

Market Code

Workshop 10 - Recap



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Market Code

Summary of workshops and “burning questions”



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The Process to get the Market Code to an industry approved state

Forms of engagement



Written submissions



The Detailed Workshops



Key activities



- 1 Form for comments loaded on website allowing for directed submissions but also general inputs from industry
- 2 All written submission to be given by **15 October 2024**, Team to compile and provide responses by mid November 2024
- 3 10 hybrid workshops over 5 months, forum from key participants to be formed
- 4 Detailed discussions held and expected topical comments after each workshop, final comments allowed up until **15 October**
- 5 A final workshop to go through the final Market Code with industry input, expected in November 2024



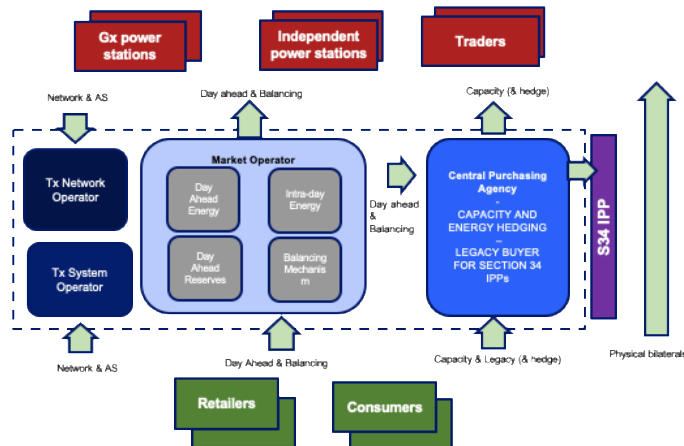
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The workshop period was from May - October

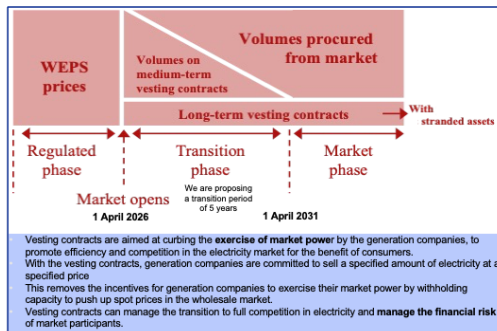
1		Nature of the multimarket	<ul style="list-style-type: none">• May 8• Landscape of the current industry and potential future• Participants, parties and role players• Transition into the Market - role of the Central Purchasing Agency
2		Legal and Governance	<ul style="list-style-type: none">• May 22• Participation agreements and Market accession• Market Code modification process• Market Conduct and Monitoring• Dispute process
3		Day Ahead	<ul style="list-style-type: none">• June 19• Bids and Offers• Algorithm• Price Setting• Network constraints
4		Intraday, Balancing & Metering	<ul style="list-style-type: none">• July 3• Bids and Offers, Price setting• Balancing Merit Order• Metering and Reconciliation
5		Revision session	<ul style="list-style-type: none">• July 17• Items requiring additional discussion from Workshops 1-4• Bin list not resolved in prior workshops



