



## Energy Conservation - 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	Energy conservation
Purpose	<p>The primary purpose of the Conservation Scheme is to make a sustainable change in consumer behavior in how they use electrical energy. South Africa's cheap and in some cases free electricity the past 20 years has lead to a general electricity consumer with an unacceptably low energy consciousness.</p> <p>In the light of the scarcity of energy supplies, rapidly rising energy costs and a global imperative to reduce carbon emissions it is vitally important to create the requisite awareness of the scarcity of energy and inducement to Self Managed Energy Conservation (SMEC).</p>
Impact on the IRP	<p>An effective SMEC program will reduce energy consumption and national demand and therefore reduce the risk of forced power cuts and reduce the need to build very expensive new generation capacity.</p> <p><i>Note: Studies have shown that higher electricity prices alone do not make the requisite behavioral changes.</i></p>
Assumptions included in establishing the parameter values in this sheet	<p>To avoid the negative impact of a forced conservation scheme, it is assumed that a similar incentive such as the "Standard Offer" will be launched to purchase "spare energy capacity created by self managed conservation" at a rate substantially less than the marginal cost of additional new generation. <b><i>NB: Use some of the new build capacity funding to purchase "spare energy capacity through self</i></b></p>



	<p><b>managed conservation”.</b></p> <p>An effective SMEC program as described below will result in significant reduction in consumption, and that a realistic potential of 23 TWh could be saved if all customer sectors actively participated. It is further assumes that customers will reduce their total consumption profile and on average the national consumption profile will decrease during all hours of the day, resulting in the 23TWh having a close to 100% load factor on national level.</p>																				
Parameter Value	<p>If all customer sectors actively participated in SMEC the following is realistically possible:</p> <div data-bbox="577 752 1406 1205"> <p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>SMEC limited to customers consuming &gt;100MWh/yr</li> <li>Participants of SMEC represent <ul style="list-style-type: none"> <li>90% of consumption by Eskom customers</li> <li>60% of consumption by municipal customers*</li> </ul> </li> <li>SMEC consumption by sector in municipalities assumed as follows <ul style="list-style-type: none"> <li>Mining and agriculture 5%</li> <li>Commercial and residential 50%</li> <li>Remaining customers 45%</li> </ul> </li> <li>Coal mines are excluded from SMEC as they are essential to the generation of electricity and have already been exempted</li> </ul> <p><b>SMEC participants represent more than 75% of total consumption ...</b></p> <p><b>... and will contribute most of the savings, though non-participants are still expected to save</b></p> <p><b>SMEC customers savings contribution</b></p> <table border="1"> <thead> <tr> <th>Sector</th> <th>Savings (TWh)</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td>20.1</td> </tr> <tr> <td>Agricultural and mining</td> <td>2.8</td> </tr> <tr> <td>Comm. &amp; res***</td> <td>7.2</td> </tr> <tr> <td>Industrial and other</td> <td>10.1</td> </tr> </tbody> </table> <p><b>Non-SMEC customers savings contribution</b></p> <table border="1"> <thead> <tr> <th>Sector</th> <th>Savings (TWh)</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td>8.7</td> </tr> <tr> <td>Agricultural and mining</td> <td>0.2</td> </tr> <tr> <td>Comm. &amp; res***</td> <td>7.6</td> </tr> <tr> <td>Industrial and other</td> <td>0.9</td> </tr> </tbody> </table> <p><b>20.1 TWh savings achievable</b></p> <p><b>8.7 TWh savings achievable</b></p> <p><b>Theoretical savings of 29TWh are higher than a realistic potential savings of 23TWh</b></p> <p><b>* Best estimate based on existing limited data</b></p> <p><b>** Excludes coal mines consumption of 3 TWh</b></p> <p><b>*** Includes government buildings with a target of 25%</b></p> <p>Source: NERSA report; Annual Financial Report; Internal Eskom data on consumption per sector; team Analysis</p> </div> <p><b>NB: The concept of stepped block tariffs based on consumptions levels was established by NERSA in their recent MYPD determination.</b></p>	Sector	Savings (TWh)	Total	20.1	Agricultural and mining	2.8	Comm. & res***	7.2	Industrial and other	10.1	Sector	Savings (TWh)	Total	8.7	Agricultural and mining	0.2	Comm. & res***	7.6	Industrial and other	0.9
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Range of Parameter Value	<p>Energy savings from SMEC demands hard work and commitment from government and users alike and dependent on the extent of this could yield savings between 5 to 30 TWh. In addition there are preconditions necessary to make possible this parameter to be included in the IRP. See next section.</p> <p>These programmes have the potential to reduce the amount of money required to accelerate the New Build Programme – i.e. build costs can be deferred</p>																				



<b>Preconditions necessary to make possible for this parameter to be included in the IRP</b>	<p>Preconditions necessary to make possible for this parameter to be included in the IRP are:</p> <ul style="list-style-type: none"><li>• Each participating customer must formally register their normalized reference consumption (NRC)</li><li>• The establishment of an easy to use NRC registration and allocation management (AMS) systems</li><li>• Approved funding mechanism to procure conservation energy savings</li><li>• The promulgation of appropriate stepped block tariffs that will for consumption above NRC less the energy savings target.</li></ul>
<b>Parameter Owner</b>	DOE/NERSA