

NATIONAL ELECTRICITY LAW

Undertaking to the Australian Energy Regulator given for the purposes of section 59A of the National Electricity Law

by

Snowy Hydro Limited (ACN 090 574 431)

Person giving this undertaking

1. This undertaking is given to the Australian Energy Regulator (the **AER**) by Snowy Hydro Limited (**Snowy Hydro**) of Snowy Hydro – Central Office, Monaro Highway, Cooma NSW 2630 for the purposes of section 59A of the *National Electricity Law* (the **NEL**).

Background

2. Snowy Hydro is a company registered under the *Corporations Act 2001* (Cth), and is:
 - a. a Registered Participant within the National Electricity Market (**NEM**);
 - b. a Scheduled Generator in relation to the **Murray Units**, which are an aggregated group of hydroelectric scheduled generating units, with a registered generation capacity of 1,500 MW, situated in New South Wales, but within the Victorian region of the **NEM**.
3. The Australian Energy Market Operator (**AEMO**) is responsible for operating the **NEM**, including maintaining power system security, operating a central dispatch process and issuing dispatch instructions to Scheduled Generators.
4. Clause 4.9.8(a) of the National Electricity Rules (the **Rules**) requires that a Registered Participant must comply with a dispatch instruction given to it by AEMO unless to do so would, in the Registered Participant's reasonable opinion, be a hazard to public safety or materially risk damaging equipment.
5. Compliance with dispatch instructions is necessary to ensure the power system remains secure. **AEMO** relies upon conformance with dispatch instructions to ensure it can effectively perform its functions as both power system operator and market operator for the **NEM**.
6. The AER commenced proceedings in the Federal Court against Snowy Hydro on 2 July 2014, alleging that Snowy Hydro had failed to comply with dispatch instructions on nine occasions between November 2012 and June 2013 (the **Proceedings**).

7. One of the contraventions alleged by the AER involved a failure to comply with a dispatch instruction issued to Snowy Hydro on 21 June 2013 for dispatch interval 09:45 in respect of the Murray Units. While this non-compliance was inadvertent, one of the conditions that made this possible was the operation of Snowy Hydro's automatic generation control system (**AGC system**) which controls the output of Snowy Hydro's hydroelectric generating units, including the Murray Units, Tumut 3 and Upper Tumut units.
8. The AGC system is set up so that, when operated in its normal mode, the output of the Murray Units may automatically increase or decrease if Snowy Hydro's Tumut 3 or Upper Tumut units are unable to meet a target output in a particular dispatch interval (and vice versa). The AGC system has operated in that way since prior to 1 July 2008, when the Murray, Tumut 3 and Upper Tumut units were collocated in the former Snowy region of the NEM.
9. Since the Snowy region was abolished on 1 July 2008, the Tumut 3 and Upper Tumut units have been situated in the NSW region of the NEM, and the Murray Units have been situated in the Victorian region. However, when operated in its normal mode, Snowy Hydro's AGC system has made it possible for a unit in one region of the NEM to generate electricity as a result of a dispatch instruction issued to a unit in another region, including at times when there is a material difference in dispatch prices between the two regions.
10. At around 09:40:30 on 21 June 2013, Snowy Hydro received a dispatch instruction for 09:45 for the Murray Units of 867.72 MW. The dispatch price for the Victorian region of the NEM was \$11,784.04
11. At about 9:40:30 on 21 June 2013, Snowy Hydro also received a dispatch instruction for Tumut 3. That dispatch instruction required it to increase its output by 350 MW. At the time Snowy Hydro received the dispatch instruction, Tumut 3 only had one unit in operation, which was already operating at maximum capacity, so Snowy Hydro started a second unit at Tumut 3. This process ordinarily takes approximately three minutes. While the second unit was starting up, Snowy Hydro's AGC system began to increase the output of the Murray Units to compensate for the lower output from Tumut.
12. If the second Tumut Unit had operated properly, it would have started to load at approximately 9:43:00, at which point the Murray Units would have automatically started to decrease, and both units would have complied with their respective dispatch instructions by the end of the dispatch interval (that is, by 9:45:00).
13. However, as a result of a then undiagnosed control system fault in the second Tumut Unit, there was a further lag before Tumut started to load. As a result of this lag, the second Tumut Unit did not start to load, and the Murray Units did not start to decrease, until 9:44:30, by which time it was too late for the Tumut Units and the Murray Units to meet their respective targets for DI 9:45.

