



# SAPP MARKET ROADSHOW MARKET OPERATIONS PRESENTATION

Presented By:

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# Presentation Objectives

- 1 **SAPP MO** : The Role of the SAPP Market Operator
- 2 **SAPP MO** : The Market Operator as a Counter Party to Trade
- 3 **SAPP MO** : SAPP Market Design
- 4 **SAPP MO** : Management of Transmission Capacity
- 5 **SAPP MO** : Algorithm
- 6 **SAPP MO** : Invoicing, Settlement and Governance Procedures
- SAPP MO** : Risk Management

# SAPP MO | The role of SAPP Market Operator

- The SAPP MO provides a common platform for trading electricity in the SADC region.
- We promote trade and competition in the wholesale electricity market.
- The SAPP Market is a place for secure, effective, and non-discriminatory trade of electricity in the region in a transparent manner.
- We are a symmetry of information while ensuring anonymity of the players.
- We facilitate the optimum utilization of sparse resources: generation and transmission.
- We provide reliable price index
  - ✓ **Price signal for investments**
  - ✓ **Reflects the value of the traded commodity**
  - ✓ **Reference for bilateral contracts and derivatives markets**
- We can facilitate IPPs to trade at wholesale level
- We manage counter-party risks.

# SAPP MO | The Central Counter Party



## The Role of the MO

Our role is to manage the electricity trading system and markets across Southern Africa, helping to ensure **SADC member states** have access to affordable, secure and reliable energy.

Acts as intermediary between buyer and seller for every trade concluded on the auction market.

Guarantees every buyer receives power and every seller gets paid as well as wheelers of transactions.

The MO bears the Credit Risk involved in every transaction.

Promotes market transparency through provision of trade data, pricing and aggregated volumes

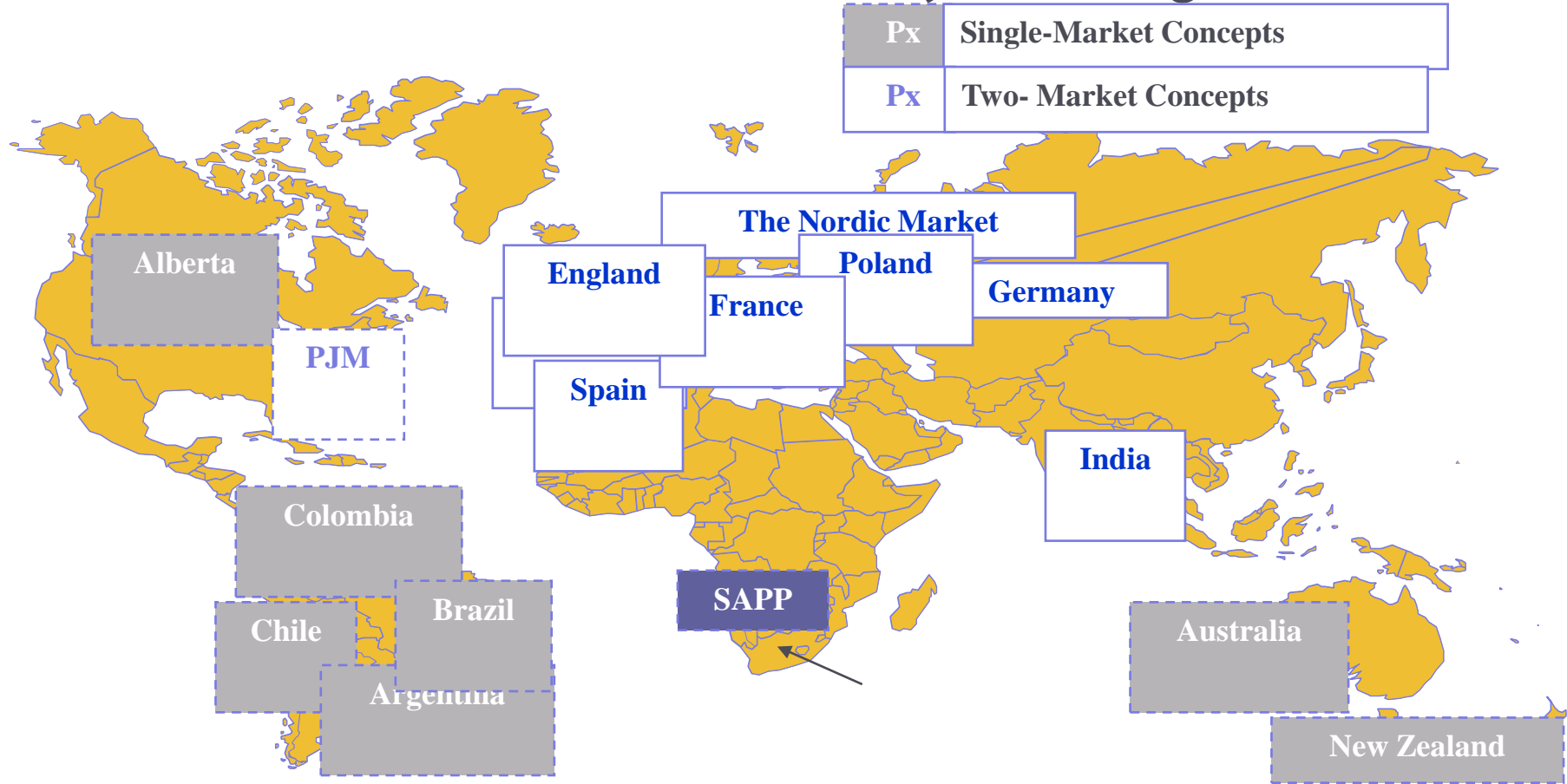
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Issues daily invoice contracts for each active trader. Provides Back office / Accounting feed to member utilities.

