

# SYSTEM COORDINATION BULLETIN



## QUARTERLY UPDATES: 1 OCTOBER 2023 - 31 DECEMBER 2023

In accordance with Rule 288 of the Pilbara Network Rules (the Rules), the ISO must periodically, at least once every quarter, publish a bulletin giving brief information on matters discussed in system coordination reports which may impact the operational and commercial decisions of Pilbara electricity market participants.

The report is to include details of:

- The incidence and extent of constraint directions issued;
- The incidence and extent of system operations directions and precontingent directions issued;
- The incidence and extent of non-compliances with directions; and
- The incidence and extent of noteworthy incidents in the power system (including contingencies, pre-contingent actions, shortfalls in essential systems services and occasions on which the power system was not in a secure state or was outside the technical envelope) together with, for each incident:

1. Information about the circumstances that caused the incident; and
2. Information about the actions the ISO and registered NSPs took in response to the incident; and
3. The results of any post-incident discussion or investigation.

The ISO must not include any confidential information in the System Coordination Bulletin. The ISO has consulted with the information owners as required under the Rules prior to publishing this bulletin (see Subchapter 11.2 of the Rules).

This System Coordination Bulletin should be read in conjunction with Chapter 7 of the Rules and the Interim Protocol Framework Procedure.

## INCIDENT AND EXTENT OF DIRECTIONS ISSUES

Table 1 provides details of the incidence and extent of the directions issued under the Rules, including:

- Pre-contingent [Rule 79];
- Systems operations [Rule 188];
- Emergency [Rule 189]; and
- Constraint [Rule 258].

**Table 1: Directions issued**

DATE	TYPE OF DIRECTION	FACILITY DIRECTED	REASON	COMPLIANCE WITH DIRECTION (Y/N)
N/A	N/A	N/A	N/A	N/A

There were no directions issued for the reporting period.

## NOTEWORTHY INCIDENTS IN THE POWER SYSTEM

Table 2 provides an overview of noteworthy incidents that occurred in the power system during the reporting period.

For the purposes of this System Coordination Bulletin, a noteworthy incident in the power system includes contingencies, pre-contingent actions, shortfalls in essential system services and occasions on which the power system was not in a secure state or was outside the technical envelope [see Rule 163], which might have been credibly expected to adversely affect [see Rules 166 and 183(5)]:

- Security or reliability, as defined by the System Security Objective; or
- The ability of any part of a covered transmission network to benefit from essential system services; or
- The ability of a covered NSP to provide transmission voltage contracted network services; or
- Anything else ISO determines as a noteworthy incident.

As per Rule 162, the “System Security Objective” is to:

- Maintain the power system inside the Technical Envelope where practicable, and otherwise promptly return it to inside the Technical Envelope; and
- Maintain the power system in a Secure State where practicable, and otherwise return it to a Secure State as soon as practicable; and
- Otherwise — to a GEIP standard maintain, and to a GEIP standard seek to improve, security and reliability.



**Table 2: Noteworthy incidents in the power system**

DATE	DESCRIPTION OF CIRCUMSTANCES THAT CAUSED THE INCIDENT	ACTIONS TAKEN BY ISO AND NSP IN RESPONSE TO INCIDENT	POST INCIDENT DISCUSSION OR INVESTIGATION (Y/N)
October - December 2023	Long-term planned transmission outage resulted in alternative energy supply arrangements being put in place by NSPs to ensure system security.	Pre-outage risk assessments were conducted collaboratively by the relevant Registered NSPs and shared with the ISO and all system coordination participants. Alternative energy supply arrangements were put in place by affected NWIS participants. Regular discussions at system coordination meetings and separate bilateral meetings to ensure any system security risks were being managed.	N
22/10/2023	A generating unit tripped at 25.4 MW, causing a frequency excursion to 49.41 Hz. Frequency recovered and stabilised above 49.75 Hz within 1 minute of the initial trip.	East Pilbara headroom reduced from 67 MW to 26 MW. ISO Control Desk in communication with NSP operator group during the event. Generator start command issued and spinning headroom recovered to 56 MW.	Y
7/11/2023	Adverse weather conditions, combination of lightning and bushfires, led to load rejection of 30 MW causing the system frequency to rise to 50.21 Hz. Frequency recovered and stabilised within one minute and system returned to normal within an hour.	As the system was in a secure and normal operating state, the frequency excursion was managed by generator droop response, including responses from ESS providers. After frequency stabilised, the loss of generation was picked up by the primary FCESS response.	N
7/11/2023	A transmission line tripped, causing the separation of the network between Credible Islands 1 and 2. Frequency remained within the Frequency Operating Standards.	The ISO Control Desk enabled secondary FCESS in the East Pilbara island for one trading interval.	N
8/11/2023	An undetected bushfire led to a 220 kV transmission line trip. This resulted in load rejection and the system frequency to rise to 50.72 Hz. The non-covered islanded network frequency dropped to 47.71 Hz, triggering UFLS scheme within the non-covered islanded network. The system was returned to normal within 36 minutes and 8 seconds.	The event was managed by system islanding and UFLS protection. ISO to undertake an informal discussion of the event and share relevant findings with NSP controllers.	Y



