

PAPER TO THE GRID CODE REVIEW PANEL

USER CONNECTIONS TO THE GB TRANSMISSION SYSTEM VIA GAS INSULATED SWITCHGEAR (GIS)

Introduction

GIS is increasingly being chosen by National Grid at connection sites which are part of the GB Transmission System (substations). GIS may be used at new connection sites and/or at existing connection sites where the existing assets are being replaced by National Grid. GIS is likely to be chosen in preference to Air Insulated Switchgear (AIS) possibly due to its lower cost to National Grid, reduced land requirement and reduced profile being easier to consent.

Treatment of GIS assets within the Grid Code and CUSC

Whilst GIS assets may be referred to in Users bilateral agreements with National Grid, GIS is not defined within either the CUSC or Grid Code, although it is noted that the GIS technical specification is detailed in Section 17 (page 171) of the RES.

CUSC 2.12.1 (e) (ii) describes the electrical ownership boundary for metal clad SF₆ switchgear as being the gas zone separators on the busbar side of the busbar selection devices. However, for GIS switchgear, this ownership boundary fails to acknowledge that it is not practically possible for a User to make a physical connection to the busbar within the gas zone. This issue may be recognised in the bilateral connection agreements, where the ownership boundary is considered to be “non-standard”.

Issue for Users

In addition to the lack of definition of ownership boundary, the use of GIS at substations that forms a connection site with a User(s) presents particular problems for the User(s) when compared to AIS. The design of GIS is such that the User's assets at the substation need to be integrated within the structure of the substation and would not be readily accessible or detachable from the substation / GB transmission system. Furthermore, the need to share a common gas system and adapt equipment if provided by a different manufacture to that of the substation means that it is not practicable for such User assets to be competitively procured or maintained by the User.

The User is therefore effectively forced to contract for the installation and maintenance of its User assets at a GIS substation with National Grid who is, in effect, the only party able to carry out these User works. This work would be carried out by National Grid as an unlicensed activity and separate from the licensed works carried out under the provisions of the construction agreement. The third party alliance arrangements that National Grid may have entered into with respect to transmission asset works means that it is extremely difficult for the User to form a view whether the price being charged by National Grid is reasonable and competitive.

Recommendation

1. It is acknowledged that the design of GIS substations is such that the User is effectively unable to design, procure, install or maintain the GIS User assets independently of the GIS substation manufacturer / provider. It would appear to be both inefficient and of little technical benefit for the User continuing to retain ownership of such assets, which would be more efficiently managed within a single ownership boundary. It is therefore proposed that the transmission ownership boundary be defined to include all connected GIS assets at a GIS substation up to an external connection to the User's assets, such as a cable sealing end, as licensed assets.

2. Given the increasing use of GIS substations, it is unreasonable for the User ownership boundary at such substations to continue to be considered as being "non-standard". It is proposed that the ownership boundary (as amended) be defined in the Grid Code Connection Conditions.

The Grid Code Review Panel is invited to: -

- 1) Consider the issues relating to GIS raised in this paper.

- 2) Endorse from a technical perspective the recommendation given in this paper and the need to define the GIS ownership boundary within the Grid Code Connection Conditions.

- 3) Recommend to the CUSC Panel any changes that may be appropriate for the CUSC Panel to consider

- 4) Consider whether any additional change / clarification to the Grid Code is required