



## Electricity Generation Through the Koeberg Nuclear Power Station of Eskom in South Africa

G. Dladla<sup>1</sup>, J. Joubert<sup>1</sup>

<sup>1</sup>*National Nuclear Regulator, Centurion, South Africa*

Corresponding Author: G. Dladla, [lgdladla@nnr.co.za](mailto:lgdladla@nnr.co.za)

The poster provides information on the process of nuclear energy generation in a nuclear power plant in order to produce electricity. Nuclear energy currently provides approximately 11% of the world's electricity needs, with Koeberg Nuclear Power Station situated in the Western Cape providing 4.4% of South Africa's electricity needs. As Africa's first nuclear power station, Koeberg has an installed capacity of 1910 MW of power. Koeberg's total net output is 1860 MW.

While there are significant differences, there are many similarities between nuclear power plants and other electrical generating facilities. Uranium is used for fuel in nuclear power plants to make electricity. With the exception of solar, wind, and hydroelectric plants, all others including nuclear plants convert water to steam that spins the propeller-like blades of a turbine that spins the shaft of a generator. Inside the generator coils of wire and magnetic fields interact to create electricity.

The energy needed to boil water into steam is produced in one of two ways: by burning coal, oil, or gas (fossil fuels) in a furnace or by splitting certain atoms of uranium in a nuclear energy plant. The uranium fuel generates heat through a controlled fission process, which is described in this poster presentation.

The Koeberg Nuclear Power Station is a Pressurised water reactor (PWR). The operating method and the components of the Koeberg Power Station are also described.

The nuclear waste generated at a nuclear power station is described under three headings — low-level waste, intermediate-level waste and used or spent fuel, which can be solid, liquid or gaseous.