

Information guide

Burdening of Transformers v1.0

This information guide outlines the outcome from the rules review regarding the burdening of transformers issue, completed by the Code of Practice (COP) D5 Review Panel and approved by the Retail Market Advisory Group (RMAG).

The general approach set out in this information guide in no way reduces the requirement upon participants to know and comply with their obligations under the Electricity Governance Rules 2003 (Rules). Neither should it be interpreted as reflecting the Commission's view on the Rules.

Abbreviations used in this guide sheet

COP	Code of Practice
CTs	Current Transformers
Commission	Electricity Commission
RMAG	Retail Market Advisory Group
Rules	Electricity Governance Rules 2003
VTs	Voltage Transformers
MA	Market Administrator

Background

1. The burdening of transformers issue originally arose at a test house conference, where participants saw a need for a rule to compulsorily burden voltage transformers (VTs).
2. The current Rules require all measuring transformers to meet particular standards. In particular table 2 of part D, schedule D1, COP 3, Appendix 1 states that:

Table 2: Measuring transformers

*Measuring transformers will be designed and manufactured generally to the following standards and will be tested to the relevant part of those Standards. The **approved test house** will inspect manufacturer's test certificates and carry out whatever additional tests it considers necessary to satisfy itself that the measuring transformers and **metering installation** meet the accuracy requirements of the rules.*

Recommended approach

3. The COP D5 Review Panel's recommended action is that where a test house determines that a transformer is operating outside its design parameters, and has an error of sufficient magnitude that correction is required, the choices are:
 - Application of a suitable burden to ensure that the transformer is operating within its linear transfer curve, as determined by the standards to which it was constructed, or to a standard that would generally be considered to apply to that transformer at the time of its initial installation or manufacture; or
 - Application of a correction factor to the metering information or raw meter data that will effect a correction to the error, where application of a burden resistor is not deemed appropriate by the test house.
4. Where the error is corrected by the application of an error correction factor, and the reason for the error correction is to compensate for the transformer operation outside the linear transfer portion of its operating curve (under burdened), the certifying test house has two methods of compliance. These are:
 - Under rule 4.3, part D, schedule D1, COP D3 (departure from requirements), the reason must be given when the certification is applied, and the COP D5 Review Panel can monitor the activities and the overall compliance trends associated with these activities; or
 - Under COP D5 (variation of requirements), this variation can also be accommodated. In this case the COP D5 Review Panel will also be in a position to monitor the long-term compliance issues of this activity.

Issues for further consideration

5. A significant concern of the COP D5 Review Panel is the longevity of any error correction factor that is implemented by way of a data correction multiplier when these installations switch retailer (and data administrator) on a regular basis, and where meters are replaced.
6. Presently the issue is not discoverable, and the extent of the application of data correction factors is not easily determinable. The clarification of the intent and application of the rules as outlined above will ensure that this issue is transparent in the future, and any rule change that may eventually be required can be implemented with the clarity of current practices.

Summary

7. In applying the existing rules there is no immediate rule change required to ensure that the issue of VT burdening is managed in a way that ensures ongoing integrity of the accuracy of the metering installation.
8. The existing rules refer to all measuring transformers. All measuring transformers would include both current and voltage transformers. As current transformers (CTs) form an integral part of the overall metering installation the inclusion of CTs in this rule clarification will also be of benefit as their accuracy can be affected by under-burdening.

Additional information

9. If you require any additional information on the burdening of transformers rule review, please contact the MA:

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