

# Implementation of the National Electricity Amendment (Mandatory Primary Frequency Response) Rule 2020

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**Status as at 27 Nov 2020**

A report for the National Electricity Market

# Important notice

## PURPOSE

AEMO publishes this report to inform industry about AEMO's implementation of the National Electricity Amendment (Mandatory Primary Frequency Response) Rule 2020 (Mandatory PFR Rule).

This publication has been prepared by AEMO using information available at 27 November 2020. This information will be updated and superseded by future implementation reports until full implementation.

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# 1. Summary

This report provides information on the implementation of the National Electricity Amendment (Mandatory Primary Frequency Response) Rule 2020<sup>1</sup> (Mandatory PFR Rule). It will be updated periodically as implementation proceeds, at intervals of approximately two to three weeks.

The Mandatory PFR Rule affects *Scheduled Generators* and *Semi-Scheduled Generators* (Affected Generators), who are initially required to undertake a self-assessment of the ability of their *generating systems* (Affected GS) to provide *primary frequency response* (PFR) in accordance with the *primary frequency response parameters* (PFRP) specified in the interim *Primary Frequency Response Requirements* (IPFRR).

Implementation of the Mandatory PFR Rule will be carried out in three tranches, as specified in the IPFRR.

The results of the self-assessments (Results) for Tranche 1<sup>2</sup> Affected Generators were due on 28 August 2020 and AEMO's determination of PFR Settings for Tranche 1 Affected GSs is substantially complete. Implementation of setting changes for those Affected GSs commenced from late September 2020 and has now been completed for around 60% of Tranche 1 installed capacity.

Results for Affected GSs in Tranche 2 were due by 19 November 2020. As at the date of this report, 91 Results have been received for Tranche 2, and are being assessed. The Results for generation in Tranche 3 are due by 17 February 2021.

Table 1 shows the number of Results, applications for variation and exemption received as at the date of this report.

**Table 1 Results and Applications received**

Number of Affected GS	Results	Applications for Variation	Applications for Exemption
Tranche 1	76	17	8
Tranche 2	91	12	10
Tranche 3	28	0	2

## 2. Self-Assessments

AEMO has received Results in respect of 195 Affected GSs across all three Tranches. AEMO has completed its review for 118 of those, covering around 38,800 MW of installed capacity. Table 4 contains a register of Affected GSs with their PFR Settings.

<sup>1</sup> Available at <https://www.aemc.gov.au/rule-changes/mandatory-primary-frequency-response>.

<sup>2</sup> Tranche 1 Affected GS are those with a *Registered Capacity* above 200 MW. Tranche 2 Affected GS are between 80 and 200 MW. Tranche 3 are below 80 MW. All Registered Capacities are the level of the individual DUID.

# 3. Applications for Variation

Table 2 details the number of applications for variation received in respect of Affected GSs, those granted and those still under consideration as at the date of this report.

The majority of variations granted in Tranche 1 were in relation to response time.

**Table 2 Variations**

<b>Number of Affected GS</b>	<b>Applications for Variation</b>	<b>Variations Granted</b>	<b>Variations not Granted</b>	<b>Variations being Assessed</b>
<b>Tranche 1</b>	17	17		
<b>Tranche 2</b>	12	10		2
<b>Tranche 3</b>	0			

# 4. Applications for Exemption

Table 3 details the number of applications for exemption received in respect of Affected GSs, those granted and those still under consideration as at the date of this report.

**Table 3 Exemptions**

<b>Number of Affected GS</b>	<b>Applications for Exemption</b>	<b>Exemptions Granted</b>	<b>Exemptions not Granted</b>	<b>Exemptions being Assessed</b>
<b>Tranche 1</b>	8		8	
<b>Tranche 2</b>	10			10
<b>Tranche 3</b>	2			2

# 5. Implementation of PFR Settings

## 5.1 Tranche 1 Implementation

Implementation of PFR Settings for approximately 60% of installed generation capacity in Tranche 1 has now been achieved. Information on actual and expected timing of setting changes is shown in Table 4.

AEMO is continuing to work to achieve implementation of PFR Settings across the largest possible proportion of Tranche 1 Affected GSs prior to Summer 2020-21.

Some Affected Generators indicated a preference to make staged changes to frequency response deadbands, in which case, more than one implementation date has been listed in Table 4. Other Affected Generators elected to alter settings in one step, and in these cases, a single implementation date is listed.

In some cases, expected implementation dates have changed from those reported previously. This has occurred for several reasons, including:

- Affected GS forced outages
- Delays in Affected GS returning from planned outages.
- Delays in provision of key information or advice from OEMs.
- Affected Generator resourcing constraints.
- Problems encountered when altering settings.

