Generator Cost Assessment

prepared for:
Australian Energy Market Commission

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1. Background

Oakley Greenwood has been engaged by the Australian Energy Market Commission (AEMC) to assess potential costs generators may incur in implementing three possible changes to the National Electricity Rules (NER) as part of the Bidding in Good Faith rule change proposal to apply in the National Electricity Market (NEM).

Our assessment was informed by interviews with a number of market participants together with our experience within the NEM and elsewhere. Assessment of IT system costs was assisted by Mr S Black of Onyx Services Australia. Mr Black has experience with market and power system systems in New Zealand, Singapore, Philippines and Western Australia.

The possible changes we have been asked to consider are:

Option 1

On each occasion a rebid is made during or less than 15 minutes before the commencement of the trading interval (late rebid) generators must provide a report to the AER setting out in detail the material conditions and circumstances giving rise to the rebid, its reasons for the rebid and justification that the rebid was made as soon as reasonably practicable. The report must include material covering:

- The material conditions and circumstances giving rise the rebid
- The Generators or Market Participant's reasons for making the rebid;
- The time at which the relevant event(s) or other occurrence(s) occurred; and
- The time at which the Generator or Market Participant first became aware of the relevant event(s) or other occurrence(s).

This option is presented in the draft determination of the AEMC in this matter.

Option 2

This option differs from Option 1 in that the generators and market participants making rebids during or within 15 minutes of the start of a trading interval would be required to keep contemporaneous records of the reasons for the late rebid, which must include (the same information as an Option 1 report):

- The material conditions and circumstances giving rise the rebid
- The Generators or Market Participant's reasons for making the rebid;
- The time at which the relevant event(s) or other occurrence(s) occurred; and
- The time at which the Generator or Market Participant first became aware of the relevant event(s) or other occurrence(s).

Market participants and generators would be required to keep these (contemporaneous) records in accordance with the requirements of cl 1.9 of the NER (i.e. for 7 years), this requirement would be a civil penalty provision.

The AER's existing power to request additional information to substantiate a rebid would be enhanced to refer specifically to its ability to ask for the contemporaneous records relating to late rebids.

Option 3

Under this option there would be no change to the nature of the information or the AER's powers to request additional information from current arrangements. However, there would be a change to the behavioural standard relating to bids and rebids such that bids and rebids must not be false or misleading or likely to mislead and that a rebid must be made as soon as reasonably practicable after the relevant party becomes aware of the change in material conditions or circumstances that led to the decision to rebid.

Our brief was to assess implementation costs including for IT systems and personnel across a business. It excluded consideration of any potential impact of changes to the NER on commercial positions or market efficiency arising from any change in trading activity.

2. 'The life cycle of a rebid'

This section introduces the context in which rebidding takes place in the NEM. Starting after the time initial bids have been submitted the day ahead of dispatch, traders monitor various data and information including:

- Internal company information and data which may include:
  - generating unit condition and outlook based on combination of data and telephone conversations e.g. with power stations;
  - fuel supply availability and outlook;
  - estimates of company retail demand which together with knowledge of contract positions allows traders to monitor exposure spot market and compliance with trading policies; and
  - network congestion;
- Public data including:
  - AEMO predispatch and sensitivities; and
  - weather forecasts.

Although it varies from company to company, traders access this information in a variety of ways including real time screen displays, phone calls, discussion with colleagues and management, interrogation of company databases including replicates of AEMO market systems and reference to internal manual and memoranda.

Once a decision to rebid is made, traders access their bidding system, prepare the rebid and submit data and the reason in accordance with the current provisions of cl 3.8.22A. Most organisations require the trader to make an internal log entry of the rebid. They may also require traders to save some of the relevant data and possibly screen shots. Management may also review the logs for compliance with the NER and the adequacy of log entries.

3. Reasons for rebid

Many rebids, including late rebids, are for plant related reasons and many of these are minor and have little effect on market outcomes but also may be material when a large item of plant fails. Decisions to rebid based on changes in plant conditions are relatively simple decisions – the capability of the relevant item of plant has now changed and should therefore be rebid. Businesses have an obligation to do this and the causer pay allocation of ancillary service costs creates a commercial incentive for it as well. This linkage to ancillary service is an inherent part of the design of the NEM and in particular the 5-minute dispatch cycle to keep the time period for dispatch of energy short and reduce reliance on ancillary services.

