Settlements guide to ancillary services payment and recovery

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Tables

Figures

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Note: There is a full version history at the end of this document.

1. Introduction

Terms shown in *italics* are defined in the National Electricity Rules (Rules or NER) and have the same meaning when used in this guide. A glossary of other terms used in this guide can be found in section 4.

AEMO procures *ancillary services* to fulfil its obligations, under the Rules. *Ancillary services* are used to assist in maintaining or restoring a safe and secure *power system*.

Ancillary service costs depend on the service prices offered by the *Registered Participants* who provide them, and the quantity required at any given time. They can vary substantially from period to period. AEMO recovers *ancillary service* costs from *CRMPs*(CRMPs). The costs of different types of service are recovered in different ways, in accordance with criteria set out in the Rules. This is all done as a part of the settlement process.

This document provides a high-level understanding of the methodology used in the settlement process for payment and recovery of *ancillary service* costs.

This introduction provides a brief overview of what *ancillary services* are and a summary of how the costs are paid and recovered by AEMO. The subsequent chapters detail the methodology for payment and recovery of *market* and *non-market ancillary service* costs used in the settlement calculations. Worked examples and a list of useful reference documents are provided in the appendices.

Ancillary services in the National Electricity Market (NEM) can be broadly grouped under one of the following three categories:

- Frequency control *ancillary services* (FCAS)

- Network support and control ancillary services (NSCAS)

- System restart ancillary services (SRAS)

There are ten types of FCAS, which are all *market ancillary services.* NSCAS and SRAS are *non-market ancillary services*, (see Figure 1 and Figure 2). For more information please see Guide to Ancillary Services in the National Electricity Market.

AEMO procures these services from *Registered Participants* by:

- *Dispatching* them via the NEM dispatch engine (NEMDE) based on Market Ancillary Service Arrangements (for *market ancillary services*).

- Ancillary Service Contractual Agreements (for *non-market ancillary services*).

Figure 1 Market ancillary services summary
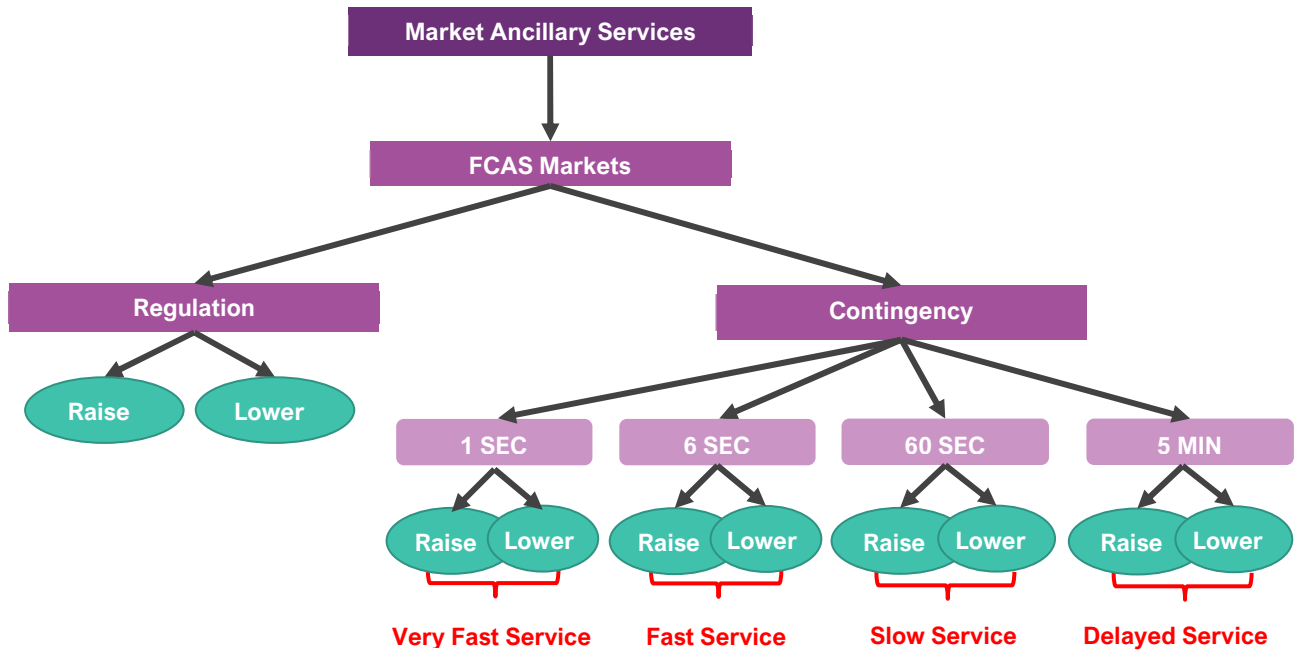
Figure 2 Non-market ancillary services summary
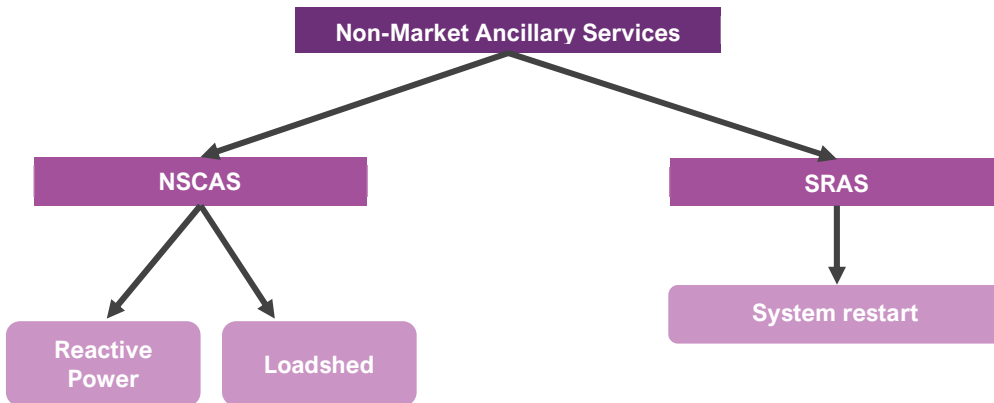
The following tables summarize the payment and recovery methods respectively for each of the *ancillary services*.

Table 1   Ancillary service payment summary

Ancillary Service Type	Payment Method	Paid To	Reference in this Guide
Contingency FCAS	Paid based on the relevant market clearing price and the quantity of service provided for each relevant dispatch interval	The relevant scheduled ancillary service unit *CRMP*	Section 2.1, 2.3
Regulation FCAS	Paid based on the relevant market clearing price and the quantity of service provided for each relevant dispatch interval	The relevant scheduled ancillary service unit	Section 2.2, 2.3
NSCAS	Paid based on terms and conditions in the relevant contractual agreements between AEMO and the contracted *Registered Participants*	The relevant contracted *Registered Participants*	Section 3.2
SRAS	Paid based on terms and conditions in the relevant contractual agreements between AEMO and the contracted *Registered Participants*	The relevant contracted *Registered Participants*	Section 3.4

Table 2   Ancillary service recovery summary

Ancillary Service Type	Recovery Method	Recovered from	Reference
Contingency FCAS	Recovered in proportion to the consumed energy / generation energy of the relevant *Market Participants* Raise services are recovered from all participants based on ASOE from EnergyTransations and Lower services are recovered from all participants based on ACE from Energy Transations	. Applicable CRMPs	Section 2.4.1
Regulation FCAS	Causer pays basis or socialised	Applicable CRMPs	Section 2.4.2
NSCAS	CRMPs based on ACE	Applicable CRMPs	Section 3.3
SRAS	CRMPs based on ASOE (half) and based on ACE (half)in the relevant benefiting *regions*	Recovered in equal proportions (50/50) from all CRMPs	Section 3.4

2. Market ancillary services

FCAS are used by AEMO to maintain or rebalance the *frequency* on the *power system*, at any point in time, close to fifty cycles per second (50 Hz) as required by the NEM *frequency operating standards* set by the AEMC *Reliability Panel*.

