

Market Development Advisory Group

Dispatch of HVDC

5 November 2009

23 October 2009

Dispatch of HVDC

1. The attached paper describes a proposal to incorporate the dispatch of the HVDC into the Electricity Governance Rules and outlines the Commission's conclusions.
2. It is proposed to publish this paper on the Commission's website.
3. MDAG members are asked to comment on the Commission's conclusions.

Attachments: Priority of a Proposal to Dispatch the HVDC

Priority of a Proposal to Dispatch the HVDC

14 October 2009

Introduction

The Electricity Commission (Commission) has considered the possibility of developing a proposal to incorporate the dispatch of the HVDC within the dispatch provisions in section III of part G of the Electricity Governance Rules 2003 (Rules). The idea for this proposal has its origins in an event that occurred in October 2005.

October 2005 Incident

At 06:00 on 2 October 2005 the Grid Owner received a request from the System Operator via the GENCO dispatch tool to transfer 42 MW south on the HVDC, but inadvertently entered 422 MW into the HVDC control system. At 06:05 the System Operator noticed the HVDC was ramping beyond the 42 MW and alerted the Regional Operator. By that stage the transfer had risen to 143 MW. The Regional Operator immediately corrected the value.

The incident would have affected the frequency keeper in both islands and had potentially significant security implications.

The Grid Owner reported the incident to the Commission as a potential breach of rule 4.11 of section III of part G of the Electricity Governance Rules 2003 (Rules). However, the Commission and Grid Owner subsequently acknowledged that rule 4.11 imposes obligations on generators and ancillary service agents to comply with dispatch instructions, but does not impose obligations on the Grid Owner. In addition, instructions received by the Grid Owner from via GENCO relating to the HVDC are not “dispatch instructions” under rule 4.5 of that section.

Modifications to HVDC Control System

The Grid Owner subsequently advised that due to this incident, in April 2006, it modified the HVDC control system to activate changes in HVDC transfer automatically on receipt of a request from the GENCO dispatch tool. The risk of recurrence of this incident being caused by manual intervention in the process has now been removed.

Analysis

Since the HVDC is not formally “dispatched” under the Rules, compliance with System Operator instructions is currently a matter for the two parties concerned (Grid Owner and System Operator). However, other parties (e.g. generators and electricity users) can also be affected by any non-compliance with those instructions, and consequently have a legitimate interest in the compliance framework used to ensure the Grid Owner follows System Operator instructions.

The compliance framework under the Rules would appear to provide an appropriate framework to manage and encourage Grid Owner compliance while recognizing the interest of other parties. This compliance framework could be used if the Rules were amended so that instructions regarding the HVDC were “dispatch instructions” under the Rules. This has

implications for other rules in part G, including those that specify the content of dispatch instructions, and those that require compliance with dispatch instructions. Other rules may also need to be reviewed.

This proposal appears sensible, and the Commission could develop and consult on a proposal at a modest cost in terms of consulting and legal drafting resources. However, the modifications to the HVDC control system appear already to have removed the possibility of manual data entry error. The issue has not arisen again in over four years since the original incident. In addition, the Commission intends to carry out a “first principles review” of dispatch. That project would be a substantial project, probably resulting in significant changes to the drafting of dispatch rules. The HVDC issue could easily be addressed as part of that review. That would avoid the need to address it as a separate project, bearing in mind that there is a substantial “fixed cost” element to preparing proposals.

Given the changes to the HVDC control system, there is no urgency to incorporate the HVDC into the dispatch rules. Addressing the issue as part of the wider “first principles” review of dispatch would allow the Commission to focus on other priorities in the short term.

Decision

The Commission considers that, while it would be appropriate to incorporate the HVDC within the provisions in the Rules relating to dispatch, it is not necessary to develop a stand-alone proposal. The Commission expects to address this issue as part of its first principles review of dispatch.