GUIDE TO THE SETTLEMENTS RESIDUE AUCTION

PREPARED BY: Settlements and Prudentials

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STATUS: Final

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Version Control

Verison	Date	Author	Comments
1	03 September 2010	Evy Papadopoulos	Initial issue
2	18 October 2010	John Fisher	Section 5.1 added “Determining Notional Interconnector Flows”
2.1	9 November 2011	Brian Nelson	Correction to section 8.5 – there will be up to twelve auctions for each Relevant Quarter (not four).
3.0	22 July 2014	Linda Murdoch	Updated to remove the methodology for the calculation and reconciliation of Auction expense fees, the details of which are now given in the auction rules.

Table of Contents

1. Introduction

Auctions give eligible *Registered Participants* access to *inter-regional settlements residue* (**IRSR**) by enabling them to bid for entitlements to a proportion of the total IRSR; however, due to the many variables affecting IRSR, bidding is financially speculative and carries a number of risks.

The National Electricity Rules (NER) set out basic principles governing the way IRSR must be allocated and distributed, but leave the details of the allocation and distribution methodology to the Australian Energy Market Operator (*AEMO*). Rule 3.18.3 permits *AEMO* to develop *auction rules* setting out how *auctions* are to be conducted.

This Guide provides an overview of the *auction* process. It does not contain all relevant references to the NER, the *auction rules*, or any other governing instrument and does not contain an exhaustive list of all relevant factors and issues. Anyone wishing to participate in the *auction* should obtain their own legal, taxation, and financial advice and should conduct their own assessment of the risks associated with participating in *auctions* before seeking to do so.

In this Guide:

(a) A capitalised word or phrase has the meaning set out opposite that word or phrase in the Glossary in **Section 11**.

(b) A word or phrase *in this style* has the same meaning as given to that term in the NER.

(c) References to a "Rule" followed by a number refer to a provision in the NER.

(d) If there is any inconsistency between this document and the NER, the NER will prevail to the extent of that inconsistency.

(e) A reference to dollars or $ is to Australian currency. All amounts are exclusive of GST.

2. Underlying Causes of IRSR

IRSR arises from the transfer of electricity through *regulated interconnectors* only. With the exception of Victoria and Tasmania, *regulated interconnectors* exist between adjacent *regions* in the National Electricity Market (*NEM*).

IRSR results from price differences between *regions* associated with power flows between *regions* and is generally:

- Positive when electricity flows from a lower-priced *region* to a higher-priced *region*.
- Negative when electricity flows from a higher-priced *region* to a lower-priced *region* (Counter-Price Flow).

Inter-regional price differences are generally:

- More significant when *regulated interconnectors* are operating at full capacity (when the price difference reflects the cost of *inter-regional transmission constraints* and *inter-regional transmission losses*).

- Less significant when *regulated interconnectors* are operating at less than full capacity (when the price difference reflects the cost of *inter-regional transmission losses*).

To understand how IRSR is allocated, it is also necessary to understand the concept of a Notional Interconnector and *directional* interconnector.

A Notional Interconnector represents some or all of the *regulated interconnectors* between two adjacent regions. In some cases, the *dispatch* process requires the recognition of multiple Notional Interconnectors (for example, the Heywood and Murraylink *interconnectors* between Victoria and South Australia).

Directional interconnectors are a conceptual grouping of all Notional Interconnectors between any two *regions*. There are only ever two *directional interconnectors* between any two *regions*, one for each direction of flow.

In each *trading interval*, all IRSR resulting from the net flow of electricity across a Notional Interconnector is assigned to the appropriate *directional interconnector*.

3. Negative IRSR

As noted in Section 2, IRSR can be either positive or negative.

3.1 Causes of negative IRSR

Counter-Price Flows cause negative IRSR. Reasons for Counter-Price Flows include:

- **Dispatch process issues:** This is where the *dispatch* process requires a Counter-Price Flow in response to *power system* operational requirements. These include where there might be *intra-regional network constraints*, *market ancillary service* requirements, *inter-network tests* and disconnection of one part of the *power system* from another occurring away from *region* boundaries.
- **Dispatch process errors:** These include the failure of SCADA Data input or telemetered ratings, problems with the *dispatch* process, and errors in the manual processing of failed SCADA Data.
- **Pricing and metering issues:** This is where pricing and *metering* processes do not align with the corresponding *dispatch* processes, such as where *AEMO* might intervene in the *dispatch* process and set intervention pricing, or set the *regional reference node* (**RRN**) price to the *market price cap*; or where dispatchable units do not conform to *dispatch* targets, and differences between the *dispatch interval* (five-minute) quantities and *trading interval* (30-minute) quantities.