FCAS is divided into Contingency FCAS and Regulation FCAS.

2.1. Contingency FCAS

Contingency FCAS correct the supply/demand balance in response to major *frequency* disturbances causing *frequency* to move outside the *normal operating frequency band*, which can occur after *contingency events* such as the loss of a *generating unit* or a major load.

There are eight types of Contingency FCAS:

i)	**Very Fast Raise (1 second Raise)**	Service provided within 1 second of a *contingency event*
ii)	**Very Fast Lower (1 second Lower)**	
iii)	**Fast Raise (6 second Raise)**	Service provided within 6 seconds of a *contingency event*
iv)	**Fast Lower (6 second Lower)**	
v)	**Slow Raise (60 second Raise)**	Service provided within 60 seconds of a *contingency event*
vi)	**Slow Lower (60 second Lower)**	
vii)	**Delayed Raise (5 minute Raise)**	Service provided within 5 minutes of a *contingency event*
viii)	**Delayed Lower (5 minute Lower)**	

2.2. Regulation FCAS

Regulation FCAS provide *frequency* correction in response to minor deviations in the demand/supply balance. There are two types of Regulation FCAS:

i)	**Regulation Raise**	Service provided to add MW to the system in order to raise the frequency closer to 50 Hz
ii)	**Regulation Lower**	Service provided to take MW out of the system in order to lower the frequency closer to 50 Hz

2.3. FCAS Payments

For each Dispatch Interval (DI), AEMO's dispatch engine (NEMDE) determines the FCAS *constraints*, including Global Requirements and Local Requirements, for each type of FCAS, the quantity of each FCAS to be *enabled* from FCAS providers based on their bids or offers, and a market clearing price (called an *ancillary service price*) for each of the above ten FCAS markets for each *region*.

The relevant FCAS providers will receive settlement payments for each Trading Interval (TI) calculated using the relevant *ancillary service price* and the amount of the *ancillary service* provided in each DI.

$$TA = the\ aggregate\ of\ \frac{EA \times ASP}{12}$$

Where:

TA	the trading amount to be determined
EA	the amount of the relevant market ancillary service which the ancillary service unit has been enabled to provide in the trading interval
ASP	the ancillary service price for the market ancillary service for the trading interval for the region in which the ancillary service unit has been enabled.

2.4. FCAS Recovery

FCAS payments are recovered from the relevant *Market Participants* (see Table 2). The recovery method for each type of FCAS is detailed in the following subsections.

2.4.1. Contingency FCAS Recovery

Global or Local Requirement

FCAS payments for services *enabled* to meet a Local Requirement are recovered from specified categories of *Market Participants* in the *region*(s) in which the relevant FCAS *constraint* was binding. FCAS payments for Global Requirements are recovered from specified categories of *Market Participants* across the entire NEM.

For more information on FCAS *constraints* please see the documents available on AEMO's Congestion information resource website.

Calculating Lower Contingency FCAS Recovery

Lower Contingency FCAS costs are recovered from *CRMPs with ACE values* only, in the relevant Requirement *region(s)* (including all *regions* for a Global Requirement). The methodology described below is applied for all the relevant *regions'* Lower Contingency Requirements to calculate the service recovery from each relevant *CRMP* over each TI.

$$TA = LCR \times \left(\frac{ACE}{RATCE}\right) \times -1$$

Where:

LC Requirements [X] TA	=	The relevant binding *constraints* for Lower Contingency to be met in all Requirement *regions* for each DI in a TI (including Global Requirements and Local Requirements binding for those *regions*). The trading amount payable by the CRMPCRMP in respect of the relevant region and trading interval.
Lower Contingency Recovery LCR	=	The amount recovered from the relevant *CRMP* for the cost of meeting the LC Requirements [X] in the relevant Requirement *region(s)* in respect of the relevant TI. The sum of: 1. the global market ancillary service requirement cost for that region, for the relevant trading interval; and 2. all local market ancillary service requirement costs for that region, for the relevant trading interval.
[X]ACE	=	The total cost for all *regions* associated with meeting the LC Requirements, being the relevant *regions'* total amounts to be paid by AEMO to all the FCAS providers who met the LC Requirements in each DI in the TI. This is the aggregate of the relevant *global market ancillary service requirement* costs and *local market ancillary service requirement* costs. The sum of the ACE, for all connection points CRMPlocated in the region of the CRMP.

RATCE	=	Total energy consumed by the relevant *CRMP* in the relevant TI in the Requirement *regions.* The sum of the ACE, for all connection points located in the region of all CRMPs.

Calculating Raise Contingency FCAS Recovery

Raise Contingency FCAS costs are recovered from CRMPs with ASOE values only in the relevant Requirement *region*(*s*) (including all *regions* for a Global Requirement). The methodology described below is applied for all the relevant *regions*' Raise Contingency Requirements to calculate the service recovery from each relevant CRMP over each TI.

$$TA = RCR \times \left(\frac{TSOE}{ASOE}\right) \times -1$$

Where:

TA	=	The trading amount payable by the CRMPCRMP in respect of the relevant region and trading interval.
RCR	=	The sum of:
		1. the global market ancillary service requirement cost for that region, for the relevant trading interval; and
		2. all local market ancillary service requirement costs for that region, for the relevant trading interval.
TSOE	=	The sum of the ASOE, for all connection points located in the region of the CRMPCRMP.
ASOE	=	the sum, for all connection points located in the region, of the ASOE for the trading interval

2.4.2. Regulation FCAS recovery

Regulation FCAS recovery calculations recover the cost of meeting the binding Regulation FCAS constraints on a causer pays basis, i.e. the amount paid by AEMO for the Regulation FCAS service is recovered from *Market Participants* deemed to have 'caused' the need for the service, where this is possible to determine from metering. The residual amount of Regulation FCAS costs that cannot be allocated to metered 'causers' is smeared across all CRMPsbased on energy consumption.

Market participant factors

The Regulation FCAS cost recovery methodology incorporates two components:

(a)   Individual causer pays contributions – allocated to the following *Market Participants* with metering sufficient to identify frequency performance based on their calculated contribution factor or MPF.

–   Appropriately metered scheduled, semi-scheduled and non-scheduled *CRMP*.

–   CRMPs with *scheduled loads* or non-scheduled *loads* with appropriate metering.

(b)   Residual – apportioned to CRMPs based on their proportion of total consumed energy without appropriate metering.