In all cases, the earliest reasonably achievable date, subject to these constraints, has been determined, or re-determined (as applicable) after consultation with the relevant Affected Generator.

## 5.2 Implementation for Tranche 2 and 3

As outlined in the IPFRR, Tranche 2 Generators were required to complete their self-assessments by 19 November 2020. Tranche 3 Generators will be required complete their self-assessments by 17 February 2021.

Power system reliability and security concerns suggest that requiring control system setting changes across many Affected GSs in the middle of Summer 2020/21 might not be prudent as this is, typically, the most challenging period of the year for power system operations.

Noting these competing demands, it is currently proposed that implementation of setting changes would be targeted for completion by the following dates:

- Tranche 2 (DUIDs 80 MW – 200 MW) – By 30 March 2021
- Tranche 3 (DUIDs below 80 MW) – By 30 June 2021

Details on agreed dates for settings changes for Tranche 2 and Tranche 3 Generators are shown in Table 4.

## 5.3 Flexibility in Implementation Dates

Some flexibility in implementation dates exists, particularly if an Affected Generator wishes to complete implementation of setting changes earlier than previously agreed. Affected Generators currently undertaking commissioning activities may wish to undertake the necessary work while specialist staff remain available and onsite.

Provided they consult with AEMO beforehand, Affected Generators may commence making setting changes earlier, or in an incremental manner, to achieve their PFR Settings by the specified implementation date.

Power system conditions, such as major network outages, could also require alterations to implementation dates, though this has not been necessary to date.

## 5.4 Generation providing PFR prior to Mandatory PFR Rule

Previous surveys of generator active power controls, and more recent engagement with Affected Generators indicate that no large Affected GSs were providing PFR that fully met the PFRP prior to the Mandatory PFR Rule.

AEMO is aware of a small number of, typically, smaller or low capacity factor Affected GSs that are operating in a way that could meet the PFRP (at least partially). These are identified in Table 4 following confirmation from the Affected Generator.

## 5.5 Implementation for Semi-Scheduled Generation

The Mandatory PFR Rule represents a material change to the operation of generation in the NEM, particularly for semi-scheduled generation, many of which have not previously operated in frequency response mode.

Experience to date with PFR implementation indicates that a staged approach will be required to ensure an effective rollout of PFR from semi-scheduled generation across the NEM. This will require working with OEMs in the determination and validation of an effective PFR implementation for their semi-scheduled sites.

PFR control system implementations will be trialled and validated at a small number of trial sites for each OEM, before moving to wider-scale implementation for that OEM's sites. AEMO intends to work closely with the relevant OEMs and a selection of Affected Generators to do this in the most prudent manner.

With around 20 OEMs to engage with, this might take some time, and AEMO will be prioritising those OEMs with the greatest installed capacity in the NEM.

While, in many cases, AEMO will be able to agree in-principle settings for implementation, it will be unable to confirm implementation dates with each Affected Generator prior to having confirmed an effective PFR implementation strategy with each relevant OEM.

Hence, until effective PFR implementation strategies are identified for an OEM, there will be no implementation dates reported generation sites for that OEM in Table 4, just a “#” symbol.

# 6. Register of Affected GS

Table 4 details, for each Affected GS, the planned or actual dates for completion of implementation of the PFR Settings notified by AEMO in accordance with the IPFRR, and whether AEMO has granted an exemption or variation from the PFRP. Where a variation has been granted, the table also indicates which PFRP has been varied.

A single implementation date under the ‘Stage 1’ column indicates that full implementation of the PFR Settings is to be, or has been, achieved by that date. The ‘Stage 2’ column will only be populated where the deadband is to be, or has been, tightened in two stages.

Tranche 2 (in blue font) and Tranche 3 (in green font) generation is being added to this table as AEMO completes their assessments.

At the time of writing, Affected GSs with an installed capacity of approximately 22,500 MW have either partially or fully implemented PFR Settings, or were already providing PFR that meets the PFRP.

This represents approximately 39% of the approximately 58,100 MW of NEM installed capacity that will ultimately be captured by the Mandatory PFR Rule.