AEMO monitors the forecast level of Counter-Price Flows. If the forecast accumulated value of negative IRSR exceeds a threshold value, *AEMO* can apply constraint equations to reduce the *interconnector flow*, subject to maintaining a reliable and secure *power system,* in order to achieve an appropriate balance between the need to minimise Counter-Price Flows and the need to avoid unnecessary and restrictive intervention.[1]

[1] Further details about *AEMO's* processes are available in Operating Procedure SO_OP3705, available on *AEMO's* website at www.aemo.com.au.

Counter-Price Flows can arise suddenly and without warning.

3.2 Recovery of negative IRSR

Negative IRSR in a trading interval on a *directional interconnector* is currently recovered directly from the appropriate Transmission Network Service Provider (TNSP) on a weekly basis.

For trading intervals occurring before 1 July 2010, negative IRSR was recovered as follows:

- In the first instance, negative IRSR was recovered from positive IRSR that accumulated in the same billing week on the same *directional interconnector*.
- Any remaining negative IRSR was recovered from auction proceeds that were collected in the next quarter before the auction proceeds were distributed to TNSPs.
- Any remaining negative IRSR was carried forward to the next auction and so on until all negative IRSR was recovered.

4. Factors that can affect the amount of IRSR

Settlement Residue Distribution agreements (SRD agreements) were designed as a risk mitigation measure. They can also be used as speculative financial instruments. Participating in the *auctions* and entering into *SRD agreements* carries a degree of financial risk.

There are also factors that may affect IRSR values (making the accurate prediction of amounts impossible) and the ongoing conduct of the *auctions* that auction participants should consider prior to participation. These can arise from a number of different areas, such as:

FACTOR	COMMENTS
Interconnector performance	This can be affected by, for example: • Available capacity, which can be affected by maintenance and construction activity causing outages. • Operational failures in primary or secondary plant and equipment. • Equipment temperature limits or power ratings. • Market flows. • Reclassification of a *non-credible contingency event* as a *credible contingency event.*
Interconnectors providing *scheduled network services*	The flow on the Basslink *interconnector*, which is determined in part by its bidding behaviour, can influence flow on the Victoria-NSW and Victoria-South Australia *interconnectors* through the *dispatch* optimisation process.
Generating unit performance and *dispatch*	*Generators* offer or re-offer capacity to maximise their overall revenue. This may affect both *interconnector* flows and capabilities, and *regional reference prices*, and therefore IRSR. Other factors affecting *generating unit* performance include: • Planned or unplanned *outages*.

FACTOR	COMMENTS
	• Industrial action. • Fuel supply limitations for thermal generation. • Wind availability for wind generation. • Water supply limitations for hydro generation. • Water supply limitations for thermal generation.
Price intervention	Examples where this can occur include: • Administered price periods. • Pricing revisions following a manifest error under Rule 3.9.2B.
Investment in the *NEM*	Investment decisions can affect the value of IRSR by altering the supply–demand balance (and therefore electricity prices) within each *interconnected region*. Investment decisions of this type may change: • The capacity to transfer power between *regions* across *interconnectors*. • The capacity to transfer power within *regions*. • The quantity of *generating plant* or load within *regions*. A new *interconnector* may affect *inter-regional* flows and IRSR value by: • Directly increasing the transfer capacity between the two *regions* it links (potentially affecting the number of Units to be *auctioned*, the maximum *interconnector* capacity, and the *regional* prices). • Changing the transfer capacity at other locations, including the capacity of other *interconnectors*. • Indirectly affecting the *dispatched* flow across other *interconnectors*.

5. Calculating IRSR

Figure 1 sets out the calculation (including *transmission* losses) of IRSR resulting from the electricity flow between two RRNs.

FIGURE 1: CALCULATING IRSR

$$\mathbf{IRSR_i = RRP_{r2} * IMP_{ir2} - RRP_{r1} * EXP_{ir1}}$$

Where:

$IRSR_i$ = IRSR for Notional Interconnector 'i' connecting Region 1 and Region 2.

RRP_{r2}, RRP_{r1} = Prices at the RRN for 'Region 2' and 'Region 1', respectively.

EXP_{ir1} = Export Flow into Notional Interconnector 'i' at RRN 1. The value is positive for flow from Region 1 to Region 2, or zero if the flow is in the other direction.

IMP_{ir2} = Import Flow out of Notional Interconnector 'i' at RRN 2. The value is positive for flow to Region 2 from Region 1, or zero if the flow is in the other direction.

