Overview of BM Units

Introduction

This document provides a high level explanation of the treatment of BM Units[1] under the Balancing and Settlement Code (BSC). Further information can be obtained from Section K – Classification and Registration of Metering Systems and BM Units – of the BSC. The BSC and a Summary of it can be downloaded from the BSC (ELEXON) website – **www.elexon.co.uk.**

Accounting for Exports and Imports

The BSC is concerned with all energy that flows on or off the Transmission System and any Distribution System that is connected (either directly or indirectly) to the Transmission System, which together are known as the Total System. Each point where energy can flow on – known as an Export – or flow off – known as an Import – the Total System, from or to Plant and/or Apparatus connected to it, is called a Boundary Point. For each Export and Import, Section K of the BSC identifies a Trading Party that is responsible for the flow, and all Exports and Imports at Boundary Points or collections of Boundary Points are then accounted for in BM Units, each of which is the responsibility of a single Trading Party, known as the Lead Party of the BM Unit. So that energy flowing on to or off the system is accounted for once, and only once, Plant and/or Apparatus may be comprised in only one BM Unit, except in cases where the Exports are the responsibility of one Trading Party and the Imports the responsibility of another.

The Trading Party responsible for an Export or an Import is responsible for ensuring that there is adequate metering, and for registering the necessary Metering Systems in either the Central Metering Registration System (CMRS) or in one of the Supplier Metering Registration Systems (SMRS) provided by the Licensed Distribution System Operators. The BM Unit Metered Volume will then be calculated in either Central Volume Allocation (CVA), or in Supplier Volume Allocation (SVA). For Metering Systems registered in CMRS, Parties must also submit Aggregation Rules, which are validated by the Central Data Collection Agent (CDCA), that define how the BM Unit Metered Volume is calculated from the various meter readings. In SVA, the form of the calculation is fixed. Owing to the design of the SVA and CVA systems, BM Units cannot comprise both Metering Systems registered in CVA and Metering Systems registered in SVA.

Balancing Mechanism

As well as accounting for all Exports and Imports, BM Units are also the 'units of trade' in the balancing mechanism, i.e. are the collections of Plant and/or Apparatus in respect of which BSC Parties must (unless exempted) declare FPNs[2], may submit Offers and Bids, and in respect of which the Transmission Company may issue Acceptances. To enable the Transmission Company to balance the Total System effectively, a further requirement is that the Exports and/or Imports of each BM Unit are controllable independently from the Exports and/or Imports of any other BM Unit[3], so that each Offer or Bid that is accepted can be delivered without also affecting the Exports and/or Imports of any other BM Unit.

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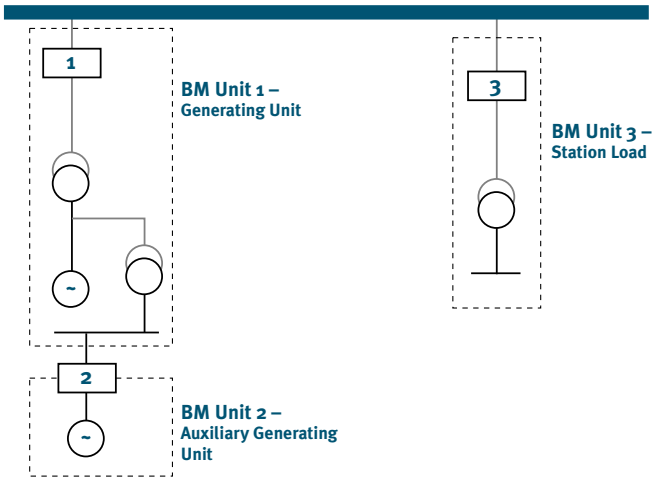
[1] The term 'BM Unit' is derived from 'Balancing Mechanism Unit' although the BSC only ever uses the abbreviated form.
[2] In a similar manner to BM Unit, the term 'FPN' is derived from 'Final Physical Notification', but only ever appears in the BSC in the abbreviated form.
[3] The requirement for independent controllability does not apply in the case of any group of BM Units of Suppliers whose demands are subject to a common teleswitching arrangement, and which have been designated as Joint BM Units. The System Operator may then only issue an acceptance in respect of one Joint BM Unit if it issues an acceptance to all BM Units in the group.

A BM Unit must also be the smallest possible aggregation of Plant and/or Apparatus, consistent with the ability to determine the Exports and/or Imports separately from the Exports and/or Imports of any other BM Unit, given the BSC's requirements for metering, data collection and data aggregation, as defined in Sections L – 'Metering', R – 'Collection and Aggregation of Meter Data from CVA Metering Systems' and S – 'Supplier Volume Allocation' of the BSC.

