20 May 2025

Anish Shrestha
APA DEWAP Pty Ltd
NSP (ADEWAP Network)
Level 12, 141 St George's Terrace
PERTH WA 6000

Dear Anish,

Subject: Advice on APA DEWAP's Exemption Request for Port Hedland Solar Farm from HTR Clause 3.3.3.3(h)(2).

The Pilbara ISOCo Limited (ISO) refers to your email of 7 May 2025 requesting the ISO to review the APA Applicant's exemption from clause 3.3.3.3(h)(2) of the Harmonised Technical Rules (HTR) for the Port Hedland Solar Farm (the Application). APA DEWAP (the Registered NSP) has requested the ISO's review under Rule 64(4)(c) of the Pilbara Networks Rules (PNR) and requested ISO to confirm whether the exemption poses any security risks or can be granted.

Rule 64 of the PNR outlines the process for which a NSP may grant an exemption from the HTR. With regard to this Application, the ISO notes that the APA DEWAP is a vertically-integrated NSP as defined under the PNR and therefore cannot grant an exemption to itself as a Generator or Consumer, without the ISO's prior approval.

The ISO has worked closely with the Registered NSP through the APA Port Hedland Solar Farm access and connection relevant to this Application. Noting this and the background knowledge ISO has with regard to this exemption request, the ISO approves the Registered NSP determining whether to grant an exemption to the Applicant, therefore satisfying Rule 64(3) of the PNR. In doing so, ISO acknowledges that the Registered NSP is required to consult with the ISO and publicly prior to making a determination under Rules 64(4)(c) and 64(4)(d) of the PNR.

The ISO has considered the Applicant's request to the Registered NSP and applied the criteria set out in Rule 64(6) of the PNR, and provides the following advice:

If the exemption is granted ISO recommends it should be subject to the following conditions:

1. If testing conducted through the Generation Monitoring Plan under HTR clause 4.1.3 or other fault recordings shows that the facility performs better than outlined in this exemption, the exemption should be reconsidered.

2. If the technical note[1] is to be published, the ISO recommends that the Registered NSP identify the Application's Point of Connection to APA DEWAP's network.

Attached is the ISO's detailed consideration of the Application. Should the Registered NSP determine to grant the exemption, this letter and the detailed considerations will be published in accordance with Rule 64(13) PNR.

Thank you for consulting with the ISO on the proposed exemption. Should the Registered NSP have any queries please contact Jinn Loo, Senior Electrical Engineer ISO.

Yours Sincerely

James Campbell-Everden

James Campbell-Everden
Pilbara ISOCo

[1] PHSF-APA-EL-MEM-004 - SolarFarm_CUO_TechnicalNote

Attachment – Consideration of HTR Exemption Cl 3.3.3.3(h)(2)

1. Reference documents

The following references are used throughout this exemption advice.

[1] Application Derogation Clause 3.3.3.3
[2] PHSF-APA-EL-MEM-004 - SolarFarm_CUO_TechnicalNote
[3] Pilbara Networks Rules 1 July 2023
[4] Harmonised Technical Rules - 1 July 2021 Version 1
[5] Electricity Industry Act 2004

2. Background

The Applicant is seeking an exemption from the HTR[2] clause 3.3.3.3(h)(2) – Continuous Uninterrupted Operation.

HTR clause 3.3.3.3(h)(2) states:

> *"For the purposes of this clause, a generating unit is considered to remain in continuous uninterrupted operation if:*
> *(2) the active power output returns to the generating unit's pre-fault electric power output within 200 milliseconds after the voltage has returned to between 80% to 110% of nominal voltage. In making this assessment allowances may be made for:*
> *(A) any variation in active power output for non-synchronous generating units due to variation in the primary source of energy; and*
> *(B) any variation in active power output of synchronous generating units due to any reduction in the power system frequency in accordance with the capability of the generating unit as notified to the NSP."*

2.1. Problem Statement

Clause 3.3.3.3(h)(2) of the HTR requires that the generating system's active power output return to its pre-fault level within 200 milliseconds after the voltage has returned to between 80% and 110% of nominal voltage. However, this clause does not account for the provision of reactive current during a fault, which is fundamental to maintaining power system stability as outlined in HTR clause 3.3.4.5.

