

AEMO Directions to Participants in South Australia

22 December 2021

IES Ref 6662

Final Determination Report

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Notes to this report

Units and dollars

Unless otherwise specified:

- Dollars refer to Australian dollars.
- The claim amounts do not include interest payable to the participant.



Table of Contents

Disclaimer	ii
Notes to this report	iii
<u>1 Introduction.....</u>	<u>1</u>
1.1 Background and direction to participants	1
1.2 Description of services provided	2
<u>2 Claims for additional compensation – Claimant1</u>	<u>3</u>
2.1 Summary of claims by Claimant1	3
2.2 Calculating the claimed amounts	3
2.2.1 Additional net direct fuel costs (Gas) – per 3.15.7B(a3)(1)	3
2.2.2 Additional net direct maintenance costs (VOM) – per 3.15.7B(a3)(2)	4
2.2.3 Additional net direct other costs (FCAS & Transportation) – per 3.15.7B(a3)(6)	5
2.2.4 Additional net direct other costs (Transportation) – per 3.15.7B(a3)(6)	5
2.2.5 The amount calculated as DCP	5
2.3 Summary of the determination – Claimant1	5
<u>3 Claims for additional compensation – Claimant2</u>	<u>6</u>
3.1 Summary of claims by Claimant2	6
3.2 Calculating the claimed amounts	6
3.2.1 Additional net direct fuel costs (Gas) – per 3.15.7B(a3)(1)	6
3.2.2 Additional net direct maintenance costs (EOH) – per 3.15.7B(a3)(2)	8
3.2.3 Additional net direct other costs (FCAS) – per 3.15.7B(a3)(6)	8
3.2.4 Additional net direct other costs (Transportation) – per 3.15.7B(a3)(6)	8
3.2.5 The amount calculated as DCP	8
3.3 Summary of the determination – Claimant2	9
<u>4 Submissions on matters in the draft report.....</u>	<u>9</u>



1 Introduction

IES has been appointed by AEMO as independent expert to assess claims for additional compensation submitted by a *Directed Participant* in relation to the directions issued during Billing Weeks 25 to 28.

1.1 Background and direction to participants

During billing weeks 25 to 28 AEMO issued directions to maintain the system in a secure operating state. This report presents the assessment of claims made by two claimants, Claimant1 and Claimant 2. The directions are summarised in Table 1 and Table 2 with the information appropriately masked to maintain confidentiality.

Table 1 Summary of the *directions* – Claimant1

Directed unit	Event number	Issued	Effective	Ended	Reason
PS1	1-1	22/06/2021 17:00	22/06/2021 23:00	23/06/2021 17:30	System strength
PS1	2-1	23/06/2021 17:00	23/06/2021 22:30	24/06/2021 15:00	System strength
PS1	1-1	01/07/2021 16:00	02/07/2021 00:30	02/07/2021 15:30	System strength
PS2	2-1	02/07/2021 17:00	03/07/2021 00:30	03/07/2021 12:00	System strength
PS2	4-2	10/07/2021 18:00	11/07/2021 01:00	11/07/2021 16:00	System strength
PS2	4-3	11/07/2021 15:00	11/07/2021 22:30	12/07/2021 07:00	System strength
PS2	5-1	13/07/2021 16:00	13/07/2021 22:30	17/07/2021 17:00	System strength
PS3	5-4	14/07/2021 15:00	14/07/2021 22:30	17/07/2021 17:00	System strength

Table 2 Summary of the *directions* – Claimant 2

Directed unit	Event number	Issued	Effective	Ended	Reason
PS1	2-1	23/06/2021 18:00	24/06/2021 0:00	24/06/2021 6:00	System strength
PS1	4-1	10/07/2021 18:00	10/07/2021 23:00	12/07/2021 4:00	System strength
PS1	5-2	13/07/2021 16:05	13/07/2021 22:30	14/07/2021 8:30	System strength
PS1	5-3	14/07/2021 9:00	14/07/2021 10:00	14/07/2021 15:00	System strength
PS1	5-5	14/07/2021 15:00	14/07/2021 23:00	15/07/2021 16:00	System strength
PS1	5-6	15/07/2021 16:00	15/07/2021 23:30	16/07/2021 16:00	System strength
PS1	5-7	16/07/2021 16:00	17/07/2021 1:00	17/07/2021 15:30	System strength



