

Metering Dispensation – D/369

Meeting Name Imbalance Settlement Group (ISG)

Meeting Date 25 October 2011

Purpose of paper For Decision

Summary

This paper presents a Metering Dispensation application from npower Limited against Code of Practice 2 (CoP2) for the Metering Equipment associated with Trumfleet Power Station. Following a customer request for an upgrade in their agreed capacity, which will take the circuit capacity above the CoP3 threshold (10MVA) into CoP2, the applicant is seeking a Metering Dispensation against CoP2, on cost grounds (estimated at £80,000), to use the existing current and voltage transformers and potentially exceed CoP2 overall accuracy limits (i.e. exceed +/- 1%). The ISG is invited to conditionally approve the Metering Dispensation application on a temporary basis for one year.

1. BSC Requirements

- 1.1 Section L3.2 of the Balancing and Settlement Code (BSC) requires that all Metering Equipment comply **with the requirements set out in the relevant Code of Practice (CoP) at the time of the Metering System's** first registration for Settlement or be the subject of, and comply with, a Metering Dispensation.
- 1.2 Section L3.4 allows a Registrant of a Metering System to apply for a Metering Dispensation if, for financial or practical reasons, Metering Equipment will not or does not comply with some or all the requirements of a Code of Practice.
- 1.3 The process for applying for a Metering Dispensation is set out in BSCP32¹.

2. Application

- 2.1 In September 2011 we received a Metering Dispensation application from npower Limited against Code of Practice 2 (CoP2) for the Metering Equipment associated with Trumfleet Power Station. Trumfleet is a distribution connected Power Station whose Import and Export Metering Systems are registered in SMRS.
- 2.2 The customer at the site has requested an upgrade in their agreed capacity to 20MW. The existing switchgear is rated at 23MVA however the metering current transformers (CTs) and voltage transformers (VTs) comply with CoP3. This omission was identified during the circuit capacity upgrade. In order to upgrade the Metering Equipment to fully comply with CoP2 the applicant estimates that it will cost approximately £80,000.

¹ 'Metering Dispensations'

- 2.3 The applicant is therefore seeking a Metering Dispensation to use the existing CTs and VTs and potentially exceed the overall accuracy limits of CoP2. CoP2 compliant Meters have been installed (with accuracy certificates) but unfortunately the measurement transformer accuracy certificates are not available to assist in calculating the overall accuracy of the Metering System, so their class accuracy limits have been used. The estimated overall accuracy of the Metering System lies between +1.52% and -1.48% which is outside CoP2 overall accuracy limits (+/- 1.0%).

3. MDRG and LDSO Comments

- 3.1 The Metering Dispensation application was circulated to the Metering Dispensation Review Group (MDRG) and the affected Licensed Distribution System Operator (LDSO) for comment.
- 3.2 We received comments from two MDRG members. One supported the application but recommended that the CTs were accuracy tested during commissioning so that the only unknown accuracy would be the voltage transformers. The other MDRG member sought further detail (based on what was evident on the originally submitted site diagram) about what changes on site were responsible for the increased capacity request. The MDRG member also questioned the scale of the costs associated with upgrading the CTs and VTs. We sought an up-to-date diagram (Attachment B) from the customer and the customer confirmed that the cost estimates are high because the site has free standing voltage transformers connected to 66kV busbars and the current transformers are in the circuit breakers that would need to be dismantled, shutting the site down fully for ten days. On receiving this information the MDRG member recommended a temporary Metering Dispensation (e.g. for two years) to allow the CTs to be replaced at a future site shutdown.
- 3.3 We contacted the customer at the site and they confirmed that the site is on Short Term Operating Reserve (STOR²) and that they have no plans for a future site shutdown as site maintenance is carried out when they are not on standby. The applicant has also confirmed that the Metering System has now been commissioned however, the tests were conducted on the measurement transformer secondary windings and no accuracy, polarity or ratio tests were conducted on the CTs and VTs.
- 3.4 The affected LDSO had no adverse comment to make on the application or on whether or not the customer should be allowed the Metering Dispensation.

4. ELEXON View

- 4.1 We support the Metering Dispensation application but on a temporary, 1 year basis. We believe the materiality should be low³ but recommend that full CoP4 commissioning is carried out to confirm the CT

² STOR is a service for the provision of additional active power from generation and/or demand reduction. According to National Grid's website STOR has been introduced as a replacement for Standing Reserve.

³ Typically the accuracies of wire wound CTs and VTs don't change significantly over time and the actual accuracies are likely to be within the class accuracy limits otherwise they wouldn't have been labelled as conforming to that class accuracy by the manufacturer. Also, the site operates on a standby basis and only generates when called upon by National Grid. Based on generation output in the last year we estimate a future potential materiality of approximately +/-0.5% of £337,920 = +/- £1,689.60, if the overall accuracy is as stated in the application and generation doubles.

and VT ratios and polarities, as a minimum. We suggest these tests because ratio or polarity errors can contribute large errors to the overall accuracy of a Metering System⁴. If the tests confirm ratio and polarity are as expected then the applicant can seek a lifetime Metering Dispensation before D/369 expires.

