemes (typically for renewables) or capacity payments.

![Figure 8. Price formation in Day Ahead Markets](image)

In the SAPP electricity market concept, the price at the day-ahead stage is formed by finding the intersection of the aggregated supply and demand curves – as described earlier – using the MTP as the trading platform. All the market participants, representing both producers and consumers, settle their trade at the same price within a given market area (i.e. bidding zone), during a specific time period. This price is the Marginal Price of the market for that market time unit (hour) and bidding zone. The supply curve reflects the merit order of power generation units, based on their offer price (which should be close to the variable costs of production), as producers offer their production based on their short-term marginal costs, and aim to cover remaining costs through the difference between their variable cost and the prevailing Marginal Price. Power generation units are therefore normally activated in ascending order of their respective offer price and, as a result, the economically most efficient production units will earn the highest producer’s surplus.

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12 Source: Nord Pool
The Intraday Market (IDM) is a continuous market open for the whole market area. Trading of power for a new delivery day is opened after DAM is closed, and up to one hour ahead of real time operations. The IDM is a supplement to DAM which helps participants secure and adjust their balance between supply and demand on an hourly basis. Additionally, it is a tool for the market participants to manage incidents and failures in the power system during the time between the closing of the DAM and physical delivery on the next day. As with the DAM, traded volumes in the IDM will always result in a binding contract based on physical, hour-by-hour delivery.

Balancing Market (BM) which was introduced in April 2022, is the newest extension of the SAPP MTP. At any given time, maintaining power system stability requires a permanent balance between total power generation and total demand. In order to assist the transmission system operators to maintain this balance, the SAPP (in 2018) agreed to develop a Balancing Market (BM) trading platform in addition to the markets already in existence. The objective of a BM development for the SAPP is to look at all the options of available supply and demand, and utilise them in a competitive manner, in order to ensure that the system is in balance at all times, also after the current SAPP Physical Markets have closed. This first delivery will only have a simple energy product aiming to provide a ‘tertiary’ energy product. The Balancing Market can be seen as a single-buyer market where it is the TSOs which will activate balancing energy within their area(s), and where the Balance Service Providers (please see definitions of BRP and BSP below) offer up or down-regulation orders. The TSOs will activate the most economic order that is available (subject to available transmission capacity) from the whole SAPP system, meaning that all the BSPs can (at least in theory) be activated by any TSO. The SAPP is currently working on the regional level – so the imbalance calculations that are carried out are based on trade in the regional market (and not the domestic market). The BM is, as stated above, a market with one energy product and is also created like this so as not to interfere with the current Control Area operation agreed in the SAPP.

The detailed timings for all markets can be found in 5.1.2.

Monthly trading statistics from the SAPP can be found here:
http://www.sapp.co.zw/monthly-reports

### 2.3.1. Bidding Principles and How Prices and Quantities are Set

The SAPP co-operation is built on a principle whereby the SAPP members are fully responsible for their local markets and networks. This, in turn, means that the SAPP regional markets need to take this into account in their bidding and offer information requirements. Unit bidding would be too detailed and not serve the purpose for the SAPP in their markets, as generally it is one member that participates in the markets on behalf of more than one generator/consumer. It is also based on the fact that the SAPP, as an organisation, would neither have the required information, nor the authority, to be able to monitor the detailed unit-based bidding from individual generators in each country; it is also possible that the SAPP members would not be willing to share this information anyway. Portfolio bidding is therefore the chosen solution as a bidding principle in all SAPP markets.
In addition, this is accompanied with price-based bidding, where the SAPP members should bid into the market based on their real underlying physical situation. Controlling and monitoring cost-based bidding in the SAPP context would be difficult (or impossible); it would be very hard to implement this, from a practical perspective, in the same manner as for the unit-based bidding, as this would require detailed information on each of the units stored by the SAPP and also sufficient authority to monitor their bidding. Any rules pertaining to this will most likely need to come from national regulations of the national power markets.

Figure 9. SAPP Bidding Principle

After the gate closure of the day-ahead auction (meaning the time where new orders are not allowed), the orders are placed in the system as follows:

a) Purchase orders – in a price-decreasing order
b) Sale orders – in a price-increasing order.

Each order, on the plane of co-ordinates determined by price and quantity, expresses a point. Individual supply and demand curves are constructed by connecting these points by linear interpolation. By summing individual curves, aggregated supply and demand curves are constructed, the intersection point of which is the equilibrium point. This process is illustrated in Figure 10. The equilibrium point determines the amount of electricity traded in a particular hour in the DAM and the market price, whilst determining the equilibrium point if:

a) There are several points of intersection of curves on the vertical line - the market price is determined by the arithmetic mean of the minimum and maximum prices of these points
or

b) There are several points of intersection of curves on the horizontal line – the result which maximises the volumes is selected.

13 Source: Bredesen Consulting
Figure 10. Curve Order Aggregation and Creation

Source: Bredesen Consulting

14 Source: Bredesen Consulting
This simplified example is for one zone only. For a multiple zone system, like the SAPP, the algorithm will, as a starting point, do this combined for all bidding zones. When it has found a solution, it will then check if the results would violate any transmission constraint. If not, there will be a common price for all bidding zones. If there are constraints, it will pick the split with the largest deviation between unconstrained flow compared to the available transmission capacity, then redo the calculation based on the orders within these two new groups (that will then get a different price and the transmission capacity between these two new groups of bidding zones will be fully utilised). This recursive process will continue until the solution is found (so, if needed, further splits will be created). This methodology is based on the ‘branch and bound’ mathematical algorithm, with the focus on achieving a solution based on ‘max flow, min cut’, meaning that it will try to use the interconnectors to reach the optimal result (and thereby achieve the goal of maximising the social welfare). Please see Figure 11 illustrating this.

Actual prices are calculated based on supply and demand between regions with capacity constraints

Figure 11. Example of Price Formation across Bidding Zones

If the supply and demand curves do not intersect each other due to supply shortage or oversupply, the Market Trading platform will automatically proportionally reduce the quantities indicated in the relevant orders until the curves intersect (a process often referred to as ‘curtailment’). This can be illustrated as in the figure below where (dependent on if it is supply>demand or demand<supply) you would move the curve until you find a solution.

15 Source: Nord Pool
In this case, the price of electricity will be determined by:

a) Technical maximum price – in case of supply shortage

b) Technical minimum price – in case of oversupply.

These technical limits are determined by the SAPP and are part of the market rules. These are common to the whole SAPP market.

The prices on the SAPP markets are calculated as explained in the section above. Currently, it is one bidder per bidding area in the SAPP, meaning that this market can currently be seen as an ‘inter-regional market’ where trades are essentially representing imports and exports (and potential wheeling). This is, however, based on the current set-up of the national markets. The SAPP rules and system do not place any restrictions on this. There are national markets now undergoing reforms (like in Namibia), and it is expected that, very soon, there will be several market participants trading within the same bidding area.

With the FPM (FPM-M and FPM-W) and DAM, the closed auction methodology is used. With the IDM and BM, the continuous market model is implemented.

For the Balancing Market, the market price for energy products is a marginal price (based on the last activated order in the dominant direction) for each bidding zone, in the same way as most of the Balancing energy markets in Europe have also implemented.

In the BM, all the Balance Responsible Parties (BRPs) carry responsibility for their connections into the market, and need to ensure that the sum of their trades (buy and sell) match the net energy infeed/withdrawal. The imbalance settlement process will settle the BRPs’ discrepancies for each Imbalance Settlement Period (ISP). The imbalance settlement is a financial settlement mechanism aimed at charging or paying BRPs for their total imbalance. Within the imbalance settlement process, the SAPP Balancing Market, on behalf of the national TSOs, calculates an imbalance price for each ISP,

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Source: Bredesen Consulting
for each bidding zone, for the deviation between the nominated energy flows and metered energy values. The imbalance price incentivises the BRPs to adhere to the contracted energy delivery/consumption to avoid future imbalances in the system. It is important to recognise that the SAPP Balancing Market is a regional balancing market, i.e. it settles the regional imbalances for the participants in the regional market(s). Each of the individual countries will have its national balancing regime as well. The drawing below aims to illustrate the difference.

In the SAPP, the individual TSOs would have the opportunity to use the same methodology as the regional one to calculate their imbalances. The main difference is that it will be the national TSOs which have access to the required metering to perform this. Individual TSOs are allowed to have a different methodology to recover this, but they are responsible to the SAPP for their regional imbalance. A key aspect is to avoid any ‘double-charging’ meaning ensuring that the regional and national imbalance regime covers the total cost (neither more, nor less).

The operation of the SAPP Balancing market is facilitated by the SAPP Market Operator (including settlement) but it is, in a sense, operating this on behalf of the TSOs.
The imbalance price mechanism implemented in the SAPP is a one-price system where there is an option (in the trading platform) to switch between a marginal price and a volume-weighted average price\(^{18}\). The SAPP has decided to start with the marginal price and will consider the volume-weighted option when they have gathered some experience. If no balancing activations by the TSOs are done (implying that the underlying power system is in balance), it will use the DAM price as the imbalance price.

The SAPP’s definition of a Balance Responsible Party (BRP) is as follows:

A **Balance Responsible Party**, or **BRP**, is any market participant who either injects electricity into the grid, or uses power from the SAPP grid.

A key principle of a functioning balancing market is that **all BRPs must aim for system balance** to allow the TSO to develop the accurate forecasts necessary for ensuring the maintenance of system security.