The requirement to restore active power output within 200 milliseconds, even when network voltage has not adequately recovered (e.g. retained voltages around 80% of nominal), may conflict with GEIP for inverter operation and system voltage stability objectives. Under such conditions, power transfer capability is reduced, and the generating system should instead prioritise voltage recovery through reactive current injection before re-establishing active power delivery. This prioritisation is particularly important to ensure the stable recovery of the

[2] Harmonised Technical Rules (Online)

system following credible fault events, as highlighted in HTR clause 2.2.9 on short-term voltage stability.

2.2. Proposed Alternative Measures

The generating unit will be configured to restore active power output to 99% of the pre-fault value within 200 milliseconds, once the connection point voltage has recovered to between 90% and 110% of nominal. This replaces the requirement of HTR clause 3.3.3.3(h)(2) to recover active power within 200 milliseconds after voltage returns to between 80% and 110%.

The proposed control strategy prioritises reactive current injection over active power during low-voltage events, supporting rapid voltage recovery and alignment with Good Electricity Industry Practice (GEIP) for inverter operation.

The Application's Low Voltage Ride Through (LVRT) settings are configured to enable a smooth transition from fault response to normal operation. These alternative measures are supported by the simulation results provided in [2], indicating that the Application can meet system stability objectives while operating safely and reliably within its technical limits.

3. ISO's Determination under the Rules r64(6)

Under the PNR r64(6), the ISO must as soon as practicable, and in any event within 4 weeks of the consultation commencing, determine and advise the Registered NSP:

a) whether the exemption is or is not likely to cause or contribute to any adverse impact on Security, Reliability or the Pilbara Electricity Objective;
b) whether the exemption is or is not consistent with the constrained access regime in Subchapter 9.1; and
c) of any conditions the ISO recommends be placed on the exemption.

The ISO's determination against each of the above three matters is outlined in the following sections.

3.1. PNR 64(6)(a) - Adverse Impact on System Security, Reliability or the Pilbara Electricity Objective

The ISO accepts the Applicant's position on the application of clause 3.3.3.3 (h)(2). There is no significant impact on power system stability and reliability, as the maximum fluctuation of 0.18 MW, as simulated by the Applicant using the 90% post-fault voltage recovery, is less than 1% of the NWIS minimum load configuration of about 140 MW and about 1% of the regulation reserve maintained for the NWIS of 20 MW. The event of 80% post-fault voltage recovery is also currently non-credible at this location as demonstrated by the ongoing studies on the Wide Area Network (WAN) model. The reason the 80% post-fault voltage recovery is presently unlikely is that the Application is electrically close to the Port Hedland gas turbines that stabilise the system voltage in the event of worst-case

faults. This may not always be the case as the energy transition proceeds in the Pilbara.

3.2. PNR 64(6)(b)- Consistency with the Constrained Access Regime

The ISO concludes the proposed exemption is consistent with the constrained access regime in Subchapter 9.1 of the Rules. In drawing this conclusion, the ISO has considered the following matters:

a) The change will not impact the constraints in the existing constrained access regime.
b) The change will not impact the generation on the APA DEWAP network in responding to constraint directions consistent with the requirements of the Constrained Access Regime (to remain in balance). This is because the Application is non-dispatchable and the exemption relates to short term power system stability and considers the manner in which the Application will respond to system disturbances. Such responses typically operate within 20 seconds. From the supporting information provided, there is no cause to believe that the proposed exemption will impact the Applicant's ability to maintain energy balance across its portfolio of balancing points, should the Application be the subject of a constraint direction.
c) The material provided in relation to the proposed exemption does not identify or interact with any legacy rights, build-out rights or other rights as contemplated in Subchapter 9.1 of the PNR.

3.3. PNR 64(6)(c) – Recommended Conditions to be Placed on the Exemption

1. If testing conducted through the Generation Monitoring Plan under HTR clause 4.1.3 or other fault recordings shows that the facility performs better than outlined in this exemption, the exemption should be reconsidered.

2. If the technical note [2] is to be published, the ISO recommends that the Registered NSP identify the Application's Point of Connection to APA DEWAP's network.