Quarterly Compliance Report:

National Electricity and Gas Laws

October – December 2012

Published February 2013

AUSTRALIAN ENERGY REGULATOR

Inquiries about this report should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001
Tel: (03) 9290 1444
Fax: (03) 9290 1457
Email: AERInquiry@aer.gov.au

AER reference: 50364-D13/21545

Contents

Shortened forms

Shortened form	Full title
ACCC	Australian Competition & Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AMI	Advanced Metering Infrastructure
Bulletin Board	The Natural Gas Services Bulletin Board established under Part 18 of the Gas Rules (also known as the National Gas Market Bulletin Board)
CATS	Consumer Administration and Transfer Solution
Electricity Law	National Electricity Law (Schedule to the National Electricity Act)
Electricity Rules	The National Electricity Rules made under Part 7 of the Electricity Law
Gas Law	National Gas Law (Schedule to the National Gas Act)
Gas Regulations	The *National Gas (South Australia) Regulations* made under the National Gas Act
Gas Rules	The National Gas Rules made under Part 9 of the Gas Law
GEIP	Good Energy Industry Practice
GJ	Gigajoule
LCA	Linepack capacity adequacy
MAP	Moomba to Adelaide pipeline
MOS	The market operator service by which capacity (in GJ) is provided to balance pipeline deviations by increasing or decreasing the quantity of natural gas supplied to or withdrawn from a hub using an STTM pipeline.
MSATS	Market Settlement and Transfer Solution
MW	Megawatt
MWh	Megawatt hour
National Electricity Act	*National Electricity (South Australia) Act 1996* (South Australia)
National Gas Act	*National Gas (South Australia) Act 2008* (South Australia)
NEM	The National Electricity Market being the electricity wholesale exchange operated and administered by AEMO, and the national electricity system, which covers: Queensland, New South Wales, Victoria, South Australia and Tasmania
QCR	The AER's quarterly compliance report
RIT-T	Regulatory investment test for transmission
RP	Responsible Person
STTM	Short Term Trading Market made under Part 20 of the Gas Rules
SWN	System Wide Notice
TJ	Terajoule
Victorian gas market	The Victorian Declared Wholesale Gas Market established under Part 19 of the Gas Rules

Executive summary

This Quarterly Compliance Report (**QCR**) outlines the Australian Energy Regulator's (**AER's**) compliance monitoring and enforcement activity under the National Electricity Law[1] (**Electricity Law**) and National Gas Law[2] (**Gas Law**)—including the rules and regulations which sit under those Laws—over the period 1 October to 31 December 2012 (**the December 2012 quarter**).[3]

Of particular note, the AER concludes a project relating to the quality of data for the gas Short Term Trading Market (STTM). The project aimed to reduce the amount of missing, late or incorrect data submitted by STTM pipeline operators.

Over the past two years, the AER's work to improve data quality included:

- meeting with the Chief Executives of the four major pipeline operators to clarify their responsibilities
- following up all data failures and reporting each failure publically
- seeking commitments from industry participants to improve processes for providing data and following up on those commitments
- commencing audits of STTM pipeline operators regarding compliance with the information and data obligations and
- taking enforcement action, including issuing an infringement penalty.

The AER's efforts to improve the quality of pipeline data, and companies' positive response to those efforts, have led to a marked reduction in the number of STTM data errors. Following concerning levels of errors from market start, the AER is pleased to announce that there were no such errors in the final two quarters of 2012.

While this project is now closed, the AER will continue to monitor pipeline data through its regular compliance work to ensure future compliance, and the complementary process of auditing STTM facility operators will continue throughout 2013.

In electricity, the AER notes that with the introduction of the carbon price and subsequent increased likelihood of generators' operating modes becoming much more dynamic, it is important that electricity generators providing timely and accurate information, such as availability, to the market across a variety of time horizons. AEMO publishes availability data in its Projected Assessment of System Adequacy (**PASA**) reports. Throughout 2013, the AER will closely monitor the accuracy of the data contained in PASA reports and the timeliness of announcements when changes occur.

This report provides updates on four special compliance projects carried out in 2012: the STTM data quality project mentioned above, STTM demand forecasting, electricity transmission connections and

[1] As enacted under the *National Electricity (South Australia) Act 1996* (SA).

[2] As enacted under the *National Gas (South Australia) Act 2008* (SA).

[3] Previous reports available on the AER website.

participants failing to follow dispatch instructions. Special compliance projects for 2013 will be announced in the next QCR.