**Table 2: Noteworthy incidents in the power system**

DATE	DESCRIPTION OF CIRCUMSTANCES THAT CAUSED THE INCIDENT	ACTIONS TAKEN BY ISO AND NSP IN RESPONSE TO INCIDENT	POST INCIDENT DISCUSSION OR INVESTIGATION (Y/N)
18/11/2023	A distribution feeder tripped, auto reclosed and cleared the fault, causing a frequency excursion to 49.5Hz. Frequency recovered and stabilised above 49.75 Hz within 1 minute of the initial trip. A patrol was undertaken, but the cause of the trip remains unknown.	As the system was in a secure and normal operating state, the frequency excursion was managed by generator droop response, including responses from ESS providers.	N



*Hamersly Range*

## RESULTS OF POST-INCIDENT DISCUSSIONS OR INVESTIGATION

Table 3 provides an overview of results of post-incident discussions or investigations during the reporting period.

In accordance with Subchapter 7.6 of the Rules, the ISO may conduct informal discussions [Rule 196] or investigations [Rule 197] on the following:

- a Contingency or other event which in the ISO’s opinion jeopardised, or had the potential to jeopardise, the System Security Objective to a significant extent; or
- an unplanned outage of a facility or network element for which a planned outage would be a notifiable event; or

- a Protocol being activated or the ISO referring any other matter relating to the Protocol Framework.

The primary objective of ISO’s post-incident discussions and investigations is, with a view to maintaining and improving security and reliability, to enable and promote:

- continuous improvement of the Rules, the Procedures, and the operation of the power system; and
- appropriate accountability for Rules Participants.