**Table 4 Register of Affected GS**

Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Ararat WF	ARWF1	241	#				
Barker Inlet PS	BARKIPS1	211	Pre-existing			Yes	Response time <sup>4</sup>
Bayswater PS	BW01	660	29 Sep 20	14 Oct 20			
Bayswater PS	BW02	660	16 Oct 20				
Bayswater PS	BW03	660	3 Nov 20				
Bayswater PS	BW04	660	29 Sep 20	14 Oct 20			
Bogong / Mackay PS	MCKAY1	300	22 Oct 20				
Blowering PS	BLOWERNG	80	30 Apr 21				
Braemar PS	BRAEMAR1	168	4 Mar 21	25 Mar 21			
Braemar PS	BRAEMAR2	168	4 Mar 21	25 Mar 21			
Braemar PS	BRAEMAR3	168	4 Mar 21	25 Mar 21			
Callide B PS	CALL_B_1	350	8 Nov 20	18 Nov 20			
Callide B PS	CALL_B_2	350	30 Sep 20	28 Oct 20			
Callide C PS	CPP_3	420	9 Nov 20	26 Nov 20		Yes	Response time
Callide C PS	CPP_4	420	Early Jan 21 <sup>5</sup>			Yes	Response time
Coopers Gap WF	COOPGWF1	452	#				
Crudine Ridge WF	CRURWF1	138	#				
Darling Downs PS	DDPS1	644	15 Jun 20				
Darling Downs SF	DDSF1	121	#				
Darlington Point SF	DARLSF1	324	#				
Dartmouth PS	DARTM1	185	30 Mar 21				
Eildon PS	EILDON1	60	30 Mar 21				
Eildon PS	EILDON2	60	30 Mar 21				

<sup>3</sup> This column will be populated only when deadband adjustments will be made in two stages.

<sup>4</sup> AEMO has granted a variation in respect of response time, where 12 sec is required to achieve a 5% change in output. This information is included with the consent of the Affected Generator.

<sup>5</sup> Implementation of PFR settings on this unit requires repair of key auxiliary plant, with an exact date yet to be determined.



Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Eraring PS	ER01	720	27 Oct 20			Yes	Response time
Eraring PS	ER02	720	16 Oct 20			Yes	Response time
Eraring PS	ER03	720	13 Oct 20			Yes	Response time
Eraring PS	ER04	720	20 Oct 20			Yes	Response time
Gangarri SF	GANGARR1	162	#				
Gladstone PS	GSTONE1	280					
Gladstone PS	GSTONE2	280					
Gladstone PS	GSTONE3	280					
Gladstone PS	GSTONE4	280					
Gladstone PS	GSTONE5	280					
Gladstone PS	GSTONE6	280					
Glenrowan West SF	GLRWNSF1	132	#				
Gordon PS	GORDON	432	Unit 1 – 11 Dec 20 Unit 2 – 28 Sep 20 Unit 3 – 29 Sep 20				
Hallett PS	AGLHAL	217	27 Oct 20 <sup>6</sup>				
Hornsedale Power Reserve	HPRG1	150	30 March 21				
Jeeralang PS	JLA01	51	16 Dec 20				
Jeeralang PS	JLA02	51	16 Dec 20				
Jeeralang PS	JLA03	51	16 Dec 20				
Jeeralang PS	JLA04	51	16 Dec 20				
Jeeralang PS	JLB01	76	16 Dec 20				
Jeeralang PS	JLB02	76	16 Dec 20				
Jeeralang PS	JLB03	76	16 Dec 20				
Jemalong SF	JEMALNG1	50	#				
Kiamal SF	KIAMSF1	239	#				
Kogan Creek PS	KPP_1	744	19 Nov 20	26 Nov 20			
Liddell PS	LD01	500	End of week commencing 30 <sup>th</sup> Nov				

<sup>6</sup> Applicable to one generating unit, remainder previously complied with the PFRP.

Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Liddell PS	LD02	500	End of week commencing 30 <sup>th</sup> Nov				
Liddell PS	LD03	500	End of week commencing 30 <sup>th</sup> Nov				
Liddell PS	LD04	500	End of week commencing 30 <sup>th</sup> Nov				
Limondale 1 SF	LIMOSF11	275	#				
Lincoln Gap WF	LGAPWF1	212	#				
Loy Yang A PS	LYA1	560	14 Oct 20				
Loy Yang A PS	LYA2	530	14 Oct 20	11 Nov 20			
Loy Yang A PS	LYA3	560	17 Nov 20				
Loy Yang A PS	LYA4	560	15 Oct 20				
Loy Yang B PS	LOYB1	500	12 Dec 20	17 Dec 20			
Loy Yang B PS	LOYB2	500	30 Sep 20	28 Oct 20			
Macarthur WF	MACARTH1	420	#				
Millmerran PS	MPP_1	426	1 Oct 20	28 Oct 20		Yes	Response time
Millmerran PS	MPP_2	426	12 Nov 20			Yes	Response time
Mintaro PS	MINTARO	90	27 Nov 20				
Morgan Whyalla Pump PV1	MWPS1PV1	6	#				
Morgan Whyalla Pump PV2	MWPS2PV1	6	#				
Morgan Whyalla Pump PV3	MWPS3PV1	8	#				
Morgan Whyalla Pump PV4	MWPS4PV1	6	#				
Moorabool WF	MOORAWF1	312	#			Yes	Deadband <sup>7</sup>
Mortlake PS	MORTLK11	283	30 Sep 20				
Mortlake PS	MORTLK12	283	6 Nov 20				
Mount Emerald WF	MEWF1	180	#				
Mt Piper PS	MP1	700	After RTS in late Dec 20.				
Mt Piper PS	MP2	700	29 Sep 20	28 Oct 20			

<sup>7</sup> AEMO has granted a variation to the deadband at  $\pm 100$  mHz based on the currently known capabilities of the Affected GS for a period of 9 months. This information is included with the consent of the Affected Generator.

Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Murra Warra WF	MUWAWF1	231	#				
Murray PS	MURRAY	1500	31 March 21 <sup>8</sup>				
Newport PS	NPS	500	28 Sep 20	19 Oct 20			
Oakey PS	OAKEY1	144	30 Mar 21			Yes	Deadband
Oakey PS	OAKEY2	144	30 Mar 21			Yes	Deadband
Osborne PS	OSB-AG	180	Pre-existing				
Pelican Point PS	PPCCGT	478	30 Sep 20				
Poatina PS	POAT220	200	Pre-existing			Yes	Deadband, Response Time <sup>9</sup>
Poatina PS	POAT110	100	Pre-existing			Yes	Deadband, Response Time <sup>10</sup>
SA Temp. Gen. Sth	SATGS1	123	1 Mar 21				
Sapphire WF	SAPHWF1	270	#				
Shoalhaven PS	SHGEN	240	Bendeela Unit 1 – 31 October 2022				
			Bendeela Unit 2 - 31 August 2021				
			Kangaroo Valley Unit 3 -30 November 2023				
			Kangaroo Valley Unit 4 -31 August 2021				
Smithfield Energy Facility	SITHE01	161	Pre-existing				
Somerton PS	AGLSOM	170	30 Apr 21				
Stanwell PS	STAN-1	365	27 Oct 20				
Stanwell PS	STAN-2	365	27 Oct 20				
Stanwell PS	STAN-3	365	27 Oct 20				
Stanwell PS	STAN-4	365	29 Oct 20				

<sup>8</sup> One generating unit (out of 14) will have PFR Settings implemented in Oct 2021.

<sup>9</sup> The variation to the deadband at  $\pm 150$  mHz is for 6 months only. The variations were granted due to the inherent capability and design of the Affected GS. This information is included with the consent of the Affected Generator.

<sup>10</sup> The variation to the deadband at  $\pm 150$  mHz is for 6 months only. The variations were granted due to the inherent capability and design of the Affected GS. This information is included with the consent of the Affected Generator.

Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Stockyard Hill WF	STOCKYD1	531	#			Yes	Deadband <sup>11</sup>
Swanbank E GT	SWAN_E	385	End of week commencing 30 Nov			Yes	Response Time
Tallawarra PS	TALWA1	440	Upon RTS from outage in late Mar 2021				
Tarong North PS	TNPS1	443	21 Oct 20			Yes	Droop, Response Time <sup>12</sup>
Tarong PS	TARONG#1	350	27 Oct 20				
Tarong PS	TARONG#2	350	3 Nov 20				
Tarong PS	TARONG#3	350	27 Oct 20				
Tarong PS	TARONG#4	350	27 Oct 20				
Torrens Island A PS	TORRA1	120	Pre-existing			Yes	Droop <sup>13</sup>
Torrens Island A PS	TORRA3	120	Pre-existing			Yes	Droop <sup>14</sup>
Torrens Island B PS	TORRB1	200	30 Mar 21			Yes	Droop <sup>15</sup>
Torrens Island B PS	TORRB2	200	30 Mar 21			Yes	Droop <sup>16</sup>
Torrens Island B PS	TORRB3	200	30 Mar 21			Yes	Droop <sup>17</sup>
Torrens Island B PS	TORRB4	200	30 Mar 21			Yes	Droop <sup>18</sup>
Townsville PS	YABULU	160	31 March 21				
Tumut 3 PS	TUMUT3	1500	30 Nov 20				
Tumut 1 & 2 PS	UPPTUMUT	616	18 Dec 20				
Vales Point B PS	VP5	660	30 Sep 20			Yes	Deadband <sup>19</sup>

<sup>11</sup> AEMO has granted a variation to the deadband at  $\pm 100$  mHz based on the currently known capabilities of the Affected GS for a period of 9 months. This information is included with the consent of the Affected Generator.

<sup>12</sup> The droop characteristics applied to the unit do not meet the requirement for a droop of 5% or less. This variation is granted for a period of 12 months only. An ongoing variation on response time has been granted. This information is included with the consent of the Affected Generator.

<sup>13</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>14</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>15</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>16</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>17</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>18</sup> Droop varies with loading level, and may exceed 5% at high output. This information is included with the consent of the Affected Generator.