This QCR also contains updates on a range of other compliance work, including:

- audits, in both electricity and gas
- counteracting MOS in the STTM
- quality of electricity rebid information.

Note for Network Service Providers

In the previous quarter the AER renamed this report to be *Quarterly Compliance Report: National Electricity and Gas Laws* to emphasise that it covers all compliance matters that fall under those two pieces of legislation. This includes obligations placed on Network Service Providers **(NSPs)**.

In this report, sections of particular interest to readers from NSPs include discussions of:

- metering compliance and performance (see section 2.3)
- the application of the regulatory test by TransGrid (see section 2.4)
- the AER's special compliance project on transmission connections (see section 2.5).

Introduction

The AER is responsible for monitoring compliance and enforcement under legislation and rules governing Australia's wholesale energy markets, including those applying to Network Service Providers. Section 15 of the Electricity Law and section 27 of the Gas Law set out the functions and powers of the AER, which include:

- monitoring compliance by energy industry participants[4] and other persons
- investigating breaches, or possible breaches, of provisions of the legislative instruments under the AER's jurisdiction.

Consistent with its statement of approach,[5] the AER aims to promote high levels of compliance, and seeks to build a culture of compliance in the energy industry. A culture of compliance will:

- reduce the risk of industry participants breaching their regulatory obligations
- ensure industry participants can engage confidently in commercial decisions and negotiations.

As part of this process, the AER undertakes a continuous compliance risk assessment of the Electricity and Gas Rules to identify appropriate focus areas and monitoring mechanisms. These mechanisms include audits, the imposition of reporting requirements, market monitoring, and targeted compliance reviews.[6]

In selecting the areas for review, the AER adopts the following principles:

- consideration of risk (the greater the risk, the higher the priority)
- a commitment to ensuring that both systemic issues and those with the potential for isolated but significant impact are addressed.

In carrying out its monitoring functions, the AER aims for:

- consistency over time
- cost effectiveness for energy industry participants and the AER
- transparency (subject to confidentiality requirements).

While most obligations under the Electricity and Gas Rules do not require registered participants to establish specific compliance programs, the AER takes into account a participant's compliance framework when determining its response to breaches. In assessing compliance culture, the AER considers whether compliance programs and processes are effectively applied, up-to-date and tested regularly.

The AER welcomes comments and feedback from industry participants and other parties on matters of compliance, including the specific areas targeted, or proposed to be targeted, for review.

---

[4] Entities registered by AEMO under Chapter 2 of the Electricity Rules or in accordance with Part 15A of the Gas Rules.

[5] Available on the AER website.

[6] Provisions of the Gas Rules and Electricity Rules that have been targeted for review in previous quarters are listed in Appendix A.

1 Gas

The AER is responsible for monitoring, investigating and enforcing compliance with the Gas Law and Rules, including but not limited to, the Short Term Trading Market (**STTM**), the Victorian gas market and the Bulletin Board.

This part of the report provides an update on reviews, investigations and compliance matters in the gas markets.

1.1 Short Term Trading Market

Part 20 of the Gas Rules sets out participants' responsibilities within the STTM, which encompasses three gas trading hubs: Adelaide, Sydney and Brisbane. The rules outline how wholesale gas is traded and include requirements for pipeline operators to submit pipeline capacity and allocation (gas flow) data.

This part of the report covers the following STTM matters:

- counteracting MOS outcomes
- accuracy of Origin Sydney STTM hub price taker bids (demand forecasts)
- late submissions of offers/bids by Adelaide Brighton Cement and EDL CSM
- the delayed publication of ex post prices by AEMO
- STTM facility operator audits
- the performance of STTM facility operators in providing capacity and allocation data
- the AER's special compliance project on STTM demand forecasting.

1.1.1 Counteracting MOS outcomes

The AER has a specific process to flag, analyse and make further inquiries into days of high Market Operator Service (quantity and payment) outcomes. Through this process the AER considers whether there may have been conduct, in contravention of Gas Rule 399, to purposefully create or increase pipeline deviations for which MOS may be required.

Counteracting MOS occurs when increase and decrease MOS is required simultaneously on different transmission pipelines supplying gas to the same hub. The amounts of increase and decrease MOS required often appear to cancel each other out. For example, one pipeline may have increase MOS of around 10 TJ while another pipeline has decrease MOS of around the same amount.