14. While the failure to comply with the dispatch instruction for the Murray Units was inadvertent, Snowy Hydro acknowledges that this contravention would not have occurred had the AGC system been operating in "ECON" mode during dispatch interval 09:45.
15. At all relevant times, Snowy Hydro was aware of the risk of failing to comply with dispatch instructions when the AGC system is operated in normal mode, including at times when there is a material difference in dispatch prices between the two regions, and that this risk could be avoided by operating the AGC system in "ECON" mode. However, when the AGC system is operated in ECON mode, Snowy Hydro is unable to use the relevant units to offer services in ancillary services markets.
16. Snowy Hydro admits that it failed to comply with dispatch instructions on nine occasions, as alleged by the AER in the Proceedings. As part of the resolution of the Proceedings, Snowy Hydro has agreed to proffer this undertaking to the AER in respect of the ongoing operation of the AGC system.

Commencement of undertaking

17. This undertaking comes into effect when:
 - a. the undertaking is executed by Snowy Hydro; and
 - b. the AER accepts the undertaking so executed.
18. Upon the commencement of this undertaking, Snowy Hydro undertakes to assume the obligations set out in paragraph 19.

Undertaking by Snowy Hydro

19. Snowy Hydro undertakes for the purposes of section 59A of the NEL that until there is a resolution of the issues with the AGC system that may cause scheduled generating units in one NEM region to automatically increase or decrease energy output in response to dispatch targets in another region, Snowy Hydro will:
 - a. operate the AGC system in ECON mode, unless it is reasonably necessary to operate the AGC system in any mode other than ECON mode for operational requirements or in response to conditions in ancillary services markets;
 - b. notify the AER in writing or by e-mail (addressed to the Chief Executive Officer of the AER) within seven days of any occasion when it has operated the AGC system in any mode other than ECON mode, such notification to include:
 - i. the time and date on which the AGC system was switched out of ECON mode;

- ii. the time and date on which the AGC system was returned to ECON mode; and
 - iii. the reason for the operation of the AGC system in a mode other than ECON mode; and
- c. provide the AER with written reports each six months on the progress of Snowy Hydro's project to replace the AGC system, until the project is completed.

Acknowledgments

20. Snowy Hydro Ltd acknowledges that:

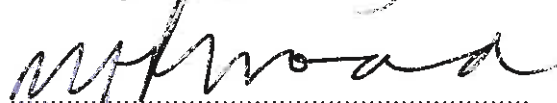
- a. the AER will make this undertaking publicly available including by publishing it on the AER's website;
- b. the AER will, from time to time, make public reference to the undertaking including in news media statements and in AER publications; and
- c. this undertaking in no way derogates from the rights and remedies available to any other person arising from the alleged conduct.

Executed by

Snowy Hydro Limited ACN 090 574 431, by its authorised officers pursuant to section 127(1) of the *Corporations Act 2001*



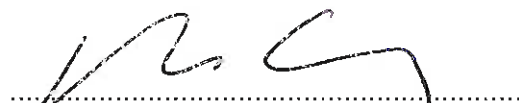
Secretary/Director



Director

This 18th day of FEBRUARY 2015

ACCEPTED BY THE AUSTRALIAN ENERGY REGULATOR PURSUANT TO SECTION 59A OF THE NATIONAL ELECTRICITY LAW.



Chair

This 20 day of February 2015