For more information on Regulation FCAS Contribution Factors, please see the documents available on AEMO's Ancillary services contribution factors website

Calculating Regulation FCAS recovery

For *Market Participants* with an individual MPF, the formula for calculating Regulation FCAS recovery can be expressed as:

$$TA = Aggregate\ of\ \left(REGR\ \times\ \frac{MPF}{AMPF} \right)$$

Where:

TA	=	The trading amount payable by the CRMP in respect of the relevant region and trading interval.
REGR	=	The total of all amounts calculated by AEMO under paragraph (h)(2) for the regulating raise service or the regulating lower service in respect of a trading interval.
MPF	=	The contribution factor last set by AEMO for the CRMP.
AMPF	=	The aggregate of the MPF figures for all CRMPs for the trading interval for the region or regions relevant to the regulating raise service or regulating lower service.
	)	

Because not all regulation payments can be fully recovered from *Market Participants* with an MPF, the residual amounts are recovered from the remaining *CRMPs* without an individual MPF, as follows:

$$TA = the\ aggregate\ of\ \left(REGR\ \times\ \frac{MPF}{AMPF} \times \frac{TCE}{ATCE} \right)$$

Where:

TA	=	The trading amount payable by the CRMP in respect of the relevant region and trading interval.
$REGR$	=	The total of all amounts calculated by AEMO under paragraph (h)(2) for the regulating raise service or the regulating lower service in respect of a trading interval.
MPF	=	The aggregate of the contribution factors for CRMPs, for whom the trading amount is not calculated in accordance with the regulation formula for the region or regions relevant to the regulating raise service or the regulating lower service. The normalised Residual NEM contribution factor (= 100 - Total MPF).
AMPF	=	The aggregate of the MPF figures for all CRMPs for the trading interval for the region or regions relevant to the regulating raise service or regulating lower service.
TCE		The ACE for CRMPCRMP for the trading interval in the region or regions relevant to the regulating raise service or regulating lower service.
RATCE		The aggregate of the ACE for all CRMPCRMPs for whom the trading amount is not calculated in accordance with the no residue regulation formula, for the trading interval for the region or regions relevant to that regulating raise service or regulating lower service.

2.5. Co-optimisation

AEMO uses a process of co-optimisation between Delayed Contingency FCAS and Regulation FCAS for the purposes of efficient dispatch. As a result of this, the total amount recovered for Delayed Contingency FCAS and Regulation FCAS will equal the total payments for Delayed Contingency FCAS and Regulation FCAS.

i.e.:

$$Total\ Payments\ (Delayed\ Contingency\ +\ Regulation)\ =\ Total\ Recovery\ (Delayed\ Contingency\ +\ Regulation)$$

For more information on co-optimisation of delayed contingency FCAS and regulation FCAS please see the Constraint Implementation Guidelines document on AEMO's Congestion information resource website.

3. Non-market ancillary services

3.1. NSCAS and SRAS

NSCAS acquired by AEMO are typically used to control *voltage* at different points along the *network* to within prescribed standards and to keep power flow on the *networks* and *interconnectors* within operational limits. Generally, these services are provided by voluntary *load shedding* or the supply or absorption of *reactive power*.

SRAS enable *generation* to be restarted to energise the *transmission system* following a *major supply disruption*.

For more information on *non-market ancillary services*, please see the guidelines for NSCAS and SRAS on AEMO's website.

3.2. NSCAS Payments

AEMO procures NSCAS through contracts with *Registered Participants* on agreed terms and conditions. Some payment parameters in the existing contracts may relate to periods or events longer than one

Trading Interval. Where this is the case, for cost recovery purposes they are allocated across all relevant Trading Intervals.

Types of payments made by AEMO to *NSCAS Providers* may include:

(a)   Availability payments for each Trading Interval that the service is available.

(b)   Enabling payments for Trading Intervals when the service is specifically enabled.

(c)   Compensation or usage payments made for the amount of the NSCAS actually provided.

(d)   Testing payments for each successfully conducted test.

3.3. NSCAS Cost Recovery

AEMO aggregates the relevant payments (excluding testing payments) for each trading interval and each type of NSCAS, and recovers them fully from *CRMPS with ACE values only* in proportion to their energy consumption in that relevant Requirement *region*.

AEMO recovers NSCAS costs on a regional basis, from the benefiting *region*(s). This is done by applying Regional Benefit Factors (RBFs). For more information on RBF, please see the document on AEMO's [Regional benefit ancillary services procedure](#) website.

For each Trading Interval, the following regional recovery formulae are applied to the NSCAS costs as follows:

(6)
$$NSCAS\ recovery\ per\ participant\ by\ region$$
$$= Total\ NSCAS\ payments\ for\ NEM\ \times\ RBF$$
$$\times (\frac{Total\ consumed\ energy\ by\ CRMP\ in\ the\ Requirement\ region}{Total\ consumed\ energy\ in\ the\ Requirement\ region})$$

For each Trading Interval, the NSCAS recovery is then aggregated for all *regions*, by *Market Participant*, and then summed to give the total NSCAS recovery by *Market Participant*. i.e.,

(7)
$$Total\ NSCAS\ recovery\ per\ participant$$
$$= Total\ loadshed\ recovery\ per\ participant\ +\ Total\ reactive\ recovery\ per\ participant)$$

Where:

RBF	=	Each *region* is assigned a regional benefit factor (RBF) for the relevant NSCAS type. The RBF for each Requirement *region* is used to apportion the relevant total NSCAS costs to each relevant Requirement *region*.
NSCAS recovery per participant by *region* ($)	=	Recovery amount payable by the relevant *Market Participant* for the relevant TI for NSCAS in respect of the relevant Requirement *region*
Total *NSCAS* payments for NEM ($)	=	Total payments made by AEMO for the relevant NSCAS for the relevant TI for all the relevant NEM *regions*
Total consumed energy by CRMP in the Requirement *region* (MWh)	=	The sum, for all connection points of the CRMPCRMP located in the region, of the ACEfor the trading interval
Total consumed energy in the Requirement *region* (MWh)	=	The sum, for all connection points located in the region of the CRMPs, of the ACE for the trading interval.

Note: The total NSCAS payment used in the above recovery calculations is only the total payment made for providing the relevant service. This does not include testing payments. For information on Testing Payment Recovery please see Section 3.6.

3.4. SRAS Payments

AEMO procures SRAS through contracts with *Registered Participants* on agreed terms and conditions. Some payment parameters in the existing contracts may relate to periods or events longer than one Trading Interval. Where this is the case, for cost recovery purposes they are allocated across all the relevant Trading Intervals.

Types of payments under SRAS contracts may include:

(a)   Availability payments, usually for every TI that the service is available.

(b)   Usage payments – made on each occasion when the service is successfully delivered in response to instructions from AEMO.

(c)   Testing payments – a payment for each successfully conducted test of the service.

3.5. SRAS Cost Recovery

AEMO aggregates the relevant payments for a SRAS event (excluding testing payments) for each trading interval and recovers the relevant costs on a 50/50 split basis from CRMPS based on ACE and ASOE values on a regional basis. The relevant SRAS payments are recovered in proportion to the energy consumption/generation of each relevant *Market Participant* within the respective benefiting *region*.

