

## Distribution loss factors

(applying from 1 April 2009)

This schedule provides the distribution loss factors for energy reconciliation that we are required to provide to the registry under the *Electricity Governance Rules*, Part E, Schedule E1, rule 5.

The *distribution loss factor* is a multiplier that is applied to the energy sales that are metered at the connection to calculate the volume of energy purchased at the grid exit point to supply that connection. This process makes allowance for energy that is 'used up' or 'lost' by the delivery system between the grid exit point and the connection. Mathematically, loss factor =  $1/(1-\text{Loss Ratio})$  where *loss ratio* is the proportion of energy purchases that are 'used up' or 'lost' and it is this ratio that is usually published for distribution networks.

The distribution loss factors shown below only account for losses that are usually referred to as 'technical losses' in the industry. These technical losses arise from a number of factors but predominantly from the heating that occurs in transformers, lines and cables. We recognise significant differences in loss levels in different situations as follows:

- 11kV-metered versus LV-metered connections because the energy measured at 11kV-metered connections does not include losses from the distribution transformers and the LV lines and cables, which are downstream from the 11kV meter; and
- Urban versus rural parts of our network because the differences in their loading densities and network design result in significantly different loss levels.

Consequently, we have different loss factors to distinguish between these situations, as follows:

Metering at connection	Loss code	Loss factors	
		Load (consumption)	Export (generation)
<i>Urban GXPs</i>			
LV-metered	<b>ULV</b>	1.051	1.051
11kV-metered	<b>U11</b>	1.022	1.022
<i>Rural GXPs</i>			
LV-metered	<b>RLV</b>	1.067	1.067
11kV-metered	<b>R11</b>	1.053	1.053

### Note

**Urban** grid exit points are ADD0111, ADD0661, BRY0111, BRY0661, ISL0331, ISL0661, MLN0661, MLN0664, PAP0111, and PAP0661.

**Rural** grid exit points are APS0111, CLH0111, COL0111, HOR0331, HOR0661, SPN0331, and SPN0661.

## Distribution loss factors

(applying from 1 October 1999, text updated 30 January 2008)

The Distribution Loss Factor is a multiplier that is applied to the energy sales that are metered at the connection to calculate the volume of energy purchased at the Grid Exit Point to supply that connection. This process makes allowance for energy that is "lost" between the Grid Exit Point and the connection. Mathematically, Loss Factor =  $1/(1-\text{Loss Ratio})$  where Loss Ratio is the proportion of energy purchases that are "lost" and it is this ratio that is usually published for Distribution Networks.

The proportion of energy lost is higher when the system load is high. Therefore, Loss Factors have been provided to reflect the different loading levels that apply during winter & summer, day and night.

A significant proportion of the energy loss occurs in transformers. Therefore, different sets of Loss Factors have been provided depending on the voltage of metering. With LV (ie 230/400V) metering, losses in the transformer are included, but this is not the case for HV (ie 11kV) metering.

A further significant proportion of the energy loss occurs in the Low Voltage (ie 230/400V) network. Since major customers do not generally make use of the LV network, a further set of Loss Factors are provided for them which exclude the LV network losses.

Orion's distribution network is divided into two zones, based on the season when the peak loadings occur. As the loading patterns vary, so do the Loss Factors. This consideration results in two sets of Loss Factors.

The above considerations result in twenty-four Loss Factors as follows:

Connection Category	Season	Time of Day	Zone A		Zone B	
			Loss factor	Loss Code	Loss factor	Loss Code
General Connections (LV metering)	May to Sep	Day	1.061	} AGL	1.062	} BGL
		Night	1.055		1.060	
	Oct to Apr	Day	1.052		1.075	
		Night	1.047		1.070	
Major Connections (LV metering)	May to Sep	Day	1.040	} AML	1.060	} BML
		Night	1.037		1.058	
	Oct to Apr	Day	1.036		1.071	
		Night	1.033		1.066	
Major Connections (HV metering)	May to Sep	Day	1.027	} AMH	1.047	} BMH
		Night	1.024		1.045	
	Oct to Apr	Day	1.023		1.057	
		Night	1.021		1.053	

### Note

**Zone A** is the area supplied from the following grid exit points ADD0111, ADD0661, APS0111, BRY0111, BRY0661, CLH0111, COL0111, ISL0331, ISL0661, MLN0661, PAP0111, and PAP0661.

**Zone B** is the area supplied from the following grid exit points HOR0661, HOR0331, SPN0331, and SPN0661.

**Day** is from 8 am to 12 midnight; **Night** is from 12 midnight to 8 am.