The BRP is therefore responsible for ensuring that all their nominations are at a net neutral position. Prior to the intraday cross-zonal gate closure time, a BRP may change its nominations as required to calculate its position. After the closure of this gate, the BRP must act in accordance with their

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\(^{17}\) Source: Bredesen Consulting

\(^{18}\) The volume-weighted average price is calculated as the average of all prices for activated orders weighted based on their activated volumes. This can be done per bidding zone, or for the full SAPP region as a whole (configurable)
nomination to ensure balance is maintained, unless the TSO has given approval to the BRP to deviate from its nominated schedule (for example, due to technical reasons relating to grid security).

As a fundamental principle, where this system balance is not maintained, the BRP causing the imbalance is considered to be financially responsible for the costs associated with rectifying the imbalance (through the procurement by the TSO of balancing services). Imbalances are defined as the difference between the nominated and the realised exchanges of the BRP. A fundamental responsibility of the BRP is therefore, at all times, to use all reasonable measures to act in accordance with its nominations, thereby helping to ensure maintenance of system balance.

When a BRP makes balancing offers to TSO(s), it is normally then called a Balancing Service Provider (BSP) which is essentially a BRP that offers balancing services.

### 2.3.2. UNIT SCHEDULING/COMMITMENT AND DISPATCH

As most of the countries have a vertically integrated national utility as the member of the SAPP markets, they are Balance Responsible Parties to SAPP (see definition in section above) although they will, in most cases, have a different system to dispatch in their country. A common solution is that these national utilities have a department/office/function which engages in the SAPP markets on behalf of the national utility. Their operational set-up differs from country to country based on the local regulations.

### 2.3.3. FINANCIAL SETTLEMENT

The Market Trading Platform (MTP) for the SAPP includes an integrated settlement module that settles all the markets. In addition, the MTP also settles wheeling and losses, and the regional energy imbalance, between everyone on behalf of all the participating countries. The SAPP is acting as a Central Counterparty (CCP) meaning that it facilitates payments and transactions between the market participants as buyers and sellers of power. This includes two parts; firstly, clearing is the process of calculating the physically traded amounts and turnovers in the organised electricity markets and, secondly, financial settlement is the actual exchange of money.

The aim of a CCP is to establish transparent and efficient flows of funds, while overseeing the financial settlement and clearing of all the trades in the organised market(s). It is also a tool used to reduce the counterparty risk, meaning that if a member fails to settle its obligations in the market, the CCP has rules and processes to ensure that it can honour the obligations and cover the monetary shortfall. To be able to step-in and solve such an issue, the CCP usually requires some collateral from the market participants based on the individual trading characteristics. The methodology for calculating the collateral for SAPP is defined in their Book of Rules, and this also includes what types of collateral are acceptable. The fundamental role of Central Counter Party is illustrated in

Figure 14.
The SAPP is operating on a monthly cash settlement cycle where all the markets are settled based on a trading month+18 days cycle and the invoices and credit notes are prepared and distributed to buyers and sellers respectively on a Delivery Day +1 cycle. This is simplified compared with the EU. Whilst having some of the same markets, SAPP is the counterpart to all of these and can thereby perform a common settlement and invoice process for all the markets (also allowing for netting between the markets – i.e., if you are selling in one market and buying in another, you will get a net invoice). Please also refer to the overall timetable in chapter 5.1.2.

2.3.4. TRANSMISSION PRICING (WHEELING)

The original wheeling charge applied in the SAPP was based on the postage stamp principle. This applied a scaling factor of 7.5% to the value of the energy wheeled through one country, or 15% if the energy was wheeled through two or more countries, split between the two countries. The increase (or decrease) in losses was supplied by the seller of the energy and paid for by the buyer.

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19 Source: Nord Pool

20 Settlement invoices and credit notes are sent a day after the power has been delivered to buyers and sellers respectively. Wheeling credit notes are also sent to wheelers. Payment of invoices by buyers is done by delivery month +10 days. Payment of credit notes to sellers by the SAPP is done by trading month +18 days.
This method was replaced in 2003 by a flow-based MW-km methodology where the charges are determined according to the proportion of assets used for wheeling. The use of assets for wheeling purposes is determined using load-flow studies to calculate the proportion of total available capacity on each contract path accounted for by a wheeling transaction. Wheeling charges are then levied in accordance with this proportion as a share of the total value of the assets affected by the wheeling transaction.

This approach is well suited to a situation in which the counterparties to each bilateral trade are clearly identifiable, i.e. the ‘start’ and ‘end’ points of each transaction are known. With the evolution of the trading platforms within SAPP to introduce markets other than long-term physical bilateral trades, an alternative methodology was recognised as being necessary to enable transmission charges to be applied to trading parties without a defined counterparty to a given trade being identified.

Work was undertaken in 2005/6 to develop a nodal transmission pricing model. However, due to various regional factors, which resulted in a significant reduction in the amount of wheeling being undertaken with the SAPP, this was not implemented. This was designed to coincide with the introduction of a Day Ahead Market (DAM), which permits trading across constrained interconnectors in real time.

A project has now recently been concluded by the SAPP that has defined the implementation of an improved transmission pricing methodology for implementation; this will overcome the limitations inherent in the flow-based MW-km method. When and how to implement this is still under discussion.

The new methodology will focus on the calculation of transmission entry and exit charges, whereby:

- Generators pay a defined entry charge per MW of capacity exported each settlement hour
  &

- Demands pay a defined exit charge per MW of capacity energy imported in each settlement hour.

The main implication of this is that charges can be allocated to generation and demand based solely on their capacity and location, and irrespective of the identity of the counterparty with whom they are trading electricity. This is important for enabling transmission charges to be recovered from participants in the DAM and the IDM, where there are no defined counterparties for the trades. Thus, trades could be taking place involving the generation of electricity in one zone of the market, and its consumption in a neighbouring market zone or across multiple zones, without the transmission charges being affected. This is an important principle for encouraging participation in the short-term markets.

In addition, a need has been recognised to charge all users of the transmission system on a common basis, whether they are using the networks for international wheeling, or for internal domestic supply.
In principle, entry and exit charges could be applied to generation and demand, irrespective of whether the power/energy is being exported or imported nationally or internationally. The charges would be applied both to generators owned by the incumbent national power utilities, and also to IPPs. They would also apply to the demand taken by power utilities and large industrial consumers, given that these parties are in principle allowed to trade in the SAPP markets.

Under the current MW-km charging method, the buyers of power pay the full cost of wheeling (based on standard costs). There is a suggestion that this results in a reduction in the inappropriate distribution of the locational signals incorporated in the pricing method. Under nodal-based pricing methods, various options exist for determining the split between generation and demand charges, and this is an issue that has been considered widely in international markets.
Responsibility for the repayment of energy losses that arise in the transmission networks of SAPP member’s utilities, due to wheeling services provided to sellers and buyers of energy, rests with the energy purchaser. SAPP originally operated an ‘in-kind’ arrangement for the repayment of losses, whereby the energy buyer purchased an increased volume of energy from the seller to compensate the wheeling utility for the energy lost in its network. The time for repayment of this energy was agreed as part of the scheduling process. Under the Agreement between Operating Members in SAPP, the possibility of the cash settlement of losses is also permitted and, in 2015, a method was developed for calculating the financial compensation of losses. The SAPP Co-ordination Centre calculates the incremental transmission losses arising from wheeling trades. SAPP is still using loss factors which are calculated as being transaction-based and calculated from load-flow studies performed with and without each wheeling transaction. The current approved methodology is that losses are paid back based on the SAPP Market Clearing Prices for the previous year, allocated by season (winter, summer), and time of use (differentiated between peak, off-peak and standard periods).
2.4. SAPP MEMBERSHIP CATEGORIES

There is currently a trend which several of the SAPP member countries have started out on and that is national market reform, an effect of which is that it will also open-up the option for other energy companies to participate in the market. The Modified Single-Buyer in Namibia is the one that has progressed furthest in this (see chapter 3 for more details).

In preparation for this, SAPP has created their ‘Book of Rules’ which governs their markets in a manner that allows for all kind of participants subject to national rules. They have recently clarified their membership categories as explained below.

(The following text is taken from the new membership categories agreed by SAPP).

Below are the membership categories, the criteria to be met, and the rights which an electricity enterprise (public or private) that intends to become a member of SAPP, including IPPs (Independent Power Producers), ITCs (Independent Transmission Companies) etc., should satisfy for each of the proposed membership categories. The following considerations were taken into account when agreeing on these new categories:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>i.</td>
<td>The need to recognise that the IGMOU mandates the National Power Utilities of each of the SADC member states to be responsible for SAPP management and admission of new members to SAPP</td>
</tr>
<tr>
<td>ii.</td>
<td>The need to recognise that the SADC Member states directed SAPP, through the IGMOU, to accommodate other players (other than National Power Utilities) including ITCs, IPPs, market service providers, etc., into the SAPP</td>
</tr>
<tr>
<td>iii.</td>
<td>The need to recognise that the connection and operation of different players on the SAPP grid results in different impacts on the operation of the SAPP grid. As such, there is the need to recognise this distinction in the SAPP Membership categories</td>
</tr>
<tr>
<td>iv.</td>
<td>(i) and (ii) above therefore require that a category for a National Power Utility be provided for in the membership categories</td>
</tr>
<tr>
<td>v.</td>
<td>The need to accommodate players on the SAPP markets.</td>
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</tbody>
</table>
From above, the following categories were agreed:

i. **National Power Utility Member category** – to implement the mandate from the SADC member states as provided for in the IGMOU

ii. **Operating Member category** – provided for players (public or private), including IPPs, ITCs whose operations would have an impact in the operation of the SAPP grid

iii. **Market Participant Member category** – provided for those players who intend to trade on the SAPP market, and who should meet certain minimum thresholds as determined by SAPP and proposed in this document, these to include IPPs, market service providers, etc.

iv. **Conditional Membership for Market Participants** is intended for power developers, who intend to construct power plants for trading on the SAPP markets, to enable them to provide security to their funders before the plants are constructed. Conditional Membership shall be granted to an applicant meeting the following conditions:

   (i) Where applicable, be licensed and or supported by a competent body/authority/authorities within their jurisdiction to engage in cross-border electricity trade

   (ii) The Conditional Membership for Market Participants will be for a period of five (5) years, following which the entity must meet the requirements for Membership as stipulated in Article 5 of the IUMOU. The Conditional Membership is subject to renewal

   (iii) Payment of the prescribed application fees shall apply. No Conditional Membership participation fees are to be applied.
As can be noted from the above, any electricity enterprise (public or private), including IPPs, can qualify to be a SAPP member in any of the categories provided they meet the criteria provided below. Note that for any electricity enterprise to qualify as a member in any of the above categories, it should meet the criteria proposed as below.