The formula applied for SRAS cost recovery in a Requirement *region*, for a given trading interval, is as follows:

CRMP ACE based SRAS Recovery:

(8) $SRAS\ recovery\ per\ CRMP\ by\ region$

$$= Total\ SRAS\ payments\ for\ NEM\ \times\ \left(\frac{1}{2}\right)\ \times\ RBF$$

$$\times \left(\frac{Total\ ACE\ by\ CRMP\ in\ the\ Requirement\ region}{Total\ consumed\ energy\ in\ the\ Requirement\ region}\right)$$

CRMP ASOE based SRAS Recovery:

(9) $Total\ SRAS\ recovery\ per\ CRMP\ by\ region$

$$= Total\ SRAS\ payments\ for\ NEM\ \times\ \left(\frac{1}{2}\right)\ \times\ RBF$$

$$\times \left(\frac{Total\ SOE\ by\ CRMP\ in\ the\ Requirement\ region}{Total\ Sent\ Out\ energy\ in\ the\ Requirement\ region}\right)$$

Where:

SRAS recovery per customer/ generator by *region*	=	SRAS recovery amount for the relevant TI payable from the relevant *Market CRMP* in the relevant Requirement *region*.
Total SRAS payment for NEM	=	Total SRAS payments made by AEMO for the relevant TI to all the relevant SRAS providers in all the relevant Requirement *regions*
RBF	=	The regional benefit factor. Each *region* is assigned an RBF. The RBF for each *region* is used in the recovery calculations for that *region*.
Total consumed energy by CRMP in the Requirement *region* (MWh)	=	The sum, for all connection points CRMPlocated in the region of the CRMP, of the ACE for the trading interval.
Total ASOEv by CRMP in the Requirement *region* (MWh)	=	The sum, for all connection points CRMPlocated in the region of the CRMP, of the ASOE for the trading interval*.
Total consumed energy in the Requirement *region* (MWh)	=	The sum, for all connection points located in the region of the CRMPs, of the ASOE for the trading interval.
Total ASOEin the Requirement *region* (MWh)	=	The sum, for all connection points located in the region of the CRMPs, of the ASOE for the trading interval.

3.6. Testing Payment Recovery

AEMO applies the same formulae to calculate testing payment recovery as for the respective ancillary service non-testing payment recovery, i.e.,

(a)   NSCAS testing payment recovery is calculated as per the formula in Section 3.3

(b)   SRAS testing payment recovery is calculated as per the formula in Section 3.4

However, where those equations refer to CRMPs energy for a given trading interval, the respective testing payment recovery calculations will use the aggregate of the relevant energy of the entire testing period for the respective *Market Participants*.

Testing payments are paid and recovered as a lump sum in the *billing period* in which the successful test is confirmed by AEMO. For billing purposes, non-testing recovery amounts are summed for all relevant trading intervals in a given *billing period* and added to the relevant testing recovery amounts to give rise to the final NSAS or SRAS recovery amounts for the relevant *billing period* for each *Market Participant.*

To find the settlement dates in a given settlement *billing period*, please see the NEM Settlement Calendar.

4. Glossary of terms

TERM	DESCRIPTION
5MS	Five-minute settlement, to be implemented in the NEM from 1 July 2021 under the *National Electricity Amendment (Five minute settlement) Rule 2017*.
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator Limited
Contingency FCAS	FCAS provided when *power system frequency* is outside the *normal operating frequency band*, which can occur on the occurrence of a *contingency event*. Types of Contingency FCAS are Fast, Slow and Delayed.
Co-optimisation	The process of using Delayed Contingency FCAS and Regulation FCAS interchangeably to increase service efficiency.
Delayed Contingency (comprising Delayed Raise and Delayed Lower Service)	Contingency FCAS provided to either raise or lower *frequency* within five minutes after the locally-sensed *frequency* exits the *normal operating frequency band.*
Dispatch Interval (DI)	A five-minute period for which AEMO runs the *dispatch algorithm* (via NEMDE). On 5MS implementation, the definition of *dispatch interval* is deleted from the Rules and effectively replaced by a *trading interval*.
Fast Contingency (comprising Fast Raise and Fast Lower Service)	Contingency FCAS provided to either raise or lower *frequency* within six seconds after the locally-sensed *frequency* exits the *normal operating frequency band*.
FCAS	Frequency control *ancillary services*
Global Requirement	FCAS requirement for all *regions* in the NEM
Local Requirement	FCAS requirement for a single *region* or group of *regions* within the NEM.
Lower Contingency	Fast Lower, Slow Lower and Delayed Lower Services
NEM	National Electricity Market
NEMDE	National Electricity Market Dispatch Engine
NER	National Electricity Rules
NSCAS	*Network support and control ancillary services*
Raise Contingency	Fast Raise, Slow Raise and Delayed Raise Services
Regulation FCAS (comprising Regulation Raise and Regulation Lower Service)	FCAS provided in response to a central control system to maintain *power system frequency*, usually within the *normal operating frequency band*.
Regulation FCAS Contribution Factor/ MPF	Contribution factors assigned to *Market Participants* as outlined in NER 3.15.6A. These factors are used to allocate Regulation FCAS costs to be recovered from *Market Participants* on a 'causer pays' basis.
Requirement	A requirement for a particular type of FCAS established by a binding *constraint* represented in NEMDE, which may be a Global Requirement or a Local Requirement.
Requirement regions	The *regions* for which a given FCAS requirement Constraint Equation is binding are known as the Requirement Regions for that constraint.
Rules	National Electricity Rules
Slow Contingency (comprising Slow Raise and Slow Lower Service	Contingency FCAS provided to either raise or lower *frequency* within sixty seconds after the locally-sensed *frequency* exits the *normal operating frequency band*.
SRAS	*System restart ancillary services*
Trading Interval (TI)	A period for which AEMO settles *trading amounts* in the NEM. Until 5MS implementation, a *trading interval* is defined in the Rules as a 30-minute period. On 5MS implementation, the definition of *trading interval* changes to a 5 minute period.
ACE	Adjusted consumed energy

TERM	DESCRIPTION
ASOE	Adjusted sent out energy
CRMP	Cost Recovery Market Participant

Appendix A. Worked examples.

Note: All data used in these worked examples are for illustrating the calculation steps of the relevant *ancillary service* recovery methodology presented in section 2 and 3. They do not disclose *Market Participants*' confidential information. Unless specified otherwise, these calculations apply to a *Trading Interval* or a *Dispatch Interval.*

A.1 Contingency FCAS Recovery Calculations

This example illustrates Raise Contingency FCAS recovery for a binding constraint (FC_1) affecting Dispatch Interval DI1 in Trading Interval TI1, from 4 CRMPs in three Requirement *regions*. ASOE is used in this example. For Lower Contingency recovery, *CRMP consumption* energy should be used. See Section 2.1 for the relevant formulae.

Table 3 shows the incurred adjusted costs for each Requirement *region*. Table 4 shows *ASEO* in each *region* for the relevant *Trading Interval..*

Table 3   Contingency Raise FCAS costs by region

Dispatch Interval in Trading Interval TI1	RC Requirement	Requirement Regions	Adjusted RC Costs ($)
DI1	FC_1	NSW1; VIC1	$45.00

Table 4   CRMP Sent Out Energy

Trading Interval	Requirement Region	RC Requirments	CRMP	ASOE (MWh)
TI1	NSW1	FC_1	A	100
TI1	NSW1	FC_1	B	200
TI1	NSW1	FC_1	C	20
TI1	VIC1	FC_1	C	30

Note: This is the energy data for the relevant TI in which the relevant DI falls.

Calculating recovery for constraint FC_1

Total CRMP Energy (FC_1, NSW1)	=	CRMP Energy (A, NSW1) + CRMP Energy (B, NSW1) + CRMP Energy (C, NSW1) + CRMP Energy (C, VIC1)
	=	100 + 200 + 20 + 30
	=	350

Therefore, the amount to be recovered from the relevant *Market Participant* for the given dispatch interval

Recovery (A, FC_1, NSW1)	=	$45.00	x	100	/	350
	=	$12.86				
Recovery (B, FC_1, NSW1)	=	$45.00	x	200	/	350
	=	$25.71				
Recovery (C, FC_1, NSW1)	=	$45.00	x	20	/	350
	=	$2.57				

Recovery (C, FC_1, VIC1)	=	$45.00	x	30	/	350
	=	$3.86				

A.2   Regulation FCAS Recovery Calculations

This example illustrates the step-by-step calculations for Regulation Raise FCAS recovery for a Global Requirement affecting *Dispatch Interval* D2 in *Trading Interval* TI2. These calculations apply equally to Regulation Lower FCAS recovery using the relevant data and follow the equations in section 2.4.2. These are outlined below.