1.2 Description of services provided

The directions issued by AEMO were for the provision of system strength. A directed participant providing system strength (refer to 3.15.7(a2)(4)(iii)) is deemed, for the purposes of 3.15.7(a1), to provide energy. A directed participant that provides energy is entitled to compensation including for “...additional net direct costs incurred by the directed participant...as a result of the provision of the service”. Clause 3.15.7B(a3) lists, without limitation, components included in the calculation of additional net direct costs. 3.15.7B(b) states that submissions made must “(1) itemise each component of a claim; (2) contain sufficient data and information to substantiate each component of a claim...”

The claims for additional compensation include amounts due to four components:

- Additional net direct fuel costs (Gas) – per 3.15.7B(a3)(1), plus
- Additional net direct maintenance costs (VOM) – per 3.15.7B(a3)(2), plus
- Additional net direct other costs (FCAS) – per 3.15.7B(a3)(6), less
- The amount calculated as DCP.

AEMO has calculated the compensation amount the directed participant is entitled to receive (DCP) in accordance with NER Clause 3.15.7(c). The Claimants have submitted written claims for additional compensation under NER clause 3.15.7B. The assessment of these claims is discussed in this determination report.

Where it is considered important for clarity, terms defined in the National Electricity Rules (NER) have been italicised in the report. A reference to a clause in this report is a reference to the clause in the NER unless stated otherwise.

The remainder of this report is organised as follows:

Section 2 – Claims for additional compensation – Claimant1,

Section 3 – Claims for additional compensation – Claimant2, and

Section 4 – Submissions on matters in the draft report.

2 Claims for additional compensation – Claimant1

2.1 Summary of claims by Claimant1

Claimant1 submitted claims summarised in Table 3. The components of the claim comprised Fuel cost (Gas), variable operations and maintenance cost (VOM) and recovery of contingency FCAS charges incurred while the units operated in compliance with the directions. The total cost of the direction is the sum of these three components. The additional compensation claimed is equal to the latter quantity less DCP. The amounts in the claims submitted by Claimant1 were all rounded to the nearest dollar. And are shown as submitted in Table 3. The rounding resulted in an overall amount lower by \$4.64 compared to using dollars and cents.

Table 3 Summary of claims - Claimant1

Directed Unit	Event	Effective	Total Fuel Cost	VOM Cost	FCAS Recovery	Total Cost of Direction	DCP	Additional Compensation Claimed
PS1	1-1	22/06/2021 17:00	\$107,858	\$2,244	\$281	\$110,383	\$54,944	\$55,439
PS1	2-1	23/06/2021 17:00	\$96,662	\$2,002	\$244	\$98,907	\$48,982	\$49,925
PS1	1-1	01/07/2021 16:00	\$105,516	\$1,820	\$168	\$107,504	\$46,842	\$60,661
PS2	2-1	02/07/2021 17:00	\$82,286	\$1,395	\$177	\$83,858	\$35,722	\$48,136
PS2	4-2	10/07/2021 18:00	\$128,545	\$1,820	\$150	\$130,515	\$50,432	\$80,083
PS2	4-3	11/07/2021 15:00	\$92,650	\$1,031	\$109	\$93,790	\$28,885	\$64,905
PS2	5-1	13/07/2021 16:00	\$623,790	\$10,978	\$1,254	\$636,023	\$310,733	\$325,289
PS3	5-4	14/07/2021 15:00	\$464,210	\$8,067	\$652	\$472,929	\$223,072	\$249,857
		Total	\$1,701,518	\$29,357	\$3,035	\$1,733,910	\$799,613	\$934,292

2.2 Calculating the claimed amounts

This Section assesses the claimed amount by examining the method used and correctness of the calculation of each of the components of net additional costs included in the claim.