The MO bears the Foreign Exchange Risk involved in every transaction.

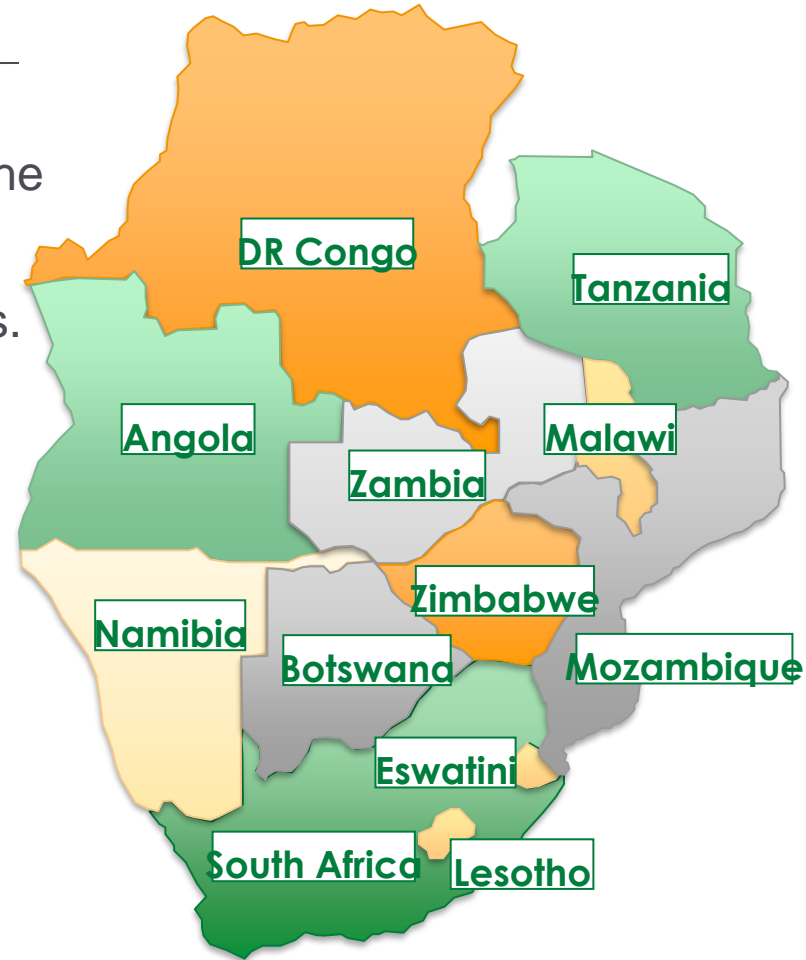
Maintains all trading member records for legal and audit & regulatory requirements

# SAPP MO| Established Power Markets & System Design



# SAPP MO| MTP System Design

- The system has 12 bid areas configured in the system.
- The bid areas are defined on a country basis.
- The system is able to manage congestion within the 12 areas.
- Capacity is managed through an implicit auction where:
  - ✓ Surplus area will have low prices, and
  - ✓ Deficit areas will be reflected by high prices



# SAPP MO| System Design - Transmission Capacity Management

This is a key issue in the SAPP Auction Markets - An illustration of the allocation:



- ✓ Energy trade and capacity is handled in one and the same operation.
- ✓ Market players have no exclusive access to capacity on interconnectors.
- ✓ The management of the transmission capacities in SAPP is embedded in the Book of Rules and governed by SAPP CC. Transmission Capacity allocation is also closely looked by the Market Surveillance team.

