REGIONAL BENEFIT ANCILLARY SERVICES PROCEDURES

PREPARED BY: Systems Performance and Commercial

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FINAL

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Approved for distribution and use:

APPROVED BY: Mark Stedwell

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Version Revision History

VERSION	DATE	AUTHOR	PEER REVIEW	APPROVED	COMMENTS
1.0	1/09/2011	Edwin Ong	Chris Stewart	Michael Lyons	Approved for First Round of Consultation
2.0	4/11/2011	Edwin Ong	Chris Stewart	Sujeewa Rajapakse	Approved for Second Round of Consultation
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4.0	9 Feb 2015	S Darnell	Peter Biddle	Peter Biddle	Approved for First Round of Consultation
5.0	1 July 2015	S Darnell	Peter Biddle	Mark Stedwell	Regional benefit factors for SRAS added

Important Notice

These Regional Benefit Ancillary Services Procedures are made under the National Electricity Rules and have effect only for the purposes set out in those Rules. The National Electricity Rules and the National Electricity Law prevail over this document to the extent of any inconsistency.

Contents

GLOSSARY

(a) In this document, a word or phrase *in this style* has the same meaning as given to that term in the NER.

(b) In this document, capitalised words or phrases or acronyms have the meaning set out opposite those words, phrases, or acronyms in the table below.

(c) Unless the context otherwise requires, this document will be interpreted in accordance with Schedule 2 of the National Electricity Law.

TERM	MEANING
AEMO	Australian Energy Market Operator
NEL	National Electricity Law
NER	National Electricity Rules
NMAS	*Non Market Ancillary Services*
NSCAS	*Network Support and Control Ancillary Services*
NTNDP	*National Transmission Network Development Plan*
Procedures	Regional Benefit Ancillary Services Procedures
RBFs	Regional benefit factors
SRAS	*System Restart Ancillary Services*

1. Introduction

These Regional Benefit Ancillary Services Procedures (Procedures) are made in accordance with clause 3.15.6A of the *National Electricity Rules* (NER).

AEMO may make minor and administrative amendments to these Procedures from time to time without complying with the *Rules consultation procedures*.

2. Purpose

These Procedures detail AEMO's method of determining the regional benefit factors (RBFs) to be allocated to each *region* whenever AEMO acquires *non-market ancillary services (*NMAS*)* under an *ancillary services agreement*. NMAS include *network support and control ancillary services* (NSCAS), and *system restart ancillary services* (SRAS).

3. Application of Procedures

The Procedures apply to AEMO.

4. Legal and Regulatory Framework

AEMO is required by clause 3.15.6A(c4) of the NER to develop and *publish* these Procedures in accordance with the *Rules consultation procedures*.

5. General Principles

1. The sum of the RBFs over all *regions* for a particular trading interval and individual NMAS will always equal 1.
2. The costs for an NMAS will be recovered from the *region(s)* that AEMO determines to benefit from the NMAS. AEMO allocates RBFs to enable this recovery.

6. Illustration of Determination of Regional Benefit Factors (RBF)

Consider the simple *power system* shown in Figure 1. *Regions* X, Y and Z are *interconnected* as shown by Interconnectors (X-Y) and (Y-Z).

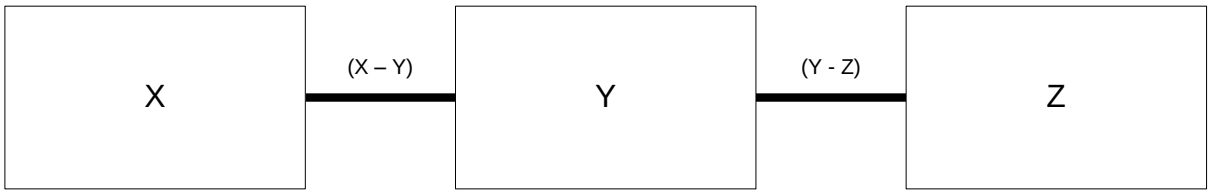

Figure 1 Interconnected System

6.1 Power System Security Management

When an NMAS (NSCAS or SRAS) is *dispatched*, the *region*(s) that benefit from the service will be allocated a non-zero RBF. The RBF will be determined as follows:

$$RBF_i = \frac{1}{R}$$

Where:

i = the benefitting *region*

R = the total number of *regions* that benefit

For example:

If NSCAS was *dispatched* to manage a voltage issue in Region X only:

$RBF_X = 1$ $RBF_Y = 0$ $RBF_Z = 0$

If NSCAS was *dispatched* to manage a voltage issue in Region X and Y only:

$RBF_X = 0.5$ $RBF_Y = 0.5$ $RBF_Z = 0$.

6.1.1 Additional Benefit of Increasing Power Transfer

There may be cases where the *dispatch* of NSCAS for *power system security* reasons will increase the *interconnector* flow between two *regions*. The RBF is calculated based on the number of *regions* that benefit from the NSCAS to manage *power system security* issues.

$$RBF_i = \frac{1}{R}$$

Where:

i = the benefitting *region*

R = the number of *regions* that benefit.