This calculation is performed for each *trading interval*, with the values being added together over a week to give a *billing period* value.

If there are two or more Notional Interconnectors between the same two *regions*, the IRSR for each Notional Interconnector is aggregated for each *trading interval* to determine the value for the *directional interconnector* before being aggregated into a *billing period* value.

The IRSR for a *directional interconnector* between two *regions* for a *trading interval* is determined by:

Step 1: Adding the IRSR for all Notional Interconnectors between the *regions* (which may be a positive or negative amount).

Step 2: Adding the energy flows of all Notional Interconnectors between the *regions* (to decide the "direction" of energy flow between the *regions*).

Step 3: Assigning the IRSR in Step 1 to the *directional interconnector* corresponding to the direction of flow in Step 2.

5.1 Determining Notional Interconnector flows

Flows between *regions* are *metered* on the *regulated interconnectors* near *regional* boundaries. Import and export flows at the *regional reference nodes* are calculated by:

- Estimating total *transmission* losses across the *interconnector*.
- Assigning a proportion of the total *transmission* losses to each *region's network* between the *regional* boundary and the *regional reference nodes*.
- Measuring the flow at the *region* boundary.

5.1.1 Determining inter-regional transmission losses

Electricity in the form of losses is consumed in the process of transmitting electricity from *generating units* to end-use customers, and these losses are taken into account during *dispatch* by using *marginal loss factor* equations to calculate and account for *inter-regional* losses across Notional Interconnectors.

AEMO produces the *List of Regional Boundaries and Marginal Loss Factors*[2] annually. This document provides details of the *marginal loss factor* equations for *interconnected regions.*

5.1.2 Apportioning inter-regional transmission losses

AEMO maintains apportionment factors for allocating the *transmission* loss for each Notional Interconnector to the relevant *region*. These factors are reviewed annually and published in the *List of Regional Boundaries and Marginal Loss Factors* document. Figure 2 lists the apportionment factor ratios that applied in the *NEM* in 2012–13 and 2013–14.

[2] Available at: www.aemo.com.au

FIGURE 2: HISTORICAL APPORTIONMENT FACTORS

	2012–13	2013–14
Queensland/New South Wales:		
Queensland/New South Wales *Interconnector* (QNI)	0.45:0.55	0.66:0.34
Queensland/New South Wales *Interconnector* (Terranora *Interconnector*))	0.41:0.59	0.61:0.39
New South Wales/Victoria:		
New South Wales/Victoria *Interconnector*	0.65:0.35	0.39:0.61
South Australia/Victoria:		
Heywood *Interconnector*	0.22:0.78	0.16:0.84
Murraylink *Interconnector*	0.22:0.78	0.19:0.81

5.1.3 Apportioning inter-regional transmission losses

Figure 3 shows how export flows (EXP_{ir1}) and import flows (IMP_{ir2}) are determined over a *regional* boundary. Figure 4 shows how they are calculated.

FIGURE 3: DETERMINATION OF IMPORT AND EXPORT FLOWS

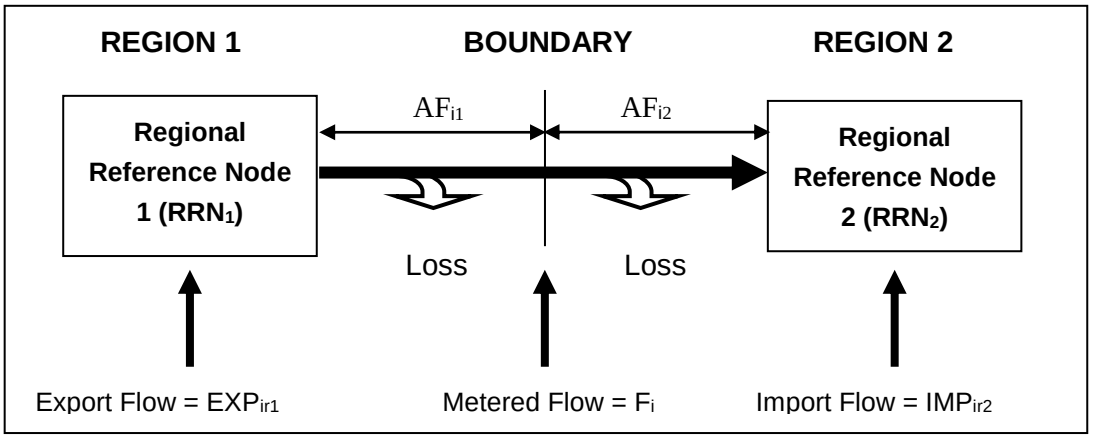

FIGURE 4: DETERMINATION OF IMPORT AND EXPORT FLOWS (CALCULATION)

EXP_{ir1}	=	$F_i + (AF_{i1} * IRL_{12})$ when flow is from Region 1 to Region 2 on Notional Interconnector 'i'
		or
	=	zero if the flow is in the other direction.
IMP_{ir2}	=	$F_i - (AF_{i2} * IRL_{12})$ when flow is to Region 2 from Region 1 on Notional Interconnector 'i'
		or
	=	zero if the flow is in the other direction.