# SAPP MO| System Design -Transmission Capacity Management

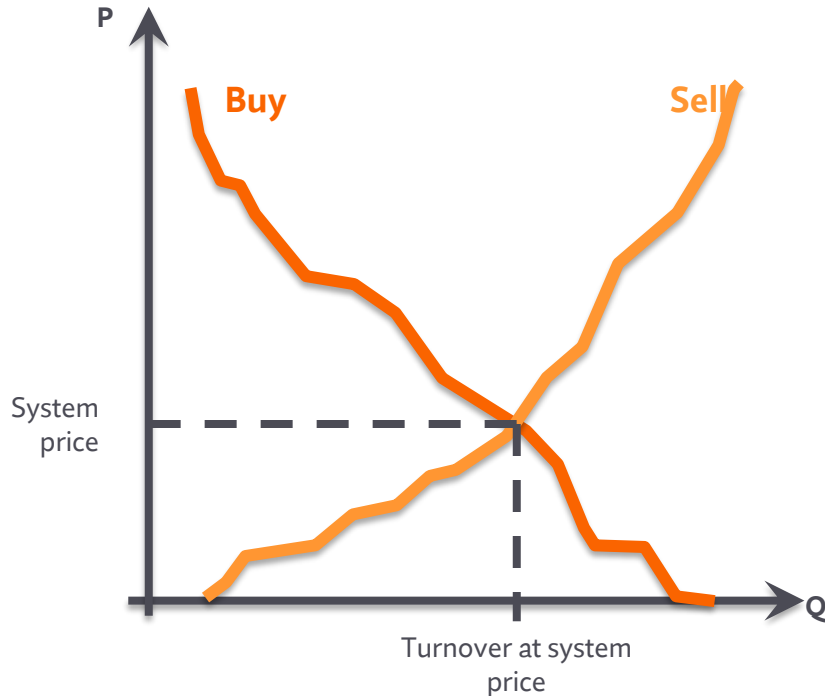


## General Guiding Principles

- Market players have no exclusive access to capacity on interconnectors this is to encourage transparent trading among SAPP members.
- Transmission asset owners are required to make available their transmission facilities for trading by other SAPP members.
- Transmission capacities are maintained by SAPP, but each individual TSO is allowed to adjust according to some guiding principles.
- Transmission asset owners shall have the full financial and physical rights to their respective transmission facilities.
- Bilateral and OTC contracts are either Firm or Non-Firm and all competitive market transactions are Firm



# SAPP MO | Algorithm - System Price (MCP)



- Intersection of aggregated buy and sell order curves for the entire market region.
- Balance price for entire market region while not considering any transmission constraints.

# SAPP MO | The Market Principles



Auction based trading where market price is set at the interception between the seller's willingness to produce and the buyer's willingness to consume.



The Market price algorithm determines the unconstrained system price and the constrained area price for a defined market area for every hour of the day.



Buyer will never pay more than his bid price.

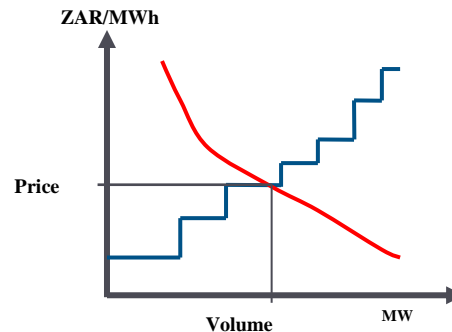


Seller will never receive less than his offer price.