5. Recommendations

5.1 We invite you to:

- a) **NOTE** the responses from the MDRG members and the LDSO;
- b) **NOTE** ELEXON's recommendation to support the application; and
- c) **APPROVE** Metering Dispensation D/369 on a temporary, 1 year basis.

Attachments:

Attachment A – D/369 Metering Dispensation application

Attachment B – D/369 Single Line Diagram (Overall Layout)

For more information, please contact:

Mike Smith, Metering Analyst

mike.smith@elexon.co.uk

020 7380 4033

⁴ The customer has provided further data from the CoP3 (non-Settlement) generation meters, that feed National Grid's systems, as supporting evidence of the accuracy of the Settlement Meters. The customer's data shows a 5.4% difference between the Settlement Meter and the sum of the generation meters but, according to the customer, the difference includes line (2.5km) and power transformer (66/11kV) losses and auxiliary loads (100kW) at the site.

BSCP32/4.1 Application for a Metering Dispensation

Part A – Applicant Details

To: BSCCo	Date Sent: 23/09/2011
From: Requesting Applicant Details	
Name of Sender: John Stewart	
Contact email address: john.stewart@npower.com	
Contact Tel. No. 0121 336 5265	Contact Fax. No. N/a
Name of Applicant Company: npower Limited	
Address: Windmill Hill Business Park	
Whitehill Way	
Swindon	
Wilts _____	
Post Code: SN5 6PB	Our Ref: _____
Name of Authorised Signatory: John Stewart	
Authorised Signature: _____	Password: _____

Request for Confidentiality **YES/NO***

**Delete as applicable*

BSCP32/4.1 Application for a Metering Dispensation (Cont.)

Part B - Affected Party DetailsNumber of Affected parties 2¹

Contact Name at Affected party: Gavin Baxter	
Contact email address: gavin.baxter@ce-electricuk.com	
Contact Tel. No. 01977 605904	Contact Tel. No.
Company Name of Affected party: CE Electric	
Address: 98 Aketon Road	
Castleford	
West Yorkshire	
Post Code: WF10 5DS	

Contact Name at Affected party: Matt Day	
Contact email address: Matt.Day@npower.com	
Contact Tel. No. 0113 232 5916	Contact Tel. No. 07557 758 379
Company Name of Affected party: Npower Meter Operations	
Address: npower, Limewood Approach, Leeds	
Post Code: LS14 1NG	

¹ For more than one Affected party, Part B should be completed for each, using additional copies of Part B as required.

BSCP32/4.1 Application for a Metering Dispensation (Cont.)

Part C – Reason for Application

If the application is an extension or update for an existing Metering Dispensation, enter existing ref: D/.....

Site Specific / ~~Generic~~* **Delete as applicable.*

Reason:

Trumfleet Power Station has recently applied for an upgrade in their agreed capacity to cater for a maximum demand of around 20MW. No work was necessary at site as the existing switchgear was already capable of catering for this level of load (rated capacity of 23MVA).

It has however become apparent that the switchgear installed at site is of a class, which is compliant with CoP3 rather than CoP2 (CTs CI 0.5 & VTs CI 1) In order for CoP2 compliance to be achieved, significant expenditure of approximately £80,000 would be necessary.

The units are – 3 x 38100/63.5v 100va CI 1 VTs and 200/5 10va CI 0.5s. The CTs are the incorrect accuracy class and Npower Ltd are requesting a dispensation based on the operating dynamics of the site and to assist our customer in managing the issues and costs associated with changing the units.

Accuracy

Unfortunately the transformer certificates for this particular site are not available and so overall accuracy has had to be based on the class of the transformers.

Npower meter operator have installed CoP2 compliant metering with an accuracy shown on the meter test errors (attached) of - 0.02 at 120% In Upf and -0.38 at 1% In Upf.

Based on the maximum error for the transformers and the proven error for the meter the overall accuracy at 100% load and UPF is shown below,

± 0.5 (CTs) + ± 1 (VTs) + -0.02 (Meter) = between 1.52% and -1.48%

Site Details (for Site Specific Metering Dispensation)

Site Name:	Trumfleet Power Station
Site Address:	Marsh Road Thorpe in Balne Doncaster South Yorkshire DN6 0DX
MSID(s):	Walters Power Export 2300000443825 Walters Power Import 2300000443816
Registered in: CMRS / SMRS*: *Delete as applicable.	
For SMRS, please advise of SMRA in space provided.	YELG(YEDL)

Manufacturer Details (for Generic Metering Dispensation)

Manufacturer Name:	N/A
Metering Equipment Details:	N/A

BSCP32/4.1 Application for a Metering Dispensation (Cont.)