Consequently, a BM Unit may comprise:

- a generation unit that is independently controllable of any other generation unit, and whose Metering Systems must be registered as CVA Metering Systems if the generating plant is licensed;
- station load[4];
- supplier demand at a site that is directly-connected to the Transmission System;
- demand, both Half Hourly metered and Non Half Hourly metered, in a Grid Supply Point (GSP) Group supplied by a single supplier; or

Example – BM Units in a simplified Power Station



- a power station that is licence-exempt, and consequently which may be registered in SMRS, together with any distribution-connected demand that the Trading Party may wish to include in the same BM Unit.

Note that special rules apply in the case of Interconnectors, where the Imports and Exports at a single Boundary Point may be the responsibility of more than one Trading Party. These rules provide for Interconnector BM Units to be registered by each Interconnector User, with the corresponding BM Unit Metered Volumes being determined by an Interconnector Administrator, and for Interconnector Error BM Units to be registered by Interconnector Error Administrators.

Supplier BM Units

BM Units comprising Metering Systems registered in SMRS are known as 'Supplier BM Units'. Each Supplier must have at least one (and a maximum of three) four character Supplier IDs. Each Supplier ID is registered as having a Supplier BM Unit in each GSP Group, known as a 'Base BM Unit'. This happens irrespective of whether the Supplier has any Metering Systems registered in SMRS in that GSP Group, and hence irrespective of whether it supplies any customers in that GSP Group. However, if the Supplier subsequently registers any Metering System in SMRS in that GSP Group, then the metered Imports or Exports will accrue to the BM Unit Metered Volume of the Base BM Unit.

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4 Note that generator unit load is usually combined in a BM Unit with the associated generating unit on the grounds that it is not controllable independently of the generating unit.

Suppliers may also register further Supplier BM Units in any GSP Group, known as 'Additional BM Units'. The Supplier may specify that the Imports or Exports measured by particular Metering Systems for which it is responsible in that GSP Group be assigned to the BM Unit Metered Volume of the Additional BM Unit rather than the Base BM Unit.

Production/Consumption

Whilst a BM Unit may be Exporting or Importing in any given Settlement Period, each BM Unit is also classed as being either Production or Consumption. In many cases[5], whether a BM Unit is Production or Consumption – known as the 'P/C Status' – is determined by comparing the Generation Capacity (GC) and the Demand Capacity (DC) of the BM Unit. The Generation Capacity is a measure of the capability of a BM Unit to Export energy on to the system, and is the best estimate of the largest positive value – Exports being represented by positive values – of BM Unit Metered Volume (QM) during a given 'BSC Season', as submitted by the Lead Party. Similarly, Demand Capacity is a measure of the capability of the BM Unit to Import energy from the system, and is the best estimate of the largest negative value – Imports being represented by negative values – of BM Unit Metered Volume (QM) during a given BSC Season. For such BM Units, the P/C Status will be Production if GC is larger than DC and Consumption if the DC is larger than GC. Given that GC is always positive and DC always negative, an equivalent test is to compare the sum of GC and DC with zero.

Each Lead Party is obliged to provide these estimates before the start of each BSC Season, but must update them during the BSC Season if its best estimate changes. Thus the P/C Status of a BM Unit, which determines whether the BM Unit Metered Volumes accrue to a Production or Consumption Energy Account, typically will be fixed for a Season. In exceptional cases, however, an update of GC or DC could cause the P/C status to switch.

5 Exceptions are BM Units that are Exempt Export BM Units, which may choose their P/C Status, and BM Units that are in Trading Units with other BM Units, where the P/C Status of all the BM Units in the Trading Unit depends on the characteristics of the Trading Unit as a whole.

ELEXON is the Balancing and Settlement Code Company (BSCCo) defined and created by the Balancing and Settlement Code (BSC). All licenced electricity companies are obliged to sign the BSC, other parties may choose to do so. The BSC places obligations on ELEXON.

The rules and governance for trading in the balancing mechanism and imbalance settlement process are contained within the BSC, and it is these two areas that ELEXON manages in conjunction with the BSC Panel.

ELEXON procures, manages and operates services and systems, which enable the balancing and imbalance settlement of the wholesale electricity market and retail competition in electricity supply.

Wholesale electricity trading arrangements, introduced in England and Wales in 2001 and in Scotland in 2005, are designed to promote greater competition, while maintaining a secure and reliable electricity system. The arrangements are intended to allow electricity to be traded freely, based on established commodity trading practices.

The role of ELEXON, the Balancing and Settlement Code Company, and the BSC arrangements are more fully described in the BSC and on the the BSC (ELEXON) website.

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