

## NATIONAL ELECTRICITY LAW

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

by

**HWF1 Pty Ltd (ACN 603 414 151)**

### 1. Persons giving this Undertaking

- 1.1. This Undertaking is given to the Australian Energy Regulator (**AER**) by HWF1 Pty Ltd (ACN 603 414 151) (**HWF1**) of Suite 10 Level 10, 219-227 Elizabeth Street, Sydney, NSW, 2000, for the purposes of section 59A of the *National Electricity (South Australia) Law (NEL)*.

### 2. Background

- 2.1. HWF1 has been the operator (**Generator**) of the Hornsdale wind farm, and a Registered Participant in the National Electricity Market (**NEM**) since 2 June 2016.
- 2.2. The Hornsdale wind farm is a generating system comprising of 32 wind turbine generating units manufactured and supplied by Siemens Ltd, each generating unit having a generation capacity of 3.2 MW.
- 2.3. Each of Hornsdale wind farm's wind turbines features low voltage ride-through (**LVRT**) capability. The LVRT capability is activated when the voltage at the generating unit terminal dips below 90% of the normal voltage level (**undervoltage disturbance**). The purpose of the LVRT capability is to enable a wind turbine to ride through undervoltage disturbances within particular depths and particular durations.
- 2.4. Each wind turbine at the Hornsdale wind farm includes a repeat LVRT protection system (the **repeat LVRT protection system**). Once a wind turbine's repeat LVRT protection system is activated, it causes:
  - 2.4.1. the rotational speed of the blades of the turbine to slow;
  - 2.4.2. the turbine to cease generating active power; and
  - 2.4.3. a circuit breaker within the turbine to open, preventing the flow of active power from the turbine to the generating system's connection point with the power system.
- 2.5. Between 2 June 2016 and 10 October 2016 (the **Relevant Period**), the repeat LVRT protection system was set so as to be activated if the LVRT capability was utilised 6 times within a 30 minute period.

#### *Generator performance standard obligations*

- 2.6. HWF1 was required to submit its proposal for generator performance standards (**GPS**) to the local transmission network service provider (relevantly, **ElectraNet**) prior to connecting its generating systems to the power system. Following negotiation and consultation with the Australian Energy Market Operator (**AEMO**), ElectraNet and HWF1 agreed upon the GPS that would apply to the Hornsdale wind farm and its wind turbines.
- 2.7. As the Generator of the Hornsdale wind farm, HWF1 was required to do the following in order to supply electricity to the power system:

- 2.7.1. obtain the approval in writing of AEMO and ElectraNet for the repeat LVRT protection system settings (clause S5.2.2 National Electricity Rules (**NER**));
- 2.7.2. provide automatically initiated protection systems to protect its plant and associated facilities against abnormal voltage excursions of the power system in accordance with S5.2 (clause 4.4.3 NER); and
- 2.7.3. ensure that its plant met or exceeded the GPS applicable to its plant (rule 4.15(a)(1) NER).

#### *Conduct of concern*

- 2.8. The rigorous negotiation and documenting of performance standards, and Generators' ongoing compliance with those performance standards, is important to promoting power system security and minimising the risk of cascading outages across the power system during unstable power system conditions.
  - 2.9. The AER is concerned that:
    - (a) during the Relevant Period, HWF1 did not comply with the NER because it operated its generating systems with automatic protection systems which would prevent its wind turbines from riding through network voltage disturbances in accordance with HWF1's GPS, in the event that they experienced more than 5 undervoltage disturbances within a 30 minute period; and
    - (b) on 28 September 2016, in contravention of the NER, HWF1 failed to ensure that its plant and associated facilities at the Hornsdale wind farm complied with its GPS and, in particular, failed to ensure that they rode through network voltage disturbances.
- (AER concerns).**

### **3. Acknowledgement and resolution**

- 3.1. HWF1 does not agree that its conduct amounted to the non-compliance and contraventions described in clause 2.9. However, HWF1 acknowledges the AER concerns and offers the Undertaking in clause 6 to resolve the AER concerns.

### **4. Commencement of the Undertaking**

- 4.1. This Undertaking comes into effect (**Commencement Date**) when:
  - 4.1.1. the Undertaking is executed by HWF1; and
  - 4.1.2. the AER accepts the Undertaking so executed.
- 4.2. Upon the Commencement Date, HWF1 undertakes to assume the obligations set out in clause 6 below.