Part D - Technical Details

Code of Practice details

Metering Dispensation against Code of Practice*	2
Issue of Code of Practice*:	4
Capacity of Metering Circuits/Site Maximum Demand (MW/MVA):	20 MW max demand with 23 MVA rated capacity
(Proposed) Commissioning Date of Metering:	The site does not take sufficient load to commission on a regular basis due to being a reserve plant. Load is being monitored and a full commission will be carried out at the earliest opportunity.
Accuracy at Defined Metering Point:	Between -1.48% and +1.52%
Accuracy of Proposed Solution (including loss adjustments):	Between -1.48% and +1.52% at 120-100% load and UPF
Outstanding non-compliances on Metering Systems:	None _____ _____
Deviations from the Code of Practice (reference to appropriate clause):	CTs and VTs are of CoP3 accuracy. Overall accuracy is outside the permissible limits of CoP2

* insert Code of Practice number and issue

Any Other Technical Information

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Materiality

(1) If installed in accordance with the relevant CoP	(2) Proposed Solution
£ 80k	£ 0

Declaration

We declare that other than as set out above we are in all other respects, in compliance with the requirements of the relevant Code of Practice and the BSC. A schematic is attached to this application for clarification of the metering points involved.

Signature: Date: 23 September 2011

Password:

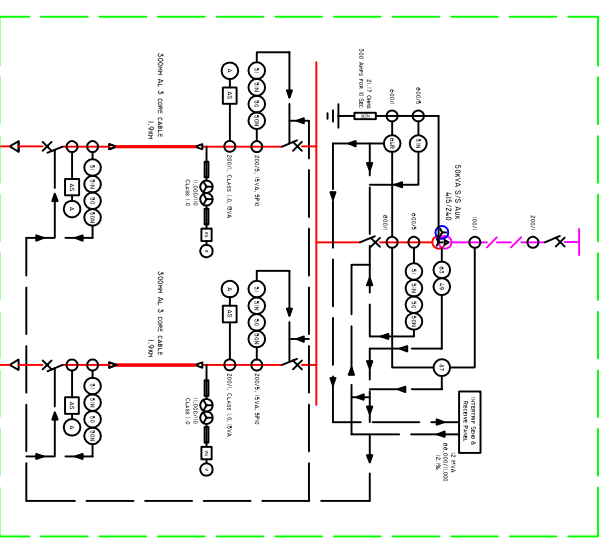
Duly authorised for and on behalf of Applicant Company

Confirmation of Receipt and Reference

The BSCCo acknowledges receipt of this document and has assigned the reference number as indicated on the first page.

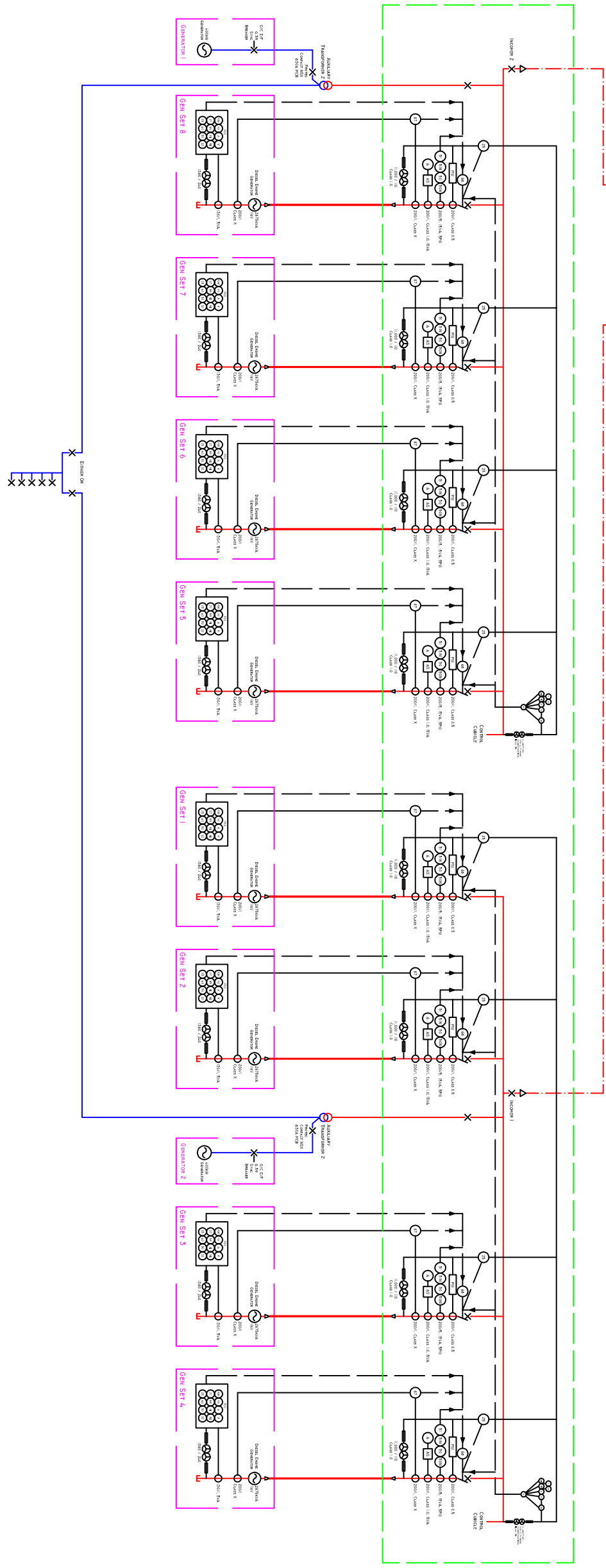
Signature: Date:

Duly authorised for and on behalf of the BSCCo



Switch Protection Relay Model	CT Ratio & Class	Over Current Settings	O/C Time Settings	Primary Current	Earth Fault Current	E/F Time Settings	E/F Primary Current	Instantaneous Over Current Settings	Instantaneous Earth Fault Settings	Curve Selection
Incomer No.1 MCG6	200/5 Class	2.4	0.15	480A	0.2	0.15	48A	Disabled	Disabled	SI
Incomer No.2 MCG6	100/5 Class	1.4	0.5	140A	0.5	0.5	50A	Disabled	Disabled	SI
Aux TX No.1 MCG6	300/5 Class	0.45	0.25	15A	0.25	0.25	75A	Disabled	Disabled	SI
Aux TX No.2 MCG6	75/5 Class X	2.4	0.5	180A	1	0.5	75	Disabled	Disabled	SI
Gen Set No.1 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.2 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.3 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.4 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.5 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.6 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.7 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI
Gen Set No.8 MCG6	200/5 Class	1	0.05	200A	0.1	0.1	20A	20 (4000A)	2 (400A)	SI

Switch Protection Relay Model	CT Ratio & Class	Over Current Settings	O/C Time Settings	Primary Current	Earth Fault Current	E/F Time Settings	E/F Primary Current	Instantaneous Over Current Settings	Instantaneous Earth Fault Settings	Curve Selection
Out-ger No.1 MCG6	100/5 Class	0.8	0.2	80A	0.05	0.175	5A	Disabled	Disabled	SI
Out-ger No.2 MCG6	100/5 Class	0.8	0.2	80A	0.05	0.175	5A	Disabled	Disabled	SI
66/11 TX Incomer No.1 MCG6	?	0.9	0.25	?	0.1	0.2	?	Disabled	Disabled	SI



- 25 SYNCHRONOUS BREAKER
- 27 SYNCHRONISM OR SYNC CHECK RELAY
- 27 UNDERVOLTAGE RELAY
- 32 DIRECTIONAL POWER RELAY
- 40 FIELD FAILURE RELAY
- 46 PHASE BALANCE RELAY
- 49 TEMPERATURE ALARM AND TRIP
- 50 INSTANTANEOUS OVERCURRENT RELAY
- 51 AC TIME OVERCURRENT RELAY
- 59 OVERVOLTAGE RELAY
- 64 EARTH FAULT RELAY
- 81 FREQUENCY RELAY
- 87 DIFFERENTIAL PROTECTION RELAY
- 51N AC TIME OVERCURRENT EARTH FAULT RELAY
- 51V VOLTAGE CONTROLLED AC TIME OVERCURRENT RELAY
- 64R RESTRICTED EARTH FAULT RELAY
- 59N NEUTRAL VOLTAGE REPLACEMENT
- 86 LOCKOUT RELAY
- 63 BUCHHOLTZ RELAY
- 94 INTERTRIP RELAY
- 74 TRIP CIRCUIT SUPERVISION
- MU METERING UNIT PLUS CTS AND VTS MUST COMPLY WITH BALANCING AND SETTLEMENT CODE OF PRACTICE 3

ISSUE	DRAWN	DATE	NOTES
02	N/E	21/09/11	DETAIL ADDED
01	N/E	15/09/11	FIRST ISSUE

DRAWING DESCRIPTION: SINGLE LINE DIAGRAM (1 OF 4)

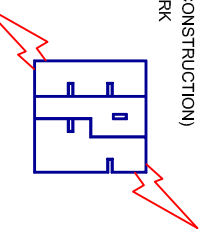
PURPOSE: PRELIMINARY

DRAWING NUMBER: EPS/1023/1/001a

PROJECT: TRUMFLEET GENERATION

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OVERALL LAYOUT