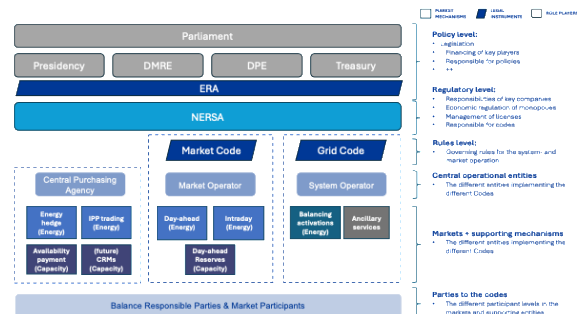
Workshop 1 – Nature of the multi-market



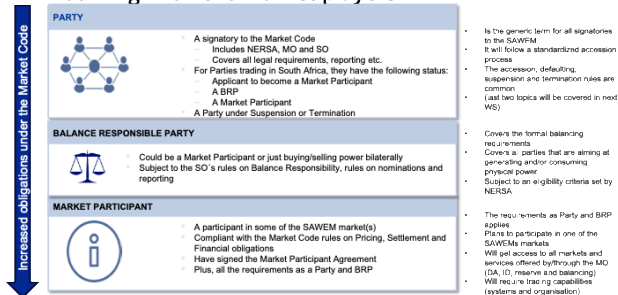
Transition: Vesting contracts



The key stakeholders and its responsibilities

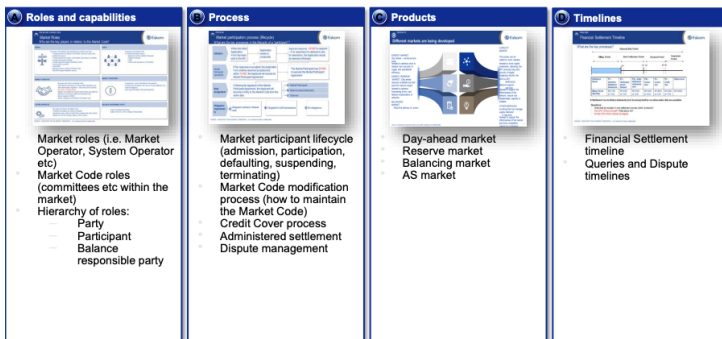


Zooming in on the market players

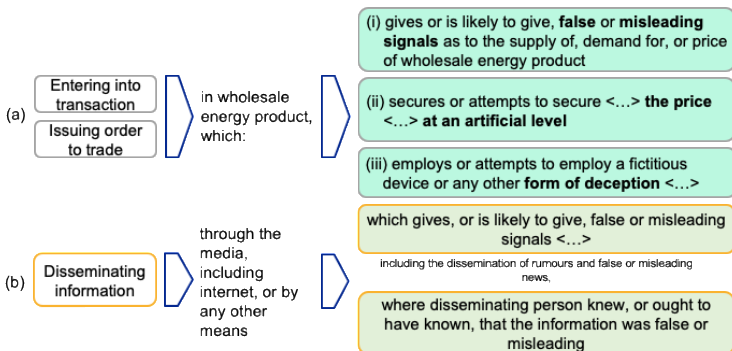


Workshop 2 – Legal and governance

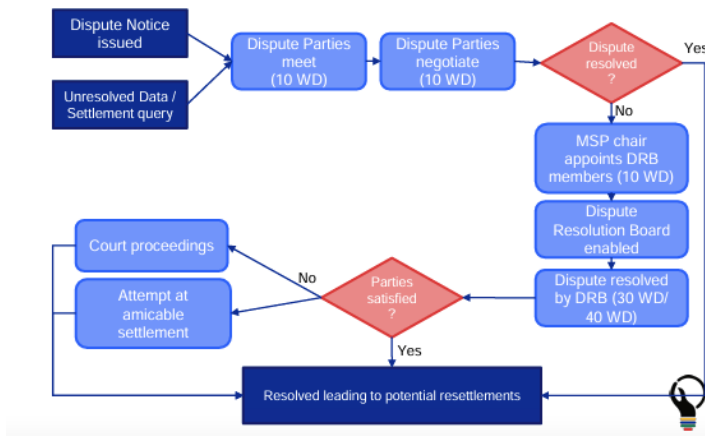
There are four essential parts to implement the Market Code



Definition of market manipulation



Dispute Resolution



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Workshop 3 – Day-ahead

There is always a balance to be found...

Between competitive market with few limitations and a constrained real-time operation of the power system

The economist wants:

- Liquid markets
- Large trading area with no/few physical constraints
- Standardised products
- Large number of competing buyers and sellers
- No differentiation between the different buyers and sellers
- Value for money

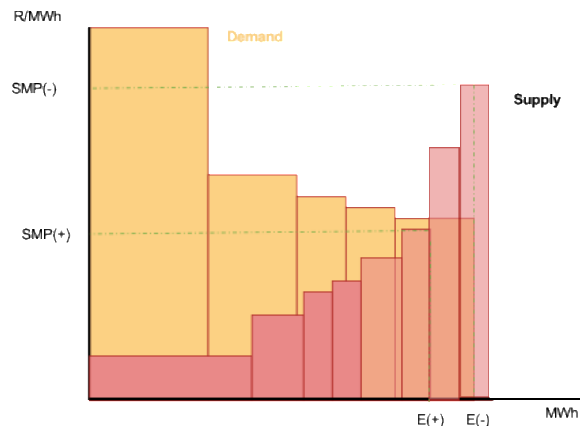


The engineers want:

- Market representation of the underlying physical power system
- Representative trading areas with physical constraints
- Customized products for the physical needs
- Deep knowledge of the sellers and buyers capabilities
- Full compensation for their efforts

The power market concept needs to take this in account in all market timeframes

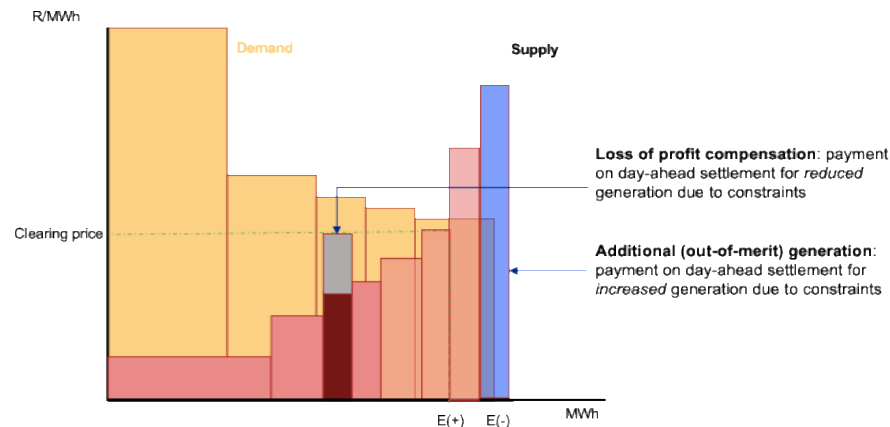
Day-ahead Market: Supply side and demand side



- Supply curve: price increments offered by generators / traders, bound by technical parameters
- Demand curve: expected demand for consumers / traders / retailers adjusting for price responsive capability
- Price set by marginal generator (after accounting for price responsive demand and technical parameters / constraints)

8

Constraint payments

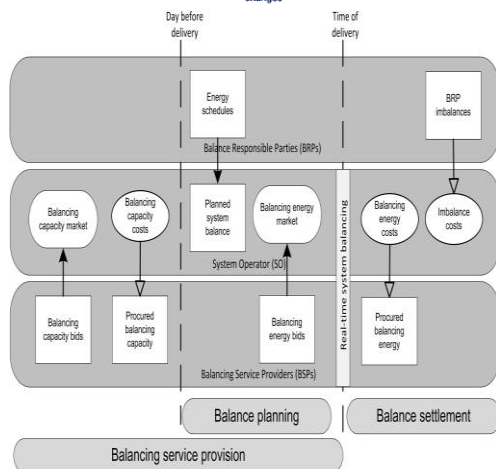
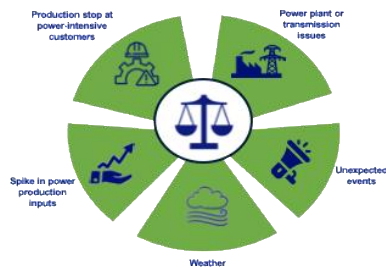


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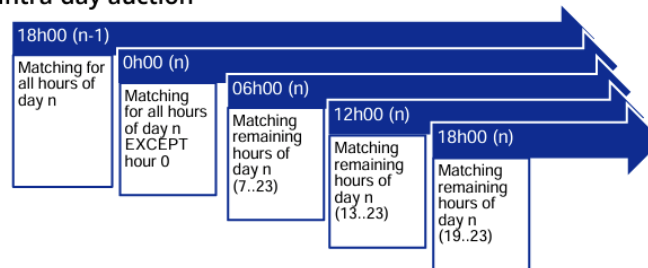
Workshop 4 – Intraday, Balancing & Metering

Why do we need an intraday market?

