

Energy Market Services

Market Operator

Keith Bowen

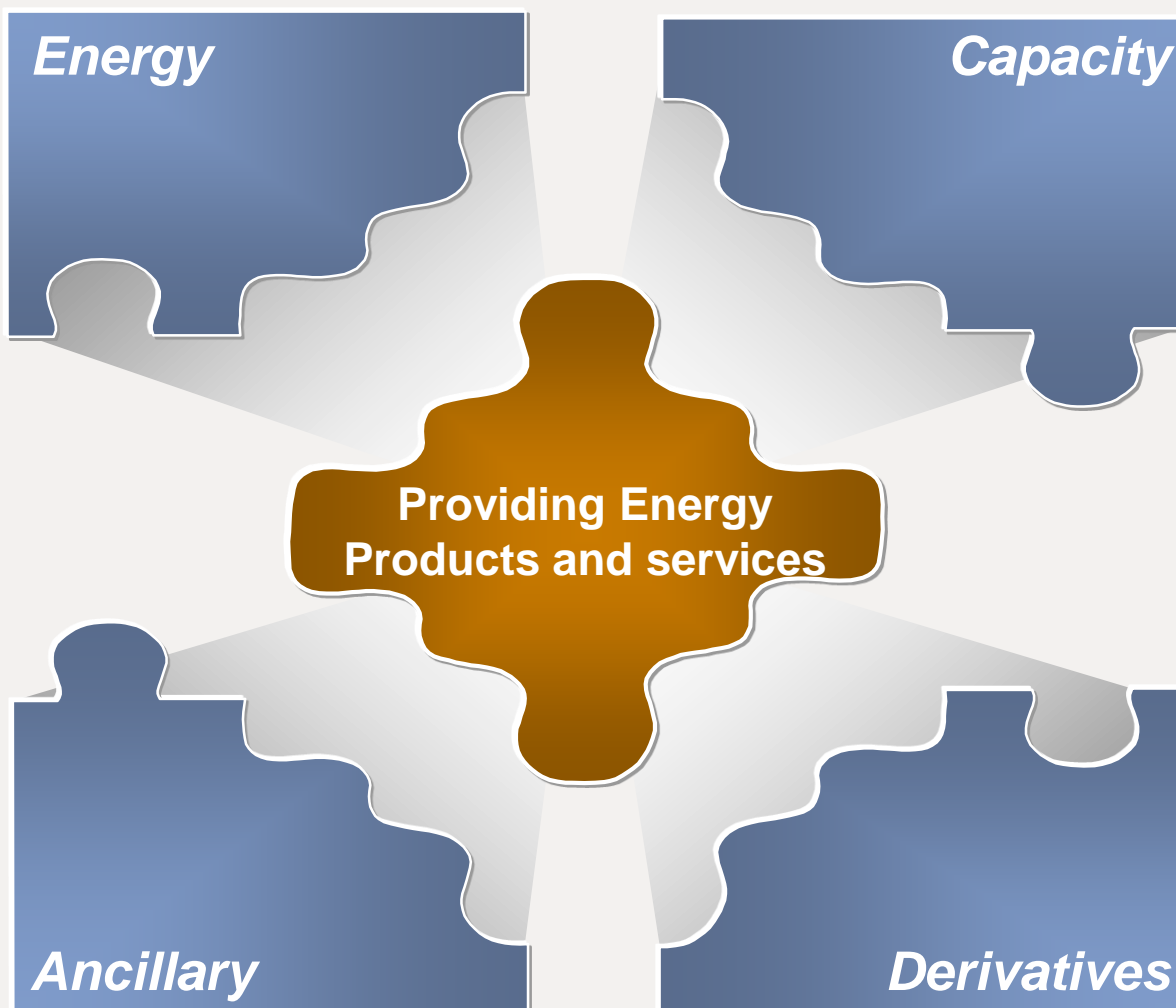
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Energy Market Services

Market Operator

The Energy Market Services is a business unit within the National Transmission Company. We are the experts in Energy Markets in South Africa