Where:

F_i	=	Flow across the Notional Interconnector 'i' as measured at the boundary
AF_{i1}, AF_{i2}	=	Apportionment Factors for losses between Regions 1 and 2 on Notional Interconnector 'i'
IRL_{12}	=	*inter-regional* Loss across the Notional Interconnector from RRN_1 to RRN_2

5.1.4 IRSR example with transmission losses

Assume the flow on a Notional Interconnector is measured by *metering* installed at the *regional* boundary, and that a measured flow of 30 MW results in 3 MW of *transmission* losses. These losses are apportioned as follows:

- Region 1 (AF_1) = 0.6667
- Region 2 (AF_2) = 0.3333

Applying the methodology in Figure 4, the flows on the Notional Interconnector are:

- EXP_{ir1} = (30 + (.6667*3)) = 32 MW
- IMP_{ir2} = (30 – (.3333*3)) = 29 MW
- Applying the formula shown in Figure 1 ($IRSR_i = RRP_{r2} * IMP_{ir2} - RRP_{r1} * EXP_{ir1}$): IRSR = (29 MW * $50/MWh – 32 MW * $30/MWh) * 1hr = $490

This outcome is also achieved by considering the relevant *dispatch* and *settlement* results, as the *dispatch* process must increase total *generation* to account for the 3 MW *transmission* loss across the *regional* boundary.

6. Methodology for IRSR Allocation, Distribution, and Recovery

Rule 3.6.5 requires *AEMO* to allocate and distribute or recover IRSR according to the following principles:

- *AEMO* must give full effect to *jurisdictional derogations*.
- IRSR must be distributed or recovered in accordance with Rule 3.18 (that is, through the *auction* process). Any IRSR that is the subject of an SRD Agreement must be distributed to the Successful Participant that is party to the *SRD agreement*.
- Any remaining IRSR (for example, because of unsold Units) is distributed to the TNSPs in the *region* that imported the electricity.

AEMO's paper, *Methodology for the Allocation and Distribution of Settlements Residue*[3], further details how *AEMO* allocates and distributes IRSR in accordance with Rule 3.6.5(a).

7. Auction Eligibility

Rule 3.18.2(b) outlines who may participate in an *auction*. Clause 3.2 of the *auction rules* outlines who may enter into an *auction participation agreement* (**APA**), which is a pre-requisite to participate in an *auction*. Clause 3.2 also outlines who may enter an *SRD agreement*.

8. The Auction

8.1 Overview

Participation in the *auction* involves:

- Entering into an APA with *AEMO* that:
    - Sets out the basis for participation.
    - Specifies the terms and conditions of the *SRD agreements* formed between *AEMO* and Successful Participants.
- Bidding for Units in any combination of Unit Categories and Relevant Quarters to which the Units relate.
- Receiving a confirmation from *AEMO* of the allocation of Units, if any, to the Successful Participant.
- The automatic formation of an *SRD agreement* between *AEMO* and each Successful Participant in accordance with the APA. Under each *SRD agreement*, and once successful bids are paid for, the Successful Participants are entitled to receive the greater of:
    - $10 for each Unit; or
    - The value of the IRSR represented by the Units after deducting *auction expense fees*.

From time to time, *AEMO* may change the *auction* process in accordance with the *auction rules*. This may include changes to the maximum number of Units in a Unit Category, or deferral of an *auction* date. Auction Participants should monitor *AEMO's* website for any announcements of any such changes.

[3] Available at: http://www.aemo.com.au/electricity/Market-Operations/Settlement-Residue-Auction/Guide.

8.2 Units

The *auction rules* provide for the *auction* of Units. A Unit is an entitlement to an amount of IRSR. While IRSR could be a negative amount, the APA provides that there are no negative distributions with respect to a *billing period* and that Successful Participants will always receive a minimum amount of $10 per Unit for the Relevant Quarter.

8.3 Unit Categories

The Unit Category relates a Unit to a *directional interconnector*.

