

Coal-burning generating plant

Hendrina power station

The ninth 200 MW non-reheat generating set in this power station was taken into commercial service in May 1976. The station now has an installed capacity of 1 800 MW.

The tenth and last 200 MW set in this station was commissioned in December 1976 and will be placed in commercial service in January 1977.

Grootvlei power station

The civil and structural work for the sixth and last 200 MW non-reheat generating set was completed during the year, and erection of the boiler and turbo-generator plant is in progress. This set is the second at Grootvlei to employ non-evaporative cooling of the condenser circulating

water in a dry cooling tower. A unique feature is the stainless steel tubed surface condenser, which provides the interface between the condensate circuit and the indirect dry cooling circuit. This feature is being pioneered by Escom as a further development of the dry cooling system already installed for the fifth set. The cooling system for the fifth set, which has become well known internationally, continued to operate satisfactorily during 1976.

This station at present has an installed capacity of 1 000 MW, made up of five 200 MW sets. Commissioning of the sixth set is planned for the second half of 1977.

Kriel power station

The civil and structural work for the first four of six 500 MW generating sets was completed during the year. The first set was taken into commercial service in May 1976, and although commissioning of the second set was well advanced by the end of the year, it is not expected to be in commercial service before April 1977. Commissioning of the third set is planned for December 1977.

The commissioning programme in this station has been hampered by various unforeseen difficulties. A major problem—severe slagging in the boiler of the first set—was attributed to the furnace design and burner arrangement. Exhaustive tests were carried out on both boiler and coal, and remedial measures are in hand.

Coal for this power station is supplied from the Kriel Colliery, where both underground and strip mining will be adopted.

Table 14
Power station plant taken into service during 1976 and on order at 31 December 1976

Name of power station	Plant taken into service in 1976		Plant under construction or on order at 31 December 1976	
	Boilers kg/s	Generators MW	Boilers kg/s	Generators MW
Coal-fired steam plant:				
Duvha	—	—	3 048	3 600
Grootvlei	—	—	215	200
Hendrina	214	200	214	200
Kriel	440	500	2 200	2 500
Matla	—	—	3 048	3 600
Conventional storage hydro plant:				
Hendrik Verwoerd	—	160	—	—
Vanderkloof	—	—	—	220
Pumped storage hydro plant:				
Drakensberg	—	—	—	1 000
Gas turbines:				
Acacia	—	171	—	—
Port Rex	—	171	—	—
Nuclear plant:				
Koeberg	—	—	—	1 844

Matla power station

This station, which is being built about four kilometres from Kriel, will have an ultimate installed capacity of 3 600 MW, made up of six 600 MW generating sets.

Construction of the civil and mechanical works associated with the first three sets is proceeding. The construction, for the first time in an Escom station, of a concrete boiler house structure by means of sliding shuttering was completed for the first set. The turbine house will also have a concrete structure.

The first generating set is planned for commissioning during the winter of 1979, the second in September of the same year, and the third one year later.

The colliery to supply coal to this station is being established, and is expected to commence production by the end of 1978. Coal will be produced by underground mining methods.

Duvha power station

This station, which is being built about fourteen kilometres south-east of Witbank, is also planned for an ultimate installed capacity of 3 600 MW, made up of six 600 MW generating sets.

The excavations for the first set are progressing well, following the successful completion of site levelling during the year.

As in the case of Matla, steel and reinforced concrete were considered as alternatives for the station building structures. Steel structures were however decided upon in this case.

Economies in design are being effected wherever possible by replication of drawings used for Matla.

The reinforced concrete chimney, 300 metres in height, will be the first multi-flue chimney erected for an Escom power station.

The first generating set is planned for commissioning in September 1979, and the second and third at one-year intervals thereafter.

The colliery which is to supply coal to this station is being established. Coal will be produced by surface strip mining. It is expected that production will commence late in 1978.