The AER has noted a number of instances of counteracting MOS in the Adelaide hub during this quarter in its gas weekly report.[7] Preliminary analysis indicates that when only a small quantity of gas is scheduled and allocated to the Adelaide hub on the MAP, there is increase MOS on the MAP and

[7] Available on the AER website.

decrease MOS on the SEAGas pipeline. This may indicate a physical issue in the Adelaide network whereby increased MOS flows on MAP are required to meet Adelaide network demand at times when MAP flows are low which then causes SEAGas deliveries to be backed off (decrease MOS). The AER will continue to monitor the Adelaide hub for counteracting MOS and report on any occurrences in its gas weekly reports.

1.1.2 Origin Energy demand forecast for the Sydney hub

The previous QCR reported a large variance between the ex ante demand forecast figure submitted by Origin Energy and its actual demand on the 25 June 2012 gas day for the Sydney hub. AER staff sought an explanation from Origin for the variance. Origin responded that the variation was due to human error, namely that its forecasting process was not followed in the correct order.

There were also large variations between Origin's demand forecasts and actual gas demand for gas days 2 July to 6 July 2012. In response to AER inquiries, Origin explained that the issue arose due to the timing of the transfer of one of its large customers.

The AER followed up these issues with Origin during this quarter. Origin has since adopted an additional control to directly monitor large customer transfers through the GRMBS (gas retail market system) to minimise the chance of similar events occurring.

1.1.3 AB Cement and EDL CSM late submission of offers/bids

This quarter, the AER has identified two participants that have failed to submit ex ante bids or offers in time for the provisional schedules on a number of occasions.

Adelaide Brighton Cement Limited (**ABL**) failed to submit ex ante offers in time for the provisional schedules in the Adelaide hub. On six gas days between 16 and 26 October 2012, ABL did not submit ex ante offers for the D-3 schedule. On three of these gas days, ABL also failed to submit ex ante offers for the D-2 schedule. From 27 October to 15 November, ABL did not submit ex ante offers for either the D-3 or D-2 schedules.

ABL has identified steps it will take to ensure it submits ex ante offers for the provisional schedules correctly. It has also committed to providing a report to the AER by March 2013 detailing the implementation and effectiveness of the new steps designed to minimise the likelihood of future non-compliance.

EDL CSM (also known as Energy Developments) failed to submit ex ante bids in time for the provisional schedules in the Sydney hub. Specifically, between 30 October and 2 November 2012, EDL CSM submitted ex ante bids for the D-1 ex ante schedule however it did not submit ex ante bids for the provisional D-2 or D-3 schedules. Also, on 23 October EDL CSM did not submit an ex ante bid for the D-3 schedule.

EDL CSM has also identified steps it will take to ensure it submits ex ante bids for the provisional schedules correctly. The AER will monitor both EDL CSM and ABL closely to ensure those steps are effective.

The AER understands that both ABL and EDL outsource many of their roles in the STTM. While the AER accepts that such arrangements exist, the STTM obligations still sit with the market participant.

1.1.4 AEMO delayed publication of ex post prices

There were two instances in November where the publication of the ex post prices in the STTM was delayed. This follows an earlier instance on 27 August. The AER met with AEMO in December to discuss the matters and to seek assurances from AEMO that it is taking appropriate steps to manage the risk of similar errors happening in future. Details of the events are provided below.

27 August 2012 – Sydney and Adelaide hubs

On 28 August 2012, AEMO experienced IT software problems which resulted in a delay in posting the ex post prices for the 27 August gas day in the Sydney and Adelaide hubs. As a result a provisional price was published instead. The error had no financial impact on participants as the provisional price published and ex post price were ultimately the same. The Brisbane hub was not affected by the error.

AEMO published an STTM event report into the matter on 4 October 2012. The report states that the event occurred when AEMO accessed the STTM production systems to analyse prudential amounts in the STTM. The request was executed incorrectly and caused the critical STTM scheduler and report generator applications to stop. The STTM applications were subsequently restarted out of sequence, which led to STTM facility operations being sent incorrect information.

AEMO has identified the cause of this issue and is looking into IT solutions including preventing such requests being made of the database at critical times and expanding the size of the database. The AER will follow up these issues with AEMO and report on further developments in a future QCR.

19 November 2012 – Sydney and Adelaide hubs

On 20 November 2012, AEMO experienced a delay in transferring MOS step allocation data for the 19 November gas day at the Sydney and Adelaide hubs. AEMO published an event report in January, which could not identify the cause of the delay. The transfer on 20 November took 3.5 minutes to complete, compared to the usual time of less than 2 seconds. AEMO's attempts to replicate the delay have not been successful.