Rebids when the commercial stakes are high, i.e. market price is high, are more complicated and in part science and part art: to quote one of the generators we interviewed. This is an apt and important description of the rebidding environment of the NEM embodied in the NER as it stands and also under the philosophy on which the draft determination is based. Aside from plant related rebids coinciding with these high(er) stakes times, the NEM provides for rebids based on commercial drivers with some important conditions. The rationale for the incentives and economic efficiency basis for the rebids and the proposed changes is outside our scope, but is discussed extensively in the AEMC's publications on this proposed rule change and in submissions by stakeholders: as are arguments for additional limits to be imposed.

4. Trader's role

Part of a trader's role is to make rebids based on their judgement about future conditions and future responses of other stakeholders to their rebids. Available forecasts, such as predispatch, are formed from earlier bids and rebids and forecasts of future demand and are able to inform a trader's assessment, but cannot be definitive. There is an obvious clash between allowing rebidding based entirely on unfettered commercial drivers and on rules to ensure sufficiently competitive activity in the market. Each of the options we have been asked to cost tackles how a record of how the actions of a trader complies with subtly different approaches to rules that set this balance and are made available for regulatory review.

The conditions and circumstances that eventually lead to a rebid will often evolve over a number of hours and the probability that a rebid may be warranted may therefore grow over time, but not be finalised until a final event tips the balance in the particular trader's mind. Recent trading history may also affect decisions, for example if significant losses or gains had been experienced recently might influence a trader to be more or less conservative about covering contract position or predictions about how other participants will react. This evolving set of conditions and circumstances and reliance on judgement, realistically, is only able to be documented by the particular trader, in particular to record of the timing of the events and by implication when the intent to rebid was formed.

This situation is a significant change to the recording and logging that occurs now from which management and the AER can reconstruct if required. Such reconstruction can only surmise how the case for a rebid evolved in the traders mind and in the time available the statement of reason can only be cryptic and generally relates to facts rather than judgement calls. The proposed obligation to require statements about the time relevant event(s) or other occurrence(s) occurred will therefore often require a record of how conditions evolved over a number of hours as evidenced by data in multiple systems. It will be incomplete if it does not describe how these data jointly contributed to the final judgement of the trader.

Further, as trading conditions evolve over a day, traders cannot tell in advance if circumstances will develop to the point where a rebid will be submitted and in particular whether it will be a late rebid. As a result emerging conditions will need to be regarded as a potential basis for a late rebid and recorded accordingly.

5. Sources of additional costs

Businesses have created internal arrangements for trading activities to suit their current business objectives in light of current obligations in the NER in respect of rebidding. Each of the options we have been asked to examine has the potential to require additional infrastructure and possibly staffing.

We considered four potential groups of activities in assessing possible costs:

- Establishment: designing and building new IT systems to allow relevant information to be captured and training
- Operational information collation: Collating relevant information in a coordinated manner
- Reporting: preparation of a consolidated report
- Review: given the legal standing of reports and availability of information the potential for additional management and or legal review of the records.

Additional one-off and on-going staff requirements were also considered. Each of these are considered in the following sections.

The businesses interviewed covered three levels of rebidding activity. Large businesses with significant portfolios making thousands of rebids per year, medium sized players who make few rebids because of the peaking nature of their business and very small players who might make one rebid a year which may not even be a late rebid subject to the reporting regime under options 1 and 2 but nevertheless affected by option 3.

Looking first at the medium sized players interviewed, they considered they would meet their obligations under any of the options within their existing systems and staffing. We did not interview all participants and so cannot assert this would be the case for all infrequent bidders, but prudent record keeping in respect of data and log entries is intuitively likely to mean this observation would apply generally across infrequent rebidders.

The very small players making rare rebids should also be able readily to meet the obligations under any of the options with existing staff and facilities. Although, ironically, they may face a bigger compliance risk than the medium sized players simply through lack of experience and practice. Internal diligence and training plus education by market bodies could assist in this regard.

