



Electricity Intensity – Long Term IRP 2010 Input Parameter information sheet (Demand 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	Electricity Intensity – Long Term
Purpose	<p>Energy intensity is the most important parameter in determining future energy demand growth, (see IRP Parameter Consultation Sheet - <i>Demand & consumption forecast.</i>)</p> <p>The purpose of determining the national energy intensity is to inform the relationship between GDP growth and the growth in demand for electricity.</p> <p>The electricity intensity of the economy is a measure of the ratio of electricity energy consumption growth relative to GDP growth. Historically this has been on a ratio of 3:2 (a 3% GDP growth equates to a 2% electricity growth)</p> <p>Generally the primary manufacturing (e.g. mining, chemical) sector is more electricity intensive than the secondary (e.g. retail) sector which is more intensive than the tertiary sector (e.g. financial services) however the South African economy requires a balance of the sectors for optimum GDP growth.</p> <p>The purpose of the long term (>15yrs) energy intensity parameter is to define the long term relationship between GDP and electricity intensity, which will in time supersede the effects of the short term electricity intensity parameter.</p> <p>There is recognition by stakeholders that South Africa requires a more balanced, accelerated and more labour absorptive economic growth rate. The word “balanced” is particularly important as it</p>



	<p>means that both the tradable and non-tradable sectors of the economy need to be encouraged to grow at roughly the same pace. Accelerated growth means the economy has to improve on its 3.3% per annum growth rate achieved in the period 1994 to 2009, and the 6% growth rate level has been targeted by government. Effectively a 6% p.a. economic growth rate would double the size of South Africa's economy every 12 years, which in turn has significant implications for the size of the Electricity Supply Industry necessary to support such growth.</p> <p>In the medium and long term it is reasonable to assume that the country will achieve an accelerated, more balanced and more labour absorptive economic growth rate. Given that the tradable sectors of the economy (agriculture, manufacturing and mining) are more electricity intensive than the non-tradable sectors, the achievement of a balanced economic growth rate would imply that the tradable and non-tradable sectors grow at a similar pace (5%-6% per annum). Even without significant change in the electricity intensity of existing production capacity in the economy, it would also be fair to assume that investment made in new capacity in the tradable sectors would increasingly use energy efficient technologies, but that the relative electricity intensive nature of South Africa's tradable sectors would not fall dramatically in the longer term.</p>
Impact on the IRP	<p>In the South African Economy the primary, secondary and tertiary sectors of the economy are reliant on each other and the relative sector size will define the ratio of electricity consumption relative to GDP growth. In essence, if there is insufficient electricity for primary industry growth the size of the secondary and tertiary industries will be reduced unless these sectors provide services outside of South Africa hence not being reliant on high electricity consumption for primary wealth generation.</p>



	A large primary sector relative to smaller secondary and tertiary sectors will require more electricity and hence maintain the existing ratio of 3:2 (3% GDP Growth : 2% Electricity Demand Growth)
Assumptions included in establishing the parameter values in this sheet	Considering the intents of government's industrial policy it is predicted that the long-term electricity intensity would change from the current ratio of 3:2 to 2:1.
Parameter Value	The long term electricity intensity value is considered to favour a relative increase in the secondary and tertiary industry sector coupled with increased primary electricity efficiency and hence tend toward 2:1 (GDP: electricity intensity)
Range of Parameter Value	It is predicted that the long-term electricity intensity would change from the current ratio of 3:2 to 2:1.
Preconditions necessary to make possible for this parameter to be included in the IRP	<p>Preconditions necessary to make possible for this parameter to be included in the IRP are:</p> <ol style="list-style-type: none">1. Government approval of the final Long-term energy intensity ratio - IRP 2010 Input Parameter information sheet.2. Energy intensity parameters – Responsibility National Economic Planning3. GDP – Responsibility National Treasury4. IPAP – DTI
Parameter Owner	DTI/NT/EDD/Planning