2.2.1 Additional net direct fuel costs (Gas) – per 3.15.7B(a3)(1)

Claimant1 calculated gas costs as follows:

- 1) Calculated the gas volume consumed by the units as the product of the heat rate and energy dispatched while under direction. The heat rate relationship was based on a technical report and the energy quantities from the dispatch data.
- 2) Calculated a volume weighted average price of gas based on the volumes and prices of the gas supplied to the units while generating under direction. Purchases were made from two contracts and invoices provided in support. On two days gas was also purchased on the spot market. The volume of spot purchases was well below the volume of gas consumed by the units on these two days. The cost of spot gas was



included in these cases. The price was verified against the spot price at the time of the purchase.

- 3) Gas transportation costs were not claimed as no additional costs were incurred in connection with the directions.

This method in the view of IES provides a reasonable reflection of the gas costs incurred in relation to carrying out the *direction*. There are however three issues worthy of note.

2.2.1.1 Calculation of the gas volume

There was a spread sheet error in the implementation of the relationship used to calculate the gas volume. The mathematical relationship was provided on the model provided by Claimant1 in the tab 'HR' and implemented correctly in that tab. However, there was an error in the Excel implementation of the relationship when calculating the volumes associated with the electricity dispatched during the direction (incorrectly placed brackets). This was corrected during the assessment and the corrected volumes used for the determination. The correction was relatively minor, reduced the overall gas volume by approximately 307 GJ, and was not biased in one direction.

2.2.1.2 Calculation of the gas price from one contract applicable to July

The July price of one of the contracts was calculated incorrectly. The quantity was divided by the quantity relating to 30 days instead of 31 days. The corrected July price was about 3% lower than the price used in the claim. The June price was not affected.

The combined impact of the volume and price corrections reduced the gas cost by \$41,818.49 compared to the amount in the claim.

2.2.1.3 Claimant1 did not claim some gas costs

Claimant1 claimed only for the cost associated with the spot purchases in direction event number 4-3. NER clause 3.15.7B(b) states that submissions made must "(1) itemise each component of a claim;". Our interpretation of the NER is that the claim must be assessed based on the amounts itemised in the claimant's submission. The claimant's submission for gas costs related to this direction event were accepted as submitted.

2.2.2 Additional net direct maintenance costs (VOM) – per 3.15.7B(a3)(2)

The claim included a component of additional maintenance costs of the directed units. Claimant1 used a VOM rate based on data from a very old study and indexed that cost by 2.5% for each year from the date of the study to the present. This is not a reliable estimate of VOM but Claimant1 could not furnish other supporting data. In view of this we have used the VOM for these units provided in the "2021 Inputs and assumptions workbook" available on AEMO's website.¹ The workbook expresses the VOM costs in 2021 terms. It is noted that this approach to estimating VOM is essentially the same approach adopted in a recent final determination.² The effect of this adjustment is to reduce the claimed amount by \$18,324.95.

¹ <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp/current-inputs-assumptions-and-scenarios> accessed on 21 October 2021.

² Final Assessment of Additional Compensation for Directions in SA Between February 25th and March 26th, 2021 by the consultancy SLC.



2.2.3 Additional net direct other costs (FCAS & Transportation) – per 3.15.7B(a3)(6)

The Claimant included in its claim for additional compensation an amount to recover the FCAS charges it incurred due to carrying out the *direction*. The Claimant calculated the dispatched energy from the directed units as a percentage of the total energy and applied that factor to the contingency raise costs incurred during the direction period. The energy quantities were supported by dispatch data. Raise contingency costs are charged to generators on the basis of the energy they produce at the time.

In IES' view this is a reasonable method of attributing these costs to the direction. The Claimant's amounts for this component included in the claim are accepted.

2.2.4 Additional net direct other costs (Transportation) – per 3.15.7B(a3)(6)

Gas transportation costs were not claimed as no additional costs were incurred in connection with the directions.

2.2.5 The amount calculated as DCP

The compensation to which a directed participant is entitled (DCP) in the case of a direction for the provision of energy is specified in 3.15.7(c). This is based on a formula where, simply put, the price is the 90th percentile of prices for energy a year immediately preceding the trading day of the *direction*. This amount was calculated by AEMO.

