

# Operating Procedures

ISO New England Operating Procedure No. 18

*Metering and Telemetering Criteria – Appendix C –  
Minimum Accuracy Standards for New and  
Upgraded Metering, Recording and Telemetering  
Installations and for Calibration of Existing  
Equipment*

Effective Date: September 17, 2010  
Revision No. 6

**APPENDIX C - MINIMUM ACCURACY STANDARDS FOR  
NEW AND UPGRADED METERING, RECORDING AND TELEMETERING  
INSTALLATIONS AND FOR CALIBRATION OF EXISTING EQUIPMENT**

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**APPENDIX C - MINIMUM ACCURACY STANDARDS <sup>(1)</sup>  
FOR NEW AND UPGRADED METERING, RECORDING AND TELEMETERING INSTALLATIONS  
AND FOR CALIBRATION OF EXISTING EQUIPMENT  
(All figures are ± and are in percent of full scale except as noted.)**

ITEM	ENERGY BILLING AND PEAK LOAD DETERMINATION		ENERGY BILLING		AUTOMATIC GENERATION CONTROL					SECURITY ANALYSIS						
	On-site Meters and Recorders	Computer Retrieved By Coded Messages	Tele-metered and Recorded	Tele-metered and Computer Integrated	Ties		Generation		Ties & Gen	Watts/VARs			Voltage			
					Digital Tele.	Analog Tele.	Digital Tele.	Analog Tele.	SCADA	Digital Tele.	Analog Tele.	SCADA	Digital Tele.	Analog Tele.	SCADA	
Current Transformers <sup>(2)</sup>	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.60	.60	.60	--	--	--
Voltage Transformers <sup>(2)</sup>	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	0.3	0.3	0.3	0.3	0.3	0.3
kWH Meter <sup>(3)</sup>	.50	.50	.50	--	--	--	--	--	--	--	--	--	--	--	--	--
Data Recorder	.25		.25	--	--	--	--	--	--	--	--	--	--	--	--	--
Transducer	--	--	--	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
Digital Protective Relay	---	--	--	--	--	--	--	--	--	--	0.50	0.50	0.50	0.50	0.50	0.50
Transmitters	--	--	--	.15	.05	.15	.05	.15	--	--	.05	.15	--	.05	.15	--
Receiver	--	--	--	.15	.05	.15	.05	.15	--	--	.05	.15	--	.05	.15	--
CPU Interface	--	.20	--	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
RTDR & RTEG Metering systems <sup>(4)</sup>	2.0	2.0	2.0	2.0	--	--	--	--	--	--	--	--	--	--	--	--
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**Note <sup>(1)</sup>** – The accuracy must be per the equipment manufacturer’s published specification. These accuracy standards do not include the effect of equipment outages.

**Note <sup>(2)</sup>** - Instrument transformer data refers to Accuracy Classes.

**Note <sup>(3)</sup>** - kWH meter accuracy's are ±0.5% registration.

**Note <sup>(4)</sup>** – Real-Time Demand Response Resource and Emergency Generation overall metering accuracy required if energy billing quality equipment is not used.

**OP 18 APPENDIX C REVISION HISTORY**

**Document History** (This Document History documents action taken on the equivalent NEPOOL Procedure prior to the RTO Operations Date as well revisions made to the ISO New England Procedure subsequent to the RTO Operations Date.)

Rev. No.	Date	Reason
Rev 0	04/13/99	
Rev 1	10/21/99	
Rev 2	06/21/2002	
Rev 3	10/01/04	
Rev 4	02/01/05	Updated to conform to RTO terminology
Rev 5	06/01/10	Reformatted, added disclaimer statement to 1 <sup>st</sup> page footer, added "Uncontrolled" to all page footers; made a table for data, changed font to Arial; Changed Vars to VARs and KWH to kWh; Added RTDR and RTEG metering requirement and Note <sup>(5)</sup>
Rev 6	09/17/10	Addition of Digital Protective relay accuracy standard, changes to VT's; removal of note 4 relating to grandfathered stations with transducers.; Biennial review by procedure owner.