The purpose of this stream is to establish the Market Operator (MO). The MO will enable external participation through an open market model with the introduction of additional markets and products on a market platform



We have worked in Eskom for over 18 years developing the energy markets

Services & Offerings



Markets

1 Day Ahead Energy & Reserves

Description

- The day-ahead energy market matches the supply of electrical energy with the expected demand in each hour of the trading day (specifically the day following market closure).
- The day ahead reserve market optimises the supply of reserves to meet system operator requirements

2 Intra Day

- Trading of physical positions after the day-ahead market closure to account for changing circumstances. These trades will take place in scheduled auctions (every 6 hours), using similar bids and offers as in the day-ahead market to allow clearing to take place in the auction

3 Balancing

- Balancing Mechanism accounts for the differences between the day-ahead positions (adjusted for intra day trades) of Balance Responsible Parties and the real-time actual delivery and consumption of electrical energy.

4 Physical Bilateral Market

- Licensed and registered generators will be allowed to enter Physical Bilateral Contracts for energy production with customers and traders

Overview

The Markets and Prices

DISTINCTIVE VALUE ADD

ENERGY MARKET (Day Ahead)
Carried across wires today



ENERGY RESERVE MARKET (Day ahead reserve)
Available but held back for reserve margin



BALANCING MARKET
Real time delivery of power



Day-Ahead System Prices

The day-ahead system prices shall be calculated ex ante, shall be hourly prices and shall be calculated for all hours of the settlements periods of the trading day. The system marginal price reflects the marginal cost of the marginal generating unit in that hour.

Imbalance Energy Bought Price shall be determined by the weighted average incremental costs of resources utilised to balance the system, providing additional energy.

Imbalance Energy Sold Price shall be determined by the weighted average incremental costs of resources utilised to balance the system providing less energy.

CAPACITY MARKET
Firm power can be called on when needed



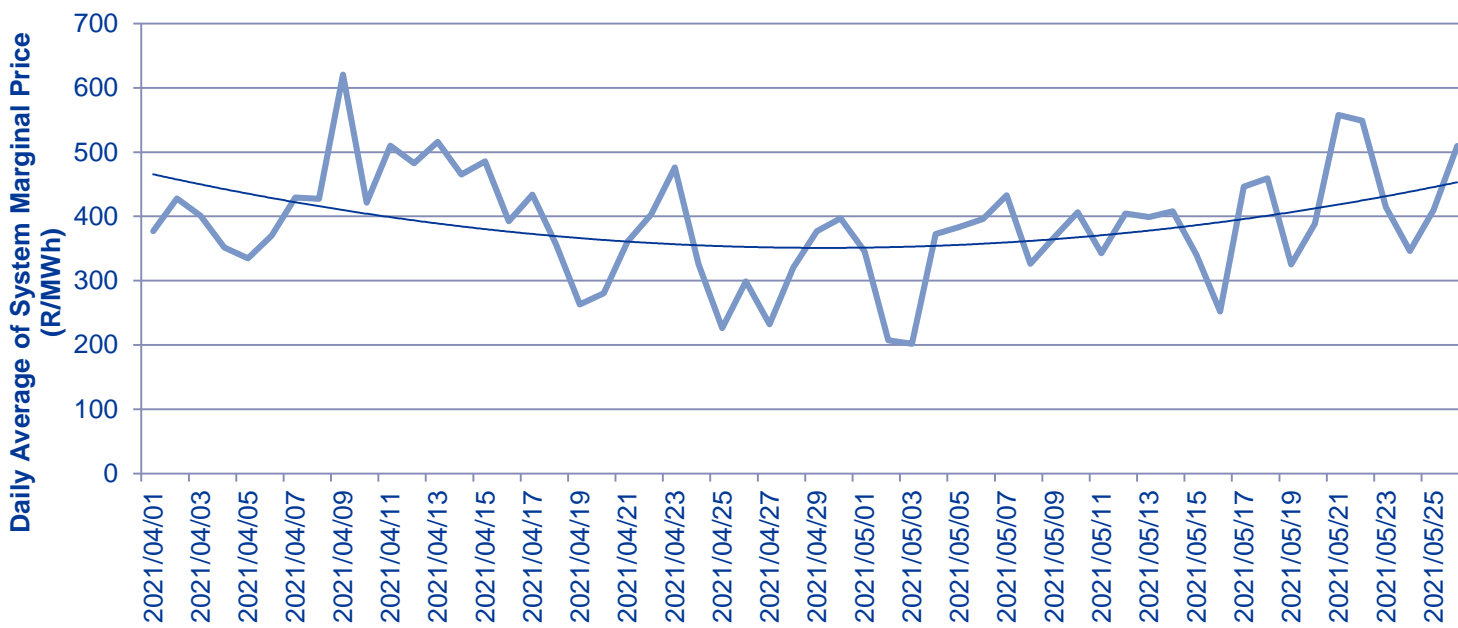
ANCILLARY & OTHER SERVICES
Network support services