The biggest potential cost will fall on the frequent rebidding parties due to high volume and likelihood of rebidding. Looking at each of the four activities which we have identified as possible sources of additional cost, for the larger and frequent rebidding participants we observe as follows:

5.1. Establishment costs

The options do not require additional data or information as the commercial basis for rebids will not change. However, the documentation of the basis for rebid will change under each of the options. Traders will have an increased obligation to record the basis for their decisions as the recording will now need to be to a standard that in effect demonstrates it was made as soon as reasonably practicable. This demonstration will require traders to show that the time they made a rebid was as soon as reasonably practicable after they could reasonably have been expected to conclude a rebid was warranted. As noted there are complex inter-relationships between the different data potentially spread across a number of systems.

The larger businesses interviewed all expected to require additional IT infrastructure to record all of the data and information that a trader currently uses in a form that can be filed as a consolidated record of each rebid. As the AEMC determination is draft, and being argued against, none of the businesses reported having developed detailed specifications for new systems. We consider this is a commercially reasonable position.

In discussion, and with some high level analysis, three of the large businesses provided written assessment and others provided verbal estimates. These estimates ranged from $100,000 up to in excess of $500,000. We appreciate that the estimates were given at short notice and note that the four items of information to be provided are unlikely to be single data points or single events. Accordingly systems must be capable of capturing a wide range of data over a number of hours for each rebid. However, it is reasonable to assume that all of the data required is currently available and will often be viewed by traders in the normal course of their activities. Accordingly, enhancements to systems will be concerned with collating and arranging time stamped storage of existing information.

To reconcile the wide range we compared the range to the budgets for software modifications from our experience, where individual projects would typically be of the order of 15 per cent of the annual total software development budget. The changes needed for the proposed changes are significant and hence could plausibly sit at the top end or be a one-off. For a large business $1M per annum would not be an unusual amount and hence an individual project in the order of $100,000 - $200,000 is plausible.

It is impossible to review pricing accurately in the absence of a detailed specification. The data to be collated is already accessible in some form in different files and data streams and screen displays that are reviewed by traders across the day and the changes needed are to rationalise and collate that data, not accommodate new information – this collation process is a legitimate costs of the options. Costs for changes that may have been undertaken in any event or to the extent that enhancements do provide wider benefits should not be counted. For this reason we have relied on wider experience within industry for system modifications and not adopted the higher end of the estimates provided. Maintenance of the system would also be required, based on experience we suggest 20 per cent incremental maintenance.

Views as to whether there would be a difference between Option 1 and 2 varied. Some interviewees considered there would be no difference as the only way to ensure a contemporaneous report could be submitted on request is to prepare it at the time. Others considered they could meet the requirement within Option 2 with a lesser IT collating system at the expense of more effort if a report was requested and assumed reports would be called for by the AER around the same levels as now. One participant indicated a risk management strategy that would see no additional IT under Option 2 but expected higher effort if AER requested a report. On balance we agree that a lesser spend is likely but the level will depend on how robust existing system are. For the purposes of assessment we propose 25 per cent discount, but note this is a subjective value.

Option 3 allows for the AER to make a similar request to now. On the assumption participants are compliant with the current rules there will be little increase required. However as the behavioural standard is higher we have assumed cost for due diligence check and minor refinement and set this at a one off cost of $25,000.

5.2. Collation of data on which each rebid is made

Traders constantly access a variety of data from a variety of sources. Each business has different assets and their IT systems are integrated in different ways. To access different information a trader must either switch between different windows and sections of data or between different systems within the business. The ability to draw information relevant to each rebid together into a record of the background to a rebid to meet the obligations of the different options will vary depending on the assets of the business and the structure of the systems which contain the information. We would expect the design of the systems discussed above under in the establishment costs section to vary accordingly.

In interviews, a number of the generators noted the role screen shots of data currently play in providing a record for management review and to meet existing requirements to state the reasons for rebids.

On balance therefore we expect the participants who submit significant numbers of rebids are unlikely to incur material additional costs over and above the establishment costs in order to collate the background information to a rebid as this would be automated. Smaller players appear likely to rely more on manual collation of information by traders and use less sophisticated systems. However, although this approach may involve some effort for small numbers of rebids the additional effort will be small and within the scope of existing resources.