### **5. Expiry and variation**

- 5.1. This Undertaking expires (**Expiry Date**) once HWF1 has completed each of its obligations set out in clause 6 below.
- 5.2. HWF1 may apply to withdraw or vary the Undertaking at any time, but this Undertaking will only be taken to be withdrawn or varied on the date on which the AER consents to such withdrawal or variation.
- 5.3. The AER may, if requested by HWF1, expressly waive or vary in writing any of the obligations contained in the Undertaking or extend the date by which any such obligation is to be satisfied.

### **6. Undertaking**



6.1. HWF1 undertakes that, it will use its best endeavours, by carrying out the steps outlined in clause 6.2 below, to update the GPS and connection agreement for the Hornsdale wind farm within 6 months after the Commencement Date (or as soon as practicable thereafter) to:

- 6.1.1. expressly provide for the operation and settings of the repeat LVRT protection system applying at the Commencement Date; and
- 6.1.2. make any other incidental or minor amendments to the Hornsdale wind farm GPS and connection agreement including, but not limited to, inserting definitions and correcting typographical errors.

For the avoidance of doubt, HWF1 will not be required to modify the GPS or connection agreement for the Hornsdale wind farm to the extent that HWF1 would be unable to comply without altering the Hornsdale wind farm generating units or generating system, or to the extent that HWF1 would be unable to comply without exceeding the operational limitations of the Hornsdale wind farm plant and equipment.

6.2. HWF1 undertakes that:

6.2.1. Within 10 Business Days of the Commencement Date, HWF1 will propose an Independent Expert for the AER's approval to complete an Independent Review of the GPS and connection agreement. If the AER does not approve the Independent Expert HWF1 nominates, then the AER will provide HWF1 with a written explanation and then HWF1 will liaise with the AER to identify a candidate acceptable to the AER within a further 5 Business Days.

6.2.2. Within 10 Business Days of receiving notice of the AER's approval of the Independent Expert, HWF1 will engage the Independent Expert to complete an Independent Review of the GPS and connection agreement for the Hornsdale wind farm and prepare a report, including recommendations, addressing the following matters:

- a) whether the Hornsdale wind farm GPS and connection agreement applying at the Commencement Date expressly provide for the operation of its multiple LVRT setting;
- b) to the extent that the Hornsdale wind farm GPS and connection agreement applying at the Commencement Date do not expressly provide for the operation of its multiple LVRT setting;

6.2.2.b.1. the modifications which would be required to expressly provide for the operation of Hornsdale wind farm's multiple LVRT setting applying at the Commencement Date; and

6.2.2.b.2. any other incidental or minor amendments to the Hornsdale wind farm GPS and connection agreement.

6.2.3. HWF1 will, within 10 Business Days of engaging the Independent Expert, submit to the AER for its approval, a detailed Independent Review Proposal developed jointly with the Independent Expert which addresses the matters in 6.2.2 above. The proposal must include details of how the Independent Expert will conduct the review and the matters to be addressed by the Independent Expert in its final report. If the AER has concerns about the proposal, HWF1 will make revisions to the proposal in conjunction with the Independent Expert within 5 Business Days of the AER notifying HWF1 in writing of its concerns and submit the revised Independent Review Proposal to the AER for its approval.