Several factors affect the supply and demand balance, requiring real-time adjustments



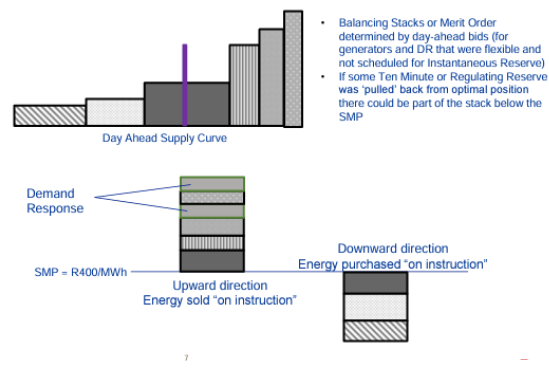
Intra-day auction



New schedule from each auction for each hour

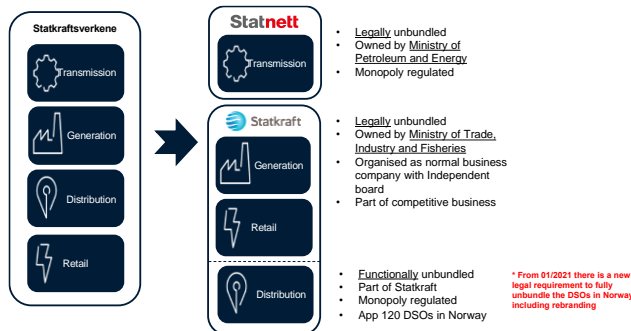
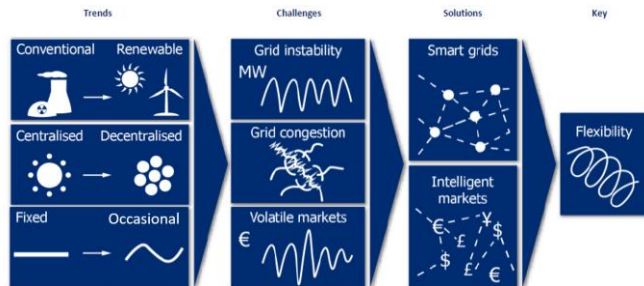
- Security constrained (using network constraints)
- Reserves retained as per day-ahead unless capacity on longer available

Balancing Stacks



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Workshop 5 – Distributors & Retailers in the market



Consumer remains a retail customer	Consumer as a market participant
Can enter into physical bilateral transactions	Can enter into physical bilateral transactions
Retailer takes accountability for balancing	Consumer takes accountability for balancing as a requirement for participation
Retailer sets rules for reconciliation of accounts	Reconciliation incorporated into balancing
Retailer invoices for various services potentially including use-of-system charges on behalf of network operator (or network operator invoices for use of system separately)	Network operator invoices for use-of-system charges
Wholesale charges (legacy, subsidy, capacity) incorporated into retail offer	Wholesale charges (legacy, subsidy, capacity) invoiced directly by Market Operator

Distribution System Operator

- Similar to TSO but at a regional level
 - Managing network constraints
 - Communicate network conditions to MO and TSO for day-ahead scheduling and real-time dispatch
 - Potential cost of constraints being shared among network operators
 - Voltage regulation, QOS
- Separate role for the DSO and Retail
 - Minimise conflicts of interest on DSO decisions, especially managing constraints



...and we have kept 2 workshops to revisit potential changes



6

International trade through SAPP

- July 30
 - Interconnector capacity allocation
 - Boundary conditions
 - Alignment of timelines
 - Who and how to trade



7

Settlements and Credit Cover

- August 13
 - Financial settlements
 - Credit cover calculations
 - Financial timelines
 - Data query and financial dispute process



8

Hedging and Contracts for Differences

- August 27
 - Contracts for difference
 - Other options for trading
 - Interface with MO/SO



9

AS & Reserve Markets

- September 10
 - Ancillary Services Products
 - Capacity Markets



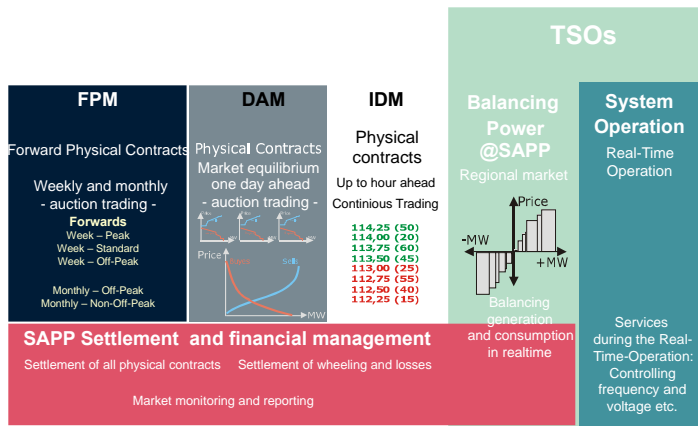
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Revision session