Day Ahead Prices – FY21 & Apr 21



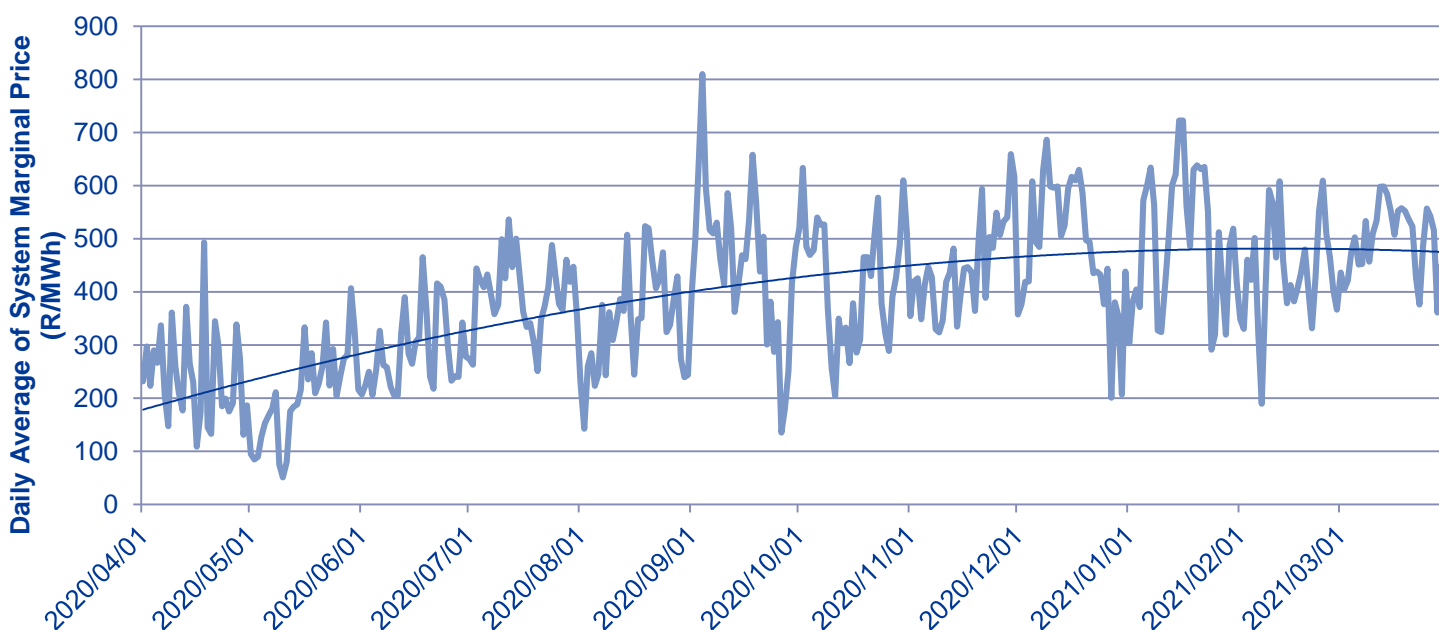
Market clearing price – FY22 Apr/May



Insights

- Shows average prices for April and May this year, the prices were between R300/MWh and R 400/MWh, there was a price drop towards the end of April due to the marginal generator being out of commission