<sup>19</sup> AEMO has granted a variation to the deadband at  $\pm 100$  mHz based on the unique condition of the Affected GS for a period of 12 months. This information is included with the consent of the Affected Generator.

Affected GS Name	DUID	Reg Cap (MW)	PFR Settings changes to be (or have been) implemented for ongoing operation by		Exemption	Variation	PFRP Varied
			Stage 1	Stage 2 <sup>3</sup>			
Vales Point B PS	VP6	660	30 Sep 20			Yes	Deadband <sup>20</sup>
Valley Power	VPGS1	50	28 Feb 21				
Valley Power	VPGS2	50	28 Feb 21				
Valley Power	VPGS3	50	28 Feb 21				
Valley Power	VPGS4	50	28 Feb 21				
Valley Power	VPGS5	50	28 Feb 21				
Valley Power	VPGS6	50	28 Feb 21				
Wellington SF	WELLSF1	216	#				
Wivenhoe PS	W/HOE#1	285	26 Oct 20			Yes	Response Time
Wivenhoe PS	W/HOE#2	285	26 Oct 20			Yes	Response Time
Yallourn W PS	YWPS1	360	28 Oct 20				
Yallourn W PS	YWPS2	360	29 Sep 20	28 Oct 20			
Yallourn W PS	YWPS3	380	29 Sep 20	28 Oct 20			
Yallourn W PS	YWPS4	380	29 Sep 20	28 Oct 20			

<sup>20</sup> AEMO has granted a variation to the deadband at  $\pm 100$  mHz based on the unique condition of the Affected GS for a period of 12 months. This information is included with the consent of the Affected Generator.

# 7. Impact on Frequency Performance

AEMO provides detailed reporting on power system frequency performance in its Frequency and Time Error Monitoring reports<sup>21</sup> published quarterly. The most recent report was published on 11 November 2020.

This report focuses on a sub-set of the matters raised in the quarterly report and provides some information focusing on relatively recent frequency performance to help capture impacts on power system frequency that are (at least in part) associated with the implementation of the Mandatory PFR Rule.

0 shows the monthly frequency distribution for the last six months (01 Apr 2020 to 26 Nov 2020).

Figure 2 shows the day-by-day frequency distribution from early September 2020. It highlights the time Affected Generators began implementation of their PFR Settings at the end of September 2020.

These two figures show improvement in the closeness of the distribution of frequency around 50 Hz, particularly from the second half of October 2020, where many generators moved from interim to final PFR settings. This trend is expected to continue as additional Affected GSs implement PFR Settings during the following weeks and months.

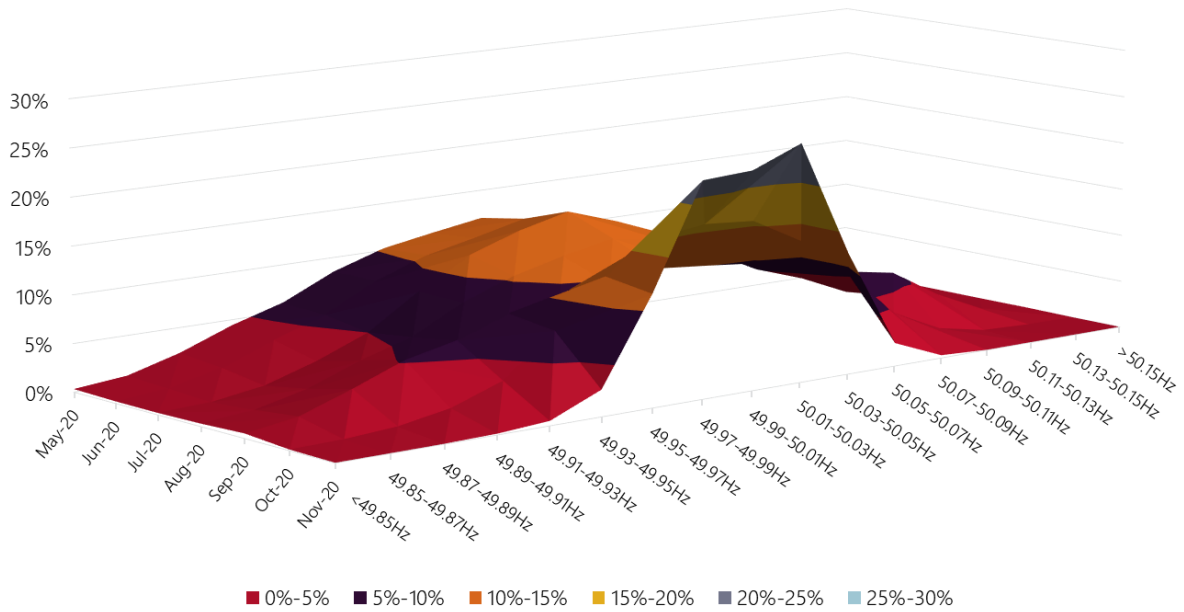
Figure 3 shows a comparison of the daily frequency distribution, at monthly intervals from Jun 2020. It shows a relatively consistent distribution of frequency from June 2020 until immediately before implementation of PFR settings commenced in late September 2020.

