energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Nuclear - IRP 2010 Input Parameter information sheet (Supply input)

This sheet is to be used as the primary stakeholder engagement tool. This document provides the information that will allow the stakeholders to make a meaningful contribution to the IRP Input parameters

Parameter	**Nuclear**
Purpose	The parameter defines government's aspiration for a change in the generation mix by increasing South Africa's nuclear base load power options. This parameter is meant to elicit debate on the role and extent of nuclear in future generation technologies for South Africa.
Impact on the IRP	Recognising the government's aspiration for a nuclear strategy, the extent and speed of this roll-out would be informed by the cost and funding issues as well as other policy implications (especially climate change). The costs of nuclear projects will be determined based on international benchmarks adjusted for local South African conditions, as in the case for other generation projects (refer to the Generation life-cycle costs Input Parameter information sheet). These can be determined separately for second generation and third generation nuclear power station options. While the Reference plan will provide information on the optimal direct cost implementation of nuclear projects and the Emissions scenarios will also indicate the extent of nuclear generation, these will be based on project-by-project costs. An alternative (reflected in the Nuclear scenario) will investigate the impact of a fleet strategy.
Assumptions included in establishing the parameter	

values in this sheet	
Parameter Value	The extent of nuclear generation can be determined either by: a) Allowing the model to determine the optimum generation mix (by comparing the levelised cost of generation from different options), inclusive of other policy considerations such as emissions constraints; b) Incorporating a scenario (the Nuclear scenario) to accommodate the alternative of a fleet strategy and the resulting changes in costs; c) Determining a policy objective that provides a constraint (minimum or maximum) on the extent of nuclear generation that must be met by the IRP. A combination of the above is envisaged for the 2010 IRP Rev 2. For Rev 1 there was no nuclear fleet scenario, but the policy-adjusted IRP included a policy objective of a nuclear fleet of 11,5 GW built from 2020 to 2027. Additional advantages of nuclear should ideally be captured in the modelling process, especially: a) Location options; b) Water usage considerations (and the reduced reliance on inland freshwater); and c) Diversity (and reduced reliance on coal-based generation).
Range of Parameter Value	
Preconditions necessary to make possible for this parameter to be included in	A nuclear policy indicating the required level of nuclear capacity build, failing that benchmark costs for project-by-project and fleet construction.

the IRP	
Parameter Owner	DoE