- October 1
 - Items requiring additional discussion from Workshops 1-4
 - Bin list not resolved in prior workshops



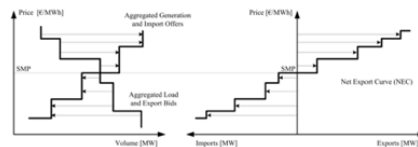
Workshop 6 – International Trade



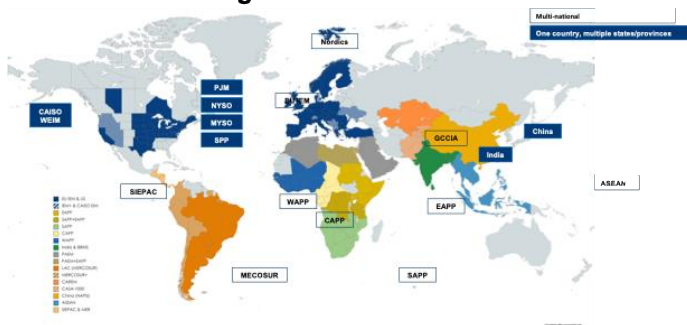
What is a NEC – Net Export Curve?

This is a solution for how the NTCSA MO can bid into SAPP

- Single hourly orders (to SAPP) should be based on the RSA NEC(s) where:
- NEC is the difference between local (i.e. per Bidding Zone – not sure if we need to differentiate, but maybe) aggregated supply and demand curves (in case of perfectly inelastic demand the NEC consists only of supply)
- Will represent the sensitivity of the system marginal price (SMP) relative to exchange volumes from the RSA perspective
- Contains minimum amount of required information for bidding into the SAPP DAM
- NTCSA MO needs to ensure non-violation of internal constraints when constructing the NEC
- NEC construction requires a well-defined & transparent methodology
- In the diagram below, import means buying from SAPP where export means selling to SAPP



International regional markets



Who shall be allowed to trade on SAPP

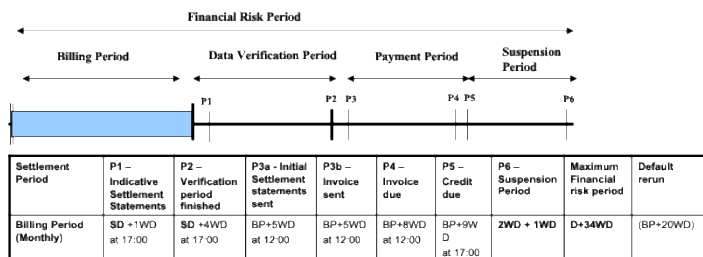
- An RSA Market Participant with Capacity payment **will not be allowed to trade directly**
 - However, they will implicitly participate through their orders to the NTCSA MO
- An RSA Market Participant without Capacity payment **will be allowed to trade directly**
 - Their results will be treated as any bilateral trade inside South Africa and shall be nominated to the NTCSA MO
- The "old" International Trader function will be split into two parts:
 - One for the regulated part of their current work:
 - Support for the management of transmission capacity
 - Management of legacy bilateral contracts
 - Support in the regional interconnection asset management
 - ... and the commercial trading on SAPP will need to find a new home
 - This is still to be determined, but the NTCSA cannot trade in the markets



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Workshop 7 – Settlement and Credit Cover

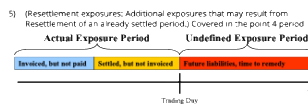
Financial Settlement Timeline = Financial Risk Period!



