Generating Unit(s) Exceeding Rated MW

Issues and Identifying Enduring Solution

Introduction

1. Rated MW is a Grid Code term which refers to the 'rating-plate' MW output of a Generating Unit i.e. output to which the unit was designed to operate at. The term is a technical parameter which is used in assessing the Generating Unit's operational proficiency in fulfilling its Grid Code obligations for Reactive Power as specified in CC.6.3.2.

2. A Generating Unit is designed to operate efficiently and effectively to its Rated MW level. Rated MW is used as a baseline for the design, planning and operation of the GB Transmission System. It was not envisaged that a Generating Unit would operate above its Rated MW.

3. There have been recent examples of Generators submitting applications which would result in an increase in output for the Power Station and/or Generating Unit above associated Rated MW for that Unit and severely compromise the capability of the Unit to maintain its Reactive Power range at this higher level of output. Furthermore a Generating Unit exceeding their Rated MW and the associated extra MW output has implications for the management of the GB Transmission System both in the planning and operational environments.

4. An enduring solution is required to rectify this situation and provide additional clarity regarding the corresponding Grid Code obligations.

Technical Obligations

5. Grid Code obligations specify that all Medium and Large Power Stations provide Rated MW, Minimum Stable Generation (MSG) MW levels and a 'performance chart' describing the MW and MVAr capability of that Generating Unit. This data forms the basis for a number of compliance tests that are demonstrated to National Grid by the User during commissioning. It also forms the basis of the capability that National Grid assumes to be available from the Generator, in compliance with their Grid Code obligations, when designing, planning and operating the GB Transmission System.

6. Reactive Power capability requirements for Synchronous Generating Units are set out within CC.6.3.2 of the Grid Code. The provisions specify that when a Generating Unit is operating at its original designed output (Rated MW) then it must be capable of supplying Reactive Power in the range 0.85 Power Factor Lagging (Export) and 0.95 Power Factor Leading (Import). The obligations do not explicitly require that the Generating Unit is operated at such a level to supply this reactive power i.e. only capable of providing the reactive power when required.

7. Any deviations from these baseline technical parameters could have detrimental implications on the GB Transmission System in the form of losing local voltage support and reducing the transient, dynamic and voltage stability margins. This could lead to an increase in infrastructure and operational costs which will affect all system users.

Interim Solution

8. At present, cases where Generators exceed their Generating Unit's Rated MW have been managed on an individual basis via amendments to their Bilateral Agreements. The technical solution proposed by National Grid has been site specific and reflective of the local system constraints and operational conditions relevant to that individual Generator at its point of connection.

Proposals

9. National Grid proposes that the Grid Code Review Panel (GCRP) establishes an external working group to discuss and review the issues raised by Generating Units operating above their Rated MW level and consider an enduring solution to the matter.

10. The initial terms of reference for the working group are:

    a) Consider the drivers for the change (from Generators' perspective) and the resulting impact on the performance of the associated Generating Unit(s)

    b) Review the implications on the GB Transmission System of Generating Units operating above their Rated MW levels

    c) Recommend changes that may be required to the Grid Code and related industry documents

Recommendations

11. Members of the Grid Code Review Panel are invited to

    a) Agree to form a working group to discuss the proposed initial terms of reference and take forward the agreed ones

    b) Nominate representatives to the working group