

## **Operational Metering For Generation**

### **1 Issue Overview**

P220 proposes to give access to customers to see generation by fuel type based upon the data operationally metered by National Grid. This data will be made available close to real time without validation or flagging of the operationally metered data values for any quality issues. Users of the data will need to make their own judgement on how they use the data, based on their own view of it's appropriateness for their purposes. This note provides some background information from analysis undertaken by National Grid into the reliability of Generation Operational metering. This note does not provide a substitute for users of data forming their own opinions as to the typical reliability of data and their ability to make use of it.

We have looked at various issues and sources of information covering: -

- Meter faults that required a job to be raised related to the metering or communications by National Grid (i.e. England and Wales (E&W));
- Identified meter data issues, including transient meter issues managed by National Grid across the GB system;
- The method by which manual correction for data not being received is derived and how accurate this is relative to settlements metering;
- A short scenario review of the likelihood of a plant trip occurring at a generator with manually corrected metering.

### **2 Summary Findings**

Summary views from the limited samples we have looked at are as follows: -

- The generation operational metering has a low fault rate, with around a 1 in 1000 chance of a metering issue for a particular meter on any day;
- Most meter issues corrected are small in size ( $\leq 25\text{MW}$ 's) and predominantly related to small non-thermal generation;
- Manual corrections of data in error take place quite quickly (within minutes) and where they take place they closely correspond to settlements metering;
- There is a small chance (1 in 100,000) that a unit trips whilst the metering is being manually corrected and there is also a small chance that a meter fails to zero.

### **3 Explanation of Issues Analysed**

- **E&W Meter faults requiring an investigation job to be raised** by our control room because the operational metering is faulty – We looked at the jobs raised related to all Operational metering faults, including offtake and

generation meters between 1 May and 31 August 2007 (inclusive) and found only one fault job related to Generation Operational Metering. This fault was fixed in under 7 calendar days and during this time manually correct data was calculated.

- **Some meter data issues exist but are related mostly to “small” (<25MW output) Scottish generation.** We reviewed the manual overrides applied to generation operational metering across the GB in the period 1<sup>st</sup> October 2007 until 8<sup>th</sup> December 2007 and have found 20 such instances. Only one of these instances related to thermal (gas) generation in E&W and another E&W override was on a pumped storage power station. Both E&W corrections lasted for 30 mins or less. The 18 other manual overrides were all on generation in Scotland, of which 2 instances were on “large” thermal generation BMU’s (defined here as Cock, Fife, Loan & Pehe). Again these were short term issues of 2hrs or less. The remaining 16 instances were on a number of mainly hydro generation stations in Scotland. 9 of these 15 instances lasted several days with manual corrections being made.
- **Manual Data correction takes place quickly and is inline with settlement metered values.** Our dispatch application from which data will be provided for P220 requires accurate operational metered output to schedule generation to meet demand. This means our real time balancing team are monitoring the generation operational metering and are alerted to meter errors within a few minutes and manually correct any issue found in operational metering. Manual correction of data is done by contacting the station to ascertain their actual output and/or checking the stations PN’s/BOA’d position. During the period of 1<sup>st</sup> October 2007 to 8<sup>th</sup> December 2007 we have compared the manual override MW’s set by National Grid with the metered settlements values and the maximum error found was 14MW’s (override at 256MW c.f. settlements at 270MW whilst a unit was ramping).
- **Generation trips will be shown by the data except where there is a manual override in place at the time of any trip.** Also if a meter fails to zero, then this may initially appear as a unit trip, but the following considerations exist: -
  - Meter faults are rare – out of 227 operationally metered generation BMU’s on 69 days, an issue occurred requiring a manual override on 20 days which is 0.1% (i.e.  $20/(227*69)$ ) of operationally metered equivalent days. Further it should be noted these overrides were generally small (12 of 20 are  $\leq 25$ MW).
  - Only a very small percentage of meters are being corrected at any one time and it is a low probability event that a trip occurs at a station which has a manual correction applied. This is because two statistically rare independent events need to be co-incident for this to happen (risk of trip (e.g. 1 in 100) multiplied by risk of meter being manually corrected (around 1 in 1000)).
  - Data is sampled every 5 minutes under the P220 solution by which point any meter fault has a potential of being corrected by manual overrides, which have been found to be comparable with settlement metering.