

Legacy Instrument Transformer Accuracy Principle for Applying Default MEC's

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- ❑ Market Rule Chapter 6, Section 4.1.1.3 states
Subject to sections 4.1.2 and 4.4, each *metering installation* shall have *instrument transformers* whose current transformers and voltage transformers meet or exceed the 0.3% accuracy class of ANSI standard C57.13
- ❑ Appendix 6.2, Section 1.7.1 states
Subject to section 1.7.1A, each *metering installation* for which registration is being sought pursuant to section 4.4.1 that does not comply with the 0.3% accuracy requirements of ANSI Standard C57.13, C57.13, as evidenced by factory test cards complete with serial numbers, for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IMO* pursuant to this Chapter shall meet the following conditions:
- ❑ Appendix 6.2, Section 1.7.1.2b states
The *instrument transformer* shall be tested on-site for accuracy in the manner described in, and meet the accuracy test point requirements of this Chapter and of any policy or standard established by the *IMO* pursuant to this Chapter with correction factors approved by the *IMO* in in the manner described in this Chapter and in any policy or standard established by the *IMO* pursuant to this Chapter
- ❑ Market Manual 3 Part 3.4 Section 1.2 states
Measurement Error Correction (MEC) is required for IT's that do not meet the 0.3 ANSI Accuracy Class of IEEE C57.13 Standard Requirements for Instrument Transformers
 - ✓ A Measurement Error Correction will not be applied to VT's and CT's with accuracies that do not meet or exceed the 0.3 ANSI accuracy class until May 1, 2006
 - ✓ After May 1, 2006 a Measurement Error Correction equal to the ANSI accuracy class will be applied for each individual set of VT's and CT's.

- ❑ Measurement Error Correction (MEC) is applied when accuracy of the meter installation is compromised
- ❑ MEC is applied when
 - error introduced by secondary cabling (0.02%)
 - error introduced by IT separation (0.02%)
 - error introduced by leakage current (0.02%)
 - error introduced by primary connection (0.02%)
 - error due to non-Blondel (0.2%)
 - error due to IT's that do not meet the 0.3% ANSI accuracy

- ❑ ANSI Accuracy Class for Metering Instrument Transformers (VT's) are 0.3 and 0.6.
- ❑ ANSI Accuracy Class for Metering Instrument Transformers (CT's) are 0.3, 0.6 or 1.2.

- ❑ How is MEC determined when:
 - IT accuracy is unknown
 - Use of non Metering IT's
 - ✓ Under MC Temporary Permission
 - ✓ Protection CT's (2.5L100)
 - ✓ Distribution transformers for VT's

- ❑ If IT accuracy is known and supported by Test Card – use Transformer Correction Factor (TCF) in MEC calculation if outside 1.003-0.997

- ❑ If IT accuracy is known (nameplate) but unsupported by Test Card – assume TCF of accuracy class in MEC calculation (1.006-0.994 for 0.6% and 1.012-0.988 for 1.2%)

- ❑ If IT accuracy is not metering class (protection CT's) or unknown – assume worst case accuracy class of device (1.012-0.988 for 1.2%)

- 0.3 VT's and 0.6 CT's (TCF=1.0045)
 - $MEC = 1.000 * 1.0045 = 1.0045$
- 0.6 VT's and 0.6 CT's (TCF=1.0045)
 - $MEC = 1.006 * 1.0045 = 1.0105$
- 0.6 VT's and 0.6 CT's
 - $MEC = 1.006 * 1.006 = 1.012$
- VT's unknown and CT's 1.2B2.0
 - $MEC = 1.012 * 1.012 = 1.0241$

Leave as is, assume worst case assumption (if no evidence) and correct to 0

- or -

Market Rule change to exempt all legacy ITs from accuracy MEC (HydroOne Proposal)

1. Leave as is, assume worst case assumption (if no evidence) and correct to 0.3.
2. Leave as is, assume 0.6 as worst case assumption (if no evidence) and correct to 0.3.
3. Leave as is, assume 0.6 as worst case assumption (permit evidence of type accuracy) and correct to 0.3.

Are there any other suggestions?

- ❑ Serious implications to the Market
 - Do not want to impose penalties to MMP's who comply
 - ✓ MMP's have made decisions based on Market Rules
 - Need to hold the Market harmless
 - ✓ Misallocation of error
 - ✓ What assurance do we have that IT's will get changed
 - ✓ What if IT's operate outside rated burden
 - ✓ What about continued use of MC approved 0.6 class IT's
 - ✓ What if Temporary Permission is extended
 - MEC is not an IESO Potential Revenue stream
- ❑ Decision will need to go to Technical Panel

Which option is best?

1. Leave as is, assume worst case assumption (if no evidence) and correct to 0 (IESO Proposal)
2. Leave as is, assume worst case assumption (if no evidence) and correct to 0.3.
3. Leave as is, assume 0.6 as worst case assumption and correct to 0.3.
4. Leave as is, assume 0.6 as worst case assumption (permit evidence of type accuracy) and correct to 0.3.
5. Market Rule change to exempt all legacy ITs from accuracy MEC (HydroOne Proposal)