5.3. Recording the basis for rebids

At present traders select a reason code from menus and enter a brief statement each time a rebid is submitted. The proposed requirement for a contemporaneous report or the ability to present such a report to explain the basis for each and every late rebid will involve additional effort at the time of rebidding. In interviews with generators it was noted that in a period where multiple rebids are submitted in close succession, such as when the commercial stakes are high because market price is high, traders currently would not have time to create written reports. Comments that even the end of the shift would be too late to accurately document the judgement calls related to each rebid in a period when 10 - 20 rebids were submitted in quick succession for commercial reasons.

On this basis generators submitted existing staff levels would be inadequate. We concur if the traders are to be required to prepare reports for each and every rebid. Generators also submitted that there would be little difference if there was an obligation for the same contemporaneous report and supporting material to be available on request of the AER (Option 2) and that the reports would need to be prepared as a matter of course – possibly with a lesser review by management or legal staff – but this was contested as any changes would not be contemporaneous.

Given the number of individual units within the portfolios managed by single traders within the larger businesses, the diverse information and judgement on which rebids are made we agree that at the busiest times there would be very limited time available to document the rationale.

We consider there would be some scope to call on the services of other staff to document rebid decisions and records as assistants to a trader. Assistance to ensure data records are complete would be more likely than record of decisions at the busiest times. These staff would need suitable training or be part of the trader work roster, but engaged on other tasks. At busy times these tasks would need to be put aside requiring a redesign of work flow to allow this to happen.

This type of arrangement would fall down if a busy time occurred out of hours – noting not all participants who make significant numbers of rebids operate a continuous (24 x 7) shift roster and instead rely on on-call traders working from home out of hours. However, most busy, high commercial stakes times will occur during standard business hours or in the few hours in the evening, but in principle can occur at any time. Hence there would be a risk the trader could not comply and also the business could not. As drafted, the nature of the obligation is such that this risk would be unacceptable to many businesses.

Each business will no doubt work out its own response, however, compliance with the current proposals is likely to lead to a requirement for additional staff in some way under Option 1 and 2. Estimates ranged from 1 to 4 additional staff to cover roster positions at a cost of up to $600,000 p.a. after allowing for recruitment, training and on-costs. Our view is that it is impractical to expect businesses will be able to meet the requirements under these two options as drafted without additional staff. It will be difficult for these staff to be efficiently engaged at other times. On balance, our view is that a prudent risk strategy will emerge and generators will incur less cost for Option 2, for example providing additional staffing on standby to record details during highest risk days but not at other times. For the purposes of analysis we are suggesting staffing cost of $450,000 per annum for Option 1 and $300,000 for Option 2.

In interview generators were less clear about whether Option 3 would involve similar additional staffing given that the content of the information AER can request is similar to now. However, the addition of an explicit requirement that the rebid must not be false and misleading and to hold contemporaneous records that show this is inconsistent arrangements allow for generators to reconstruct the sequence of events from data and information. Accordingly some generators considered that this may lead to a requirement for similar data and a record as other options. Generators were unclear how much this would 'raise the bar' given other existing legal requirements. On balance we propose no additional cost for the preparation of responses over and above the status quo – recognising a small increment has been allowed for enhancement of IT systems.

5.4. Compliance and review

Each of the options is based on a higher standard of reporting and information recording and on the significance of reports to AER. A prudent business should be expected to ensure management and legal review of these reports before submission. A cost of $1,000 per report is likely to be reasonable.

6. Summary and conclusion

As drafted each of the options we have been asked to assess is likely to increase costs to the industry.

Shifting what might be called the 'licence' or permission to rebid to one where traders must demonstrate they have sound basis for rebidding and have not delayed the timing of their rebids or that the rebids submitted are not false and misleading, changes the significance of records kept by businesses.

The level of costs incurred by a business will depend on their existing infrastructure and work arrangements and the level of rebidding activity.

Businesses submitting only rare or infrequent rebids are likely to prepare reports and assemble the basis for them immediately after submission on as needed basis. These businesses are therefore not likely to incur material additional costs in the preparation but will incur cost for any review of a report.

Costs for review would be of the same order as for other businesses at $1,000 per report but this will only apply if their rebids are also late rebids. The biggest risk for these businesses will be a technical compliance risk because of lack of experience and knowledge of the requirement for a report under Option 1. Under Option 2 it is likely they will be able to reconstruct the basis but may not have a full contemporaneous record.