The delay resulted in AEMO using default allocation data and producing provisional ex post prices for the Sydney and Adelaide hubs. While there was no financial impact on participants in the Sydney hub, there was a small difference between the provisional and actual ex post price in Adelaide ($0.37/GJ) which AEMO deemed to have a 'non material impact' on participants.

AEMO considers the main market impact from the event is uncertainty among STTM participants about the reliability of AEMO's market systems. AEMO's investigations are ongoing.

23 November 2012 – Sydney, Adelaide and Brisbane hubs

On 24 November 2012, AEMO's market systems experienced what it described as 'intermittent interruptions to normal processing by various STTM systems components and applications – MIS reporting, scheduling, SWEX and SWEXIE'.

The interruptions were caused by an STTM database reaching its storage limit. In the week leading up to the interruptions, monitoring alarms were triggered, however AEMO misinterpreted the alarms as 'false positives (transient breaches of thresholds on an individual segment rather than the entire database)' which did not warrant wider analysis or remediation.

Due to the interruptions, AEMO's market systems were unable to determine ex post prices for the Sydney and Adelaide hubs in time for the 12:00pm cut-off. As a result, AEMO determined an administered ex post pricing state for the 23 November gas day in those hubs. The administered ex post prices were $4.30/GJ and $4.78/GJ for Sydney and Adelaide respectively. Had the administered ex post prices not been applied, the ex post prices would have been $4.93/GJ and $4.02/GJ for Sydney and Adelaide respectively.

AEMO claims the price differences had a non material impact on prudential monitoring since there were no margin calls in Adelaide using the higher administered price and there would have been no margin calls in Sydney had the higher ex post price been used.

However, there was an impact on deviation payments/charges:

- Sydney—deviation undercharges of $3 816 (parties were undercharged by this amount because of the administered price)
- Adelaide—deviation overpayments of $1 979 (parties overpaid this amount because of the administered price).

The undercharge in Sydney and the overpayment in Adelaide impacted the net market balance for these hubs and increased market shortfalls for the November 2012 billing period. Shortfall charges for both hubs increased in order to fund the larger shortfalls. The impact of the administered ex post price on participants was mixed—some participants benefited while others were worse off. Despite this, as the financial impact was less than $1 000 for each individual participant, AEMO considers the market was not materially affected.

The interruption also prevented some participants from submitting bids and offers via SWEX and SWEXIE as the applications were unavailable.

The Brisbane hub was also affected by the interruptions. APA Group was unable to submit its allocation notice for the 23 November gas day by the cut-off time of 12:30pm. This resulted in AEMO substituting default allocations and producing a provisional ex post price for the Brisbane hub. The provisional and actual ex post prices were the same so no trading participants were impacted as a result of the provisional ex post price. Prudential monitoring was also unaffected.

AEMO's response

AEMO has since increased the storage to minimise the likelihood of a reoccurrence. In addition AEMO has implemented additional database monitoring and is reviewing further system tools for tracking and improving debugging.

The AER considers that the integrity of AEMO's systems is critical to the effective operation of the STTM. It will follow up on these system developments with AEMO and continue to monitor the timeliness of ex post price publication.

1.1.5 STTM facility operator audits

The AER's audits of STTM participants continued during the quarter. These audits assess an STTM facility operator's processes to achieve compliance with information and data requirements under

Part 20 of the Gas Rules, and whether these processes would be considered 'Good Energy Industry Practice'.[8]

While all of the facility operators had extensive experience in providing natural gas services in a general sense prior to STTM commencement, none of them had experience in providing data critical to the operation of a market. It is in the context of a market such as the STTM that the good industry practice threshold should be applied.

The AER uses the acronym **GEIP**, standing for 'Good Energy Industry Practice', as a practical guide to the steps a business should take to enable the AER to assess performance against the threshold.

Audit of the Moomba to Adelaide pipeline

The AER concluded its third audit assessing STTM facility operators' processes to achieve compliance with information and data requirements under Part 20 of the Gas Rules, examining Epic Energy (**Epic**) in its role as an STTM facility operator for the Moomba to Adelaide pipeline (**MAP**).

During the audit, APA Group acquired all of Epic's gas pipeline assets. This sale was subject to an undertaking that APA would sell the MAP assets to a third party and that these assets be operated independently from APA until the sale. The findings of this audit are relevant for the current managers of the MAP assets.

The audit process involved four steps:

- the AER issuing Epic an audit questionnaire for completion
- the AER reviewing Epic's response to ascertain whether it adequately met the audit's aims
- a site visit to Epic's head office to discuss questions and issues that arose from Epic's response
- the AER issuing MAP's current operators an audit report outlining conclusions and recommendations.