Some improvement was seen following initial setting changes in late September, however from late October, when many generators moved from interim to final PFR settings, the improvement in the control of NEM frequency to near 50 Hz is significant. This change has remained relatively consistent throughout the month of November 2020.

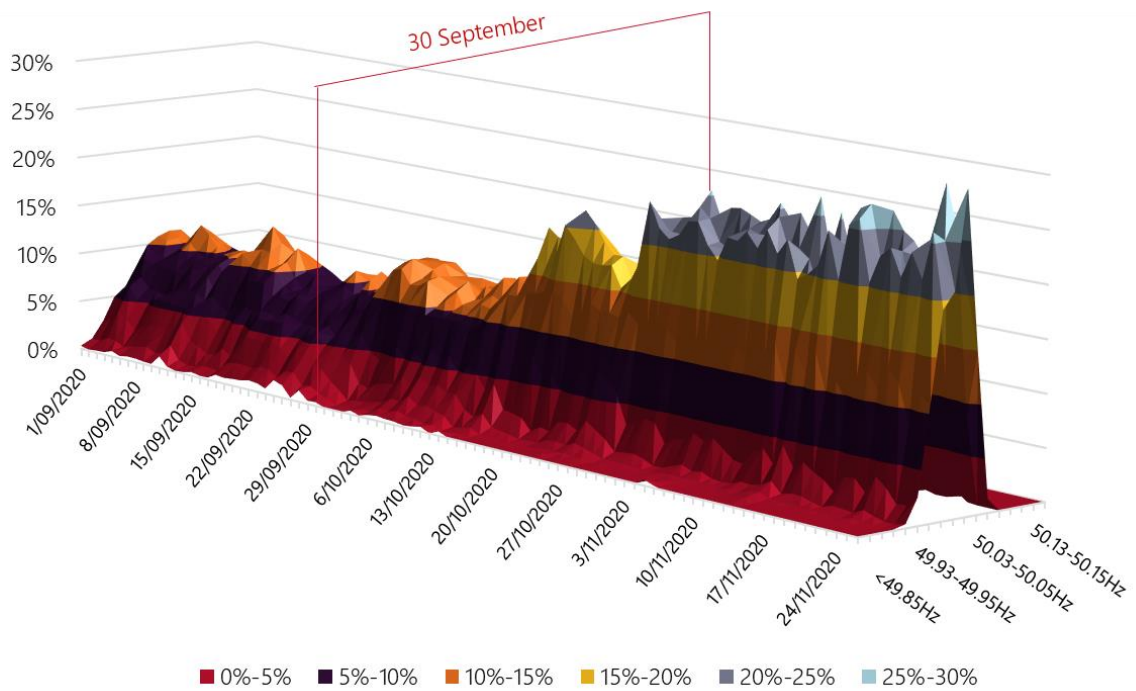
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<sup>21</sup> Available at <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/ancillary-services/frequency-and-time-deviation-monitoring>.

