



# **CONNECTION ASSESSMENT & APPROVAL PROCESS**

## **Connection Assessment Report for *Kimberly-Clark Transformers - Permanent Removal from Service CAA ID 2003-EX125***

Connection Applicant: Kimberly-Clark Inc.

### **Final Report**

Prepared by  
Long Term Forecasts & Assessments Department &  
Consistent Information Set Department

June 13, 2003

Kimberly-Clark Inc. - Permanent Transformer Removal from Service

**Disclaimers**

**IMO**

This report has been prepared solely for the purpose of assessing whether the connection applicant's proposed connection with the IMO-controlled grid would have an adverse impact on the reliability of the integrated power system and whether the IMO should issue a notice of approval or disapproval of the proposed connection under Chapter 4, section 6 of the Market Rules.

Approval of the proposed connection is based on information provided to the IMO by the connection applicant and the transmitter(s) at the time the assessment was carried out. The IMO assumes no responsibility for the accuracy or completeness of such information, including the results of studies carried out by the transmitter(s) at the request of the IMO. Furthermore, the connection approval is subject to further consideration due to changes to this information, or to additional information that may become available after the approval has been granted. Approval of the proposed connection means that there are no significant reliability issues or concerns that would prevent connection of the proposed facility to the IMO-controlled grid. However, connection approval does not ensure that a project will meet all connection requirements. In addition, further issues or concerns may be identified by the transmitter(s) during the detailed design phase that may require changes to equipment characteristics and/or configuration to ensure compliance with physical or equipment limitations, or with the Transmission System Code, before connection can be made.

This report has not been prepared for any other purpose and should not be used or relied upon by any person for another purpose. This report has been prepared solely for use by the connection applicant and the IMO in accordance with Chapter 4, section 6 of the Market Rules. The IMO assumes no responsibility to any third party for any use, which it makes of this report. Any liability which the IMO may have to the connection applicant in respect of this report is governed by Chapter 1, section 13 of the Market Rules. In the event that the IMO provides a draft of this report to the connection applicant, you must be aware that the IMO may revise drafts of this report at any time in its sole discretion without notice to you. Although the IMO will use its best efforts to advise you of any such changes, it is the responsibility of the connection applicant to ensure that it is using the most recent version of this report.

## **1.0 Project Description**

Kimberly-Clark Inc. of Terrace Bay is planning to make modifications to their plant electrical distribution system for the purpose of improving reliability and efficiency.

Presently, the supply to Terrace Bay paper mill is provided of two 115/13.8 kV transformers (T3, T4) rated 30/40/50 MVA and two 115/6.9 kV transformers (T1, T2) rated 11.25/13.3 MVA. Kimberly-Clark Inc. plan to supply the entire mill at 13.8 kV, by installing a new 13.8 kV bus and connecting it to the existing 13.8 kV buses to provide a ring bus arrangement. The two 115/6.9 kV transformers T1 and T2 are to be removed from service.

As a result of these modification the Connection Applicant expects increased plant efficiency and a reduction in the nominal peak load from 44 MW to about 42 MW.

The scheduled in service date for this project is May 2003.

## **2.0 Connection Assessment**

### **2.1 Underfrequency Load Shedding Requirements**

The *Market Rules* (Chapter 5 section 10.4) require that each distributor and connected wholesale customer, in conjunction with the relevant transmitter, make arrangements to enable the automatic disconnection of up to 35% of its peak demand for conditions of system under-frequency.

The information provided for Terrace Bay facility registration indicates the presence of an underfrequency relay which operates when the system frequency drops below 57.5 Hz. The single line diagram 3401-01-6001 of the proposed modifications indicates that this relay is to be retained. This meets IMO's requirements.

### **2.2 Voltage Reduction Facilities Requirements**

The *Market Rules* do not require that connected wholesale customers be capable to regulate voltage under load or install and maintain facilities to provide *voltage reduction capability*.

### **2.3 On-line Monitoring**

The *Market Rules* (Chapter 4 section 7.5) require that each connected wholesale customer shall provide the IMO on a continual basis with on-line monitored quantities as specified in Appendix 4.16.

The existing on-line monitoring facilities at Terrace Bat Mill meet the requirements of the IMO and are to be retained after the removal of the two transformers.

### **2.4 Power Factor**

The *Market Rules* require that wholesale customers and distributors connected to the IMO-controlled grid shall operate at a power factor within the range 90% lagging to 90% leading as measured at the *defined meter point*.

Should the load at Terrace Bay Mill fail to meet the power factor requirements of the *Market Rules*, the Connection Applicant will be required to install sufficient reactive power compensation to bring the reactive power consumption within the acceptable limits.

## **2.5 Revenue Metering**

The Connection Applicant indicated that the present revenue meters are installed on the secondary side of the power transformers and that with the removal of the T1 and T2 the metering installation for the 6.9 kV system will also be removed.

The Connection Applicant has to ensure that their Meter Service Provider will officially inform the IMO of the retirement of the revenue meters. The process of meter de-registration is described in Market Manual 3 which can be found on the IMO web site at [www.theimo.com](http://www.theimo.com) under Market Entry.

## **2.6 Effect on System Reliability**

A cursory analysis shows that the proposed removal of the two 115/6.9 kV transformers T1 and T2 Terrace Bay Mill could be considered to be non-impactive, hence will not have an adverse effect on the IMO- controlled grid.

The modifications will improve the reliability and efficiency of the Terrace Bay Mill and reduce their peak power consumption by about 2 MW.

## **3. Conclusions and Requirements**

This assessment concluded that the proposed removal of the two 115/6.9 kV transformers at Terrace Bay Mill has no effect on the reliability of the IMO-controlled grid, but represents improved efficiency and reliability for the paper mill.

Kimberly-Clark Inc. is required to:

- follow the facility registration process and provide complete information on the modified plant facilities,
- retain the underfrequency load shedding facilities at the plant,
- ensure that their Meter Service Provider will officially inform the IMO of the retirement of the revenue meters.
- retain the existing on-line monitoring facilities at Terrace Bay after the removal of the two transformers.

## **4. Notification of Approval**

It is thus recommended that notification of approval be granted, subject to the implementation of the requirements listed in section 3.0, for the removal from service of the 115/6.9 kV transformers T1 and T2 at Terrace Bay Mill.