<table>
<thead>
<tr>
<th>NO</th>
<th>CATEGORY</th>
<th>CRITERIA</th>
<th>RIGHTS</th>
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<tbody>
<tr>
<td>1</td>
<td>National Power Utility</td>
<td>Any electricity enterprise that:</td>
<td>Shall have the right to:</td>
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<td></td>
<td></td>
<td>a) Operates the National Control Centre or National Grid in its country, &amp;</td>
<td>a) Participate in all the working groups, sub-committees and committees of SAPP</td>
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<td></td>
<td>b) Carries out transmission system and/or market operations functions, &amp;</td>
<td>b) Chair all the working groups and task teams</td>
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<td></td>
<td>c) Is an SADC state-owned entity, or is mandated by a SADC member government.</td>
<td>c) Chair sub-committees and committees of SAPP, if it is connected to the SAPP grid</td>
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<td></td>
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<td></td>
<td>d) Vote (has full voting rights)</td>
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<td></td>
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<td></td>
<td>e) Participate in the SAPP market.</td>
</tr>
<tr>
<td>2</td>
<td>Operating Member</td>
<td>Any electricity enterprise that:</td>
<td>Shall have the right to:</td>
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<td></td>
<td></td>
<td>a) Operates a permanent generation facility of a total capacity of at least 300 MW physically connected to the SAPP grid at a voltage level of at least 110 kV, and/or</td>
<td>a) Participate in all task teams, working groups, sub-committees and committees of SAPP</td>
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<td></td>
<td>b) Operates a transmission system of 110 kV and above which is physically connected to the SAPP grid at a voltage level of at least 110 kV, &amp;</td>
<td>b) Chair the working groups and task teams of SAPP</td>
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<td></td>
<td>c) Must have the capability to provide ancillary services.</td>
<td>c) Vote at SAPP Executive Committee according to the SAPP IUMOU</td>
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<td></td>
<td></td>
<td>d) Vote at working group and sub-committee levels and also at Management Committee level</td>
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<td></td>
<td>e) Participate in the SAPP market in compliance with respective national legislation on cross-border trading, provided that (i) such power is not tied to a single-buyer contract; or (ii) the counterparty has given consent for the contracted power to be traded on the market.</td>
</tr>
<tr>
<td>NO</td>
<td>CATEGORY</td>
<td>CRITERIA</td>
<td>RIGHTS</td>
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<tr>
<td>3</td>
<td>Market Participant</td>
<td>Any electricity enterprise or company that:</td>
<td>Shall have the right to:</td>
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<td></td>
<td></td>
<td>a) Operates or contracts generation capacity or a load of at least 5 MW that is physically connected to the SAPP grid, &amp;</td>
<td>a) Be represented in the SAPP Traders and Controllers Forum</td>
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<td></td>
<td>b) Must comply with respective national legislation on cross-border trading, &amp;</td>
<td>b) Vote at the SAPP Traders and Controllers Forum</td>
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<td></td>
<td>c) Must not be tied to a single-buyer contract; or, where such a contract exists, must have counterparty consent to trade the contracted power on the market, &amp;</td>
<td>c) Participate in the SAPP market.</td>
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<td></td>
<td>d) Must have the capability to balance agreed schedules, or must have a contract for balancing agreed schedules with an SAPP operating member.</td>
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<td></td>
<td>As outlined above, there is a Conditional Market Participant category which applies to a company that is in the process of becoming a Market Participant.</td>
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</tr>
</tbody>
</table>

Table 1. Proposed Revised SAPP Membership Categories, Criteria and Rights

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21 Source: SAPP
<table>
<thead>
<tr>
<th>Capacity Threshold for Operating Member</th>
<th>Capacity Threshold for Market Participant</th>
<th>Large Loads or Large Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>The agreed capacity threshold for an Operating Member is 300 MW. This was based on the principle that the capacity, when disconnected instantaneously, should be big enough to result in power frequency excursion from the normal SAPP deadband of 50±0.15 Hz. The 300 MW capacity was tested using power system simulation and typical power system disturbance events.</td>
<td>The agreed capacity threshold for a Market Participant is 5 MW. This was based on the principle that this is the SAPP minimum generation level from which a generator is obliged to have governor control as per the SAPP Operating Guidelines.</td>
<td>The joint meeting resolved that operating a large load should not be one of the criteria for determination of an Operating Member. This was because large loads are always already connected to a transmission or generation system. Furthermore, the power consumption is normally already contracted to an Operating Member. To avoid doubt, a Large Load or Large Consumer can become a Market Participant.</td>
</tr>
</tbody>
</table>
3. NAMIBIA

3.1. INTRODUCTION TO MSB

The Modified Single-Buyer (MSB) model is a market model for the electricity industry in Namibia, which was implemented in September 2019. It built incrementally on the existing Single-Buyer (SB) model, i.e. it was a modification of the existing Single-Buyer market structure.

The main change to the SB model was that the MSB allows electricity consumers and Independent Power Producers (IPPs) to transact with each other directly for the supply of electricity. The MSB also allows for IPPs to build new generation capacity in Namibia, which is specifically for export purposes, into the SAPP. Although bilateral transactions and exports are now allowed, NamPower will continue to play a critical role in the electricity sector and will also build new supply, procure new supply and act as the Supplier of Last Resort.

The trading arrangement and role of NamPower as the Single-Buyer are shown in the figure below:


The main design features of the new MSB are listed below:

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1. New trading arrangements allow for bilateral transactions between Contestable Customers and Eligible Sellers, including Generators, Exporters, Traders and, in the future, Importers.

2. From September 2019, Contestable Customers are able to purchase up to 30% of their energy consumption from Eligible Sellers.

3. Eligible Generators selling to Contestable Customers will be able to self-despatch.

4. The MSB is a further step by Namibia towards greater competition and choice in the electricity industry.

5. To ensure an orderly transition from the current market, a phased approach will be followed to increase the number of Contestable Customers, as well as the percentage of purchases which will be contestable.

6. New products and services, such as Reliability Services, Balancing Services and Energy Banking Services will be offered by NamPower.

7. Revised Tariff structures to support these new opportunities, and to allow NamPower to recover the costs associated with all of its services.

8. NamPower to become the financial central counterparty for the MSB?

9. Changes in market operations and administration responsibilities to manage the new structure.

10. Updated regulatory instruments and rules to guide market participants.

Namibia is the **first country** in the SAPP to explicitly support the development of power plants for export by creating a comprehensive markets structure, rules, and regulations to support these market
3.2. NAMIBIA MARKET STRUCTURE

The main stakeholders and market participants in the MSB are:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>ENTITY</th>
<th>ROLES AND RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Ministry of Mines and Energy (MME)</td>
<td>Among others, the MME is responsible for the following: developing policies and undertaking planning to ensure national energy security; approval of licences under the Electricity Act, rural electrification planning, funding and implementation, planning for sufficient electricity generation capacity to meet demand, defining procurement and off-take responsibilities for new generation projects</td>
</tr>
<tr>
<td></td>
<td>Ministry of Public Enterprises (MPE)</td>
<td>Represent the Government of Namibia as shareholder of NamPower</td>
</tr>
<tr>
<td></td>
<td>Ministry of Environment and Tourism (MET)</td>
<td>Approval of Environmental Impact Assessments, Environmental Management plans (EMP) and issuing of Environmental Clearance Certificates (ECC)</td>
</tr>
<tr>
<td></td>
<td>Ministry of Land Reform (MLR)</td>
<td>Rezoning of land and procurement of land for power generation developments</td>
</tr>
<tr>
<td>Regulator</td>
<td>Electricity Control Board (ECB)</td>
<td>Recommends and implements the ESI regulation and regulatory framework. Assesses licence applications and recommends to MME. Issues, monitors, and suspends licences. Provides regulatory oversight over key agreements including PPA. Recommends tariff level and tariff structure changes</td>
</tr>
<tr>
<td>National Utility:</td>
<td>NamPower</td>
<td>Owns and operates current and future NamPower owned plant</td>
</tr>
<tr>
<td>NamPower</td>
<td>Generation</td>
<td>Contains</td>
</tr>
<tr>
<td></td>
<td>Transmission</td>
<td>(i) System Operator – responsible for system security and dispatch of generation units to maintain grid integrity in meeting demand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Supply and Wires – responsible for supplying to transmission customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Network-Owner – owns, operates, and maintains the transmission grid</td>
</tr>
<tr>
<td></td>
<td>Modified Single-Buyer</td>
<td>Includes the Market Operator and single-buyer, procuring some of the power dispatched to the transmission grid, as well as all imports and some</td>
</tr>
</tbody>
</table>