Credit Cover process

Elements in the calculations:

- Amounts invoiced but not paid: Amounts presently owed – between P3 and P4.
- Amounts calculated but not invoiced: Indicative settlement statements has been released for the Settlement day, but not yet invoiced – the period between P1 and P3.
- Exposure Incurred but not calculated: Exposure related to a period that has passed (and electricity has been consumed), but the Indicative Settlement Statement amount has not yet been determined – the period between P3 and P4.
- Potential exposures during Time to suspend: If a Participant defaults on their financial obligations, then the MO will draw down on their Credit Cover and may issue the Participant with a Suspension Order. The Participant will be granted a defined amount of time to comply with a Suspension Order before a Suspension takes effect. Time period between P4 and P6.
- (Re)settlement exposures: Additional exposures that may result from (Re)settlement of a already settled period; Covered in the point 4 period

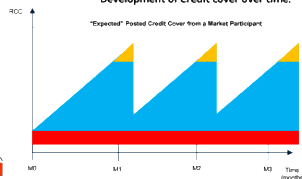


The calculation of 1 and 2 is easy as these are known numbers (so essentially a sum of the calculated charges for the days in the period)

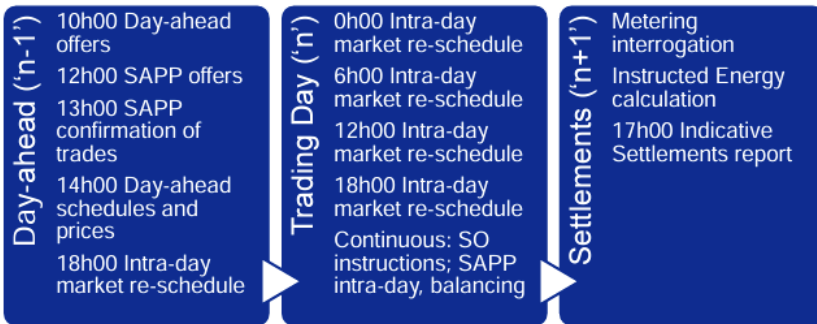
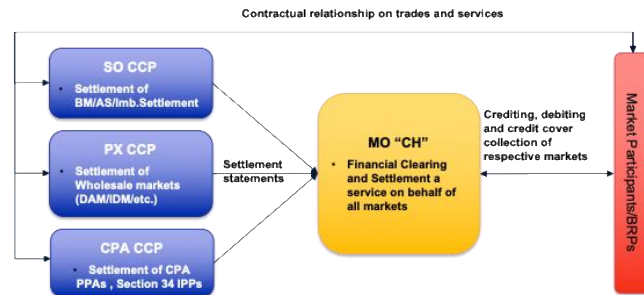
Suggestions to cover for 3 and 4:

Use the last Working day's data where Indicative Settlement statements exist to cover for the ZWD-time to suspend period.

Development of Credit cover over time:



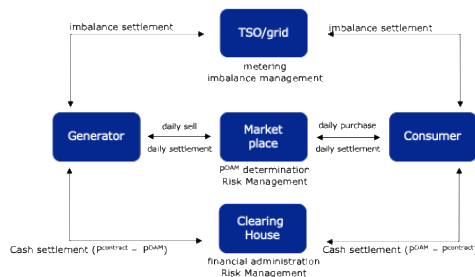
Settlement of all trades from SO, MO and CPA



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Workshop 8 – Hedging and Contracts for Differences

Bilateral versus Financial Contracts



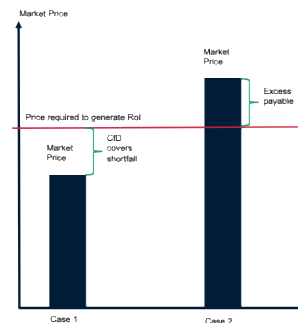
What is a CfD contract?

Contract for Difference (CfD) is a financial contract between two parties that reduce exposure for volatile energy prices for the party who receives the CfD.

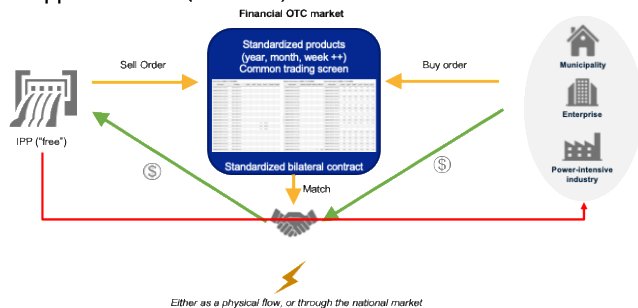
This is one of the main tools in hedging through derivatives.

You can use CfDs making it possible to respect earlier regulated/fixed price contracts while getting volume onto the physical short-term market.

An agreed power price (strike price) is the basis for the contract and the CfD will then facilitate payments to even out the earning for the CfD receiver.