A Unit within a particular Unit Category is a proportional entitlement to the accumulated IRSR for that Unit Category. The proportion:

- Is determined by the *directional interconnector's* Nominal Capacity.
- Varies between Unit Categories.

While all Units are calculated using the same methodology, each *directional interconnector:*

- Has unique characteristics.
- May accumulate a different level of distributable IRSR.

8.4 Proportional Entitlement

A Nominal Capacity is assigned to each *directional interconnector* for the purpose of defining a Unit in the relevant *directional interconnector's* Unit Category.

The proportional entitlements for each Unit Category are determined by dividing one Unit by the total number of Units for that *directional interconnector.* The result is expressed as a percentage to five decimal places.

The actual capacity of *inter-regional transmission* links may also be influenced by a number of factors, including:

- The *transmission elements'* thermal ratings.
- Consideration of *network* voltage control and system stability.

8.5 Units available at each auction

Normally, 8.33% of the maximum number of Units for each Unit Category for a Relevant Quarter will be made available at each of the twelve *auctions* for that Relevant Quarter. Any Units not sold at earlier *auctions* are rolled over and made available in subsequent *auctions* for the same Relevant Quarter.

AEMO determines the number of Units offered in each Unit Category at each upcoming *auction* and makes that information available on its website at least 10 *business days* prior to the *auction*.

Any Units not sold in the final *auction* for a Relevant Quarter remain unsold, and the relevant IRSR is distributed directly to TNSPs in accordance with Rules 3.6.5 and 3.18.4.

9. Auction Timetable

In general, there are four *auctions* each year.

Currently Units are sold in twelve tranches covering a three-year period.

Until June 2010, Units were sold in four tranches covering a 12 month period; and between June 2010 and June 2013, this was progressively increased to twelve tranches covering a three-year period.

Bidding for each *auction* of Units for each Unit Category for each Relevant Quarter is open for 10 *business days*. This period usually commences at 10:00 am (*EST*) on the first *business day* of the last month preceding each Relevant Quarter and closes at 2:00 pm (*EST*) 10 *business days* later.

9.1 Bidding at auction

Bids may be:

- Varied, withdrawn, or replaced at any time during the bidding period in accordance with clause 7.3(b) of the *auction rules*.
- Made for Units from any combination of Unit Categories and Relevant Quarters on offer at the *auction* in accordance with clause 7.2(b) of the *auction rules*.

Clause 7.2 of the *auction rules* requires each Bid to specify:

- The number of Units that the Bid applies to for each Unit Category and Relevant Quarter combination on offer at the *auction* (this number must be either zero or a positive integer).
- A single price for the Bid (the price must be greater than zero and made on a GST-exclusive basis).

9.1.1 Bid files

Bids are made electronically via NEMNET. Bidders must submit a Bid File that:

- Complies with *AEMO's* approved format.
- Contains a maximum of 2,000 Bids for each set of *auctions*.

The most recent Bid File in *AEMO's* bid database at the time the *auction* closes is taken to be the Bid File submitted for that set of *auctions*, subject to *AEMO's* discretion to reject defective Bids.

9.1.2 Bid rejection

AEMO may reject Bids that do not comply with the NER, the *auction rules,* or the APA.

9.1.3 Linking Bids across Unit Categories and Relevant Quarters

Auction Participants can submit Bids that link any combination of Unit Categories and Relevant Quarters in accordance with clause 7.2 of the *auction rules*.

It is also possible to Bid for Units in a single Unit Category in a single Relevant Quarter by specifying zero Units in every other available combination of Unit Category and Relevant Quarters.

9.2 Linear Program Determination of Unit Allocation and Pricing

Bids are used as inputs to a Linear Program that allocates the Units for each *auction* and determines the price at which they will be sold.

If all Units on offer for a Unit Category in a Relevant Quarter:

- Can be allocated to Bids, all Successful Participants will be allocated their Units at the lowest price at which those Units can be allocated. This will be the price that maximises the *auction* revenue and, therefore, the value of IRSR.
- Cannot be allocated to Bids, the price for that Unit Category in that Relevant Quarter will be zero and Units will be allocated to Successful Participants at that price. Unallocated Units will be allocated to the appropriate TNSP in accordance with Rule 3.6.5(a)(3).