Businesses submitting a small number of rebids will need to judge what level of establishment costs to incur. It is unlikely they will be justify additional staffing and instead rely on traders to record adequately and prepare an occasional late rebid report.

Larger businesses making significant numbers of rebids including late rebids are likely to incur significant costs.

Our expectation is that incremental one-off IT system costs to collate information reviewed by traders will be in the order of $100,000 to $200,000 with a 20 per cent annual maintenance cost.

The requirement for contemporaneous reports and supporting information which may evolve over a number of hours will drive these costs. This requirement is a step change from current arrangements where data and information is stored for ex post reconstruction, but not collated into a record or report that amongst other factors demonstrates rebid was not withheld until it became a late rebid. This demonstration will involve both data and record of the rationale adopted by the trader in each case. At times of high commercial significance rebids can number 10-20 in a short space of time and collated records and rationale cannot reasonably be developed within existing trader staffing levels. At other times current staffing levels should be adequate providing upgraded IT collation facilities are in place.

The most uncertain cost for larger businesses is staffing of trader positions. The most conservative position under Option 1 and Option 2 is for a business is to add to its trader shift roster and this could add up to $600,000 per annum of cost. In interviews businesses were less clear that additional trader staff would be required under Option 3 with some suggesting no additional staff through to others of the view that there would be a similar requirement to Options 1 and 2. Our view is that the lesser requirement for documentation of rationale and opportunity to rely to a greater degree on data records is likely to mean enhanced trader logs will be sufficient in this regard.

Most businesses undertake a management review of trader logs and bidding activity at present. However given the legal standing of reports to be submitted to AER (either as a matter of routine under Option 1 or on request under Option 2) individual late reports and associated supporting data are likely to be reviewed by management and legal staff. Simple reports are likely to take say 15 minutes each and rebids associated more significant events over an hour. An average of 30-45 minutes was suggested and is reasonable with an attendant cost to the business of $750 -$1000 per report.

Under Option 3 participants are required to answer specific questions put by the AER. Responses will therefore need to be crafted to suit the questions and reviewed as and when needed. Management and legal review is likely, but is also likely now and hence it is reasonable to think there will be no additional cost over the status quo.

Table 1 provides a summary of costs we suggest are appropriate for the purposes of analysis. We acknowledge some costs are below the costs suggested by some stakeholders and have provided the reasons we consider the lesser amounts should be adopted. The major difference is in the IT establishment costs which we consider will be dependent on the starting position for each player, risk management approach of stakeholders and also affected by final drafting of any change to the NER.

Table 1 Summary of costs by category

	Option 1 - reporting as a matter of course	Option 2 - recording and reporting on request	Option 3 - status quo with enhanced standard
IT establishment			
High volume (re)bidding	$100,000 - $200,000	$50,000 - $100,000	$0 - $25,000
Medium volume (re)bidding	$50,000	$50,000	Nil
Rarely rebids	Nil	Nil	Nil
IT on-going			
	20 per cent establishment cost per annum	20 per cent establishment cost per annum	20 per cent establishment cost per annum
Trader staffing			
	Business dependant	Business dependant	
High volume (re)bidding	$450,000	$300,000	Nil
Medium volume (re) bidding	Nil	Nil	Nil
Rarely rebids	Nil	Nil	Nil
Review			
	$1,000/report	$1,000/report as requested by AER	Nil (incremental)

7. NEM wide compliance costs

In order to assess the compliance costs across the NEM the AER provided summaries compiled from their data base of rebids over the last three years. Data was requested on a corporation basis to identify the total number of late rebids (as defined by the proposed rule amendment) and the number of late rebids for Plant (P) related reasons. Late rebids were defined as rebids within 45 minutes of the end of a trading interval (i.e. 15 minutes before the start) in which the first dispatch interval impacted by the rebid fell. We note there are some differences with number of rebids incorporated in submissions to the AEMC's consultations processes and presume this is due to definition of search criteria (i.e. the definition of late rebid).

Rebidding parties were grouped by volume of late rebid into high (11 businesses), medium (7 businesses) and small late rebidding corporations. The allocation was based on judgement with the lowest number of rebids classified as high volume of approx. 2,700 per year (approx. 8100 over three years) as there was a steep drop to the next corporation at 986 per year.[1]

1 AER advised that statistics for the SECV are heavily influenced by an automated rebidding process for output of Anglesea Power Station and have been excluded and it also noted Anglesea Power Stations is scheduled to close.