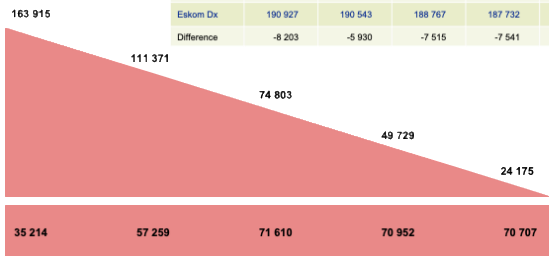


Opportunities – (Financial) OTC market



Transition: Vesting volumes

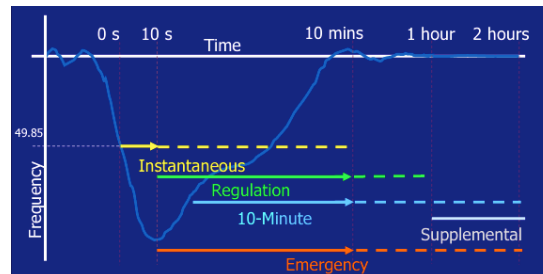
Energy	2026_27	2027_28	2028_29	2029_30	2030_31
Eskom Gx Non-peaking	163 915	139 214	124 672	124 322	120 873
S34 IPPs	35 214	57 259	71 610	70 952	70 707
Eskom Dlx	190 927	190 543	188 767	187 732	186 008
Difference	-8 203	-5 930	-7 515	-7 541	-5 572



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Workshop 9 – AS and reserves market

Ancillary Services – definitions

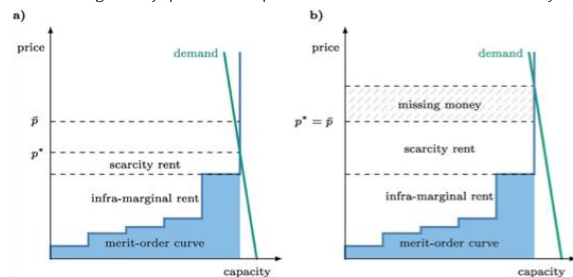


Medium/long term auction

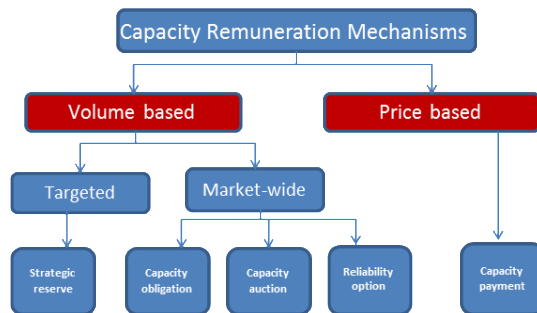
- System restoration (black start and islanding)
- Reactive power
- Synchronous condenser operation
- Emergency reserves
- Supplemental reserves

Capacity payments – factors that will affect the choice (and answer)

The “missing money” problem – if prices are not allowed to reflect scarcity rent



Source: "A survey on electricity market design: Insights from theory and real-world implementations of capacity remuneration mechanisms" by Bubbler, Kuehl, Zornigsmann, Fichtner, Fichtner, <https://www.sciencedirect.com/science/article/pii/S0140988319300453>



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Workshop 10 – Summary, market model and questions

- This workshop 😊



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Some of the identified questions/comments from the workshop

- Several questions on tariffs/level of charges and recovery of costs from the market, impact of prices to end-customers, how to manage the current subsidies, price caps to protect,
- Who shall set up the Financial market + several technical questions on CfDs and how they operate
- Several governance/legal questions (reticulation, alignment with other codes/laws, readiness of NERSA etc)
- Many comments on the need for Capacity building
- Who will be allowed to trade internationally – and how
- Several comments on the operation of the market surveillance and the role of NERSA
- Detailed questions on the operation and pricing of the market
- Need for a «mock» trading environment
- Funding of CPA and management of the legacy charge



Process forward

- Comments **by October 15** – either via email (Market.Ops@ntcsa.co.za) or through the form on the website (<https://www.ntcsa.co.za/energy-market-services/wholesale-market-code/>).
- On the same web-page you will find all presentations and recordings from all workshops including the launch.



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