Market clearing price – day average FY21



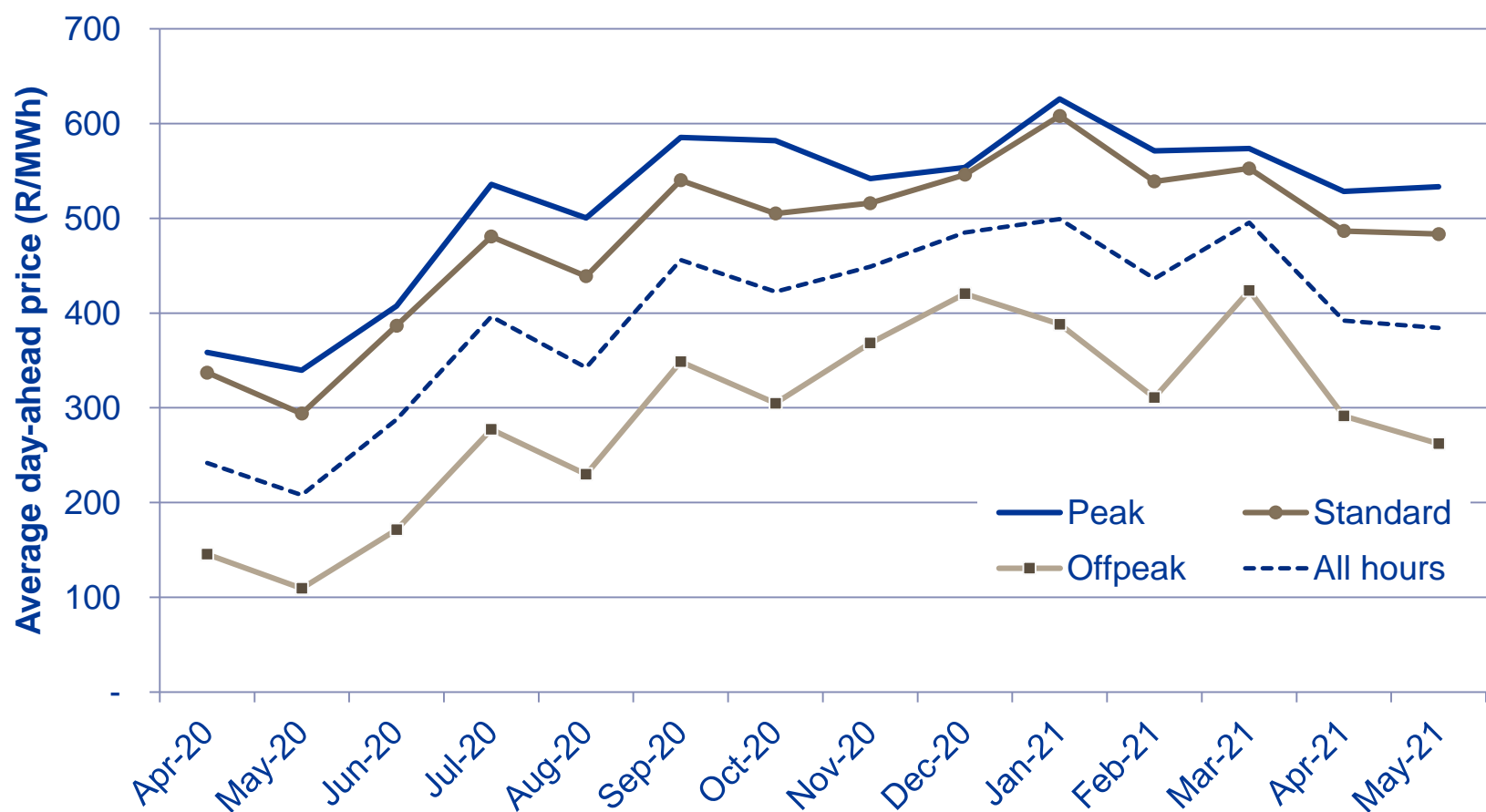
Insights

- During the Hard lockdown the prices were low, In September there was one generator that set the price at R800/MWh for all hours of the day due to a very tight situation,