6.2.4. HWF1 will use its best endeavours to ensure that the Independent Expert will:

- a) commence the Independent Review within 15 Business Days of HWF1 receiving written notice of the AER's approval of the Independent Review Proposal;
  - b) complete the Independent Review within 40 Business Days of the Independent Review commencing;
  - c) provide HWF1 with a final Independent Review report within 20 Business Days of completion of the Independent Review; and
  - d) have full, free and unrestricted access to all HWF1 functions, staff, records, documentation and information necessary to conduct the Independent Review.
- 6.2.5. Within 2 Business Days of HWF1's receipt of the Independent Expert's findings and recommendations, HWF1 will provide the final Independent Review report to the AER.
- 6.2.6. Within 20 Business Days of HWF1's receipt of the Independent Expert's findings and recommendations, HWF1 will provide the AER with HWF1's response to the findings including the steps that HWF1 will take to implement all reasonable recommendations. If HWF1 is unable to implement any of the Independent Expert's recommendations, it will provide the AER with its reasons for its inability to implement them. In the event that HWF1's reasons are that a recommendation of the Independent Expert is unreasonable, HWF1 will provide the AER with any supporting evidence. If HWF1 cannot provide any supporting evidence, HWF1 will provide a written explanation to the AER setting out the reasons why it cannot provide supporting evidence. HWF1 will also provide any response from the Independent Expert (or his/her delegate if on leave) to the reasons that HWF1 has given for its inability to implement the Independent Expert's recommendations. If the Independent Expert has not provided a response, HWF1 will provide any written explanation from the Independent Expert addressed to the AER as to why no response was given.
- 6.2.7. HWF1 undertakes that, following HWF1's provision of its response to the Independent Expert's findings and recommendations, HWF1 will:
- a) submit, within 20 Business Days, its proposed modifications to the GPS and connection agreement to AEMO, ElectraNet and ESCOSA incorporating all of the reasonable recommendations of the Independent Expert; and
  - b) negotiate in good faith with AEMO, ElectraNet and ESCOSA and use its best endeavours to achieve a modification of the terms of the GPS and connection agreement for the Hornsdale Wind Farm which implements all reasonable recommendations of the Independent Expert and which is included in the register maintained by AEMO under rule 4.14(n) of the NER and approved by AEMO and ElectraNet under S5.2.2 of the NER.
- 6.2.8. HWF1 will notify the AER in writing within 5 Business Days of any failure by HWF1 to comply with the dates identified within this Undertaking.
- 6.2.9. All drafts and final versions of the Independent Review Proposal, the Independent Expert's Review Report, and HWF1's response to the Independent Expert's Review Report are not to be made publicly available.

## **7. Acknowledgements**

- 7.1. HWF1 consents and acknowledges that:



- 7.1.1. the AER may authorise a member of the AER or a member of the AER staff, to exercise a decision making function under this Undertaking on its behalf and that authorisation may be subject to any conditions the AER may impose;
- 7.1.2. the AER will make this Undertaking publicly available including by publishing it on the AER's website, but other documents referred to in this Undertaking which are not publicly available will not be made publicly available by the AER;
- 7.1.3. the AER will, from time to time, make public reference to the Undertaking in news media statements and in AER publications, but the AER will not make substantive reference to the contents of any documents referred to in this Undertaking which are not publicly available;
- 7.1.4. the AER reserves its rights and remedies (including to institute legal proceedings against HWF1 seeking penalties and/or other relief) in relation to any breaches of the NER or NEL which have occurred before or after the Commencement Date, including in respect of matters referred to in this Undertaking; and
- 7.1.5. this Undertaking in no way derogates from the rights and remedies available to any other persons arising from the alleged conduct.

## 8. Costs

- 8.1. HWF1 must pay all of its own costs in relation to this Undertaking.

## 9. Notification

- 9.1. Any notice or communication to the AER pursuant to this Undertaking must be sent to:

Name: General Manager – Compliance & Enforcement

Address: Australian Energy Regulator

GPO Box 520

Melbourne VIC 3001

Email: Attn: GM Compliance & Enforcement [AERCompliance@ aer.gov.au](mailto:AERCompliance@ aer.gov.au)

- 9.2. Any notice or communication to HWF1 pursuant to this Undertaking must be sent to:

Name: [REDACTED]

Address: Suite 10 Level 10, 219-227 Elizabeth Street, Sydney, NSW, 2000

Email: [REDACTED]

- 9.3. HWF1 must notify the AER of a change to its contact details within five *business days*.

## 10. Definitions

- 10.1. Terms used in this Undertaking are set out below.