Step 1: Obtain Regional Requirement Information

Table 5 shows the Regulation Raise FCAS constraint information for binding constraint FC_Reg_1, the constraint costs and the *regions* the constraint applies to.

Table 6 shows consumption energy for each CRMP in each Requirement *region*. The aggregated values by *region* have been populated in Table 7.

Market Participant Factors (MPF) for *Market Participants* with appropriate metering are shown in Table 8.

Table 5   Regulation Raise FCAS costs

Dispatch Interval in Trading Interval TI2	Regulation Raise Requirement	Requirement Region	Adjusted Regulation Raise Costs ($)
DI2	FC_Reg_1	NSW1	$150
DI2	FC_Reg_1	QLD1	$150
DI2	FC_Reg_1	VIC1	$150
DI2	FC_Reg_1	TAS1	$150
DI2	FC_Reg_1	SA1	$150

Table 6   Consumption Energy by CRMP

Trading Interval	CRMP	Requirement Region	Consumed Energy (MWh)	Trading Interval	CRMP	Requirement Region	Consumed Energy (MWh)
TI2	A	NSW1	100	TI2	I	TAS1	108
TI2	A	QLD1	200	TI2	I	SA1	68
TI2	A	VIC1	150	TI2	J	NSW1	201
TI2	B	NSW1	145	TI2	J	QLD1	252
TI2	B	TAS1	400	TI2	J	SA1	101
TI2	C	QLD1	650	TI2	K	TAS1	93
TI2	D	QLD1	225	TI2	L	QLD1	72
TI2	D	TAS1	230	TI2	L	VIC1	351
TI2	D	SA1	355	TI2	M	NSW1	637

Trading Interval	CRMP	Requirement Region	Consumed Energy (MWh)	Trading Interval	CRMP	Requirement Region	Consumed Energy (MWh)
TI2	E	NSW1	470	TI2	N	VIC1	45
TI2	F	NSW1	120	TI2	O	QLD1	8
TI2	F	TAS1	115	TI2	P	NSW1	155
TI2	G	VIC1	234	TI2	P	QLD1	217
TI2	H	SA1	56			Total	6,286
TI2	I	NSW1	98				

Note: This is the energy data for the relevant TI in which the relevant DI falls.

Table 7   Total CRMP Consumed Energy by Requirement Region

Trading Interval	Requirement Region	NSW1	QLD1	VIC1	SA1	TAS1	TOTAL
TI2	Total CRMP Consumed Energy in Requirement Region (MWh)	1,926	2,005	1,059	580	946	6,286

Step 2: Calculate CR$_{MPF}$

The information from Table 7 can then be used to calculate the CR$_{MPF}$, as shown below:

$$CR_{MPF} = \frac{Total\ energy\ consumed\ in\ Requirement\ regions\ (NSW1, QLD1, VIC1, TAS1, SA1)}{Total\ energy\ consumed\ in\ the\ NEM}$$

$$= \frac{(1,926 + 2,005 + 1,059 + 580 + 716)}{6,286}$$

$$= \frac{6,286}{6,286} = 1$$

The CR$_{MPF}$ equals 1 for a *Global Requirement* affecting all *region*s in NEM. It will be less than 1 for a *local requirement.*

Step 3: Calculate Regulation FCAS Recovery for Market Participants with individual MPFs.

After calculating the CRMPF and obtaining the MPF data, we can calculate the Regulation FCAS recovery for *Market Participants* with MPFs (see Section 2.4.2 for formula). The data and calculations are shown in Table 8.

Table 8   MPF and Recovery Calculations

Trading Interval	Market Participant	MPF (%)	CRMPF	ADJ COST ($)	MPF Recovery ($)
TI2	A	5.6	1	150	$8.4
TI2	B	8.9	1	150	$13.35
TI2	D	1.5	1	150	$2.25
TI2	E	11.2	1	150	$16.80
TI2	G	6.4	1	150	$9.60

$MPF\ recovery\ (A)$
$$= \frac{\$150.00 \times 5.6}{65 + (1 \times 35)} = \$8.4$$

Trading Interval	Market Participant	MPF (%)	CRMPF	ADJ COST ($)	MPF Recovery ($)
TI2	I	5.25	1	150	$7.88
TI2	J	7.35	1	150	$11.03
TI2	K	9.8	1	150	$14.70
TI2	L	9	1	150	$13.50
	Total MPF	65			
	Total Residual MPF	35			
	Total	100			$97.5
				Residual Adjusted Costs	$52.5

$$Residual\ Adjusted\ Costs$$
$$= \$150.00 - \$97.50$$
$$= \$52.50$$

Step 4: Calculate Regulation FCAS Residual Recovery

Table 9 shows the residual FCAS cost recovered from each CRMP with no MPF in proportion to their share the total loads without MPFs from all *Market Participants* in the relevant Requirement *regions*.

Table 9   Residual MPF and Recovery Calculations

Trading Interval	Market Participant with no MPF	Total Customer Energy in Requirement Regions	RMPF Recovery
TI2	C	650	$17.04
TI2	F	235	$6.16
TI2	H	56	$1.47
TI2	M	637	$16.70
TI2	N	45	$1.18
TI2	O	8	$0.21
TI2	P	372	$9.75
	Total	2,003	$52.5

$$R_{MPF} = \$52.5 \times \left(\frac{650}{2,003}\right)$$
$$= \$17.04$$

A.3   NSCAS Recovery Calculations

This section provides step-by-step instructions for calculating *Loadshed*, *Reactive Power* and total NSCAS recovery for a CRMP with consumption Energy for a Trading Interval.

A.3.1   Calculate total loadshed recovery

Table 10 shows the required input data for *Loadshed* recovery calculations for CRMP with ACE A for the relevant *Trading Interval* in the relevant Requirement *regions*. The step-by-step calculations follow the equations in section 3.3.

Table 10 Input Data for Loadshed Recovery Calculations

	VIC1	NSW1	QLD1	TOTAL
CRMP ACE (MWh)	200	150	350	700
Total CRMP ACE (MWh)	500	600	800	1,900
RBF	0.1	0.75	0.15	1
Loadshed Payment ($)				$54,500

RBF allocated across all regions will sum to 1

Step 1: Calculate Loadshed recovery from CRMP A in each Requirement *region*

Loadshed recovery for CRMP A (VIC1)	=	$54,500.00	x	0.1	x	200	/	500
	=	$2,180.00						
Loadshed recovery for CRMP A (NSW1)	=	$54,500.00	x	0.75	x	150	/	600
	=	$10,219.00						
Loadshed recovery for CRMP A (QLD1)	=	$54,500.00	x	0.15	x	350	/	800
	=	$3,577.00						

Step 2: Sum all Loadshed recovery from CRMP A by Requirement region

Total Loadshed recovery for *Market* CRMP A	=	$2,180.00	+	$10,219.00	+	$3,577.00
	=	$15,976.00				

A.3.2 Calculate Total Reactive Power Recovery

Table 11 shows the input data required for *Reactive Power ancillary service (*RPAS*)* recovery calculations for *CRMP with consumption energy (ACE)* A for the relevant *Trading Interval* in each Requirement *region*. The step-by-step calculations follow the equations in section 3.3.