2.3 Summary of the determination – Claimant1

As a result of reviewing the claim submitted by Claimant1 two corrections were made: one to gas volume and the other to the price of one contract in the month of July. Both of these corrections were corrections to spreadsheet errors. The review also made what it considered a more reasonable estimate of the VOM costs related to the direction. Table 4 summarises the determination based on the above review. Following review of the claim submitted by Claimant1 it is IES' view that Claimant1 is entitled to an additional compensation amount equal to \$874,153.20.

Table 4 Summary of determination for claims by Claimant1

Directed Unit	Event	Effective	Total Fuel Cost	VOM Cost	FCAS Recovery	Total Cost of Direction	DCP	Additional Compensation Determination
PS1	1-1	22/06/2021 17:00	\$107,899.42	\$843.09	\$280.89	\$109,023.41	\$54,944.33	\$54,079.08
PS1	2-1	23/06/2021 17:00	\$96,698.38	\$747.38	\$244.09	\$97,689.84	\$48,981.72	\$48,708.12
PS1	1-1	01/07/2021 16:00	\$102,590.03	\$682.19	\$167.75	\$103,439.98	\$46,842.32	\$56,597.66
PS2	2-1	02/07/2021 17:00	\$79,465.62	\$516.18	\$177.02	\$80,158.82	\$35,721.96	\$44,436.86
PS2	4-2	10/07/2021 18:00	\$126,202.25	\$689.22	\$150.39	\$127,041.86	\$50,432.36	\$76,609.50
PS2	4-3	11/07/2021 15:00	\$92,650.00	\$390.64	\$109.26	\$93,149.90	\$28,884.90	\$64,265.01
PS2	5-1	13/07/2021 16:00	\$605,566.60	\$4,176.03	\$1,253.97	\$610,996.61	\$310,733.34	\$300,263.27
PS3	5-4	14/07/2021 15:00	\$448,627.00	\$2,987.09	\$651.58	\$452,265.67	\$223,071.97	\$229,193.70
		Total	\$1,659,699.30	\$11,031.82	\$3,034.96	\$1,673,766.08	\$799,612.89	\$874,153.20



3 Claims for additional compensation – Claimant2

3.1 Summary of claims by Claimant2

Claimant2 submitted claims summarised in Table 5. The components of the claim comprised Fuel cost (Gas), operations and maintenance cost expressed in equivalent operating hours terms (EOH) and recovery of contingency FCAS charges incurred while the units operated in compliance with the directions. The total cost of the direction is the sum of these three components. The additional compensation claimed is equal to the latter quantity less DCP.

The submission by the claimant contained an entry error which caused the EOH costs to be overestimated. The claimant provided information which showed the method and calculations of EOH. However, the value entered and used in calculating the direction cost was incorrect. The claimant corrected this error and provided calculations of the direction cost that corrected that error. Claimant2 claim amounts were rounded off to the nearest 10 cents. The claim amounts are summarised in Table 5. The last column of the table shows the additional compensation amount in the claim as submitted which incorporates the EOH error mentioned. For consistency, the EOH cost column in the table shows the initial (over)estimate of EOH costs. The components of the claim are assessed and discussed in the section that follows.

Table 5 Summary of claims - Claimant2

Directed Unit	Event	Effective	Total Fuel Cost	EOH Cost	FCAS & Transportation	Total Cost of Direction	DCP	Additional Compensation Claimed
PS1	2-1	24/06/2021 0:00	\$121,135.49	\$5,958.00	\$156.85	\$127,250.34	\$85,827.55	\$41,422.80
PS1	4-1	10/07/2021 23:00	\$675,959.87	\$28,797.00	\$11,603.26	\$716,360.12	\$464,028.33	\$252,331.80
PS1	5-2	13/07/2021 22:30	\$210,614.66	\$9,930.00	\$2,954.89	\$223,499.55	\$161,388.23	\$62,111.30
PS1	5-3	14/07/2021 10:00	\$101,309.70	\$4,965.00	\$482.85	\$106,757.54	\$80,467.47	\$26,290.10
PS1	5-5	14/07/2021 23:00	\$341,318.64	\$16,881.00	\$1,012.67	\$359,212.31	\$274,055.72	\$85,156.60
PS1	5-6	15/07/2021 23:30	\$331,920.14	\$16,384.50	\$6,303.15	\$354,607.79	\$269,576.64	\$85,031.20
PS1	5-7	17/07/2021 1:00	\$307,486.32	\$14,398.50	\$11,515.75	\$333,400.57	\$238,905.70	\$94,494.90
		Total	\$2,089,744.82	\$97,314.00	\$34,029.41	\$2,221,088.23	\$1,574,249.62	\$646,838.70