# SAPP MO| Single-Market Concept

Bid form

Hour	Prices (ZAR/MWh)				
	0	200	201	300	5000
1-06					
07-18	300	300	150	150	150
18-24					



Day of operation

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**Price /volume bids for each hour**

**Price = Based on bid price of last unit dispatched in real time**

**Price = Normally calculated on a nodal basis. The calculation formula takes into account congestion costs and technical losses in the grid**

**Financial settlement based on metered volumes and prices**

# SAPP MO| Closed Auction Market Orders in the Trading Platform

	0	20	40	60	80	100	120	140	160	180	200	250	300	350	400
C1	400	400	400	400	400	400	350	350	350	350	350	350	0	0	0
C2	150	150	150	150	150	150	150	150	0	0	0	0	0	0	0
C3	30	30	30	30	30	30	30	30	30	30	10	0	0	0	0
P1	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160	-160
P2	0	0	-250	-250	-250	-250	-250	-250	-250	-250	-250	-250	-250	-250	-250
P3	0	0	0	0	0	0	0	0	0	0	-220	-220	-220	-220	-220
P4	0	0	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
P5	0	0	0	0	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40

# SAPP MO| Congestion Management



## Congestion Management

- Congestion management is how bottlenecks are managed in the transmission grid.
- Congestions are handled where they are physically situated.
- Structural congestions are removed or reduced by grid investments whenever socioeconomically viable, otherwise market splitting is applied.
- Price signal from the market area prices.
- Temporary congestions can be handled by counter trade by the TSOs.
- The income from congestion management is being used for investments in transmission assets through RTIFF.



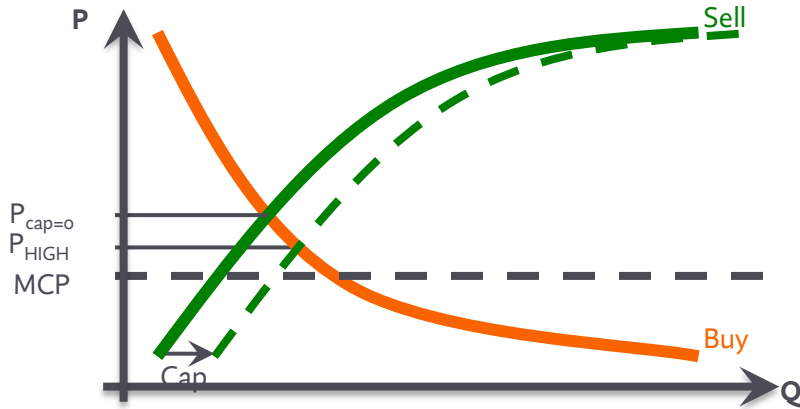
## Trading Capacity and Congestion Management

- In an open marketplace, no single party can have sole access to the available trading capacity.
- This means that, over time, the bilateral contracts should be reduced and thereby support market operation and market liquidity.
- This is an advantage, since the capacity is then available to all participants on equal terms.

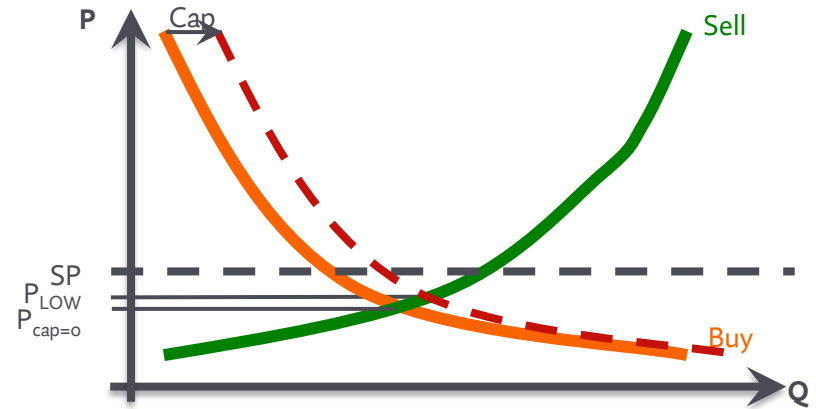
# SAPP MO | Constrained Market Results (Market Splitting)

- The ATC is added as price-independent variable in price calculation to orders in both surplus area and deficit area.
- Results in new balance prices.  
 Surplus area price < System price    Deficit area price > System price