23 NamPower’s business units are ringfenced from one another, meaning that there is some degree of operational unbundling.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>ENTITY</th>
<th>ROLES AND RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>NamPower Distribution</strong></td>
<td>Owns, operates, and maintains part of the distribution network in licenced areas and supply to end customers</td>
</tr>
<tr>
<td></td>
<td><strong>IPPs</strong></td>
<td>Owners and operators of generation plant contracted by the single-buyer as part of the supply mix</td>
</tr>
<tr>
<td></td>
<td><strong>IPPs with PPA to supply to the grid</strong></td>
<td>Owners and operators of generation plant contracted by end users to supply as embedded generators to the specific end user, no supply to the wider grid</td>
</tr>
<tr>
<td></td>
<td><strong>IPPs for Export</strong></td>
<td>Owners and operators of generation plant specifically for export purposes into the SAPP</td>
</tr>
<tr>
<td></td>
<td><strong>Regional Electricity Distributors</strong></td>
<td>Own, operate and maintain the distribution network and supply to end customers, or the local and regional authorities. Also responsible for rural electrification</td>
</tr>
<tr>
<td></td>
<td><strong>NamPower Distribution – see above</strong></td>
<td>Own, operate and maintain the distribution/reticulation network and supply to end customers in certain areas where REDs are not yet operational</td>
</tr>
<tr>
<td></td>
<td><strong>Local and regional authorities and other</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Traders</strong></td>
<td>The MSB makes provision for Traders to participate in the MSB by facilitating transactions between Sellers and Buyers.</td>
</tr>
<tr>
<td></td>
<td><strong>Customers</strong></td>
<td>Connected to NamPower’s transmission network, include large users, REDs, local and regional authorities</td>
</tr>
<tr>
<td></td>
<td><strong>Distribution end users</strong></td>
<td>Connected to a distribution/reticulation network.</td>
</tr>
</tbody>
</table>

Table 5: Key Players in the ESI and their Roles

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### 3.3. MARKET DEVELOPMENT PHASES

The MSB will be implemented according to the following guidelines:

<table>
<thead>
<tr>
<th>PHASE</th>
<th>DATES</th>
<th>ACTIVITIES ALLOWED</th>
</tr>
</thead>
</table>
| Phase 1a | 1<sup>st</sup> September 2019 - 30<sup>th</sup> June 2021 | • Transmission-connected customers may purchase up to 30% of their energy demand from eligible generators  
• Exporters will be allowed to participate in the modified single-buyer market  
• Traders will be allowed to participate in the modified single-buyer market for export purposes |
| Phase 1b | 1<sup>st</sup> July 2021 – 30<sup>th</sup> June 2026 | • Phase 1a activities will be allowed  
• Traders will be allowed to participate in the modified single-buyer market  
• Distribution-connected customers, with a demand of 1MVA and above, will be allowed to purchase up to 30% of their energy demand from eligible Sellers or Traders  
• The Electricity Control Board, upon review, may increase the individual Contestable Quantity and national Contestable Cap |
| Phase 2 | 1<sup>st</sup> July 2026 - ongoing | • During Phase 2, importers will be allowed to participate in the modified single-buyer market. |
The following figure shows the new trading arrangements in the MSB, following the implementation of Phase 1a and 1b.

Figure 16: MSB Trading Arrangements Phase 1a & 1b

The figure shows:

1. New trading arrangements between Eligible Sellers and Contestable Customers.
2. The creation of the MSB office within NamPower including the System Operator, National Trader and Market Operator.
3. The role of Traders, which are able to act as both Contestable Customers and Eligible Sellers.
4. The opportunity for IPPs to export into the SAPP physical markets.
From 2026, when Phase 2 is implemented, the trading arrangements will expand to include importers as shown in the figure below.

Future developments of the modified single-buyer market may include the establishment of the following markets in Namibia:

1. A Day Ahead market.
4. Demand-side Participation.
5. Purchase of, or trading in, specific ancillary services products.

It is envisaged that the MSB will be aligned with the SAPP markets and will utilise the SAPP trading platforms, as appropriate.
In order to take advantage of the new market structure, customers need to be designated as ‘Contestable’, and sellers (generators) need to be designated as ‘Eligible’. There are a number of criteria that each party needs to meet in order to participate. These criteria will change over time in order to allow more customers to become Contestable. Eligible Sellers will need to comply with ECB licensing requirements and the MSB rules.

### 3.4.1. MSB REQUIREMENTS FOR CONTESTABLE CUSTOMERS

The requirements to become a Contestable Customer (CC) are relatively simple. In order to trade in the MSB, a CC must:

1. Apply to the Electricity Control Board for approval to become a Contestable Customer – the application letter can be found on the ECB website.
2. Following Electricity Control Board approval, a CC must register with the market operator (MO) as a market participant and comply with the Market Rules – the MO is part of the MSB unit in NamPower.
3. Contestable Customers will require an amendment to their existing Power Supply Agreement (PSA), in order to confirm their intention to abide by the Market Rules and that their metering and reconciliation will be in accordance with the MSB Wheeling Framework.

The Electricity Control Board (ECB) must determine the contestable quantity for each contestable supply point of the Contestable Customer on the following basis:

1. 30% of the average total monthly energy demand, for the 12 months prior to the date of application.
2. The Electricity Control Board must use the metered energy demand from each contestable supply point in order to determine the contestable quantity.
3. The Electricity Control Board must make the determination within 20 business days from the date of application.

A CC may apply for an amendment of its approved contestable quantity to the Electricity Control Board, and the Board must make the final determination in respect of any application for amendment.

A CC that meets the contestability criteria in the MSB may register or de-register at any time from the

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25 Words in capital letters are either defined in this document or in the MSB Market Rules

market, without incurring any penalties, subject to any existing contractual or bilateral obligations. A CC is not obliged to use its approved contestable quantities.

### 3.4.2. CC MARKET PARTICIPATION PROCESS (NAMPOWER)

NamPower has developed several documents which describes the process for a CC to become a MSB market participant:

1. The CC shall review all the relevant documents before contacting ECB to initiate the registration process.

2. Following the ECB registration process, the CC shall fill-out the registration form for the Contestable Customer as published by the MO and, when finished, submit this to the MO.

3. If the MO finds any issues or lack of clarity in the submitted form, they will invite the CC to a meeting to discuss.

4. The MO and CC might arrange a meeting to review all the terms and conditions, to ensure that the CC is aware of all the details, and to rectify any outstanding issues. This shall also include the other requirements in the Market Rules.

5. The MO shall, within the timeframes in the Market Rules, either approve the application, or reject it, and then inform the CC.

6. If the registration by the MO is approved, the MO will request an amendment of the CC’s Power Supply Agreement. The amendment will confirm that the CC will abide by the Market Rules, and that the metering and reconciliation of contestable quantities bought from an IPP, will be in accordance with the Wheeling Framework.

7. The CC will then sign the PSA Amendment.

8. When the MPA is signed, the MO will inform the CC of the required accession fee if any, as well as the required initial collateral according to the PSA Amendment.

9. The CC will have to post the required collateral if any, and other fees before being allowed to trade.

10. When the money is received on the assigned account, the CC is allowed to commence trading.
3.4.3. MSB REQUIREMENTS FOR ELIGIBLE SELLERS

Eligible Sellers (ES) can participate in the MBS as IPPs selling directly to retail customers (that qualify and in line with the MSB phasing), or as exporters into the SAPP markets or both. The requirements to become an ES in the MSB are relatively more complex than for CCs.

IN ORDER TO TRADE IN THE MSB WITH RETAIL CUSTOMERS, AN ES MUST:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Be in possession of the necessary valid licences, permits and approvals in terms of the applicable Namibian legislation, regulations, codes, and standards.</td>
</tr>
<tr>
<td>2.</td>
<td>Apply and obtain written permission from the transmission or distribution network operator, as the case may be, to connect to the network.</td>
</tr>
<tr>
<td>3.</td>
<td>Apply and obtain written permission from the system operator that such a bilateral trading arrangement is technically feasible.</td>
</tr>
<tr>
<td>4.</td>
<td>Register with the market operator as a market participant; enter into a balancing agreement with the market operator for energy imbalances in the network.</td>
</tr>
<tr>
<td>5.</td>
<td>Deposit the necessary financial security to cover energy imbalances requirements with the market operator, &amp;</td>
</tr>
<tr>
<td>6.</td>
<td>Comply with the MSB Market Rules.</td>
</tr>
</tbody>
</table>

IN ORDER TO TRADE IN THE SAPP FROM THE MSB AS AN EXPORTER, AN ES MUST:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Comply with the above in Section 3.4.2.1.</td>
</tr>
<tr>
<td>2.</td>
<td>Export their electricity through the SAPP markets. Bilateral export transactions outside of the SAPP markets require prior written approval from the Electricity Control Board.</td>
</tr>
<tr>
<td>3.</td>
<td>Comply with the SAPP Markets: Book of Rules - Qualifying Requirements to Trade and any other relevant SAPP Market requirements where the exporter is a member of the SAPP.</td>
</tr>
<tr>
<td>4.</td>
<td>In the case of exports outside of the SAPP markets, the exporter must be in possession of the permission granted by the relevant regulator of the country to which power is being exported.</td>
</tr>
</tbody>
</table>
3.4.4. ES MARKET PARTICIPATION PROCESS (NAMPOWER)

NamPower has developed several documents which describe the process for an ES to become an MSB market participant. The overall process can be summarised in the following six headings:

1. Pre-Registration Process.
2. Eligible Seller License Process.

PRE-REGISTRATION PROCESS

NamPower suggest that once the ES has reviewed the relevant market documents (e.g. Market Rules) and has decided to participate in the MSB, they can proceed with a pre-registration by filling-in a pre-registration form and submitting it to the Namibian MO. The Namibian MO will then authorise them to proceed to the registration process.