**Table 3: Post-incident discussions or investigations**

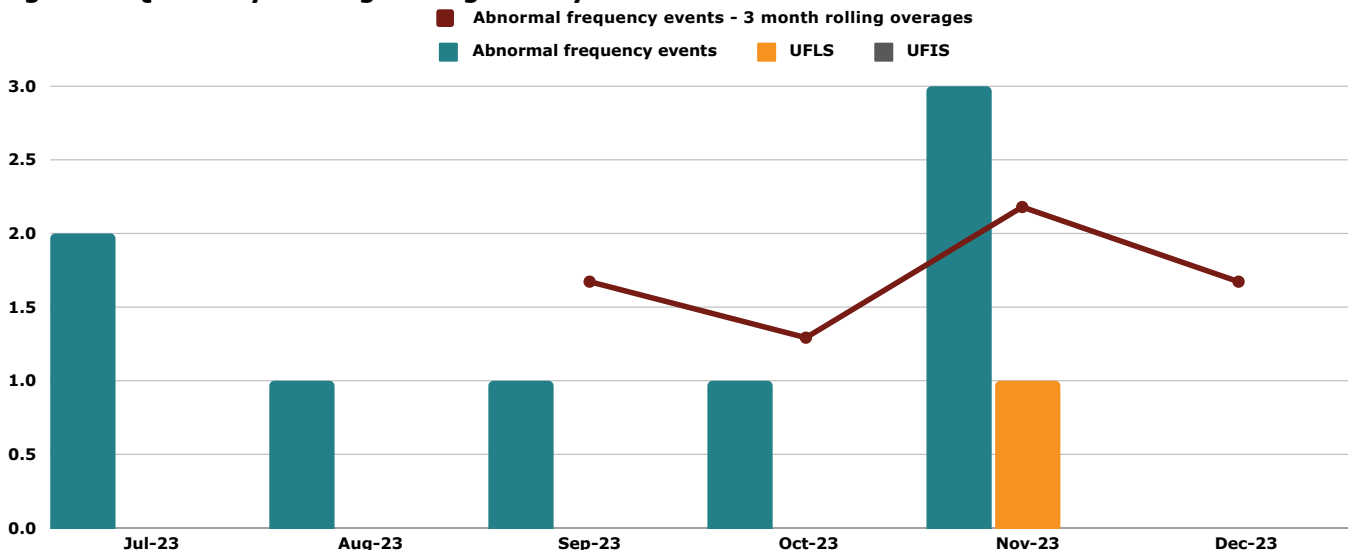
DATE	OVERVIEW OF INCIDENT AND DISCUSSION OR INVESTGATIONS	RESULTS AND RECOMMENDATIONS
22/10/2023	<p><b>Event Description</b> While the system was in normal operating conditions and in a secure state, a generating unit tripped at 25.4 MW output. Frequency dropped to a low of 49.4 Hz. Frequency recovered and stabilised above 49.75 Hz within 1 minute of the initial trip.</p> <p><b>Purpose of Informal Discussion</b> The ISO elected to conduct an informal discussion of the event with the purpose of investigating the cause of the event and issues related to generators switching between droop and isochronous control during the event.</p>	<p>The informal discussion found that a generating unit had a historic 49.5 Hz setting for automatic isochronous control. This setting could impact droop response and cause two different generators to be in isochronous control. As a short-term solution the generating unit setting was lowered to 49.25 Hz. The ISO will also perform further investigations to determine if droop can be relied on for an unexpected islanding event.</p>
8/11/2023	<p><b>Event Description</b> An undetected bushfire led to a 220 kV transmission line trip. This resulted in load rejection and the system frequency to rise to 50.72 Hz. The non-covered islanded network frequency dropped to 47.71 Hz, triggering UFLS scheme within the non-covered islanded network. The system was stabilised returned to normal within 36 minutes and 8 seconds.</p> <p><b>Purpose of the Review</b> The ISO elected to conduct an informal discussion of the event with the purpose of understanding and improving the reporting and coordination of systems operations functions.</p>	<p>Informal discussion on hold. The ISO currently has limited capacity of engineering resources. It is prioritising the most urgent work.</p>

# SYSTEM METRICS - EVENTS

**Table 4: Unplanned events**

EVENT	SUM OF EVENTS THIS REPORTING PERIOD	SUM OF EVENTS YEAR-TO-DATE	SUM OF TRADING INTERVALS THIS REPORTING PERIOD	SUM OF TRADING INTERVALS YEAR-TO-DATE
Abnormal frequency events	4	8	4	8
			(0.09% of trading intervals for the quarter)	(0.09% of trading intervals for the year)
UFLS	1	1	1	1
UFIS	0	0	0	0
Unplanned islanding events	1	1	1	1
Secondary FCESS enablement (unplanned)	1	1	The ISO monitors this metric, but does not publish this information as it is commercially sensitive	The ISO monitors this metric, but does not publish this information as it is commercially sensitive
Protocol activations	0	0	0	0
System operations directions, pre-contingent directions, emergency directions	0	0	0	0
Constraint directions	0	0	0	0

**Figure 1: Quarterly moving averages of system events**



## SYSTEM METRICS - EVENTS

**Table 5: Planned events**

EVENT	SUM OF EVENTS THIS REPORTING PERIOD	SUM OF EVENTS YEAR-TO-DATE	SUM OF TRADING INTERVALS THIS REPORTING PERIOD	SUM OF TRADING INTERVALS YEAR-TO-DATE
Planned Islanding Events	0	2	The ISO monitors this metric, but does not publish this information as it is commercially sensitive	The ISO monitors this metric, but does not publish this information as it is commercially sensitive
Secondary FCESS enablement (planned)	0	2		