One-off establishment, annual maintenance and staffing costs as well as per report rates were then calculated using the rates presented in Table 1.

Participants who are now within a new or single organisation but were previously separate, have been grouped in their current corporation for the purposes of assigning high, medium and small volume rebidding activity.

Table 2 presents a summary of results provided by AER.

Table 2 Summation of 'late' rebids - all classifications

	Entity	2012/13	2013/14	2014/15	3year sum
High Volume Rebidding Activity (11 entities)	CS Energy	18,349	18,080	18,517	54,946
	Origin Energy	13,552	12,703	19,568	45,823
	GDF Suez	13,598	11,052	9,395	34,045
	AGL Energy	11,464	10,533	10,772	32,769
	Hydro Tasmania	10,617	8,669	10,542	29,828
	EnergyAustralia	8,551	8,758	10,906	28,215
	Snowy Hydro	6,677	6,021	5,418	18,116
	Alinta Energy	4,511	5,435	8,039	17,985
	Stanwell Corporation	6,493	4,888	5,746	17,127
	Millmerran Energy Trader	4,100	2,573	3,850	10,523
	Arrow Energy	2,422	1,868	3,761	8,051
	Average number late rebids by high volume rebidding entities per year				99,143
Medium Volume Rebidding Activity (7 entities)	QGC Sales	914	814	1,158	2,886
	ERM Power	-	420	1,488	1,908
	Redbank Energy	712	633	39	1,384
	Infigen	319	356	379	1,054
	RTA Yarwun	233	160	548	941
	Ergon Energy	101	20	58	179
	Marubeni	11	83	17	111
	Average number late rebids by medium volume rebidding entities per year				2,821
Small Volume Rebidding Activity (8 entities)	Ratch Australia	33	-	-	33
	Energy Brix	10	9	4	23
	Pacific Hydro	10	6	2	18
	New Gullen Range Wind Farm	-	11	5	16
	Infratil	-	-	10	10
	Boco Rock Wind Farm	-	-	7	7
	Meridian Energy	-	1	5	6
	Taralga Wind Farm	-	-	3	3
	Average number late rebids by small volume rebidding entities per year				39

Applying the rates for additional systems, staff and review of reports presented in Table 1 costs for each of the options when applied to all late rebids under each option are as follows.

Table 3 Summary of costs - Option 1 Reporting as a matter of course (all late rebid classifications)

Cost component	Amount
Initial establishment cost	$1.45M - $2.55M
Annual IT maintenance	$0.3M - $0.5M
Annual staff cost	$4.95M
Reporting review	$100M priced at $1,000/report. Businesses may refine their processes and procedures to lower this cost. At $100/report the cost is $10M p.a.

Table 4 Summary of costs - Option 2 Reporting on request (all late rebid classifications)

Cost component	Amount
Initial establishment cost	$0.9M - $1.45M
Annual IT maintenance	$0.2M - $0.3M
Annual staff cost	$3.3M
Reporting review	$2.8M priced at $1,000/report. Businesses may refine their processes and procedures to lower this cost. At $100/report the cost is $0.3M p.a.

Table 5 Summary of costs - Option 3 Status quo information recording (all late rebid classifications)

Cost component	Amount
Initial establishment cost	0 - $0.3M
Annual IT maintenance	$0.05M
Annual staff cost	-
Reporting review	Minimal incremental cost

In interviews there was considerable discussion about the impact of plant related rebids. For this reason AER was requested to separate late rebids flagged as for plant related reasons. The data query to identify plant related rebids relies on parties rebidding following the AER guidelines about the format of the reason provide under current arrangements but is considered a reasonable approach for the purposes of this analysis.

Table 6 provides a summary of the AER's data analysis and our classification to high, medium and small volume entities. Table 7, Table 8 and Table 9 provide apply the rates for the different components of cost to the values in Table 6.