ELIGIBLE SELLER LICENSE PROCESS

The ES shall fill-in the License registration form for Eligible Sellers, as published on the ECB website, and, when finished, submit this to the ECB. The ECB shall review the License registration form submitted by the ES and verify the application – there may be some requirement for amendment, which the ECB shall support. The ECB shall, within the timeframes in the Market Rules, thereafter either approve the application, or reject it.

The ECB website\(^{27}\) has the following documents available for prospective licensees:

1. License Application Guidelines.
2. Application Documents.
4. Licensing Fees.
5. Licensing Transfer Application.
7. Objection Form.
8. Generation License Conditions Template.

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\(^{27}\) The license application forms can be found on the ECB website: https://ecb.org.na/index.php/licensing/license-application-procedure
ELIGIBLE SELLER CONNECTION PROCESS

In parallel with the License registration process, the ES can contact the Network Operator (NO – in this case, the Transmission Systems Operator or Distribution Systems Operator) to formally apply for connection to the grid. The NO will do a detailed connection study and provide the ES with an offer letter to connect. Thereafter, the ES shall, within the timeframes specified in the connection offer letter, accept, make payment, and sign the connection agreement, or reject the offer.

ELIGIBLE SELLER MARKET PARTICIPANT PROCESS

The ES shall fill-in the registration form for Eligible Sellers as published on the MO website and, when finished, submit this to the MO. The MO and ES might arrange a meeting to review all the terms and conditions, to ensure that the ES is aware of all the details and to rectify any outstanding issues. This shall also include the other requirements in the Market Rules. Thereafter, the MO shall either approve the application, or reject it and then inform the ES.

ELIGIBLE SELLER MARKET PARTICIPATION & BALANCING AGREEMENT PROCESS

For both ES trading in Namibia and exporters, ES need to enter into a Balancing Agreement. It should be noted that NamPower are obligated to balance plants trading in Namibia, but may decide not to balance plants for export – for example, in the case where the export plant capacity requires NamPower to install additional reserves capacity to meet balancing requirements. The ES for export may also choose to enter into balancing arrangements with other SAPP members, or may balance themselves in other SAPP markets. NamPower have combined the Balancing Agreement and Market Participation Agreement into one document.

The ES shall fill-in the required information for the Agreement registration form for Eligible Sellers as published by the MO and, when finished, submit this to the MO. The MO shall review the required information for the Balance Agreement submitted by the ES and verify the application. The MO shall, within the timeframes in the Market Rules, either approve the application, or reject it.

If the registration by the MO is approved, the MO will request the ES to sign the Market Participant & Balancing Agreement (MPBA). By signing this, the ES will sign-up to the Market Rules that are valid at all times. The ES will then sign the MPBA and, when the MPBA is signed, the MO will inform the ES of the required accession fee, as well as the required initial collateral according to the MPBA. When the money is received in the assigned account, the ES is allowed to commence trading.
### 3.4.5. MSB REQUIREMENTS FOR TRADERS

The MSB Market Rules define a ‘Trader’ as “a legal entity licenced to buy electricity from eligible producers for sale to contestable customers as a commercial activity”.

A Trader in the MSB must:

1. Hold the necessary valid licences, permits and approvals in terms of applicable Namibian legislation, regulation, codes, and standards.
2. Register with the market operator as a market participant.
3. Comply with the modified single-buyer market rules.

It is important to note that a Trader only facilitates energy trades and has no entitlement to the energy; an independent Trader is not permitted to buy from, or sell to, another independent Trader. An independent Trader may procure electricity from an eligible generator or importer (when applicable), and allocate it to a CC.

### 3.4.6. TRADERS’ MARKET PARTICIPATION PROCESS (NAMPOWER)

Currently, NamPower has not published any specific documentation regarding the registration and participation of Traders in the market; however it is assumed that they will be similar to the requirements for an ES as described above in Section 3.4.2.
3.5. MSB MARKET OPERATIONS

3.5.1. TRADING PRODUCTS

The following products and markets will be available from the commencement of the market:

1) Energy (kWh)
   a) Balancing Market/Mechanism
   b) Bilateral agreements between Eligible Sellers and Contestable Buyers\(^{28}\).

2) Capacity (kW)
   a) Eligible Sellers and Contestable Buyers will be allowed to trade capacity via their bilateral trade agreements.

3) Ancillary Services
   a) The MSB will be allowed to enter into agreements to purchase Ancillary Services from licensed Sellers.

It is anticipated that more products and services will be added to the MSB over time.

3.5.2. TRADING PROCESS

The main features of the MSB trading process are listed below:

1) The MSB shall inform all the Eligible Sellers of planned network outages that may result in Network Congestion and impact on bilateral transactions.

2) Eligible Generators and Importers shall inform the MSB of their intention to produce or deliver electricity by submitting binding Day-ahead Production Schedules to the MSB in accordance with the MSB’s rules. Each Production Schedule shall indicate:
   a) The quantity of power (in kWh/h) to be produced or delivered in each Trading Period.
   b) The Nominated Percentage (%) of power to be allocated to each Contestable Supply Point in every Trading Period for the next Day.

3) Traders shall inform the MSB of their intention to trade electricity by submitting Day-ahead Trading Schedules to the MSB in accordance with the MSB’s rules. Each Trading Schedule shall indicate:
   a) The Nominated Percentage (%) of power to be allocated to each Contestable Supply Point from every Production Unit in every Trading Period for the next Day.

\(^{28}\) With the option for these to be facilitated by 3rd-Party Traders
4) The MSB shall publish a day-ahead Constrained Schedule. Any differences between the submitted Production or Trading Schedules and the published Dispatch Schedule shall be dealt with in accordance with the rules for Network Congestion.

5) Eligible Generators shall Self-Dispatch their plant in accordance with the MSB’s Constrained Schedule.

6) The MSB will collect all the relevant reconciliation data, including metered values and Dispatch instructions, to determine the utilisation of Balancing Services.

7) The MSB shall prepare and submit monthly invoices to the relevant parties for the use of balancing and other MSB services.

From the above description, it is noted that the MSB will be a ‘one-sided market’ meaning only Eligible Sellers will be required to interact with the MSB and submit data to facilitate trade. In other words, there is no need for Contestable Customers to exchange information with the MSB.

3.5.3. BALANCING MECHANISM

PURPOSE

The purpose of the Balancing Mechanism is to facilitate physical bilateral trade by providing Balancing Services to the sellers and the buyers.

PRE-DISPATCH

An Eligible Seller shall undertake the following actions before Dispatch:

1) Enter into a bilateral power sales agreement with a Contestable Customer, subject to regulatory approval.

2) Meet all the requirements of the MSB including:
   a) Registration of Production Units, Contestable Supply Points and Contestable Quantities
   b) Submission of data
   c) Maintaining of financial guarantees.

3) Submit data, in accordance with Grid Code requirements, to the MSB including:
   a) Energy production and maintenance plans

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29 Most market design specialists agree that a two-sided market (where load customers also participate directly in the market) produce better outcomes. It is foreseen that the market in Namibia will continue to evolve over time and that it will eventually incorporate the participation of load customers through dynamic market mechanisms.

30 Reference is made to a Balancing Mechanism rather than a Balancing Market. In a Balancing Market, competitive supply offers and demand bids are called on to balance the system and set balancing prices; however, during Phase 1 of the MSB balancing, prices will be determined with reference to NamPower’s approved energy charge to large customers. It is anticipated that the MSB may adopt the SAPP’s balancing market and prices once this is feasible.
b) Day-ahead Production and Trading Schedules indicating how much power will be produced in every hour of the day.

4) Specify the Nominated Percentage sales from each Production Unit/Trader to each Eligible Supply Point and Trader. A nomination can also be made to indicate the amount of power to be stored by the MSB. Note, the Nominated Percentage to be sold to Contestable Supply Points must add-up to a hundred percent per Production Unit.

5) Notify the MSB as soon as there is a change in the plant’s ability to meet the Constrained Dispatch Schedule.

The MSB shall undertake the following actions before plant Dispatch:

1) Ensure that all Eligible Sellers that intend to sell or trade power to Contestable Customers for the next Day have:
   a) Submitted all the data as required
   b) Posted and maintained the required financial security amount.

2) Develop a Day-ahead demand forecast for each Trading Period.

3) Publish a Day-ahead Constrained Schedule.

4) In developing the least-cost Constrained Schedule the MSB shall take into account:
   a) Day-ahead Production Schedules submitted by Eligible Sellers
   b) Network availability and congestion
   c) Technical parameters and characteristics of centrally dispatched generating units and import options
   d) Variable cost of centrally dispatched units.
**DISPATCH**

The following activities are foreseen during Dispatch:

1) Eligible Sellers shall Dispatch their plant in accordance with the Constrained Schedule published by the MSB.

2) The MSB shall adjust the output from centrally dispatched units to ensure that demand and supply is balanced at all times.

3) The MSB may, under certain Emergency Conditions, instruct the Eligible Generators to increase or decrease output or to disconnect from the grid.

4) The MSB shall balance the total integrated system in real time taking into account the actual production, consumption, import and export of electricity.

**POST-DISPATCH**

The following activities are foreseen Post-Dispatch:

1) Every day, the MSB shall collect and record the actual production or delivery of all Generators and Importers for each Trading Period.

2) Once a month, the MSB shall perform settlement functions including meter reconciliation and calculation of invoices for all customers including Eligible Sellers and Contestable Customers in accordance with the agreed Market Rules.