Table 11 Information for Reactive Power Recovery Calculation

2013, Wk18	VIC1	NSW1	QLD1	TOTAL
CRMP A ACE (MWh)	300	425	250	975
Total CRMP ACE (MWh)	900	1,100	700	2,700
RBF	0.7	0.1	0.2	1
RPAS Payment ($)				$61,500

RBF allocated across all regions will sum to 1

Step 1: Calculate the reactive power recovery from CRMP A in each Requirement region

Total RPAS recovery for CRMPA (VIC1)	=	$61,500.00	x	0.7	x	300	/	900
	=	$14,350.00						
Total RPAS recovery for CRMP A (NSW1)	=	$61,500.00	x	0.1	x	425	/	1100
	=	$2,376.00						
Total RPAS recovery for CRMP A (QLD1)	=	*$61,500.00*	x	*0.2*	x	*250*	/	*700*

$$= \$4,393.00$$

Step 2: Sum the Reactive Power recovery from CRMP A for all Requirement regions

Total RPAS recovery for CRMP A	=	$14,350.00	+	$2,376.00	+	$4,393.00
	=	$21,119.00				

A.3.3 Calculate Total NSCAS Recovery

This step aggregates total Loadshed and RPAS recovery amounts for CRMP ACE in respect of the relevant *Trading Interval*.

Total NSCAS recovery for CRMPA	=	Total Loadshed recovery		Total RPAS recovery
	=	$15,976.00	+	$21,119.00
	=	$37,095.00		

A.4   SRAS Recovery Calculations

This section provides calculation steps for SRAS recovery for a *Trading Interval* with respect to a CRMP with ACE or ASOE in each *Requirement region.* The step-by-step calculations follow the equations in section 3.4.

A.4.1   Calculate SRAS recovery from a CRMP with ACE

Table 12 shows the required input data for *SRAS* recovery calculations for a *CRMP* (A) for the relevant *Trading Interval* in each Requirement *region*.

Table 12 Input data for CRMP with ACE values (A) SRAS Recovery Calculations

	VIC1	NSW1	QLD1	TOTAL
CRMP A ACE (MWh)	100	200	300	600
Total ACE (MWh)	400	600	800	1,800
RBF	0.7	0.1	0.2	1.0
SRAS Payment ($)				$50,000
CRMP Recovery Proportion				(1/2)

> RBF allocated across all regions will sum to 1

> SRAS is recovered equally from customers and generators

Total SRAS recovery for *CRMP* A (VIC1)	=	$50,000.00	x	0.5	x	0.7	x	100	/	400
	=	$4,375.00								
Total SRAS recovery for *CRMP* A (NSW1)	=	$50,000.00	x	0.5	x	0.1	x	200	/	600
	=	$833.00								
Total SRAS recovery for *CRMPr* A (QLD1)	=	$50,000.00	x	0.5	x	0.2	x	300	/	800
	=	$1,875.00								

A.4.2   Calculate SRAS Recovery from CRMP with ASOE

Table 13 shows the required input data for *SRAS* recovery calculations for a CRMP with ASOE (B) for the relevant *Trading Interval* in each Requirement *region*.

Table 13 Input data for SRAS Generator Recovery Calculation

	VIC1	NSW1	QLD1	TOTAL
CRMP B ASOE (MWh)	200	500	400	1,100
Total ASOE (MWh)	500	900	900	2,300
RBF	0.7	0.1	0.2	1.0
SRAS Payment ($)				$75,000
CRMP ASOE Recovery Proportion				(1/2)

> RBF allocated across all regions will sum to 1

> SRAS is recovered equally from customers and generators

Total SRAS recovery for CRMP B VIC1)	=	$75,000.00	x	0.5	x	0.7	x	200	/	500
	=	$10,500.00								
Total SRAS recovery for CRMP B (NSW1)	=	$75,000.00	x	0.5	x	0.1	x	500	/	900
	=	$2,083.00								
Total SRAS recovery for CRMP B (QLD1)	=	$75,000.00	x	0.5	x	0.2	x	400	/	900
	=	$3,333.00								

Appendix B.   Data tables

This section lists confidential and public data tables currently available for use for settlement reconciliation purposes. These tables can be found in the EMMS data model available to *registered Market Participants*. Description of the contents of these tables can be found in the MMS Data Model Report published on AEMO website.

Table 14 Market Ancillary Service Payment by Service Type

Table Name	Description	Type
billingasrecovery	Shows participant charges for ancillary services for the billing period	Confidential
billing_nmas_tst_payments	Shows testing payment details for system restart services by period	Confidential
billing_nmas_tst_recovery	Shows testing recovery amounts for system restart services to be recovered from participants	Confidential
setcfg_participant_mpf	Shows the Market Participant Factors (MPF) for each connection point	Public
dispatch_fcas_req	Shows dispatch constraint tracking for regional Frequency Control Ancillary Services (FCAS) recovery	Public
setgendata	Shows settlement data (including generator energy) for each generating unit	Confidential
setcpdata	Shows settlement data for each customer connection point	Confidential
setrpowerrecovery	Shows recovery amounts for reactive power ancillary services to be recovered from participants	Confidential
setlshedrecovery	Shows recovery amounts for loadshed ancillary services to be recovered from participants	Confidential
setrestartrecovery	Shows recovery amounts for system restart ancillary services to be recovered from participants	Confidential
setlshedpayment	Shows specific payment details for loadshed services by period	Confidential
setrpowerpayment	Shows specific payment details for reactive power services by period	Confidential
setrestartpayment	Shows specific payment details for system restart services by period	Confidential
set_fcas_payment	Sets out enabling payment details for FCAS	Confidential
set_fcas_recovery	Shows recovery amounts for FCAS to be recovered from participants.	Confidential
set_nmas_recovery	Shows recovery amounts for system restart services to be recovered from participants	Confidential

Appendix C. Ancillary Service Reporting in the Settlement Report

Along with the weekly settlement statements, *Market Participants* receive a text document called the Settlement Report (SR). The SR contains a summary of the energy sold and purchased for the *billing period* and also contains a detailed summary of the *ancillary services* payments and recovery for the *billing period*. This section gives an example of what the *ancillary services* payment and recovery summary looks like in a typical settlement report received by a *Market Participant*.

Note that each *Market Participant* will not receive all of the *ancillary service* payment and recovery summaries shown below. For instance, *Market Participants* who are not providers of *ancillary services* will not see the *ancillary service* payment summaries.

The data presented in the tables in this section are for illustration purposes and do not reflect any *Market Participants'* confidential information.

Note: The below SR examples are from a period prior to the implementation of the Very Fast services in October 2023.

C.1 Market Ancillary Service Payments

Table 15 shows the total amount paid by AEMO to all *Market Participants* broken down by service type. Table 16 presents the same information broken down further by *transmission node*. Note that the total payments by *transmission node* in Table 16 need to reconcile with the total amounts by service type in Table 15, as highlighted below.