6.2 Inter-region Power Transfer Increase

The *dispatch* of NSCAS to increase power flow between *regions* is deemed to benefit the receiving *region* only.

Assuming that the utilisation of NSCAS increases the *interconnector* flow from Region X to Region Y, the RBF will be calculated as follows:

$RBF_X = 0$ $RBF_Y = 1$ $RBF_Z = 0$.

6.3 SRAS usage

When SRAS is *dispatched* to restart an *electrical sub-network*, the *region* where the *major supply disruption* occurs is deemed to have benefitted. The RBF will be determined as follows:

$$RBF_i = \frac{1}{R}$$

Where

i = the benefitting *region*

R = the total number of *regions* that benefit

For example:

If an SRAS was *dispatched* to restart Region X only:

$RBF_X = 1$ $RBF_Y = 0$ $RBF_Z = 0$

If an SRAS was *dispatched* to restart Region X and Y:

$RBF_X = 0.5$ $RBF_Y = 0.5$ $RBF_Z = 0$

If an SRAS in Region X was *dispatched* to restart Region Y

$RBF_X = 0$ $RBF_Y = 1$ $RBF_Z = 0$.

7. NMAS Costs

RBFs are used to allocate NMAS costs to benefitting *regions*. There are two types of costs applicable for the use of NMAS: fixed costs and variable costs. The RBFs for an NMAS may be different for fixed and variable costs.

7.1 Fixed Costs

These costs will be recovered from the *region* that AEMO determines to require the NMAS[1]. Examples of fixed NMAS costs include, but are not limited to, availability and testing charges.

For example, applying Principle 2 to Figure 1:

If an NSCAS is contracted to increase *interconnector* flow from Region X to Region Y only, the RBF will allocate fixed costs as follows:

$RBF_X = 0$ $RBF_Y = 1$ $RBF_Z = 0$

If an NSCAS is capable and contracted to increase *interconnector* flow from Region X to Region Y or Region Y to Region X, the RBF will allocate fixed costs as follows:

$RBF_X = 0.5$ $RBF_Y = 0.5$ $RBF_Z = 0$

If an SRAS is contracted to provide SRAS to restart an *electrical sub-network* in Region X the RBF will allocate fixed costs as follows:

$RBF_X = 1,$ $RBF_Y = 0$ $RBF_Z = 0$

If an SRAS is contracted to provide SRAS to restart an *electrical sub-network* that spans Region X and Region Y the RBFs will allocate fixed costs as follows:

$RBF_X = 0.5$ $RBF_Y = 0.5$ $RBF_Z = 0$

7.2 Variable Costs

7.2.1 NSCAS Variable Payments

These payments will vary based on the duration that the contracted NSCAS is utilised. Triggers for the start and end time are important inputs to the calculation of the payments. Examples of variable payments include, but are not limited to, enabling charges and compensation payments.

Assuming that there is a *power system security* issue in Region X of Figure 1 and all available zero-cost NSCAS options have been *dispatched* to try and alleviate the issue. AEMO would then consider enabling NSCAS to resolve the issue. An instruction to *dispatch* the contracted NSCAS would be issued by AEMO to the appropriate NSCAS provider. The instruction would contain the type of NSCAS, required amount and duration of *dispatch*. These triggers would then be used to determine the NSCAS variable payment. In this scenario, the RBF is allocated to the benefitting region as follows:-

$RBF_X = 1$ $RBF_Y = 0$ $RBF_Z = 0$

[1] The *region(s)* that require NSCAS are determined based on load-flow studies conducted annually in the *National Transmission Network Development Plan (NTNDP)*.

7.2.2 SRAS Usage Payments

The benefiting *region(s)* will be allocated SRAS usage costs as set out in Section 6.3.

Appendix 1 - Examples of RBF allocation

1. An NSCAS that is *dispatched* to manage a *power system security* issue in one or more *regions* will be considered to benefit the *region(s)* that experienced the *power system security* issue. The RBF for this service will be allocated equally to each *region* with the *power system security* issue while ensuring that principle 1 applies[2].
2. An NSCAS that is *dispatched* to increase the power that can flow from one *region* to another will be considered to benefit the receiving *region* only.
3. An NSCAS that is *dispatched* to manage a *power system security* issue, but also increases *power system* transfer between *regions* will be assumed to be *dispatched* for *power system security* only, and the RBF for this service will be allocated to the *regions* benefitting from the improvement in *power system security*.
4. An SRAS acquired or used to restart an *electrical sub-network* will benefit the *region* or *regions* in which that *electrical sub-network* is located (not necessarily the *region* in which the service is located). The RBF for this service will be allocated to the benefitting *region(s)*.

[2] The allocation in accordance with principle 1 is as follows: one *region*, RBF = 1; two *regions*, each RBF = ½; three *regions*, each RBF = 1/3; and so on.