## SYSTEM METRICS - ENERGY

**Table 6 – 2022-23 Total electricity production and emissions (Clean Energy Regulator Data)**

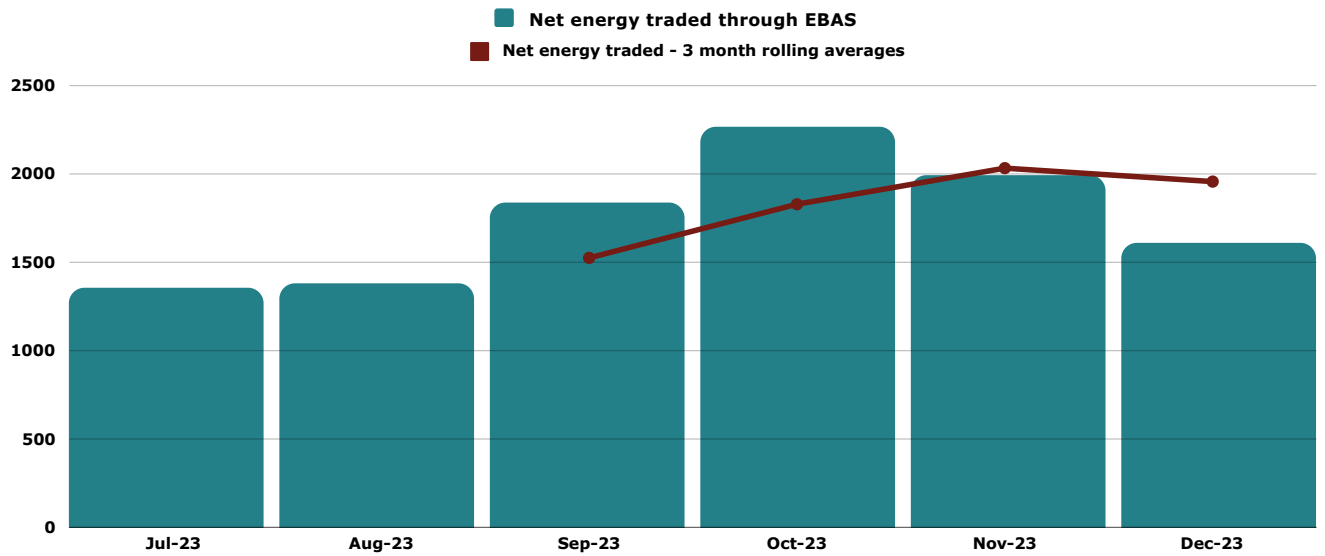
METRIC	2022/2023 TOTAL
Electricity Production	2,957 GWh
Total emissions (scope 1 and scope 2)	1,711,614 t CO <sub>2</sub> -e

**Table 7: Net energy traded through EBAS**

METRIC	SUM THIS REPORTING PERIOD (MWH)	SUM YEAR-TO-DATE (MWH)
Net energy traded through EBAS	5,870	10,445

## SYSTEM METRICS - ENERGY

**Figure 2: Quarterly moving averages of energy traded through EBAS (MWh)**



## SYSTEM METRICS - GENERATING FACILITIES

**Table 8: Installed generating facilities on Covered Networks**

METRIC	NUMBER	CAPACITY
Thermal generating facilities*	4	442 MW
Renewable facilities	0	0
BESS	0	0

\*Note - Includes generation connected to networks that are Covered under Part 8 of the Electricity Industry Act 2004. Covered networks in the NWIS include APA DEWAP and Horizon Power, this does not include any generation owned by Rio Tinto



**Table 9: New connections**

METRIC	NUMBER OF NEW GENERATORS	NUMBER OF NEW GENERATORS YEAR-TO-DATE	NEW INSTALLED CAPACITY IN REPORTING PERIOD	NEW INSTALLED CAPACITY YEAR-TO-DATE
New thermal generation	0	0	0	0
New renewable generation	0	0	0	0
New BESS	0	0	0	0
New load facilities or excluded networks	0	0	0	0
Total new facilities >10 MW	0	0	0	0

