S11: Generation Mix - IRP 2010 Input Parameter

Parameter	**Generation Mix**
Parameter Value	The mix of generating capacity is determined as an output of the IRP model. Although it is possible to limit or enforce technologies, this may only be done as part of the scenario studies, following government policy inputs.
Rationale	

Responses to Public Inputs

Summary of specific comments	Response
The Generation Mix is ideally an output parameter; however policies and political will for specific options can influence the generation mix beside technical parameters. (90x2030, CJN!-WC)	Noted.
Encouragement to diversify should be included in the models (as this is a significant risk consideration: that all our eggs are not in one basket). (90x2030, CJN!-WC)	Noted. The risk analysis as part of the criteria assessment should include this aspect.
Base-load capacity can be provided by more than just coal-fired generators: particularly biomass, CSP with storage, co-generation from waste gas and waste heat, nuclear. A portion of wind generated across a large area can be considered base load (ACMP)	Noted
The model should also consider retrofitting to the existing fleet to improve efficiency (Alstom)	Noted.
All the model results, including base case and scenarios, should be presented to stakeholders to inform debate. (CIC)	Noted.
CCGT could be either base-load or mid-merit. Fuel sources for mid-merit should be clearly indicated, and alternatives investigated. (Coega Development Corporation)	Noted.
The limits in IRP1 on REFIT raise concerns on the sustainability of renewable energy. (Coega Development Corporation)	Noted.
In the case of capacity factors, although coal for example has an expected capacity factor of 85%, a system overloaded with coal base-load is forced into running the coal resources at much lower capacity factors, more like 70% on average. This has a major impact on the assumed levelised costs. (CSP Developers)	Noted.
Uncertainty related to future fuel costs as well as likely future carbon taxes should definitely be factored into the cost models. (CSP Developers)	Noted. The risk analysis will consider the uncertainty regarding future fuel costs. Carbon tax impacts will be dealt with under the Carbon Tax scenario.
Declining costs in CSP technologies over time and with larger scale deployment should be factored in. (CSP Developers)	Noted. The learning curves of technologies are included in all cases.
The current grouping of technologies into de facto base, mid-merit and peaking, with the add-on of nuclear and renewable as non-classified with respect to these three categories is problematic. (CSP Developers, Energy Caucus)	Noted.
Targets are not input parameters unless specified by government as policy. (Energy Caucus)	Noted.
While the proposal of 30% non-Eskom generation is supported, a non-conflicted single buyer is a significant precondition, alongside the liberalisation of the electricity market (IES)	Noted.
After 2013, renewable supply is not envisaged as part of the energy mix until 2021. This lag time does not reflect the current extensive interest and development in renewable energy projects in South Africa, or the urgency required to develop green energy projects as alternatives to coal based technologies. (Just Energy)	Noted. The IRP will determine the appropriate technology to meet the various objectives indicated by government, especially security of supply, emissions policy, amongst others.

	There is no single silver bullet, no "one technology" that can provide for all our needs, but we need to take the long view when planning our energy future. We need to aim for a carbon free power supply as soon as humanly possible. (Mbani Wesizwe)	Noted.
	The security of base load power generation is a critical parameter to consider in the generation mix. SA cannot tolerate interruptions in electricity supply as these have direct negative impacts on general economic activities. Coal and nuclear are the only viable options for base load electricity supply for the foreseeable future. Of these, nuclear is the only viable option for limiting CO2 emissions to meet the target of a 43% reduction in current emission levels. (NECSA)	Noted.
	The definition of base-load should not only refer to coal, but should include nuclear. With the need for reduction of carbon emissions it would be expected that there would be reduced reliance on coal fired capacity. The roll-out of nuclear plants earlier as from 2019 in batches is supported. (NIASA)	Noted.
	The model should consider mixing different technologies rather than focussing on one (for example mixing wind and solar along the West Coast). (Private-DK)	Noted.
	All technologies are required in the mix, to have an adequate and secure supply of electricity. But the encouragement of clean and renewable technologies must be given preference due to the volatility of fuel prices and supplies. (SAWEA)	Noted.
	The value of "baseload" should be assigned to the value of capacity credit (in MW) for each technology, which should not be weighed such that the quantifiable value of energy contribution is discounted. (Windlab Developments SA)	Noted.