3) Disseminate relevant data to the Distributors in order for them to reconcile and settle Contestable Customers and Eligible Sellers that are connected to the Distributor’s network.

4) Review and, if needed, update MSB Financial Security requirements.

5) The MSB shall compare the Delivered Energy from every Eligible Generator against the Adjusted Constrained Schedule, adjusted for valid Dispatch Instructions.

6) Any deviations between the actual energy produced and the Adjusted Constrained Schedule shall be assessed in accordance with the Balancing Mechanism as set out below.

7) The MSB shall determine the Balancing Energy quantity utilised by every Eligible Generator in all Trading Periods.

Electricity Exporters from Namibia must become members of the SAPP and will, therefore, fall under the SAPP trading rules when selling electricity to the region. To ensure alignment between the MSB and the SAPP, and to avoid an Eligible Generator from paying twice for imbalances, an Eligible Producer will be exempted from paying Balancing Charges by the MSB for the energy portion nominated and wheeled to an Exporter.
3.5.4. UNSOLD ENERGY

Unsold Energy refers to energy procured by a Contestable Customers from Eligible Sellers, but not consumed during a Trading Period.

If the under-consumption of the Contestable Customer is due to network constraints or SO/MSB instructions, the differences shall be dealt with in accordance with section 11 of the Market Rules.

However, if the reason for under-consumption is not due to network constraints or SO/MSB instructions, the default MSB position is that the Contestable Customer will forego the Unsold Energy.

Nevertheless, the MSB will have an option, but not an obligation, to purchase Unsold Energy from the Contestable Customer at a predetermined rate (e.g. a rate linked to the Day Ahead Market, for example x% of DAM). If the MSB decides to purchase Unsold Energy and to prevent discrimination, the offer to purchase must be available to all Contestable Customers who find themselves in an Unsold Energy situation.

3.6. MSB CHARGES

The ability to access and make use of the integrated transmission and distribution networks for bilateral wheeling between an Eligible Seller and a Contestable Customer, is fundamental to the operation of the MSB. Without non-discriminatory access to – and fair pricing for the use of – the integrated network, the MSB will not reach its full potential.

Furthermore, a Balancing Service is another core function of the MSB. It ensures that unforeseen production deviations from Eligible Generators are seamlessly and efficiently dealt with under a set of transparent Market Rules.

Since its establishment, the ECB has been working towards making electricity tariffs more cost reflective. Their overarching objective has been to unbundle tariffs to clearly differentiate between the various services offered by licensees, and used by customers. These developments have helped to prepare the industry for the introduction of own-generation, net-metering and now bilateral trading. To meet the demands of the MSB, and also to reflect the need for additional services brought on by new distributed generation technologies such as solar PV, wind and energy storage, further tariff unbundling has been undertaken.

The ECB has developed and detailed the following charges on its website:\footnote{https://ecb.org.na/index.php/electricity/economic-regulation}:

1. Energy charges.
2. Connection charges.
3. Use-of-System charges.
4. Line Loss charges.
5. Wheeling charges.
7. Reliability Service charges.
8. Administrative charges.
9. Levies.

Furthermore, NamPower will develop a Network Capacity Reserve Charge – this is one of the mitigation measures to deal with issues arising from Network Congestion. Situations may arise which could prevent the network-owner from evacuating some, or all, the power from the Eligible Seller, or delivering the full amount of power to the Contestable Customer. Such instances will obviously have a direct impact on bilateral wheeling transactions. The effected parties and, in particular, the sellers, will argue that any economic impact due to network unavailability should be borne by the network provider.

Under the MSB Market, there are several ways to mitigate against the impact from Network Congestion, including:

1) Supply interruptions affecting sellers and customers, by default, fall under the conditions of the standard supply arrangement between the utility and the customer. These arrangements would be based on the principle of ‘best effort’ service which means there would be no compensation to the customer for the loss of supply.

2) Deemed payments by the network-owner. In this instance, if the network-owner is unable to evacuate the power from the Seller, it will compensate the Seller for any loss of income due to Network Congestion. The threshold of when the deemed payments will apply, and the level of payment, will be agreed between the Eligible Seller and network-owner. In return for providing deemed energy payments, Eligible Sellers will be required to pay a fixed monthly negotiated network capacity reserve charge to the network-owner.

3) Energy Banking could be used as a mechanism to offset some of the impact resulting from network congestion. For example, if the utility is able to evacuate power from the Eligible Seller, but is unable to deliver the power to the Contestable Supply Point, the utility may allow the Seller to ‘bank’ the energy that could not be delivered. The customer will then be able to withdraw the stored energy at a later stage when it is able to do so. In this instance, no storage charges will apply to either the Seller or the customer.

4) Customers that experience Network Congestion do not have to pay network Use-of-System charges during times of service interruptions.
4. COMBINED PROCESS FOR ACCESS TO SAPP FROM NAMIBIA

4.1. OVERALL PROCESS FOR A NAMIBIAN MARKET PARTICIPANT TO ACCESS SAPP

This is a summary of the overall process on how to become a market participant in both the MSB in Namibia as well as the SAPP markets.

![High-level MSB and SAPP Process](image)

The figure above shows the high-level process to become a Market Participant in the MSB, as well as the SAPP. The yellow blocks denote the Namibian requirements, and it is immediately clear that MSB Market Participants need to have progressed substantially before applying for SAPP Membership (shown in the blue blocks).

From a Namibian perspective, the process begins with pre-registration with the MO for both CCs and ESs. The MO will ensure that potential market participants are conversant with the Market Rules and other requirements to participate in the MSB. Following this process, the ES will be required to apply to the ECB for their generation license and Traders for their trading license. A CC will need to register with the ECB and apply for their contestable quantity.

Following licensing, an ES can apply to NamPower for a connection to the network and, in parallel, begin the process of signing the Market Participation and Balancing Agreement, Metering & Reconciliation Agreement and Transmission Use-of-System and Wheeling Agreements. For a CC, they will need to register with the ECB and apply for their contestable quantity.

The SAPP requires that participants fulfil all of the legal and regulatory requirements of their ‘home’ market before applying for SAPP membership. This includes, for example, providing some proof of connection, balancing and wheeling agreements with their relevant counterparties. The SAPP does have a conditional membership, which allows applicants to apply and receive membership, on condition that their plant reaches COD. As mentioned above, the Conditional Membership for Market Participants will

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32 Source: ECB, NamPower, SAPP
be for a period of five (5) years, following which the entity must meet the requirements for Membership as stipulated in Article 5 of the IUMOU. The Conditional Membership is subject to renewal.

**Namibian requirements:**

The processes for Contestable Consumers (CC), Eligible Sellers (ES) and Traders are similar, but there are more requirements for the ES. A Trader is a service provider that will be acting on behalf of one or more CCs or ESs. A Trader can be acting on behalf of both ESs and CCs taking title to their energy, but is not allowed to treat them as one portfolio. Importers will be treated as a CC in the Market Rules, whilst an exporter will be an ES who also needs to hold an export license.

**Common process to become a SAPP market participant from Namibia:**

- Pre-Register with the MO.
- Apply to the Electricity Control Board for approval to become a market participant as either a CC, ES or Trader – the application letter for Contestable Customers can be found on the ECB website. Eligible Sellers, including generators and Traders, will need to apply for a licence from the ECB. It is expected that, in advance of the application, the market participant will have reviewed all the relevant market documents.
- Following Electricity Control Board approval, an ES will apply for a grid connection.
- The MO will request the market participant to sign the Market Participant & Balancing Agreement (MPBA). By signing this, the market participant will sign-up to the Market Rules, and Frameworks which are valid at all times.
- Once the Agreements have been signed, the MO will inform the market participant of the required accession fee, if any, as well as the required initial collateral according to the MPA.
- The market participant will have to post the required collateral, if any, and other fees before being allowed to trade.
- When the money is received in the assigned account, the market participant will be allowed to commence trading.
Eligible Sellers (ES) process:

- Following the License registration process, the ES shall contact the Network Operator (NO) to formally apply for connection to the grid:
  - The NO shall do a detailed connection study and provide the ES with an offer letter to connect.33
  - Thereafter, the ES shall, within the timeframes specified in the connection offer letter, accept, make payment, and sign the connection agreement, or reject the offer.

- Every ES needs to enter into a Balancing Agreement with NamPower – this is part of the MPBA.
  - An ES for export may also choose to enter into balancing arrangements with other SAPP members, or may balance themselves on other SAPP markets.
  - The ES shall fill-in the required information form for Eligible Sellers as published by the MO and, when finished, submit this to the MO.
  - The MO shall review the required information for the Balance Agreement submitted by the ES and verify the application.
  - The MO shall, within the timeframes in the Market Code, either approve the application, or reject it.
  - The ES and MO will sign the Balancing agreement as appropriate.
  - Traders who wish to submit nomination schedules for electricity procured from IPPs, will need to enter into a Balancing agreement with NamPower.

- After this, the same market access process as for the other categories will be followed.

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33 It should be noted that this has been reported to be a protracted process, and work is ongoing to improve this.
SAPP requirements:

- Certified copy of licence(s) or authorisation to engage in cross-border electricity trade issued by a regulator or competent authority/body such as, inter alia:
  - Copy of connection agreement (or similar) from host TSO.
  - Evidence of grid code compliance from host TSO.
  - Copy of generation license and, if applicable, export license and/or trading license from the ministry of energy or regulator in the host country.
  - Agreement with host National Utility/TSO for balancing services.

- For an Operating Member which operates as a transmission system:
  - Maps showing current and planned interconnection to the SAPP grid.