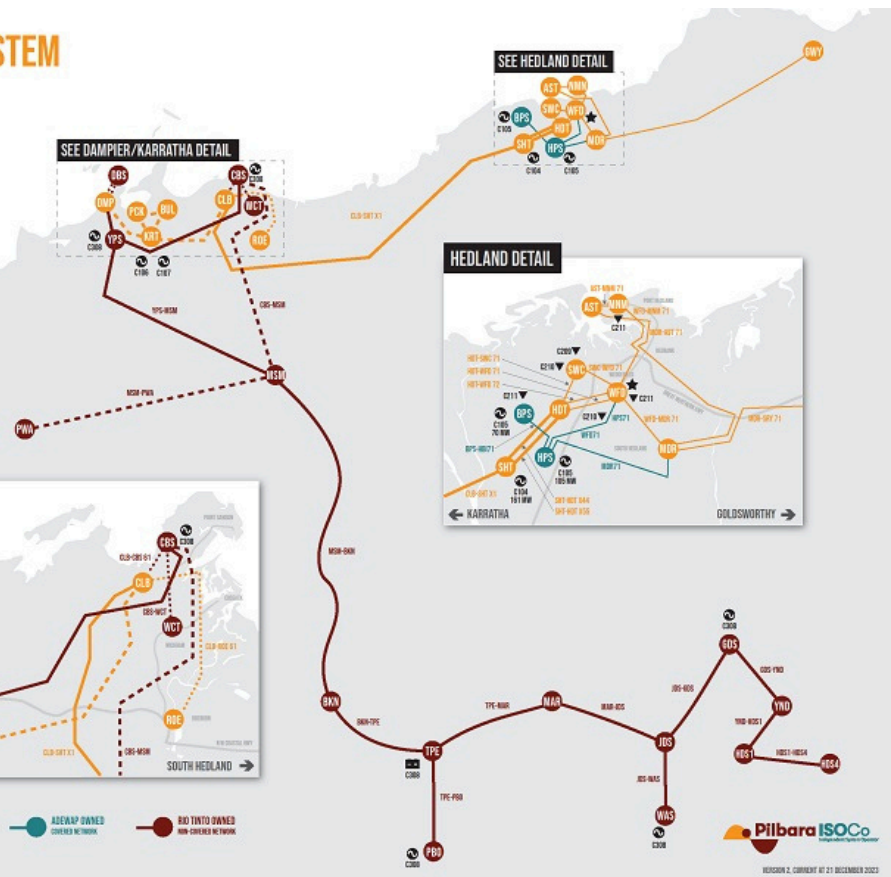


# NWIS SYSTEM MAP

## NORTH WEST INTERCONNECTED SYSTEM

PARTICIPANT CODE*	BUSINESS NAME	REGISTERED FACILITY NAME(S)
N101	Alinta DEWAP Pty Ltd	ADEWAP Network
N102	Regional Power Corporation t/a Horizon Power	Horizon Power Pilbara Network
N203	Pilbara Iron Pty Ltd	Rio Tinto Network
C104	TDC Hedland Pty Ltd	South Hedland Power Station
C105	Alinta DEWAP Pty Ltd	Port Hedland Power Station
C106	Regional Power Corporation t/a Horizon Power	Karratha Power Station (ATCO)
C107	Regional Power Corporation t/a Horizon Power	Karratha Temporary Power Station
C208	Pilbara Iron Pty Ltd	<ul style="list-style-type: none"> <li>Perakurdo Power Station</li> <li>West Angelas Power Station</li> <li>Cape Lambert Power Station</li> <li>Yuraly Maye Power Station</li> <li>Outer Dam Solar Facility</li> <li>Tom Price Battery Energy Storage</li> </ul>
C209	Roy Hill Infrastructure Pty Ltd	Roy Hill Port
C210	Fortescue Metals Group Ltd	Fortescue Port Network (FPN)
C211	BHP Iron Ore Pty Ltd	<ul style="list-style-type: none"> <li>Finucane Island Premises</li> <li>Wedgfield point of interconnection</li> <li>Nelson Point Premise 1</li> <li>Nelson Point Premise 2</li> </ul>

\*XXYY - WHERE XX = CLASS, YY = REGISTER NUMBER



WEBSITE LINK: [HTTPS://PILBARAISOCO.COM.AU/NWIS/SYSTEM-MAP/](https://pilbaraisoco.com.au/nwis/system-map/)