**Deficit Area**

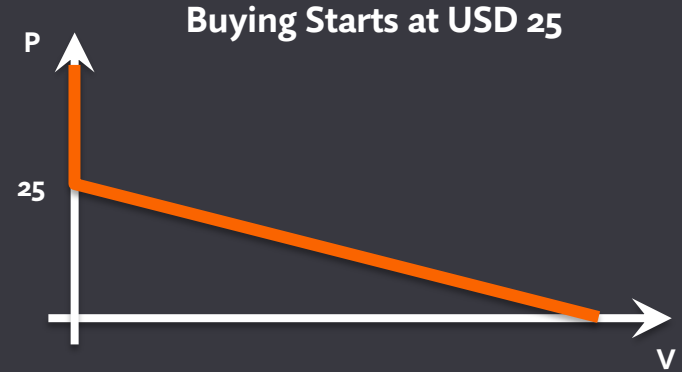


**Surplus Area**



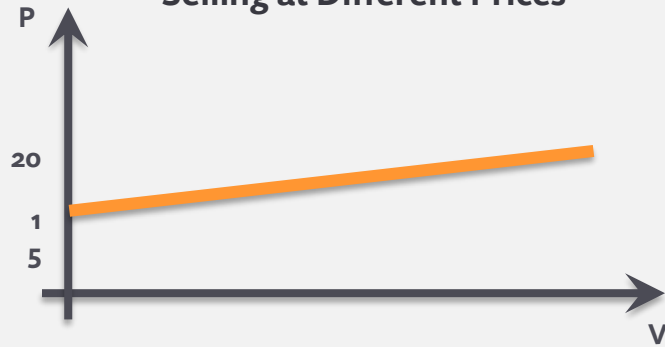
$P_{cap=0} \rightarrow$  Price in area  $ATC = 0$