Day Ahead Prices –Apr 20 –Mar 21



Market clearing price: monthly average per TOU



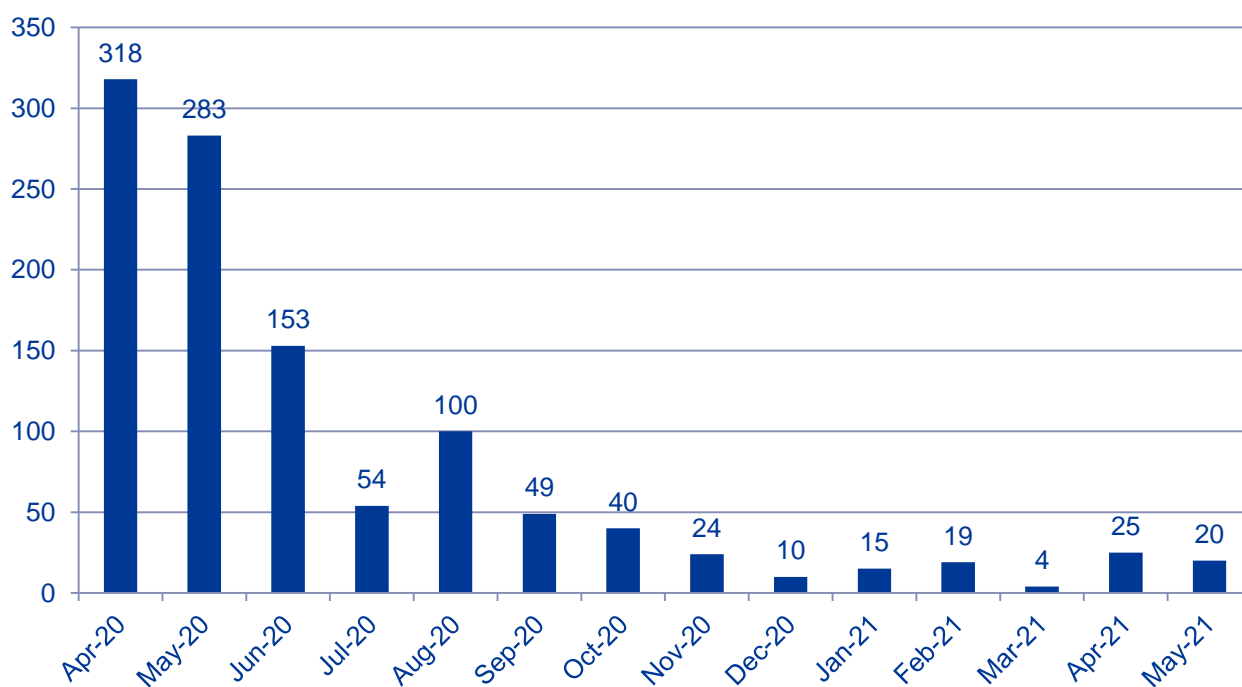
Insights

- Rates during the hard lock down - During the Peak, standard, off-peak, averaged for April and May the rates were exceeding low, but this has climbed after the lock down. Prices has climbed from an average of 25cents to an average of 40cents in the market due to an interplay of supply and demand