Table 15 Market Ancillary Service Payment by Service Type

```
Ancillary Service Transactions
-----------------------------------------------------------------------
Market Ancillary Service Transactions - Payments
-----------------------------------------------------------------------
Service Provided                                          Amount ($)
-----------------------------------------------------------------------
Very fast raise                                               $0.00
Very fast lower                                               $0.00
Fast raise                                                $1,770.60
Fast lower                                               $10,036.81
Slow raise                                                $1,211.71
Slow lower                                               $11,341.06
Delayed raise                                               $961.54
Delayed lower                                             $2,351.81
Regulation raise                                         $15,054.66
Regulation lower                                         $11,835.11
-----------------------------------------------------------------------
Total Payments By AEMO                                   $54,563.30
=======================================================================
```

Table 16 Market Ancillary Service Payment by Transmission Connection Point

```
Market Frequency Control Ancillary Services by Transmission Connection Point (Payments By AEMO)
```

Connection Point	Very fast raise	Very fast lower	Fast raise	Fast lower	Slow raise	Slow lower	Delayed raise	Delayed lower	Reg raise	Reg lower	Total
XXXX1	$100.00	$0.00	$5,213.70	$463.75	$2,681.75	$2,562.39	$232.29	$796.89	$29,712.04	$2,490.91	$44,153.72
XXXX2	$0.00	$15.00	$4,026.04	$471.89	$2,512.38	$2,428.77	$230.70	$858.84	$33,730.53	$2,486.47	$46,745.62
XXXX3	$0.00	$0.00	$4,148.69	$270.76	$2,374.78	$1,669.03	$206.55	$704.17	$28,184.83	$1,987.15	$39,545.95
XXXX4	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
YYYY1	$0.00	$145.09	$1,143.91	$3,962.00	$740.77	$8,668.42	$0.00	$0.00	$754.16	$964.68	$16,233.94
YYYY2	$535.00	$0.00	$1,359.83	$540.92	$945.82	$2,342.30	$0.00	$0.00	$634.35	$685.45	$6,508.67
YYYY4	$0.00	$5.90	$878.44	$4,327.48	$961.26	$13,670.15	$0.00	$0.00	$2,538.76	$2,221.30	$24,597.39
Total	$635.00	$165.99	$16,770.60	$10,036.81	$10,216.77	$31,341.06	$669.54	$2,359.89	$95,554.66	$10,835.97	$177,785.29

C.2 Market Ancillary Service Recovery

Table 17 shows the amounts recovered by AEMO from a *Market Participant* by *market ancillary service* type and broken down by *CRMP energy categories.*

Table 17 Market Ancillary Service Recovery by Service Type

```
Market Ancillary Service Transactions - Recovery
```

Service Provided	MPF Amount ($)	ACE Amount ($)	ASOE Amount ($)	Total Amo
Very Fast raise	$0.00	$0.00	-$282.48	
Very Fast lower	$0.00	-$93.05	$0.00	
Fast raise	$0.00	$0.00	-$8,356.89	-$8
Fast lower	$0.00	-$41.60	$0.00	
Slow raise	$0.00	$0.00	-$864.16	
Slow lower	$0.00	-$166.52	$0.00	
Delayed raise	$0.00	$0.00	-$252.80	
Delayed lower	$0.00	-$118.88	$0.00	
Regulation raise	$0.00	-$0.05	$0.00	
Regulation lower	$0.00	-$0.06	$0.00	
Total Recovery(Payment to AEMO)	$0.00	-$420.18	-$9,756.33	-$1(

C.3 Non-Market Ancillary Service Payment

Table 18 shows *non-market ancillary service* payments by service type. While Table 19 captures the same information as Table 18, it is further broken down by contract id and payment component (i.e availability, enablement/ usage, compensation and testing).

Table 18 Non-Market Ancillary Service Payment by Service Type

```
Non Market Ancillary Service Transactions - Payments
```

NMAS Type	Service Provided	Amount($)
SRAS	System Restart	$53,432.00
NSCAS	Reactive	$49,934.34
NSCAS	Loadshed	$30,203.98
Total Payment From AEMO		$133,570.32

Table 19 Non-Market Ancillary Service Payment by Contract ID

Compensation may be paid to market participant if AEMO makes a direction.	Test Payments are made to participants for testing their systems are capable of providing the non-market ancillary service. This payment is made when a successful test is confirmed.

```
Non Market Ancillary Service by Contract ID (Payments By AEMO)
----------------------------------------------------------------------------------------------------------
NMAS Type        Service        Contract ID    Availability    Enablement/Usage    Compensation    Testing        Total
----------------------------------------------------------------------------------------------------------
SRAS             System Restart  AAAA12345      $28,893.43       $0.00               $0.00           $0.00     $28,893.43
SRAS             System Restart  BBBB54321      $24,538.57       $0.00               $0.00           $0.00     $24,538.57
NSCAS            Reactive Power  CCCC67890      $49,934.34       $0.00               $0.00           $0.00     $49,934.34
NSCAS            Loadshed NSCAS  DDDD09876      $30,203.98       $0.00               $0.00           $0.00     $30,203.98
----------------------------------------------------------------------------------------------------------
Total Payments By AEMO                                                                                       $133,570.32
==========================================================================================================
```

C.4 Non-Market Ancillary Service Recovery

Table 20 shows non-market ancillary service (NMAS) recovery by category (i.e., NSCAS, SRAS). Table 21 further breaks down the NMAS recovery by service type, *region* and payment type.

Table 20 Non-Market Ancillary Service Recovery by NMAS Type

```
Non Market Ancillary Service Transactions - Recovery
------------------------------------------------------------------------------------------------------
NMAS Type                            ACE Amount($)          ASOE Amount($)          Total Amount($)
------------------------------------------------------------------------------------------------------
SRAS                                     -$94.96                -$730.84                 -$825.79
------------------------------------------------------------------------------------------------------
Total Recovery (Payment To AEMO)         -$94.96                -$730.84                 -$825.79
======================================================================================================
```

Table 21 Non-Market Ancillary Service Recovery by Service Type

```
Non Market Ancillary Service Transactions by Region and Type - Recovery
----------------------------------------------------------------------------------------------------------
NMAS Type        Service        RegionId    Availability    Enablement/Usage    Compensation    Testing        Total
----------------------------------------------------------------------------------------------------------
NSCAS            Reactive Power   NSW1        -$67.34          $0.00               $0.00           $0.00       -$67.34
NSCAS            Reactive Power   QLD1        -$56.78          $0.00               $0.00           $0.00       -$56.78
NSCAS            Reactive Power    SA1        -$82.67          $0.00               $0.00           $0.00       -$82.67
NSCAS            Loadshed NSCAS   NSW1       -$146.63          $0.00               $0.00           $0.00      -$146.63
SRAS             System Restart   QLD1     -$2,750.83          $0.00               $0.00           $0.00    -$2,750.83
SRAS             System Restart   TAS1     -$1,427.70          $0.00               $0.00           $0.00    -$1,427.70
----------------------------------------------------------------------------------------------------------
Total Recovery (Payment To AEMO)          -$4,531.96          $0.00               $0.00           $0.00    -$4,531.96
==========================================================================================================
```
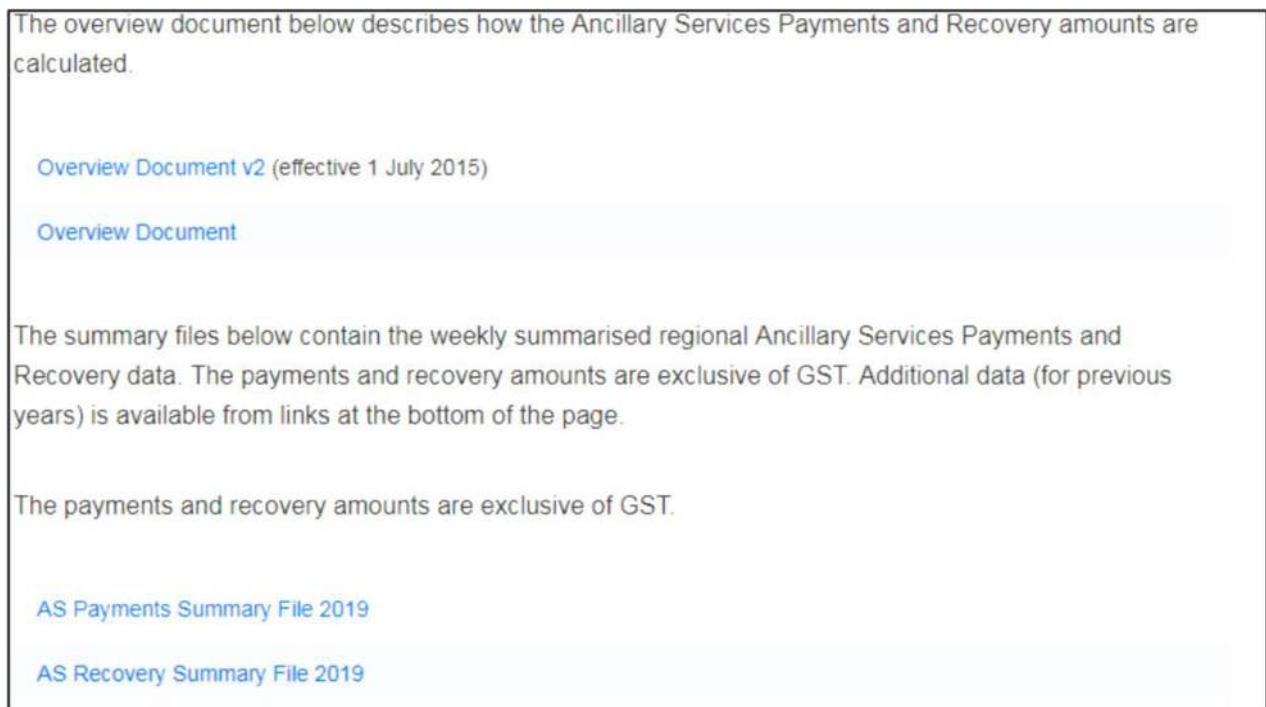
Appendix D. Ancillary Service Reports on AEMO's Website