# SAPP MO | Capacity Building - Purchase Order Examples

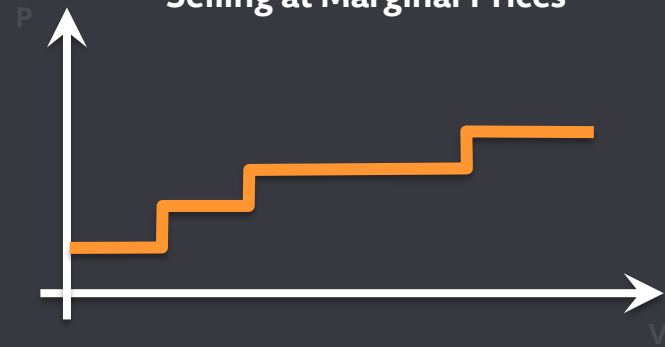


# SAPP MO | Capacity Building - Selling Order Examples

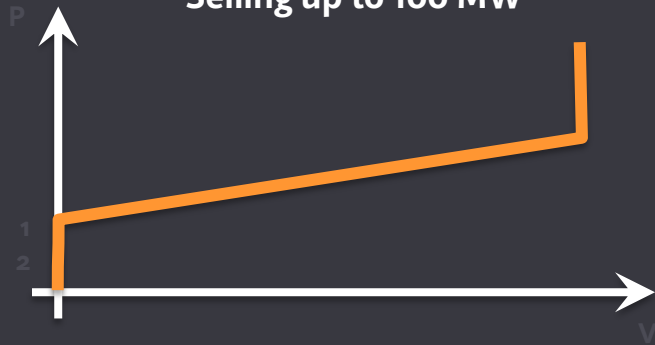
Selling at Different Prices



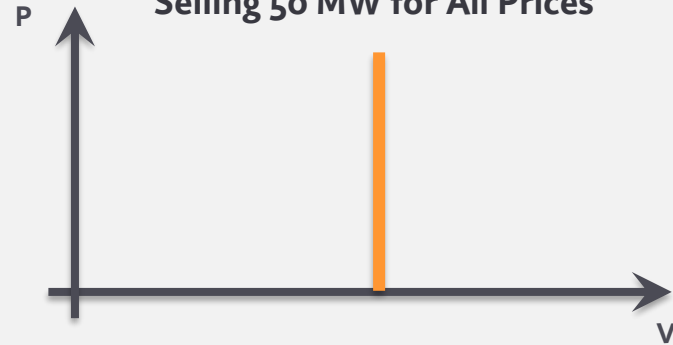
Selling at Marginal Prices



Selling up to 100 MW

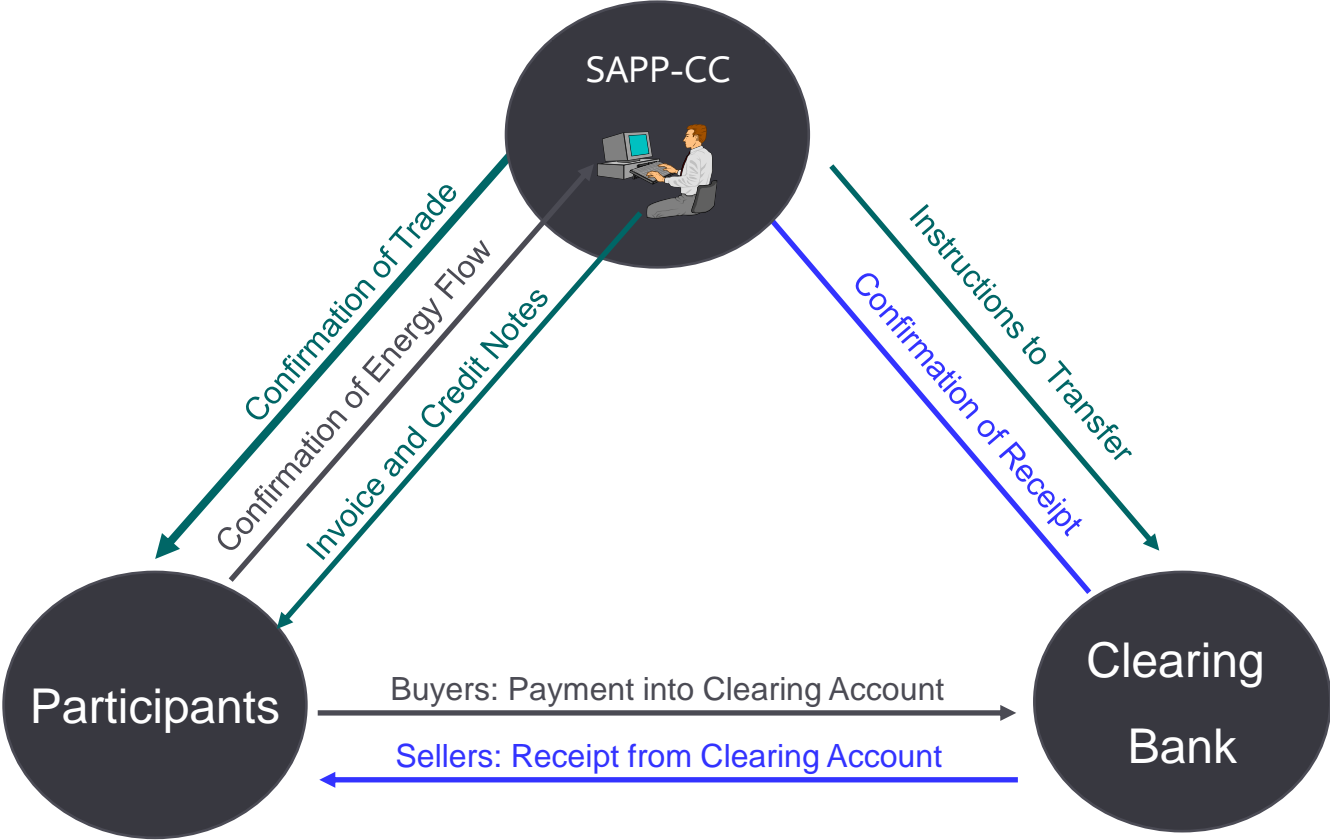


Selling 50 MW for All Prices





# SAPP MO | The Settlement Process – Funds Flow Process



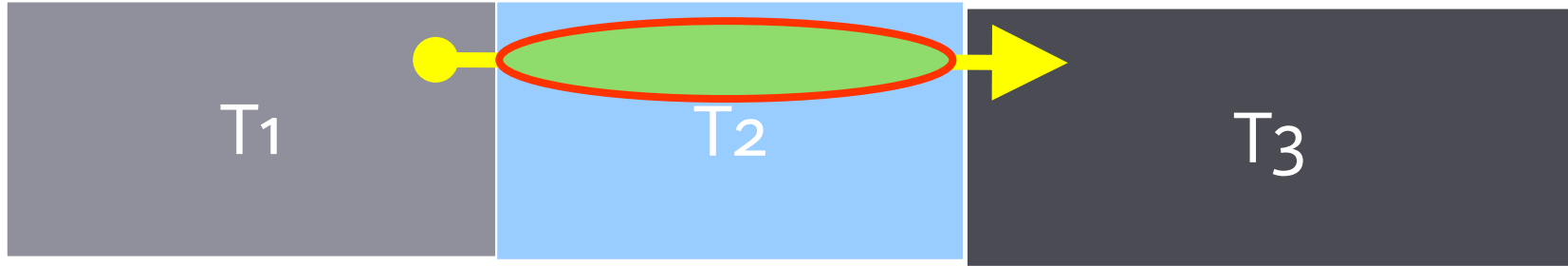
# SAPP MO| Invoicing, Wheeling, Losses and Credit Notes



## The Process

- ✓ Invoicing of the trading activities in all markets (FPM, DAM, IDM & BM) is done daily. The process will start Delivery day +1 (i.e. after all markets are finished with trading activities).
- ✓ Settlement of transactions is done by the 18<sup>th</sup> day of the next month.
- ✓ Wheeling and losses are treated the same way, irrespective of the market (i.e. a MW traded is a MW traded independent of the market).
- ✓ The pricing for wheeling losses will be based on the DAM hourly MCP but capped to a maximum of the daily average DAM MCP price as per current agreed methodology in DAM settlements.
- ✓ The MTP settlement process checks if there is any wheeler in a transaction before calculating individual wheeling charges for the portfolios for the given hour.
- ✓ Losses and wheeling volumes and fees calculations are done on the individual hourly basis, and the admin fee is done on the summed values.

# SAPP MO| Treatment of Wheeling



- ✓ Both the buyer and seller contribute to wheeling in the SAPP Auction Markets
- ✓ T1 and T3 would contribute to the “wheeling pot” to cover the proportion of network costs of T2 associated with the wheeling flow (i.e. proportion of assets shown in green used to wheel energy shown in yellow)
- ✓ The market operator collects wheeling contributions by the participants and distributes this on a monthly basis using the data from the MTP.

# SAPP MO | The Settlement Process – Imbalance Management

**Financial Settlement of all SAPP-MTP Physical Markets (FPM-M, FPM-W, DAM, IDM & BM)** – All confirmed trades on the SAPP-MTP shall be firm contracts and shall be settled on scheduled volumes and prices and not on actual flows.

- ✓ Any deviation between scheduled and actual volumes are handled through the SAPP imbalance settlement procedure