Overall, the AER was satisfied that the processes and systems which Epic now has in place, if implemented and maintained appropriately, should be sufficient to satisfy the applicable information and data obligations under Part 20 of the Gas Rules.

- Following a number of data errors in 2011 and the service of an infringement notice by the AER in 2012, Epic has increased the robustness of the systems and processes which underlie the provision of data. As part of this process, Epic engaged external consultants to independently review its systems. Epic has subsequently implemented changes in accordance with these recommendations. These actions have led to an improvement in the quality of data provided, with the AER not identifying any apparent breaches of STTM data provisions since February 2012.
- Epic has well established systems in place to analyse and report on STTM non-compliance (and near misses) in a timely manner and has implemented remedial measures in response to past incidents.

[8] 'Good Gas Industry Practice' is defined under the Gas Rules and 'Good Electricity Industry Practice' is defined under the Electricity Rules. The AER uses the phrase 'Good Energy Industry Practice' to cover both sectors. The components the AER considers to comprise GEIP are contained in the March 2012 QCR.

- Epic encourages a positive culture of improvement within the business. Epic's recent creation of two new dedicated positions—Manager Trading Market and Training Manger—demonstrates Epic's commitment to improve its compliance performance in the STTM. These two new positions should assist to ensure future compliance. The AER encourages Epic to continue this approach.

- When MAP is sold to a third party, it is important that key processes, experience and knowledge are properly transferred across to ensure that Gas Rules obligations are met.

Next audit

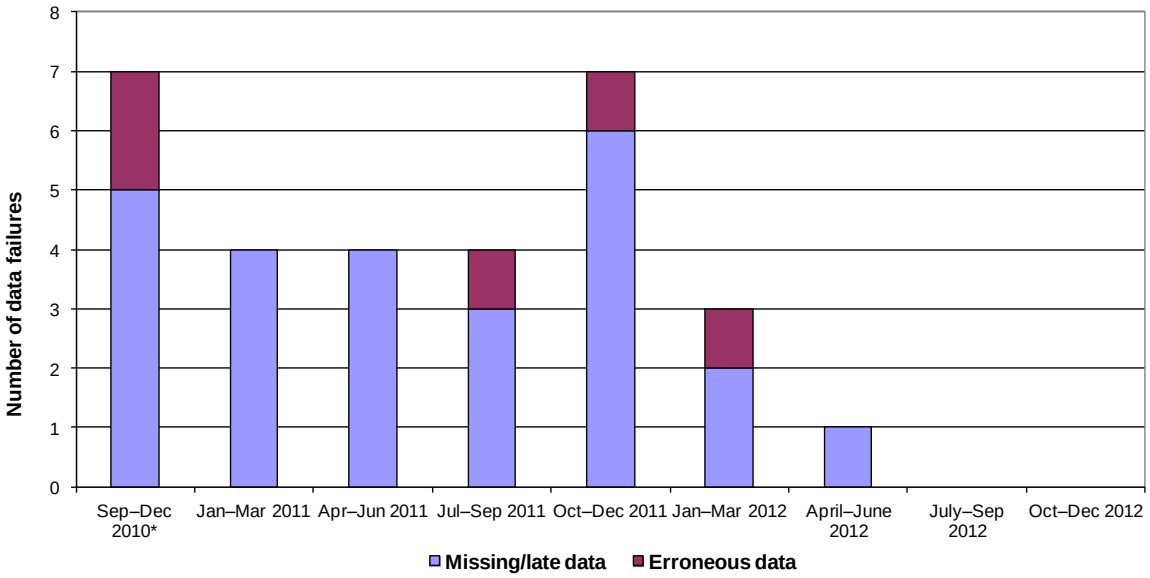
The AER will continue this audit program in 2013 by examining Jemena (for the Eastern Gas Pipeline) and SEAGas.

1.1.6 STTM capacity and allocation data quality

In 2011, the AER commenced a special compliance project examining the quality of STTM data with the aim of reducing the amount of missing, late, and erroneous capacity and allocation data submitted by STTM facility operators or participants. The project continued in 2012.

Figure 1 below illustrates the performance of STTM participants in submitting capacity and allocation data from the start of the STTM to the end of December 2012. Data failures are categorised as relating to either 'missing/late' or 'erroneous' data. The figure highlights that there were no pipeline data errors in the final two quarters of 2012.

