



**Additional compensation claims arising  
from AEMO directions during billing weeks  
17 to 20  
FINAL DETERMINATION**

An independent expert report for AEMO

3 November 2021

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# 1 Introduction

Synergies Economic Consulting (Synergies) was appointed by the Australian Energy Market Operator (AEMO) as an independent expert to determine additional compensation claims for one referred *directed participant* under clause 3.15.7B of the National Electricity Rules (NER).

AEMO is required by the NER to use reasonable endeavours to complete all obligations, including final settlement, no later than 30 weeks after the end of the Direction. The intervention timetable requires that a draft independent expert determination be delivered no later than 27 August 2021 and a final determination by 3 November 2021. This will allow AEMO to complete the intervention settlement process by the required deadline of 9 December 2021 for directions occurring during billing weeks 17 to 20.

In accordance with the Intervention Settlement Timetable, Synergies is issuing this final determination on 3 November 2021.

## 1.1 Structure of the report

In the remainder of this report, we set out the basis for our final determination regarding an additional compensation claim resulting from these directions under the NER, as follows:

- Section 2 summarises the circumstances of the *directions* and the additional compensation claim provisions of clause 3.15.7B relevant to the claim;
- Section 3 provides details of the *directions* made and initial compensation determined;
- Section 4 provides an overview of the additional compensation claimed as a result of the *directions*;
- Section 5 provides our analysis of the additional compensation claim; and
- Section 6 provides our final determination.

## 2 Claims under clause 3.15.7B

This section summarises the circumstances of the *directions* and sets out the additional compensation claim provisions of clause 3.15.7B relevant to the claim.

### 2.1 Basis of the *directions*

Section 116 of the NEL and clause 4.8.9 of the NER establish that AEMO may direct a *Registered Participant* to take relevant actions to maintain or restore the security or reliability of the power system.

The company that has submitted a claim for additional compensation was a *directed participant* on several occasions between 30 April and 11 May 2021 for the purposes of clause 3.15.7B. During billing weeks 17 to 20, AEMO issued *directions* (Table 1) to a South Australian *market participant* to maintain the system in a secure operating state. In response, the *market participant* modified the operations of two of its generating units.

As a result of the above responses to the *directions*, the *directed participant* incurred costs and is entitled to compensation under clause 3.15.7 of the NER, which sets out compensation based upon:

- the amount of the relevant market service which the *directed participant* has been enabled to provide in response to the *direction*; and
- the 90th percentile price of the relevant market service over the preceding 12 months.

**Table 1 Summary of directions**

Directed unit	Issue time	Effective date/time	End date/time	Reason
Unit 2	30/04/2021 18:00	01/05/2021 00:30	01/05/2021 17:00	System Strength
Unit 1	30/04/2021 18:00	01/05/2021 00:00	01/05/2021 18:00	System Strength
Unit 1	09/05/2021 17:30	09/05/2021 21:00	10/05/2021 14:00	System Strength
Unit 1	10/05/2021 19:00	10/05/2021 22:00	11/05/2021 13:30	System Strength

Source: AEMO.

In line with the Intervention Settlement Timetable, AEMO calculated *directed participant* compensation and notified the *directed participant* of the compensation payable.

### 2.1.1 Managing system strength

Following changes to the NER in 2017<sup>1</sup>, the South Australian region faces system strength issues (i.e., adequate fault currents) that are being and/or will be principally managed by:

- AEMO identifying fault level shortfalls at critical nodes in the network;
- Transmission Network Service Providers (TNSPs) performing the role of system strength service provider, with responsibility to procure system strength services, including from scheduled generators, to address fault level shortfalls as determined by AEMO; and
- AEMO directing specific scheduled generators to synchronise or remain online where necessary to ensure adequate system strength is maintained.

While these arrangements may in time prove sufficient to ensure system strength requirements are met in the future, the process of TNSPs procuring system strength services remains ongoing<sup>2</sup>. In the meantime, AEMO has been ensuring adequate fault levels are maintained by applying operational procedures regarding permissible combinations of generators. Where the optimal supply solution determined by the NEM dispatch engine (NEMDE) is inconsistent with these permissible combinations, AEMO over-rides the solution and directs specific generators to ensure a permissible combination of generators.

## 2.2 Clause 3.15.7

AEMO must compensate each *directed participant* for the provision of energy or market ancillary services pursuant to a direction to be determined in accordance with the following formula:

$$DCP = AMP * DQ$$

Where:

- DCP is the amount of compensation the *directed participant* is entitled to receive.<sup>3</sup>

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<sup>1</sup> AEMC (2017) *National Electricity Amendment (Managing power system fault levels) Rule 2017*, 19 September.

<sup>2</sup> For instance, in South Australia, ElectraNet is in the process of testing and commissioning two synchronous condensers at Davenport substation and two at Robertstown substation (all expected to be in service by the end of August 2021). See <https://www.electranet.com.au/what-we-do/projects/power-system-strength/>.