- ✓ This rule shall apply for imbalances caused by non-delivery of a generator, non-consumption from a buyer as well as non-performance by a wheeler
- ✓ During emergency situations, communication between players is key in a market environment
- ✓ Trade cancellations or revisions are done if both seller and buyer did not deliver and receive power

# SAPP MO | The Settlement Process – Risk Management & Collateral

According to SAPP Market Book of Rules - All trading participants **MUST** post collateral as a guarantee that they can pay for the contracts they have entered. Our Collateral is currently USD 5,000 or ZAR 35,000.

## **Pledged cash account**

The pledged cash account agreement will be established and maintained as a semi-blocked account. This means that collateral will always be blocked on the account, but any amounts excessive of the collateral call can be withdrawn by the participant without any consent by SAPP MO. The pledged account is opened with our clearing bank and this can also be used for settlement of daily trades.

## **On-demand guarantee**

The on-demand guarantee is a bank guarantee that imposes a primary obligation on the guarantor to pay the beneficiary in first demand. The guarantee acts as security for the liabilities (or the payments) of a buyer towards SAPP.

## SAPP MO | The Settlement Process – Governance and Fees

- ✓ An administrative Fee which is a volume dependant fee shall be levied on trades of energy in the SAPP Auction Markets.
- ✓ Should the participant fail to pay the energy trading costs, the MO may suspend further trading by the participant.
- ✓ The MO will act in a neutral and non-discriminatory manner in relation to everyone who is covered by these regulations.
- ✓ The MO is entrusted to develop market solutions that will help to ensure the efficient development, use, and governance processes of the trading system.
- ✓ As part of the International Financial Reporting Standards, an external auditor shall audit the MO.
- ✓ The audit is a comprehensive check of compliance systems and financial transactions.
- ✓ The MO has a mandate of non-disclosure of other members' financial activities.

Thank you!