- For applicants from non-SADC member states:
  - Certified copy of signed accession with SADC treaty and proof that any specified terms and conditions have been met, &

- Any other details as may be specified by the SAPP based on the detailed application.
5. ANNEXES

5.1. ANNEX A. SAPP ADDITIONAL INFORMATION

### 5.1.1. MARKET PARTICIPANT COUNTRIES AND MEMBERS

<table>
<thead>
<tr>
<th>No.</th>
<th>FULL NAME OF POWER UTILITY</th>
<th>TYPE</th>
<th>ABBREVIATION</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Botswana Power Corporation</td>
<td>NPU</td>
<td>BPC</td>
<td>Botswana</td>
</tr>
<tr>
<td>2</td>
<td>Electricidade de Mozambique</td>
<td>NPU</td>
<td>EDM</td>
<td>Mozambique</td>
</tr>
<tr>
<td>3</td>
<td>Eswatini Electricity Company</td>
<td>NPU</td>
<td>EEC</td>
<td>Eswatini</td>
</tr>
<tr>
<td>4</td>
<td>Electricity Supply Corporation of Malawi</td>
<td>NPU</td>
<td>ESCOM</td>
<td>Malawi</td>
</tr>
<tr>
<td>5</td>
<td>Eskom</td>
<td>NPU</td>
<td>Eskom</td>
<td>South Africa</td>
</tr>
<tr>
<td>6</td>
<td>Lesotho Electricity Corporation</td>
<td>NPU</td>
<td>LEC</td>
<td>Lesotho</td>
</tr>
<tr>
<td>7</td>
<td>Nam Power</td>
<td>NPU</td>
<td>Nam Power</td>
<td>Namibia</td>
</tr>
<tr>
<td>8</td>
<td>Rede Nacional de Transporte de Electricidade</td>
<td>NPU</td>
<td>RNT</td>
<td>Angola</td>
</tr>
<tr>
<td>9</td>
<td>Societe Nationale d'Electricite</td>
<td>NPU</td>
<td>SNEL</td>
<td>DRC</td>
</tr>
<tr>
<td>10</td>
<td>Tanzania Electricity Supply Company Ltd</td>
<td>NPU</td>
<td>TANESCO</td>
<td>Tanzania</td>
</tr>
<tr>
<td>11</td>
<td>ZESCO Limited</td>
<td>NPU</td>
<td>ZESCO</td>
<td>Zambia</td>
</tr>
<tr>
<td>12</td>
<td>Zimbabwe Electricity Supply Authority</td>
<td>NPU</td>
<td>ZESA</td>
<td>Zimbabwe</td>
</tr>
</tbody>
</table>

**Operating Member**

<table>
<thead>
<tr>
<th>No.</th>
<th>FULL NAME OF POWER UTILITY</th>
<th>TYPE</th>
<th>ABBREVIATION</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Copperbelt Energy Cooperation</td>
<td>ITC</td>
<td>CEC</td>
<td>Zambia</td>
</tr>
<tr>
<td>14</td>
<td>Hidroelectrica de Cahora Bassa</td>
<td>IPP</td>
<td>HCB</td>
<td>Mozambique</td>
</tr>
<tr>
<td>15</td>
<td>Lunsemfwia Hydro Power Company</td>
<td>IPP</td>
<td>LHPC</td>
<td>Zambia</td>
</tr>
<tr>
<td>16</td>
<td>Mozambique Transmission Company</td>
<td>ITC</td>
<td>MOTRACO</td>
<td>Mozambique</td>
</tr>
<tr>
<td>17</td>
<td>Ndola Energy Corporation</td>
<td>IPP</td>
<td>Ndola</td>
<td>Zambia</td>
</tr>
</tbody>
</table>

**Market Participant**

<table>
<thead>
<tr>
<th>No.</th>
<th>FULL NAME OF POWER UTILITY</th>
<th>TYPE</th>
<th>ABBREVIATION</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>GreenCo Power Services Ltd</td>
<td>IPP</td>
<td>GreenCo</td>
<td>Zambia</td>
</tr>
<tr>
<td>19</td>
<td>Maamba Collieries Limited</td>
<td>IPP</td>
<td>MCL</td>
<td>Zambia</td>
</tr>
<tr>
<td>20</td>
<td>Nyangani Renewable Energy (Pvt) Ltd</td>
<td>IPP</td>
<td>NRE</td>
<td>Zimbabwe</td>
</tr>
</tbody>
</table>

- NPU: National Power Utility
- ITC: Independent Transmission Company
- IPP: Independent Power Producer

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As per the SAPP, as of June 2023
### 5.1.2. TIMINGS IN THE SAPP MARKET

The following table shows the timings for the different tasks for all markets:

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>FPM-M</th>
<th>FPM-W</th>
<th>DAM</th>
<th>IDM</th>
<th>BM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading Day</td>
<td>Last Wednesday and at least 5 Days Before Delivery Month Start</td>
<td>Every Thursday in the Week before Delivery Week</td>
<td>A day before Delivery day</td>
<td>Continuous for the following delivery Day</td>
<td>Hourly or half-hourly for the delivery Day</td>
</tr>
<tr>
<td>Market Opening</td>
<td>09:00</td>
<td>09:00</td>
<td>09:00</td>
<td>Continuous</td>
<td>Continuous</td>
</tr>
<tr>
<td>TTC Nominations on Trading Day</td>
<td>10:30</td>
<td>10:30</td>
<td>10:30</td>
<td>Ad Hoc</td>
<td>Ad Hoc</td>
</tr>
<tr>
<td>BC Nominations/ Reservations on Trading Day</td>
<td>10:30</td>
<td>10:30</td>
<td>10:30</td>
<td>Ad Hoc</td>
<td>N/A</td>
</tr>
<tr>
<td>Future Market Reservation (MR)</td>
<td>10:30</td>
<td>10:30</td>
<td>10:30</td>
<td>Ad Hoc</td>
<td>N/A</td>
</tr>
<tr>
<td>Order Submission Gate Closure</td>
<td>14:30</td>
<td>14:30</td>
<td>12:00</td>
<td>One hour before the delivery hour starts</td>
<td>45 min before the activation start</td>
</tr>
<tr>
<td>Price Calculation/Matching</td>
<td>14:30</td>
<td>14:30</td>
<td>12:00</td>
<td>Continuous</td>
<td>Continuous Hourly</td>
</tr>
<tr>
<td>Trade Results Publication</td>
<td>14:45</td>
<td>14:45</td>
<td>12:15</td>
<td>Continuous</td>
<td>Continuous</td>
</tr>
<tr>
<td>Confirmation of Trades</td>
<td>16:00</td>
<td>16:00</td>
<td>14:30</td>
<td>On the hourly shift after the trade happened</td>
<td>On the hourly shift after the trade happened</td>
</tr>
</tbody>
</table>

|                         |                                            |                                            |                                        |                                          |                                           |
| Settlement Data         |                                            |                                            |                                        |                                          |                                            |
| Payment of Invoices by (Buyers) Participants |                                            |                                            |                                        |                                          |                                            |
| Credit Notes to Participants (Sellers)   |                                            |                                            |                                        |                                          |                                            |
| Final Bilateral Nominations |                                            |                                            |                                        |                                          |                                            |
| Metered Values          |                                            |                                            |                                        |                                          |                                            |
| Frequency Data Submission|                                            |                                            |                                        |                                          |                                            |

35 As per the SAPP Market Book Of Rules
5.1.3. TIME-OF-USE DEFINITIONS

TIME OF USE CLASSIFICATION

<table>
<thead>
<tr>
<th>Hour Ending</th>
<th>Weekday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>2</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>3</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>4</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>5</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>6</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>7</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>8</td>
<td>Peak</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>9</td>
<td>Peak</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>10</td>
<td>Peak</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>11</td>
<td>Standard</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>12</td>
<td>Standard</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>13</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>14</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>15</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>16</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>17</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>18</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>19</td>
<td>Peak</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>20</td>
<td>Peak</td>
<td>Standard</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>21</td>
<td>Standard</td>
<td>Off-Peak</td>
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</tr>
<tr>
<td>22</td>
<td>Standard</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>23</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
<tr>
<td>24</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
<td>Off-Peak</td>
</tr>
</tbody>
</table>

NB: The time-of-use for all hours is classified as off-peak for all SAPP designated public holidays. These are holidays that are observed by the majority of SAPP member countries and, if the public holiday falls on a Sunday, the following day (Monday) is also a public holiday. These are:

- New Year’s Day: 1st January
- Good Friday
- Easter Monday
- Workers’ Day/Labour Day.
- Christmas Day
- Boxing Day/Family Day/Day of Goodwill

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36 As per the SAPP Market Book Of Rules
6. APPENDIX: HISTORICAL MARKET ACCESS PROCESS AND PERCEIVED BARRIERS

6.1. BACKGROUND AND HISTORY

As stated above, the SAPP currently has 20 members, 12 national controlled utilities (three Non-interconnected Members), five Operating Members (three IPPs, and two Independent Transmission Companies), and three market participants (please see chapter 5.1.1 for details).

The basic requirement for them, when they became SAPP members, was to sign the Operating Guidelines and procedures/Market Rules in order for them to be allowed to trade in the SAPP. In addition, they needed an appropriate license within their own national jurisdiction (from their national regulator) to be allowed to trade across borders.

Now, with the new definitions of the different market participant categories, the goal is to make it easier for smaller national companies to be allowed to join the SAPP. As stated in the description of the SAPP markets above, it has always been a goal for the SAPP to be open in their market rules for future new market participants, and to not prescribe any categories in their rules. However, as also mentioned above, the main barriers, up until recent times, have been the requirements stipulated to be allowed to trade internationally, as laid-down by the national regulatory authorities – this has been the main stumbling block.