System Marginal Prices



Zero SMP



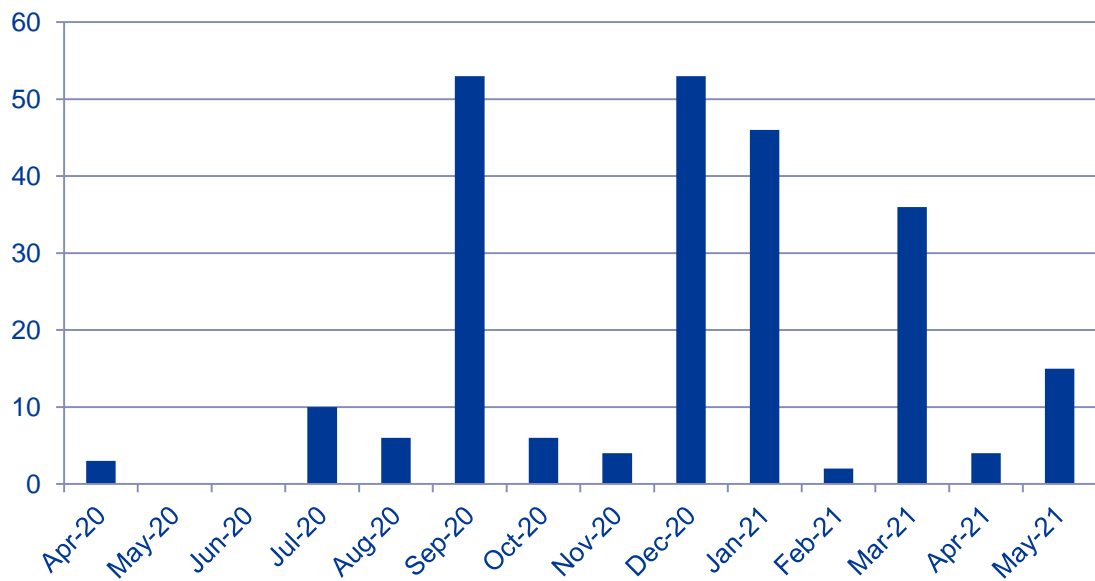
Insights

- *The number of times in a month the price was set at R0/MWh. Prices reach R0/MWh when there is excess capacity in the early hours of the morning & inflexible generators are unable to reduce output further*
- *In April 2020 and May 2020 – the price were zero 318 and 283 times respectively and the number of times these incidents occurred decreased into the higher demand*
- *In Mar 21, there were only 4 incidents. This was due to higher demand and an improvement in flexibility from power stations*

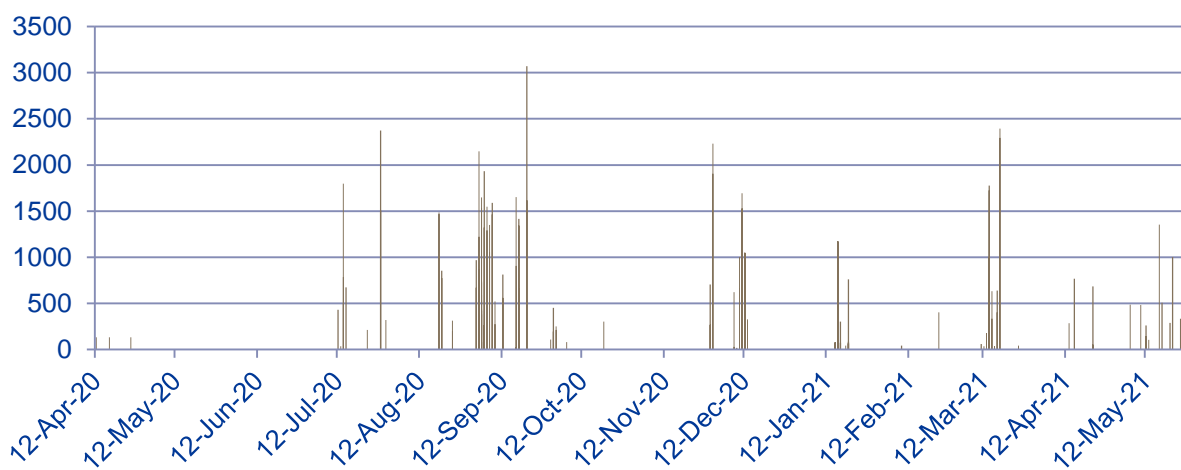
Peaker price – setting



Hours OCGT scheduled



Scheduled Peakers



Insights

- *The Open Cycle Gas Turbines(OCGT) Peakers do not set day ahead prices, even though they can be scheduled.*
- *These graph shows how often the peakers were scheduled over the year. In September 2020, we had over 3000 MW of OCGTs scheduled on one occasion, but since peakers don't set prices the prices remains that set by the coal plant. In September, December and January the number of hours the peakers were scheduled was high.*

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