<sup>3</sup> DCP is calculated in accordance with NER Clause 3.15.7(c).

- AMP is the price below which are 90% of the spot prices or ancillary service prices (as the case may be) for the relevant service provided by Scheduled Generators, Semi-Scheduled Generators, Scheduled Network Service Providers or Market Customers in the region to which the direction relates, for the 12 months immediately preceding the trading day in which the direction was issued.

DQ is either:

- (a) the difference between the total adjusted gross energy delivered or consumed by the *directed participant* and the total adjusted gross energy that would have been delivered or consumed by the *directed participant* had the direction not been issued; or
- (b) the amount of the relevant market ancillary service which the *directed participant* has been enabled to provide in response to the direction.

### **2.3 Clause 3.15.7B(a)**

A *directed participant* that is entitled to compensation under clause 3.15.7 and 3.15.7A may make a claim for additional compensation under clause 3.15.7B, which confines compensation (under clause 3.15.7B (a)) to:

1. the aggregate of the loss of revenue and additional net direct costs incurred by the *directed participant* in respect of a scheduled generating unit, semi-scheduled generating unit or scheduled network services, as the case may be, as a result of the provision of the service under direction; less
2. the amount notified to that *directed participant* pursuant to clause 3.15.7(c) or clause 3.15.7A(f); less
3. the aggregate amount the *directed participant* is entitled to receive in accordance with clause 3.15.6(c) for the provision of a service rendered as a result of the direction.

In broad terms, clause 3.15.7B (a) entitles a *directed participant* to claim compensation to cover loss of revenue and net direct costs minus *trading amounts* for *energy* and *market ancillary services* and minus any compensation for directed services that has been determined.

The *directed participant* in this case has made a claim for compensation for additional net direct costs pursuant to clause 3.15.7B (a)(a4) arising from their responses to *directions* issued during billing weeks 17 to 20.

### 3 The directions and initial compensation

#### 3.1 Details of the *directions*

AEMO issued the following *directions* commencing 30 April and ending 11 May 2021.

**Table 2 AEMO's *directions* to the *directed participant***

Directed unit	Event Number	Issued date/time	Effective date/time	End date/time	Reason
Unit 2	3-3	30/04/2021 18:00	01/05/2021 00:30	01/05/2021 17:00	System Strength
Unit 1	3-2	30/04/2021 18:00	01/05/2021 00:00	01/05/2021 18:00	System Strength
Unit 1	1-1	09/05/2021 17:30	09/05/2021 21:00	10/05/2021 14:00	System Strength
Unit 1	2-1	10/05/2021 19:00	10/05/2021 22:00	11/05/2021 13:30	System Strength

Source: AEMO

##### 3.1.1 Initial compensation

In accordance with the above NER provisions, AEMO calculated settlement compensation for the above *directions* as summarised in Table 3.

**Table 3 AEMO's settlement compensation amounts**

Directed unit	Event number	Issued date/time	Compensation entitlement (DCP)	Retained trading amounts (RTA)	Initial settlement compensation (DCP – RTA)
Unit 2	3-3	30/04/2021 18:00	\$45,402	-\$4,329	\$49,731
Unit 1	3-2	30/04/2021 18:00	\$42,232	-\$6,770	\$49,002
Unit 1	1-1	09/05/2021 17:30	\$43,908	\$2,646	\$41,262
Unit 1	2-1	10/05/2021 19:00	\$40,006	\$29,831	\$10,175

Source: AEMO

The amount of compensation a *directed participant* is entitled to receive (DCP) is calculated in accordance with Clause 3.15.7(c) of the NER. The Retained Trading Amount (RTA) is calculated in accordance with Clause 3.15.6(b) for the additional energy produced, which would have been included in the settlement amount indicated in the Preliminary Billing statement. Since invoices are issued weekly and the intervention period spanned two billing weeks, the compensation calculations for all units are presented for each relevant billing week.

Initial settlement compensation is determined as DCP minus RTA and included in the Final Billing statement.



## 4 Claims for additional compensation

The *directed participant* has submitted the following claims for additional compensation for the *directions* received during billing weeks 17 to 20.