As part of the process of defining the new membership categories, the SAPP has created a document on the process of becoming an SAPP market participant\(^\text{37}\). In addition, the SAPP has developed\(^\text{38}\) a high-level application guideline, as well as a standard form for new applicants\(^\text{39}\). Together, these define the high-level process of becoming a market participant.

An extract of the key points from these documents can be summarised as:

(From the Application guidelines):

- Any Electricity Supply Enterprise situated in an SADC country, and any non-SADC country, is eligible to be considered for membership to the SAPP.
- The applicant shall indicate the class of membership applied for, as indicated in Section 7 of this document (the application guidelines).

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\(^\text{38}\) [https://www.sapp.co.zw/sites/default/files/SAPP%20Membership%20Application%20Guidelines%20Oct%202022.pdf](https://www.sapp.co.zw/sites/default/files/SAPP%20Membership%20Application%20Guidelines%20Oct%202022.pdf)

\(^\text{39}\) [https://www.sapp.co.zw/sites/default/files/SAPP%20Membership%20Application%20Form%20Jul%202021.pdf](https://www.sapp.co.zw/sites/default/files/SAPP%20Membership%20Application%20Form%20Jul%202021.pdf)
• Applicant/s must meet the following conditions:
  o Where applicable, be licensed and or authorised by a competent body/authority(ies) within their jurisdiction to engage in cross-border electricity trade.
  o Applicants from non-SADC member states shall comply with the provisions of the Inter-Governmental MOU, require the approval of the SADC, and meet any other conditions that may be stipulated in a separate written agreement.

• Documentation to be submitted with an application:
  o Where applicable, a certified copy of licence(s) or authorisation to engage in cross-border electricity trade issued by a regulator or competent authority/body.
  o Maps showing the current and planned interconnection to the SAPP grid.
  o For applicants from non-SADC member states, a certified copy of signed accession with the SADC treaty and proof that any specified terms and conditions have been met, &
  o Any other details as may be specified by the SAPP.

(From the New Entrant guidelines):

The first step, even prior to engaging the SAPP, is to meet all the domestic requirements and secure all the domestic approvals. The SAPP will not consider an application which is not fully sanctioned by the host country authorities. The host country requirements will differ from country to country, but typically include:

• Copy of connection agreement (or similar) from host TSO.
• Evidence of grid code compliance from host TSO.
• Copy of generation license and, if applicable, export license and/or trading license from the ministry of energy or regulator.
• Agreement with host National Utility/TSO for balancing services.
• The SAPP Operational Guidelines, Section 2.G. Connection and Operation of Independent Power Producers, also outlines some of the technical conditions for IPPs that will be connected.

There might be additional changes to these guidelines in order to be more generic and also to cover consumption and embedded generation.
6.1.1. SHORT SUMMARY OF CURRENT PROCESS:

The current experience is that these are not detailed enough to allow any potential market participant to fully understand the detailed requirements. The new entrant’s guideline is very focused on IPPs (i.e. new generators) and silent on the potential for large power users to participate as well. There is neither a mention of embedded generation, nor of market participants with both generation and consumption as part of their portfolio. The process is very high-level and clearly does not clearly outline all the details.

There are also a few barriers in the current set-up which also hamper the process. In the next section, some of these barriers are defined, and some of the proposals for the improvement thereof are highlighted.

6.2. BARRIERS AND/OR IMPROVEMENT POTENTIAL IN THE CURRENT FRAMEWORKS

There are no fundamental barriers in the current framework. However, this has been made based on a theoretical development of these. Now, with real applicants using the rules and regulations both from the SAPP and Namibian side, there are several improvements that can and will be made to streamline the processes both in Namibia and the SAPP.

Below are some of the identified improvement potentials that were identified during the initial work on this guide. Some of these have been partially improved, some are in the process of being improved. It is in the best interest of both the SAPP and Namibia to make sure that these processes are as simple as possible whilst, at the same time, ensuring that the requirements from the regulator, system operator and market operator(s) are maintained.
6.2.2. UPDATED AND MORE DETAILED VERSION OF THE NEW ENTRANT GUIDELINE

The document, which was released in 2021, has a lot of good background documentation. However, it has not been updated to cater for new developments (the introduction of the balancing market, updated market rules, etc.), and thus could be a source of misunderstanding. There are also discrepancies on costs for participation between this document and what is listed on the SAPP website.

Our suggestion is to maintain a live version of this document to be updated when/if changes occur, and to ensure that an updated version is always available on the website. The future objective is to have detailed requirements for all the SAPP member countries so that this document contains updated information for all the countries concerned.

It will be a huge benefit, both for the SAPP, as well as the national utilities/regulatory authorities, to always have the opportunity to refer to an updated guide with all relevant information collected in one place.

6.2.3. PROPOSED NEW SAPP ENTRANTS’ PROCESS

Sections 4–7 of the current application guidelines can be kept as they are, as they provide information on the generic admission process.

The definition of the ‘Electricity Supply Enterprise’ in section 3.4 will be clarified to also include embedded generation and consumption/load more specifically (having separate new definitions of these to make it clear).

The definition of the ‘Market Participant’ should be made less prescriptive. Furthermore, a small issue in the current definition is that you could declare yourself as an ‘IPP’ – here, there are no limits on voltage or installed capacity.

The link between the different categories will be clarified. There are three different categories defined in chapter 7 (National Power Utility, Operating Member or Market Participant). However, the Electricity Supply Enterprise definition encompasses a National Power Utility, Independent Power Producer, Independent Transmission Company and/or a Service Provider which are 4 different categories with their own definitions. The link between these, as well as the allowed combinations, will be made clearer.

As the SAPP also does the regional imbalance settlement, the document will also include requirements about metering in these guidelines.

An oversight of the different categories (the 3 + 4 + the suggested two new ones) will be added to this document (‘the Guide’) showing the requirements for each, the link between them, and also which combinations are possible. This shall be done in a visible manner (with figures), as well as using flowcharts or similar so that it should provide more clarity. Moreover, the SAPP Membership Application Guideline will be kept (written) in its current form, as will the rules, and this document (the Guide) will contain these explanations.
6.3. THE FORMAL SAPP MEMBERSHIP APPLICATION AND ADMISSION GUIDELINE

This document is already on the SAPP website. This shall, in the same way, be updated with more details on the clear requirements for admission from the SAPP perspective, but also a link to this document’s country appendices for the detailed rules per country should be added here. This document would be more static, but it is important to ensure this is also updated when required.

6.3.1. THERE IS A NEED FOR A TEMPORARY MEMBERSHIP APPLICATION PROCESS

One of the barriers which has already been encountered, and has been addressed with the Conditional Market Participant category, is the fact that some of the investors in new generation facilities will be basing their investment on access to a larger market than just the national market. However, as these investors want certainty before investing, and while the requirement is to have available capacity to sell (currently set at 5MW for the new market participant category), this is hard to prove before the generator is online. A conditional membership has been introduced as a solution to this, and it is thought that this will solve this issue.
6.4. THE STRICT LIMIT OF 5 MW AND LEVEL OF CONNECTION SHOULD BE A GUIDING PRINCIPLE RATHER THAN A HARD RULE

The SAPP Membership application guidelines, chapter 3.7 a) states:

*Market Participant means a Member which operates or contracts generation capacity, or a load of at least 5 MW that is physically connected to the SAPP grid.*

Why should the SAPP limit a market participant from participating if they want to? They have to pay the membership fees and thereby need to assess for themselves the cost/benefit of participating. This also becomes more relevant when new national markets/ regulations open-up direct participation in the SAPP; strict limitations would be seen as an unnatural barrier if, for instance, access to the SAPP would make the business case better. This is especially valid for the smaller countries in the SAPP.

One suggestion is to relax the 5 MW threshold and also, instead of setting a minimum voltage level for connection, have clear requirements for access to sufficient and reliable metering to enable the settlement process. If one looks at other international examples, there are very few (if any) that limit access to the market based on voltage or a MW-limit. What can often be observed is ‘de minimis thresholds’ (or similar) for market participants who MUST participate, but this is then often followed by a voluntary option for those who are below this threshold, thus leaving the option open for everybody.

6.4.1. ACCESS TO ALL GOVERNING DOCUMENTS ONLINE

Currently, access to the important documents from the SAPP is not easily obtained from a public source. A clear recommendation is to create a page on the SAPP website with a collection of all the important documents:

- The governing documents (as listed in section 2.1) including the market rules and market guidelines.
- This document in addition to the Application Guideline and the Application form.
- A clear price list for participation.
- Operating guidelines that will have an effect on any application.
- Other relevant documents and presentations to guide any new applicant/s.

This could be done as an extension of the current page entitled ‘SAPP Membership’ found on the SAPP website under ‘About SAPP’. A small detail is that this could also be highlighted somewhere on the homepage to allow easy access for any interested party.

This will become more important as the different national markets open. The list of Eligible Sellers and Contestable Consumers from Namibia is already long, and if the majority of these are interested in looking into becoming a SAPP market participant, to allow them easy and understandable documentation would save the SAPP CCs a lot of questions.
Another key requirement is to implement an internal process at the SAPP to ensure that the documents which are on the website are the latest versions. Another suggestion is to inform users about the changes to these documents as part of the monthly report published by the SAPP.

6.4.2. BARRIERS AND/OR IMPROVEMENT POTENTIAL IN THE CURRENT MSB FRAMEWORK

- One of the complexities in the MSB for exporters is how the Balancing Mechanism for both market participants and NamPower shall be implemented both nationally and regionally.
SAPP and MSB
Market Access Guide

1/2023