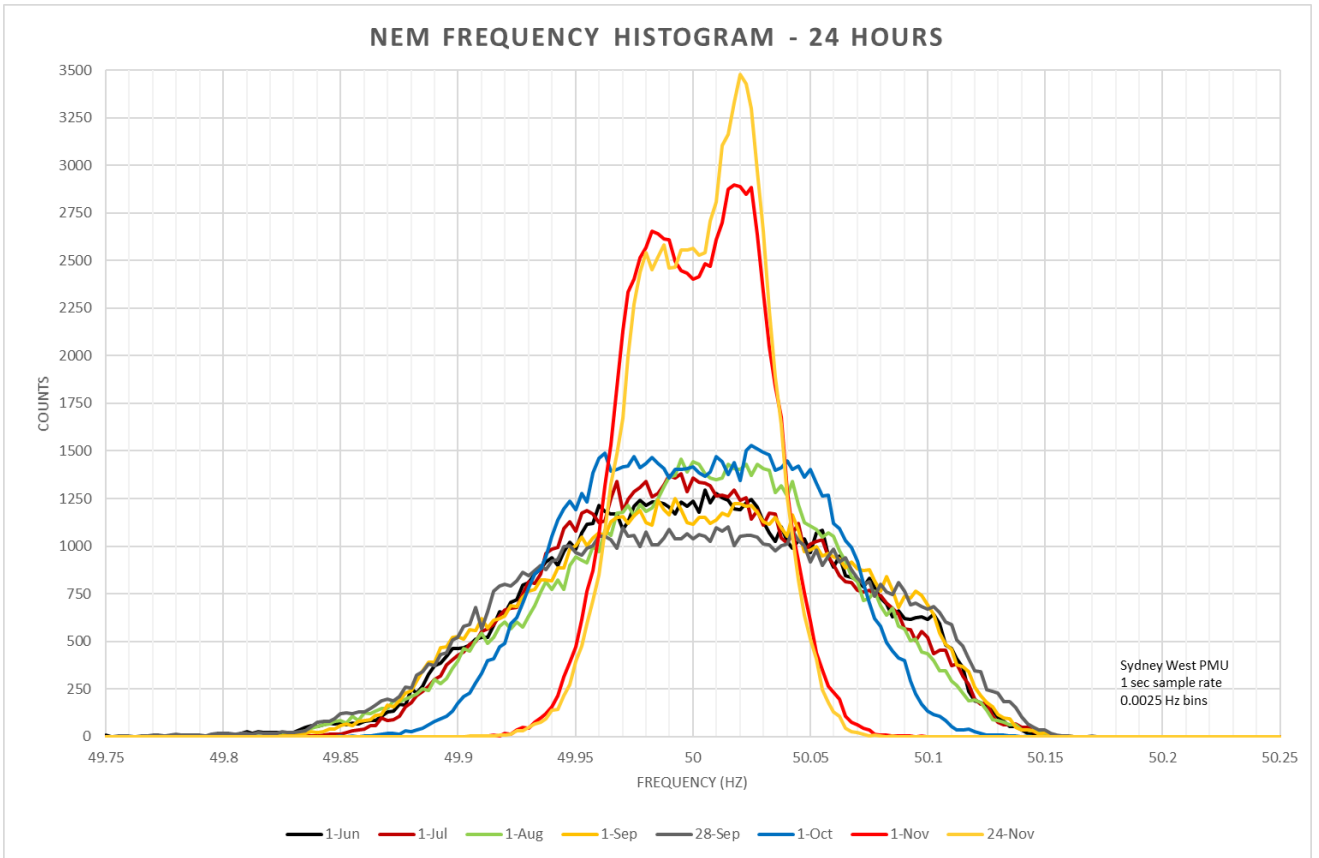
**Figure 1 Monthly frequency distribution (six-month rolling, 01 Apr 2020 to 26 Nov 2020)**



**Figure 2 Daily frequency distribution (data from 01 Sep 2020 to 26 Nov 2020)**



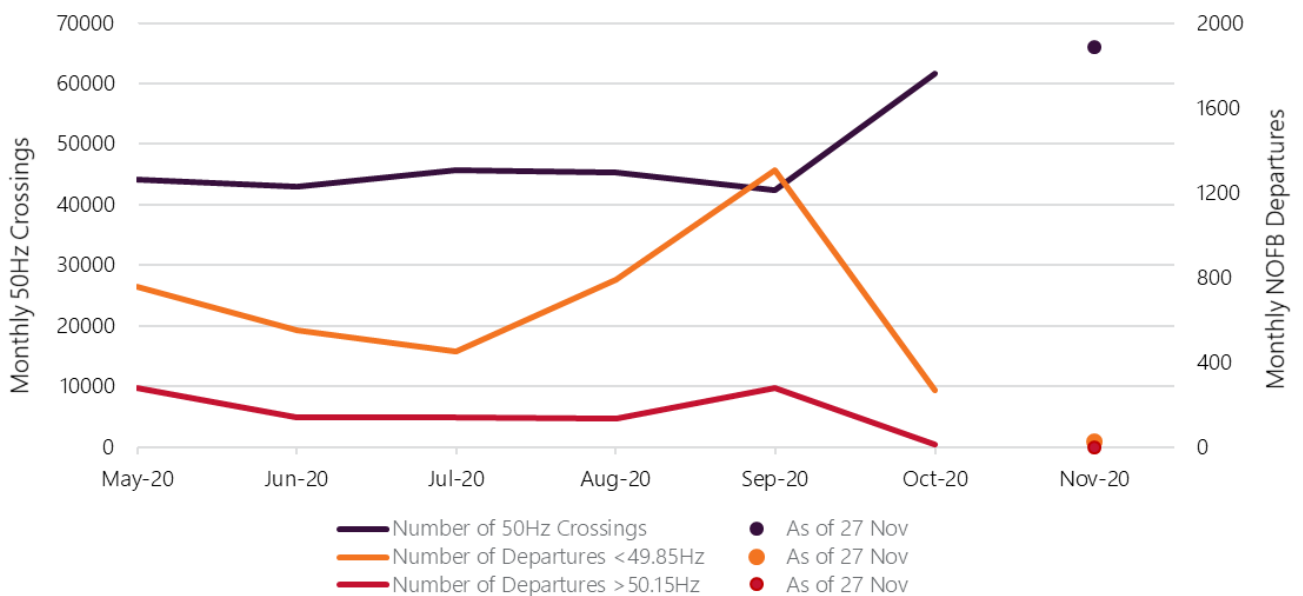
**Figure 3 Daily frequency distribution at monthly intervals – June to Nov 2020**



The total number of departures from the normal operating frequency band (NOFB) and the number of times frequency crossed the nominal 50 Hz is shown on a monthly basis in Figure 4 and on a day-by-day basis in Figure 5.