For the purposes of **Section 9.2**:

- Bid Category refers to a Bid for Units in a particular Unit Category for a particular Relevant Quarter.
- Single Category Bid refers to a Bid specifying more than zero Units in only one Bid Category.
- Linked Bid refers to a Bid specifying more than zero Units in multiple Bid Categories and Relevant Quarters.
- Linked Bid Auction Clearing Price is the price against which a Linked Bid's total price must be compared (calculated by adding, for each of the Linked Bid's nominated Bid Categories, the Bid Category's *auction* clearing price multiplied by the number of Units sought in that Bid Category).
- Available Units are the Units made available at an *auction*.

9.2.1 An auction solely comprising Single Category Bids

For an *auction* receiving only Single Category Bids, each Bid Category can be considered independently, and each Bid Category carries two possibilities. Either the number of Units for which Bids are received is:

- Greater than or equal to the number of Available Units in the Bid Category; or
- Less than the number of Available Units in the Bid Category.

The Available Units in a Bid Category (where Bids are received for at least the number of Available Units in the Bid Category) are allocated as follows: The highest priced Bid is allocated the requested number of Available Units, followed by the next highest priced Bid, and so on, until all the Available Units have been allocated. The last Bid to be allocated a Unit may receive only a portion of the Bid's nominated Units.

The *auction* clearing price is:

- Set as the price of the lowest Bid that was allocated a Unit.
- Paid by all Successful Participants for the Units they acquire at the *auction*.

Where Bids are received for less Units than were available in the Bid Category, all Bids will receive their full allocation and the price for Units (for all Successful Participants) will be zero. IRSR that would have accrued to unallocated Units is distributed to the appropriate TNSPs for the relevant *directional interconnector*.

The *auction* results are less straightforward when Linked Bids are submitted.

9.2.2 An auction comprising Linked and Single Category Bids

There are at least three possible scenarios for *auction* results when a Linked Bid is submitted:

- The Linked Bid's total price is less than the Linked Bid Auction Clearing Price, where the *auction* clearing prices for each Bid Category are determined without considering the Linked Bid. In this situation, the Linked Bid would not be allocated any Units because it is below the *auction* clearing prices set by the other received Bids.
- The Linked Bid's total price is greater than the Linked Bid Auction Clearing Price, where the *auction* clearing prices are determined using both the Single Category Bids (as described above) and the number of Units nominated in the Linked Bid. Under this scenario, the Linked Bid will receive the nominated Units at the *auction* clearing prices.
- The Linked Bid prices or quantities are such that the *auction* clearing price is set by the Linked Bid in at least one Bid Category. Under this scenario, there may be insufficient Available Units to satisfy the Linked Bid for that Bid Category. If this is the case, the Linked Bid will be proportionally scaled back across all Bid Categories. Further, if the Linked Bid is potentially the *auction* clearing price Bid in more than one Bid Category, the Linear Program will determine the *auction* clearing prices in the relevant Bid Categories according to that combination of *auction* clearing prices that maximises *auction* revenue.

9.2.3 Tied Bids

A tied Bid occurs when multiple Bids in the same Bid Category have the same price and this price sets the Bid Category's *auction* clearing price.

The *auction rules* do not resolve tied Bids and the Linear Program resolves them in a way that cannot be predicted.

Auction Participants may reduce the possibility of a tied Bid by submitting Bid Prices likely to be unique (for example, $501.17 or $498.32 rather than $500.00).

9.3 Auction results

Within two *business days* of the completion of an *auction, AEMO* sends an electronic confirmation to each Auction Participant that submitted a Bid File. This confirmation sets out, among other things:

- The number of Units in each Unit Category and each Relevant Quarter allocated to the Auction Participant (which may be zero).
- The purchase price per Unit.
- The total purchase price.
- The dates for payment of the purchase price.

Auction results are *published* on *AEMO's* website within five *business days* of the *auction's* completion. *Published* results include:

- Details of Bids (excluding the identity of each bidder).
- The purchase price per Unit for each Unit Category for each Relevant Quarter.
- The number of Units sold in each Category.

9.4 SRD Agreement payments and distributions

SRD agreement payments and distributions involve Successful Participants:

- Paying the purchase price.
- Receiving the *settlements residue* distribution instalments after the deduction of *auction expense fees* and making any other adjustments.
- Receiving reconciliation statements at the end of each calendar quarter.

Distribution instalments are made weekly on the day *AEMO* makes payments to *Market Participants*. This usually occurs on the twentieth *business day* after the end of each *billing period*, but can be later.

Each distribution instalment must be included in the statements provided by *AEMO* for the relevant *billing period*.

The amount of each distribution instalment is based on the net IRSR for each relevant Unit Category for the relevant *billing period* (or part of the relevant *billing period*), subject to the deduction of *auction expense fees*.