Table 6 Summation of 'late' rebids - excluding plant related

	Entity	2012/13	2013/14	2014/15	3year sum
High Volume Rebidding Activity (9 entities)	Origin Energy	5,207	4,367	5,163	14,737
	Hydro Tasmania	4,597	3,855	5,591	14,043
	CS Energy	3,922	4,364	3,834	12,120
	Stanwell Corporation	3,672	3,171	3,910	10,753
	Snowy Hydro	4,061	3,314	3,337	10,712
	GDF Suez	4,817	2,991	2,152	9,960
	AGL Energy	2,735	1,960	3,330	8,025
	EnergyAustralia	2,607	2,044	2,908	7,559
	Alinta Energy	1,310	1,382	2,778	5,470
	Average number late rebids by high volume rebidding entities per year				31,126
Medium Volume Rebidding Activity (5 entities)	Arrow Energy	997	805	1,022	2,824
	RTA Yarwun	233	160	548	941
	ERM Power	-	264	588	852
	Millmerran Energy Trader	114	106	429	649
	Infigen	159	189	290	638
	Average number late rebids by medium volume rebidding entities per year				1,968
Small Volume Rebidding Activity (12 entities)	Ergon Energy	101	20	58	179
	QGC Sales	42	55	31	128
	Marubeni	11	83	17	111
	Energy Brix	10	9	4	23
	Infratil	-	-	10	10
	Boco Rock Wind Farm	-	-	6	6
	Meridian Energy	-	-	5	5
	New Gullen Range Wind Farm	-	-	-	-
	Pacific Hydro	-	-	-	-
	Ratch Australia	-	-	-	-
	Redbank Energy	-	-	-	-
	Taralga Wind Farm	-	-	-	-
	Average number late rebids by small volume rebidding entities per year				154

Table 7 Summary of NEM-wide costs - Option 1 Reporting as a matter of course (excluding Plant related late rebids)

Cost component	Amount
Initial establishment cost	$1.15M - $2.0M
Annual IT maintenance	$0.2M - $0.4M
Annual staff cost	$4.0M
Reporting review	$31M priced at $1,000/report. Businesses may refine their processes and procedures to lower this cost. At $100/report the cost is $3M p.a.

Table 8 Summary of NEM-wide costs - Option 2 Recording and reporting on request (excluding Plant related late rebids)

Cost component	Amount
Initial establishment cost	$0.9M - $1.45M
Annual IT maintenance	$0.2M - $0.3M
Annual staff cost	$2.73M
Reporting review	$0.9M priced at $1,000/report. Businesses may refine their processes and procedures to lower this cost. At $100/report the cost is less than $0.1M p.a.

Table 9 Summary of NEM-wide costs - Option 3 Status quo information recording (excluding Plant related late rebids)

Cost component	Amount
Initial establishment cost	0 - $0.3M
Annual IT maintenance	$0.05M
Annual staff cost	-
Reporting review	Minimal incremental cost

8. Cost sensitivities

All three options are likely to prompt generators which regularly submit rebids and especially late rebids to enhance IT support to collate relevant data and information to form part of the record of how a the conditions and circumstances of a rebid evolved over time. IT costs are related to the inherent shift in philosophy of rebidding to one of demonstration that inappropriate rebidding did not occur.

Trader staff costs have been noted as the most significant cost and is also the most sensitive to detailed design. For much of the time, the requirement for reports and records associated with each late rebid that are not associated with physical rebids will often be able to be met with existing staff level. Rebids arising from most changes to physical capability will relate to a single readily recorded event that is already recorded in logs. However, at the most critical and commercially sensitive times, existing staff are likely to be overwhelmed by the requirement to report on a complex situation that may have emerged over a number of hours.

Provisions which do not require traders to address each and every late rebid to the point where the workload is manageable for existing staff levels would mitigate or remove the need for extra staff and the attendant cost. For example, by limiting the nature of late rebids that need to be reported, for example:

- To exclude plant related rebids;
- To require reports only if prices exceed a threshold; or
- To require data and records to be retained as proposed but to require reports (either as a matter of course or on request from AER) to cover blocks of time and address the overall trading environment including late rebids rather than individual (late) rebids.

Each of these mitigating measures has its limitations, however, for example excluding physical rebids opens up the possibility (however theoretical) that this will be gamed.

A prudent business will review material to be sent to AER in the form of a written report and accordingly the costs will be proportional to the number of reports. If the number of reports and collated records can be reduced sufficiently, the burden on frequent rebidders will reduce to that of occasional rebidders and significantly reduce the need for additional IT systems and also for additional staff. It would place greater reliance on log records.