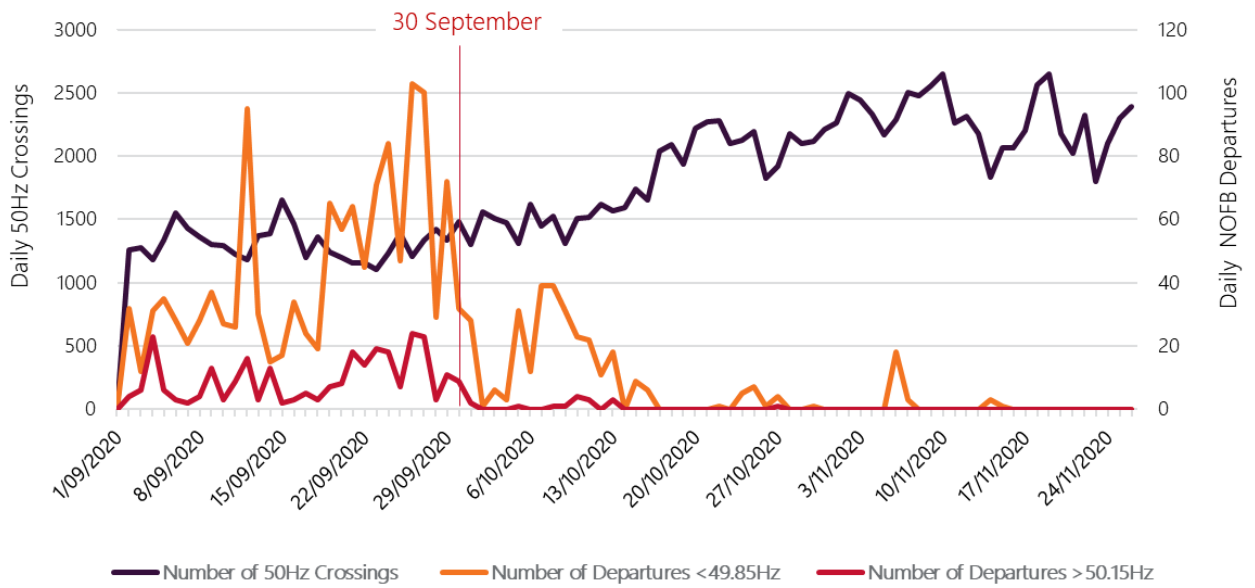
These figures show a significant reduction in the number of excursions outside the NOFB following the commencement of implementation of PFR setting changes from the end of September 2020. This trend is particularly evident since mid-October 2020, and has persisted since that time.

**Figure 4 Monthly frequency crossings – under 49.85 Hz, across 50 Hz, beyond 50.15 Hz**





**Figure 5 Daily frequency crossings – under 49.85 Hz, across 50 Hz, beyond 50.15 Hz**



# Glossary

This document uses many terms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified.

<b>Term</b>	<b>Definition</b>
Affected Generator	As defined in the IPFRR.
Affected GS	As defined in the IPFRR.
CCGT	Combined Cycle Gas Turbine.
DUID	Dispatchable unit identification.
GT	Gas Turbine
HP	Hold Point. A point during commissioning of new <i>plant</i> determined by reference to <i>generation</i> output.
IPFRR	Interim Primary Frequency Response Requirements.
Mandatory PFR Rule	National Electricity Amendment (Mandatory Primary Frequency Response) Rule 2020.
NOFB	<i>normal operating frequency band.</i>
PFR	<i>primary frequency response.</i>
PFR Settings	The settings to achieve the provision of PFR in accordance with the IPFRR, as notified to an Affected Generator by AEMO.
PFRP	<i>primary frequency response parameters.</i>
PS	Power Station.
PV	Photovoltaic
Results	As defined in the IPFRR.
RTS	Return to service following an <i>outage</i> .
SF	Solar Farm.
Tranche 1	Affected GS with a <i>nameplate rating</i> of >200 MW.
Tranche 2	Affected GS with a <i>nameplate rating</i> between 80 MW and 200 MW.
Tranche 3	Affected GS with a <i>nameplate rating</i> of <80 MW.
WF	Wind Farm.