9.5 Auction expense fees

Auction expense fees are deducted from the first distribution instalment. If this is insufficient to meet the *auction expense fees*:

- No distribution will be made.
- The *auction expense fees* will be deducted from subsequent distribution instalments until:
  - Outstanding *auction expense fees* are fully recovered; or
  - All of the distribution instalments have been paid.

Auction expense fees are calculated in accordance with clause 11.2 of the *auction rules*, and reconciled in accordance with clause 11.3.

9.6 Adjustments

AEMO is required to pass on any adjustments in the IRSR to which the Successful Participant's Units relate except where *AEMO* has terminated the *SRD agreement*.

The APA provides that:

- *AEMO* must issue *revised statements* and other statements as required under Rule 3.15.19, setting out the adjustment amount (plus interest calculated in accordance with Rule 3.15.19).
- *AEMO* or the Successful Participant (as the case may be) must pay the adjustment amount and interest in accordance with Rule 3.15.20.

9.7 Reconciliation statements

AEMO must provide a Successful Participant with a reconciliation statement for each *SRD agreement* via NEMNET within 10 *business days* of making the *SRD agreement*'s last distribution instalment. The statement must set out:

- The amount the Successful Participant is entitled to receive.
- The total amount distributed to the Successful Participant.
- Any adjustments necessary to ensure the Successful Participant receives at least $10 per Unit.

9.8 Goods and Services Tax

AEMO has received a private ruling from the Australian Taxation Office to the effect that no amount of *auction expense fees* relates to GST.

Key points of the ruling are set out in the *Application of the GST to NEM Transactions*[4] and a copy of the ruling is available upon request.

10. Further Information

10.1 AEMO publications

AEMO publishes information that could be of relevance. This includes:

INFORMATION	DETAILS
Apportionment Factors for Allocating Transmission Losses between Regions	
Auction Dates	
Auction Expense Fees	Fees payable upon successful purchase of units.
Auction Notices	Regular notices about upcoming auctions, including timing and the number of available units.
Auction Report	A quarterly report covering information on the progress of auctions, negative

[4] Available at: http://www.aemo.com.au/Electricity/Policies-and-Procedures/Settlements-Procedures.

INFORMATION	DETAILS
	IRSR amounts, and IRSR amounts accumulated for the previous quarter and comparative information on distributions compared to auction proceeds.
Auction Results	Also available via the Electricity Market Management System (EMMS) data model. Provides information concerning the units sold, and the price for each unit.
Auction Rules and Auction Participation Agreement	Details processes concerning the auction and distribution of IRSR.
Electricity Market Management System Data	*Market* data
Electricity Statement of Opportunities	A 10-year outlook of supply and demand in the *NEM*.
EMMS Data Model	A database replicating most of the data contained on the *AEMO market* database.
Exemption from Requirement to hold Australian Financial Services Licence	
Historical Auction Results, including negative IRSR	
Mathematical Formulation of Settlement Residue Auction Algorithm	A description of the formulation of the auction solver algorithm.
MT PASA	Medium Term Projected Assessment of System Adequacy (MT PASA) – a forecast of supply and demand covering the period from the end of the Short Term Projected Assessment of System Adequacy (ST PASA) for the next two years.
Methodology for the Allocation and Distribution of Settlements Residue	
National Transmission Network Development Plan	A view of the efficient development of the *national transmission grid* for a planning horizon covering the next 20 years under a range of credible scenarios.
Network Outage Plans	Planned *network outage* information and projected impact assessments.
Network Outage Schedule	The planned *network outages* for work on the *transmission system*, including planned start and end times of each *outage*, likelihood of the proposed *outage* proceeding and, where relevant, the constraint equation set that would be invoked in *dispatch* to manage the *outage.*
Quarterly Interconnector Performance Reports	Information about: • Each *interconnector's* transfer capacity. • The discrepancy between the *interconnector's* transfer capacity and its transfer capacity in the absence of *outages*.
Settlement information	Also available via the EMMS data model, information such as IRSR distributions, and negative IRSR.
Settlement Residue Committee	Membership details of the Committee created under the NER to oversee auction processes.

INFORMATION	DETAILS
ST PASA	Short Term Projected Assessment of System Adequacy (ST PASA). A seven-day forecast of supply and demand.
Unit Category Information	
Week in Review	A weekly bulletin of market-specific information.

10.2 AEMO Communications

AEMO Communications are emails issued by *AEMO* to advise *Registered Participants* of notices of consultation, current events, and other NEM information. These emails are sent to each *Registered Participant's* nominated *NEM* primary contact.