AEMO publishes *Ancillary Service* payment and recovery reports on AEMO's website. These reports contain publicly available for *billing period* total payment and recovery amounts for each *ancillary service* category, broken down by *region*.

The data in the current year summary files (shown in Figure 3) are updated to capture information in the most recent posted settlement statements (*preliminary, final*, or *revised*). *Market participants* are also able to access and subscribe to receive these files by email, through Settlement Direct.

Note: the information below can be accessed on AEMO's Ancillary services payments and recovery https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data/Ancillary-Services/Ancillary-Services-Payments-and-Recovery website.

Figure 3   Current Ancillary Service Payment and Recovery Files

Historical *ancillary service* recovery and payment summary files are also available (see Figure 4). These are archived reports that are only updated at the start of the year if revised data is available. These historical files are available for the last two calendar years.

Figure 4 Historical AS Payment and Recovery Files

> ## Historical files:
>
> The payments and recovery amounts are exclusive of GST.
>
> - AS Payments Summary File 2019
> - AS Recovery Summary File 2019
> - AS Payments Summary File 2018

Table 22 lists the contents of the published ancillary service recovery summary data table.

Table 22 Ancillary Service Recovery Summary Table Names

COLUMN NAME	DEFINITION
AS_RECOVERY_SUMMARY	This specifies the report type - Ancillary Services Recovery Summary Report
BILLING_WEEK	Specifies the year and billing week the ancillary services are recovered. The settlement dates within the billing week can be found from the settlement calendar
STATUS	This refers to the latest statement type for the billing week. The corresponding data is used in the recovery calculations
REGIONID	The *region* the ancillary services costs are recovered from
LOWER1SEC	Very Fast Contingency Lower FCAS Recovery ($)
LOWER6SEC	Fast Contingency Lower FCAS Recovery ($)
LOWER60SEC	Slow Contingency Lower FCAS Recovery ($)
LOWER5MIN	Delayed Contingency Lower FCAS Recovery ($)
LOWERREG	Lower Regulation FCAS Recovery ($)
RAISE1SEC	Very Fast Contingency Raise FCAS Recovery ($)
RAISE6SEC	Fast Contingency Raise FCAS Recovery ($)
RAISE60SEC	Slow Contingency Raise FCAS Recovery ($)
RAISE5MIN	Delayed Contingency Raise FCAS Recovery ($)
RAISEREG	Raise Regulation FCAS Recovery ($)
RESTART	Restart (SRAS) Recovery ($)
REACTIVE	Reactive (NSCAS) Recovery ($)
LOADSHED	Loadshed (NSCAS) Recovery ($)
TOTAL_ACE_RECOVERY	Total ancillary service costs recovered from CRMP with ACE ($)
TOTAL_ASOE_RECOVERY	Total ancillary service costs recovered from CRMP ($) where with ASOE
ENERGY_ACE	Total CRMP ACE energy (MWh)
ENERGY_ASOE	Total CRMP ASOE (MWh)
RECOVERY_RATE_ACE	The customer recovery rate is given in $/MWh
RECOVERY_RATE_ASOE	The generator recovery rate is given in $/MWh

Table 23 lists the contents of the published ancillary service payment summary data table.

Table 23 AS Payment Summary Table Names

ASPAYMENT_SUMMARY	This specifies the report type - Ancillary Services Payment Summary Report
BILLING_WEEK	Specifies the year and billing week the ancillary services are recovered. The settlement dates within the billing week can be found from the settlement calendar
STATUS	This refers to the latest statement type for the billing week. The corresponding data is used in the payment calculations
REGIONID	The *region* in which ancillary services payments are made
LOWER1SEC	Very Fast Contingency Lower FCAS Payment ($)
LOWER6SEC	Fast Contingency Lower FCAS Payment ($)
LOWER60SEC	Slow Contingency Lower FCAS Payment ($)
LOWER5MIN	Delayed Contingency Lower FCAS Payment ($)
LOWERREG	Lower Regulation FCAS Payment ($)
RAISE1SEC	Very Fast Contingency Raise FCAS Payment ($)
RAISE6SEC	Fast Contingency Raise FCAS Payment ($)
RAISE60SEC	Slow Contingency Raise FCAS Payment ($)
RAISE5MIN	Delayed Contingency Raise FCAS Payment ($)
RAISEREG	Raise Regulation FCAS Payment ($)
RESTART	Restart (SRAS) Payment ($)
REACTIVE	Reactive (NSCAS) Payment ($)
LOADSHED	Loadshed (NSCAS) Payment ($)
TOTAL_AS_PAYMENT	Sum of all ancillary service payments ($)

Version release history

Version	Effective Date	Summary of Changes
#1.0	04/03/2014	
#2.0	01/07/2015	Updated 3.5, Appendix A.4 and Appendix B based on changes to the SRAS cost recovery calculations commencing on 1 July 2015 – recovering SRAS costs on the basis of the regional benefits (rule change reference ERC0168).
#3.0	19/07/2019	Updated to AEMO new document template Updated Disclaimer Updated links to reference documents Updated worked examples in Appendix A to reflect changes arising from five- minute settlement rule changes Amended texts, re-arranged order of some sections to improve clarify and flow of the information

Version	Effective Date	Summary of Changes
#4.0	14/02/2020	Amended section 2.4.1 (Contingency FCAS recovery) and appendix A1 Contingency FCAS recovery calculations) for clarity Update links to reference documents
#5.0	04/10/2023	Update for new Very Fast Contingency FCAS services Update links to reference documents Update document template for new branding