3.2 Calculating the claimed amounts

This Section assesses the claimed amount by examining the method used and correctness of the calculation of each of the components of net additional costs included in the claim.

3.2.1 Additional net direct fuel costs (Gas) – per 3.15.7B(a3)(1)

Claimant2 calculated gas costs as follows:

- 1) The gas used for the directions represented the gas used on the day that was above what was needed for the claimant’s commercial operations. The gas for the direction was sourced from volume flexible agreements and from linepack. Gas volume was



attributed to each direction event in proportion to the dispatched energy related to that event on each day.

- 2) The gas agreements were sorted from the lowest to the highest price and used in that order to satisfy the commercial operations first followed by what was needed for the directions. Gas for a direction event was allocated to the agreement (or linepack) with remaining availability and moved to subsequent agreements until the gas used for the direction was allocated to corresponding agreements.

The rationale is that gas volume needed for the direction was not anticipated and was managed from purchases that came from increasing price arrangements. In the view of IES the general approach for allocating gas to typical commercial operation and to the directions as a group is reasonable and consistent with how other directed participants have managed directions. However, IES believes that the allocation of gas within the directions group should be improved. A recent final determination of additional compensation claims used essentially the same method, which in its view, incentivises a claimant to minimise costs across all directions that occur on the same day.³

3.2.1.1 Allocating cost to direction events

Making the best estimate of the cost attributable to a direction is important to enable the allocation of direction costs to operate as intended. The cost of directions is allocated in proportion to the energy used over the direction period. The energy amount used to allocate the cost of directions could vary from direction to direction depending on many factors and with it the attributable costs allocated to a participant. The directions issued ran over periods of varying length and, in some cases, two or three directions occurred on the same day. Therefore, rather than allocate a higher gas price to subsequent directions that occur on the same day, it is our view that a better estimate of the price of the gas used for allocating cost to directions is a weighted average price. The daily weighted average price in this determination is calculated by weighting the gas price, from the contracts used for the directions on a given day, by the volume used for each direction event. A comparison of the costs for each direction event is summarised in Table 6.

Table 6 Comparison of total fuel costs – claim vs determination

Directed Unit	Event	Effective	Total Fuel Cost As claimed	Total Fuel Cost - determination
PS1	2-1	24/06/2021 0:00	\$121,135.49	\$121,135.49
PS1	4-1	10/07/2021 23:00	\$675,959.87	\$675,959.87
PS1	5-2	13/07/2021 22:30	\$210,614.66	\$212,303.36
PS1	5-3	14/07/2021 10:00	\$101,309.70	\$102,501.58
PS1	5-5	14/07/2021 23:00	\$341,318.64	\$340,065.71

³ Additional compensation claims arising from AEMO directions during billing weeks 21 to 24 FINAL DETERMINATION, Synergies.



Directed Unit	Event	Effective	Total Fuel Cost As claimed	Total Fuel Cost - determination
PS1	5-6	15/07/2021 23:30	\$331,920.14	\$333,086.10
PS1	5-7	17/07/2021 1:00	\$307,486.32	\$304,692.71
		Total	\$2,089,744.82	\$2,089,744.82

3.2.1.2 Estimating the cost of gas from linepack

Claimant2 injects gas into linepack storage when it does not use all of its purchases and withdraws from linepack storage when needed. The claimant estimates linepack price as the volume weighted average of gas purchased over the month. There are different approaches to calculating linepack costs. The method used by the claimant is acceptable on the basis that it is a reasonable method and one that is implemented in its accounting system.