10.3 Network Outage Plans

Rule 3.7A requires *AEMO* and TNSPs to publish a monthly Network Outage Plan that includes:

- Planned *network outage* information for the next 13 months.
- An assessment of the projected impact each *network outage* will have on *intra-regional* and *inter-regional power transfer* capabilities.

Each Network Outage Plan provides information about the expected impact of planned *outages* on transfer capabilities, any applicable revised limit equations, and a plain English description of the limit equations.

Network Outage Plans are distributed monthly via *AEMO* Communications emails, and are published in Excel format.

10.4 Annual Planning Reports

TNSPs are required to *publish* an *Annual Planning Report* providing information. The TNSP websites generally provide information on current major projects.

11. Glossary

Term	*Meaning*
AEMO	Australian Energy Market Operator Limited
APA	*auction participation agreement*
ASIC	Australian Securities and Investments Commission.
Auction Participant	A person who has signed an APA.
Basslink	A *scheduled network service* connecting the Victorian *region* with the Tasmanian *region*.
Bid	A single price bid for a specified number of Units.

Term	*Meaning*
Bid File	A file submitted to *AEMO* electronically containing Bids.
Counter-Price Flow	A flow of electricity from a RRN to another RRN where the *spot price* is lower.
CSV Files	Files containing data in comma separated values format.
EMMS Data Model	The database that is made available on the *AEMO* Electricity Market Management System and that replicates most of the data contained on the *AEMO market* database.
GST	The goods and services tax governed by A New Tax System (Goods and Services Tax) Act 1999 (Cth) and related legislation.
Inter-regional Settlements Residue or IRSR	That part of the *settlements residue* arising from energy flow across Notional Interconnectors.
Linear Program	A program using a mathematical technique that seeks to find the optimal solution to a problem that can be specified by a set of linear equations.
Market Event Report	Reports prepared by *AEMO* dealing with *power system* incidents that have had a significant impact on *dispatch*.
MT PASA	*medium-term projected assessment of system adequacy process*
NEMDE	*AEMO's* computer scheduling, pricing, and *dispatch* program for the management of the *NEM*.
NEMNET	The electronic communication system to which *Registered Participants* may connect for the purposes of the *NER*.
Network Outage Schedule or NOS	An *AEMO* database that assists *AEMO* and the TNSPs to co-ordinate planned *network outages*. A snapshot of the information in this database at 4am EST daily is published on the *AEMO* website.
Nominal Capacity	The Nominal Capacity of a *directional interconnector* is the capacity assigned to that *directional interconnector* solely for the purpose of determining the proportional entitlement of IRSR that applies for the relevant Unit Category. The actual capacity of an *interconnector* may vary based on a number of factors and at any time may be less than or may exceed the Nominal Capacity assigned to the relevant *directional interconnector*.
Notional Interconnector	The concept of a Notional Interconnector is used to provide a simple radial link representation of individual *transmission lines* that form a physical *interconnection* between the adjacent RRNs. It represents one or a number of parallel *transmission lines* that physically cross the *region* boundary, plus supporting *transmission lines* within the *regional networks* that form a meshed path to the respective RRNs.
NSP	*Network Service Provider*. In practice, this refers to TNSPs and *Distribution Network Service Providers*.

Term	*Meaning*
Relevant Quarter	A calendar quarter (commencing on the first day of July, October, January or April) in respect of which an *auction* is conducted.
RRN	*regional reference node*
SCADA	A Supervisory Control and Data Acquisition system used by *AEMO*.
SCADA Data	Data obtained by *AEMO* from remote terminal units in substations using SCADA for the purposes of *central dispatch* and monitoring *power system security*.
SOO	*statement of opportunities*
ST PASA	*Short term projected assessment of system adequacy process*
Successful Participant	An Auction Participant to which Units are allocated following an *auction*.
Support Hub	*AEMO's* information assistance service.
TNSP	*Transmission Network Service Provider*
Unit	An entitlement to an amount equal to the difference between the amounts defined in paragraphs (a) and (b): (a) the total of, for each *billing period* or part of a *billing period* that falls within the Relevant Quarter, an amount that is the greater of: • A specified proportion of the net *settlements residue* attributable to a *directional interconnector* under Rule 3.6.5 (including any *settlements residue* that is attributable to the *directional interconnector* but is distributed in accordance with *jurisdictional derogations*), arising in respect of that *billing period* or part of a *billing period*; and • Zero. (b) The relevant *auction expense fee* for the Relevant Quarter.
Unit Category	A category of Units as described in Section 8.2.