

GENERATION PLANT MIX

Eskom supplies approximately 90% of South Africa’s electricity and generates more or less 30% of the electricity used in Africa. Eskom uses various technologies to generate electricity, the combination of which is called the ‘plant mix’. The utility is constantly investigating other forms of energy and renewable energy sources that could be used to expand its current plant mix.

Coal-fired base load power stations make up the largest portion of Eskom’s plant mix. These stations use coal as their energy source and operate 24 hours a day to meet the demand for electricity. Eskom’s Generation Division has 15 coal-fired power stations with an installed capacity of 45 310 MW.

Africa’s first nuclear power station, Koeberg, is also a base load station, with capacity of 1 934 MW of power.

The generation mix also includes two conventional hydroelectric power stations, three hydro pumped storage schemes and four non-dispatchable mini hydro stations. These stations are used when there is a sudden increase, or peak, in the demand for electricity which cannot immediately be met by the base load stations. They have a combined installed capacity of 3 393 MW.

The last of the present mix are four quick reaction gas turbine power stations with an installed capacity of 2 426 MW. These stations are used only at peak periods and during extreme emergencies due to their very high operating costs. The two smaller, ‘older generation’ open cycle gas turbine stations (OCGTs) use kerosene to power their engines whereas the two new gas power stations run on diesel.

Sere Wind Farm is Eskom’s flagship renewable project, demonstrating the power utility’s commitment to sustainable development.

Plant mix

Type	Installed capacity	Location
Coal-fired power stations	Arnot: 2 220 MW	Middelburg
	Camden: 1 561 MW	Ermelo
	Duvha: 3 000 MW	Emalahleni
	Grootvlei: 1 180 MW	Balfour
	Hendrina: 1 636 MW	Middelberg
	Kendal: 4 116 MW	Emalahleni
	Komati: 990 MW	Middelburg
	Kriel: 2 790 MW	Bethal
	Kusile: 3 995 MW	Ogies
	Lethabo: 3 708 MW	Vereeniging
	Majuba: 4 110 MW	Volksrust
	Matimba: 3 990 MW	Lephalale

	Matla: 3 600 MW	Bethal
	Medupi: 4 760 MW	Lephalale
	Tutuka: 3 654 MW	Standerton
Nuclear station	Koeberg: 1 934 MW	Cape Town
Conventional hydro stations – Orange River	Gariiep: 360 MW	Norvalspont
	Vanderkloof: 240 MW	Petrusville
Pumped storage schemes	Drakensberg: 1000 MW	Bergville
	Palmiet: 400 MW	Grabouw
	Ingula: 1 332 MW	Ladysmith
Gas-fired stations	Acacia: 171 MW	Cape Town
	Port Rex: 171 MW	East London
	Ankerlig: 1 338 MW	Atlantis
	Gourikwa: 746 MW	Mossel Bay
Windfarm	Sere: 100 MW	Vredenberg
Non-Dispatchable Mini-Hydro's	First Falls: 6 MW	Umtata River
	Second Falls: 11 MW	Umtata River
	Mbashe / Colleywobbles: 42 MW	Mbashe River
	Ncora: 2.4 MW	Ncora River
<i>GENERATION'S TOTAL INSTALLED CAPACITY: 53 002 MW (less wind and mini-hydro's)</i>		

(Reference – Power station capacity table as at August 2024)

New build programme still under construction

Type	Installed capacity	Location
Coal-fired power stations	Kusile: 4 800 MW	Ogies

Produced by: **Generation Division**
GX 0001 Revision 30 (August 2024)

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