3.2.2 Additional net direct maintenance costs (EOH) – per 3.15.7B(a3)(2)

The claim included a component of additional maintenance costs of the directed unit. Claimant2 provided information which showed the method and calculations of EOH. However, the value entered and used in calculating the direction cost was inconsistent with the information provided. IES has reviewed the model provided by the claimant and accepts its method and calculations. However, because the net additional amount claimed incorporated the data entry overestimate, the claimed amount accepted in the determination is corrected to the value in the claimants EOH mode (and corrected by the claimant). IES accepts the value as corrected by the claimant and the total EOH costs across all directions is \$88,788 which is \$8,526 lower than in the initial claim.

3.2.3 Additional net direct other costs (FCAS) – per 3.15.7B(a3)(6)

The Claimant included in its claim for additional compensation an amount to recover the FCAS charges it incurred due to carrying out the *direction*. For directions that occurred on the same day, the Claimant calculated the dispatched energy corresponding to each direction event as a percentage of the total energy and applied that factor to the contingency raise costs incurred during the direction period. The energy quantities were supported by dispatch data. Raise contingency costs are charged to generators on the basis of the energy they produce at the time. In IES' view this is a reasonable method of attributing these costs to the direction. The Claimant's amounts for this component included in the claim are accepted.

3.2.4 Additional net direct other costs (Transportation) – per 3.15.7B(a3)(6)

Transportation costs were allocated to the directions but only on the days when the claimant incurred overrun costs. The overrun volumes were lower than the gas used in the directions. It is reasonable to assume that these costs were incurred in connection with the directions.

3.2.5 The amount calculated as DCP

The compensation to which a directed participant is entitled (DCP) in the case of a direction for the provision of energy is specified in 3.15.7(c). This is based on a formula where, simply put,



the price is the 90th percentile of prices for energy a year immediately preceding the trading day of the *direction*. This amount was calculated by AEMO.

3.3 Summary of the determination – Claimant2

The claim submitted by Claimant2 was assessed. The additional maintenance costs were corrected to be consistent with the value reviewed and accepted in this report. The components of net additional cost in the submitted claim were assessed and a change to the method of allocating costs to each direction event was applied. Table 7 summarises the determination based on the above review. Following review of the claim submitted by Claimant2 it is IES’ view that Claimant2 is entitled to an additional compensation amount equal to \$638,312.60.

Table 7 Summary of determination for claims by Claimant2

Directed Unit	Event	Effective	Total Fuel Cost	EOH Cost	FCAS & Transportati on	Total Cost of Direction	DCP	Additional Compensation determination
PS1	2-1	24/06/2021 0:00	\$121,135.49	\$5,436.00	\$156.85	\$126,728.34	\$85,827.55	\$40,900.79
PS1	4-1	10/07/2021 23:00	\$675,959.87	\$26,274.00	\$11,603.26	\$713,837.12	\$464,028.33	\$249,808.80
PS1	5-2	13/07/2021 22:30	\$212,303.36	\$9,060.00	\$2,954.89	\$224,318.25	\$161,388.23	\$62,930.02
PS1	5-3	14/07/2021 10:00	\$102,501.58	\$4,530.00	\$482.85	\$107,514.42	\$80,467.47	\$27,046.96
PS1	5-5	14/07/2021 23:00	\$340,065.71	\$15,402.00	\$1,012.67	\$356,480.38	\$274,055.72	\$82,424.66
PS1	5-6	15/07/2021 23:30	\$333,086.10	\$14,949.00	\$6,303.15	\$354,338.25	\$269,576.64	\$84,761.61
PS1	5-7	17/07/2021 1:00	\$304,692.71	\$13,137.00	\$11,515.75	\$329,345.47	\$238,905.70	\$90,439.77
		Total	\$2,089,744.82	\$88,788.00	\$34,029.41	\$2,212,562.23	\$1,574,249.62	\$638,312.60

4 Submissions on matters in the draft report

In fulfilment of the NER requirements interested parties were invited to make submissions on the matters contained in the draft report in accordance with the intervention settlement timetable. No submissions were received.

