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The need for the use of Nuclear Power generation in the SADC region

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ABSTRACT

This report explores the possibility of having to make use of nuclear power for ensuring adequate electricity supply in the Southern African Development Community (SADC) countries while minimizing the unique risks associated with different technologies and in order to support an integrated regional electricity grid. The need is considered against the balance between the projected or potential energy demand in the future, based on regional populations, natural resource distributions and current infrastructure. The future energy projection is derived from assessing the energy use in other OECD countries as well as developing economies.

Available power generation resources, in each country, are considered and maximized according to availability, practical implications and managing risk by optimizing the use of the different resources and technologies.

The possibility of an integrated HV network is considered which will require power generation and consumption in a distributed fashion to ensure grid stability and allow for regional risks to be minimised. Due to the vast distances under consideration, the optimum distance between power plants is considered and optimum ways to stabilize the network is proposed. Factors like location, development opportunities and geotechnical considerations are considered.

The report concludes with determining what the expected nuclear capacity base will eventually have to be and where such plant would ideally be situated.