Term	Meaning
AER	Australian Energy Regulator
AEMO	Australian Energy Market Operator
BSE	Black System Event

<b>Business Day</b>	has the meaning give to it in Chapter 10 of the NER
<b>Commencement Date</b>	is the date the Undertaking comes into effect under clause 4 of this Undertaking.
<b>ElectraNet</b>	ElectraNet Pty Ltd (ACN 094 482 416)
<b>ESCOSA</b>	Essential Services Commission of South Australia
<b>Expiry Date</b>	has the meaning given to that term by clause 5 of this undertaking.
<b>Generator</b>	has the meaning give to it in Chapter 10 of the NER
<b>GPS</b>	Generator performance standards
<b>Independent Expert</b>	<p>means a third party who is not a Related Body Corporate of HWF1.</p> <p>The third party carrying out the Independent Review must:</p> <ul style="list-style-type: none"> <li>• be able to act without bias and without any actual or potential conflicts of interest with reference to the following criteria: <ul style="list-style-type: none"> <li>○ is not a present or past staff member or director of HWF1;</li> <li>○ has not acted and does not act for, and does not consult and has not consulted to, HWF1 in any matters relating to compliance with the NEL or NER; and</li> <li>○ has no significant shareholding or other interests in HWF1;</li> </ul> </li> <li>• have professional competence to apply established audit standards and techniques to carry out the Independent Review to a high standard;</li> <li>• have a system of quality controls to ensure the Independent Review report is of a professional standard;</li> <li>• have relevant expertise in compliance with GPS; and</li> <li>• be able to conduct the Independent Review in accordance with the Undertaking.</li> </ul>
<b>Independent Review</b>	<p>means an assessment of:</p> <ol style="list-style-type: none"> <li>a) whether the Hornsdale wind farm GPS and connection agreement expressly provides for the operation of its multiple LVRT setting; and</li> <li>b) to the extent that the Hornsdale wind farm GPS and connection agreement do not expressly provide for the operation of its multiple LVRT setting, the modifications which would be required to do so without materially compromising the capacity, functionality or operational limitations specified by the manufacturer of the Hornsdale wind farm under its existing GPS or connection agreement.</li> </ol>

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<b>LVRT</b>	low-voltage ride through
<b>NEL</b>	National Electricity (South Australia) Law
<b>NEM</b>	National Electricity Market
<b>NER</b>	National Electricity Rules
<b>Related Body Corporate</b>	Has the meaning given by section 4A(5) of the <i>Competition and Consumer Act 2010</i>
<b>HWF1</b>	HWF1 Pty Ltd (ACN 603 414 151)

## 11. Interpretation

11.1. In the interpretation of this Undertaking, the following provisions apply unless the context otherwise requires:

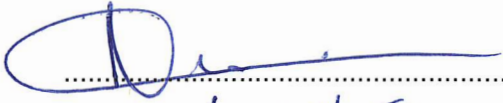
- 11.1.1. a reference to this Undertaking includes all of the provisions of this document including its annexures;
- 11.1.2. headings are inserted for convenience only and do not affect the interpretation of this Undertaking;
- 11.1.3. if the day on which any act, matter or thing is to be under this Undertaking is not a Business Day, the act, matter or thing must be done on the next Business Day;
- 11.1.4. a reference in this Undertaking to any law, legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision;
- 11.1.5. a reference in this Undertaking to any company includes a company over which that company is in a position to exercise control within the meaning of section 50AA of the *Corporations Act 2001*;
- 11.1.6. a reference in this Undertaking to any agreement or document is to that agreement or document as amended, novated, supplemented or replaced;
- 11.1.7. a reference to a clause, part, schedule or attachment is a reference to a clause, part, schedule or attachment of or to this Undertaking;
- 11.1.8. an expression importing a natural person includes any company, trust, partnership, joint venture, association, body corporate or government agency;
- 11.1.9. where a word or phrase is given a defined meaning, another part of speech or other grammatical form in respect of that word or phrase has a corresponding meaning;
- 11.1.10. a word which denotes the singular also denotes the plural, a word which denotes the plural also denotes the singular, and a reference to any gender also denotes other genders;
- 11.1.11. a reference to the words 'such as', 'including', 'particularly' and similar expressions can be construed without limitation;
- 11.1.12. a reference to:

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- a) a thing (including but not limited to, a chose in action or other right) includes part of that thing; and
- b) a party includes its successors and permitted assigns.


**Executed by**

HWF1 Pty Ltd (ACN 603 414 151) pursuant to section 127(1) of the *Corporations Act 2001*.



Director

*Laurent Francisci*



Director/Secretary

*Toshua Vaughan Williams*

This 12<sup>th</sup> day of March 2021.

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



Clare Savage – Chair

This 2nd day of July 2021.