**Table 4 Summary of additional compensation claim estimates**

Directed unit	Event number	Direction date/time	Gas fuel costs (a)	Contingency raise recovery cost (b)	Variable operating & maintenance (VOM) costs (c)	Cost of direction (COD) (a+b+c)	Compensation entitlement (DCP)	Add. comp amount (COD – DCP)
Unit 2	3-3	30/04/2021 18:00	\$84,290	\$179	\$2,184	\$86,653	\$45,402	\$41,251
Unit 1	3-2	30/04/2021 18:00	\$85,402	\$154	\$2,002	\$87,558	\$42,232	\$45,326
Unit 1	1-1	09/05/2021 17:30	\$84,530	\$116	\$2,062	\$86,709	\$43,908	\$42,800
Unit 1	2-1	10/05/2021 19:00	\$75,869	\$146	\$1,880	\$77,895	\$40,006	\$37,889
<b>Total add compensation claimed</b>			<b>\$330,090</b>	<b>\$595</b>	<b>\$8,128</b>	<b>\$338,814</b>	<b>\$171,548</b>	<b>\$167,266</b>

**Note:** There may be some differences due to rounding.

**Source:** *Directed participant.*

## 5 Synergies' assessment

This section analyses the reasonableness of the claim and sets out Synergies' final position on each component of claimed cost.

### 5.1 Gas fuel cost

#### 5.1.1 Calculation method

The following method was applied to calculate the additional gas costs for each of the *directions*:

- The volume of gas used by the directed unit during the *direction* was calculated by taking the directed megawatts of electrical production by that unit (supported by dispatch data) and applying the relevant heat rate<sup>4</sup> to convert to gigajoules per hour;
  - this provides the gas consumed by the directed unit per hour (divided by two to derive per trading interval consumption).
- The gas used was sourced from two pipelines, each with different contract prices.
- To allocate the total gas consumed by the directed unit to the two gas pipeline contracts, the proportion of the gas taken from each pipeline for a given trading interval for *all* the generation that occurred across the units was derived.
- The calculated proportion was then applied to the gas consumed by the directed unit to allocate the gas volumes to the relevant gas contract at each trading interval.

The gas contract prices were supported by copies of confidential invoices.

Converting the directed megawatts to gas gigajoules using an appropriate, relevant heat rate for the direct unit provides an accurate calculation of gas consumed. Further, allocating the gas consumed to the two contracts using the total gas source proportion provides a reasonable method of allocating the directed unit's gas to the two contract prices rather than using a weighted gas price.

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<sup>4</sup> Heat rate is one measure of the efficiency of electrical generators/powers that convert a fuel into heat and into electricity. The heat rate is the amount of energy used by an electrical generator/power plant to generate one kilowatt hour (kWh) of electricity.

Based on the evidence provided and the method applied, Synergies accepts the gas costs claimed due to the *directions* in this final determination.

## 5.2 Variable operating and maintenance (VOM) costs

The *directed participant's* method to calculate the VOM costs was as follows:

- A per interval VOM cost was calculated based on a historical VOM cost estimate, which was then adjusted for inflation by using an annual inflation rate of 2.5%.
- The VOM rate was applied to every interval that each unit was operating under AEMO's *direction*.
- Then, the half hourly VOM costs were summed across the period for which each generating unit was operating under *direction*.

The unit VOM values were supported by a confidential report provided by the *directed participant*.

The VOM costs identified by the *directed participant* relate to the operating and maintenance costs driven by the hours of operation of the plant. VOM costs can only be considered avoidable costs (i.e., costs incurred due to the *directions*) if there is clear evidence that the generating units would have been off-line but for the *directions*. The need for the *directions* arose from AEMO's consideration of forecasts of plant dispatch based on forecast demand and the prices that generation was being bid in future periods. As per previous similar determinations, Synergies is satisfied that the directed generating units would not have been in operation during the directed periods but for the *directions*.

We accept the VOM costs claimed for all units have been reasonably substantiated for this final determination, including with supporting documentation.

## 5.3 Contingency raise costs

The *directed participant's* method to calculate the additional costs incurred as a result of its increased Frequency Control Ancillary Service (FCAS) Raise liabilities<sup>5</sup> is as follows:

- The *directed participant* first determined the total liability of the power station in respect of contingency FCAS Raise services (i.e., to pay for 6-second, 60-second, and 5-minute FCAS Raise services).

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<sup>5</sup> The costs recovered from the *directed participant* in respect of contingency raise costs, allocated in accordance with the FCAS causer-pays formulation.

- The *directed participant* then determined the total contribution of the units to the total power station output during the relevant period.
- Next, the generating unit's proportional share of power station output was multiplied by the power station's total FCAS Raise liability for that interval.
- Finally, this value was summed for the period.

The *directed participant's* supporting evidence shows workings and detailed FCAS cost assumptions for the power station. We found this methodology reasonable, subject to the figures reflecting a correct interpretation of the FCAS cost allocation rules (which we have not assessed because the FCAS costs constitute a very minor component of the total claimed costs).

Synergies has verified this data by reviewing FCAS Raise unit costs from AEMO and as such, allow the FCAS costs claimed for this final determination.

## 6 Conclusion

In this final determination, Synergies concludes:

- The *directed participant's* costs to comply with the *directions* are as claimed in the additional compensation claim and, on this basis, the *directed participant* is entitled to additional compensation of **\$167,266**.

The *directed participant* has been informed of the final determination outcome, our reasons, and the amount of compensation accepted.