Figure 1: Data failures since STTM commencement



* September 2010 has been grouped with the December 2010 quarter. Therefore, this data point represents four months.

A failure to provide accurate and timely data can lead to inefficient pricing signals and market outcomes, resulting in inappropriate wealth transfers between participants. It may also undermine the integrity and reliability of the STTM, discouraging potential entrants or even causing participants to exit the market.

The AER considers its efforts to reduce the number of pipeline data errors through its monitoring and compliance/enforcement activities, audits and engagement with the industry, and participants' positive response to those efforts, indicate that the STTM data quality project has been successful. The AER

will continue to monitor pipeline data through its regular compliance work to ensure future compliance, however, the special project is now closed. The complimentary process of auditing STTM facility operators will continue throughout 2013.

1.1.7 **STTM demand forecasting**

The AER had a special compliance project in 2012 on STTM demand forecasting. Gas Rule 410(1) requires each STTM Trading Participant who expects to withdraw quantities of natural gas from a hub on a gas day to submit in good faith ex ante bids or price taker bids (and any revisions to those bids) to reflect the participant's best estimate of the quantity it expects to withdraw in each hour of that gas day.

Demand forecasts are a primary input for scheduling and are used to calculate the ex ante price. Poor demand forecasting leads to inefficiencies in dispatch whereby the ex ante price is set on the basis of a higher or lower quantity of gas than is required. It can also lead to wealth transfers in the STTM, for example where large amount of MOS (balancing gas which is parked on or loaned from pipelines) is required as a result of poor forecasts.

In monitoring the STTM since market start, the AER identified ongoing occurrences of poor demand forecasting from a number of Trading Participants. Accordingly, it undertook this special project throughout 2012 which aimed to improve participants' performance in demand forecasting for the various STTM hubs.

Throughout the year, the AER monitored STTM demand data and contacted participants when there were large differences between the forecasts and actual demand on particular gas days, seeking to understand the reasons for the variation. The AER also examined demand data for the various hubs from market start focusing on two metrics:

- monthly mean percentage error as a proportion of total demand
- actual monthly error.

This allowed the AER to assess the accuracy of each Trading Participant's demand forecasts, and to identify any systemic forecasting errors, such as a tendency to over forecast demand. Two of the more concerning examples, relating to AGL and Origin Energy, are shown below in figures 2 and 3.

Figure 2 below illustrates the forecasting performance of AGL in the Adelaide hub from market start. The figure shows monthly mean percentage error as a proportion of total demand and actual monthly error, with positive errors representing over forecast demand. It can be seen that AGL has a fairly consistent pattern of over forecasting demand.

Figure 2: Error as a proportion of total load (%) and actual error volumes (TJ)

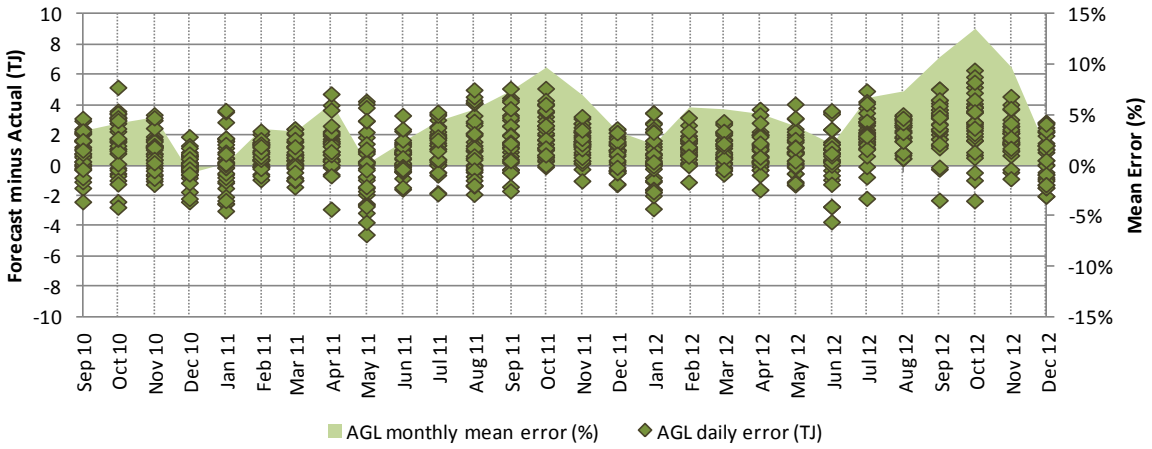
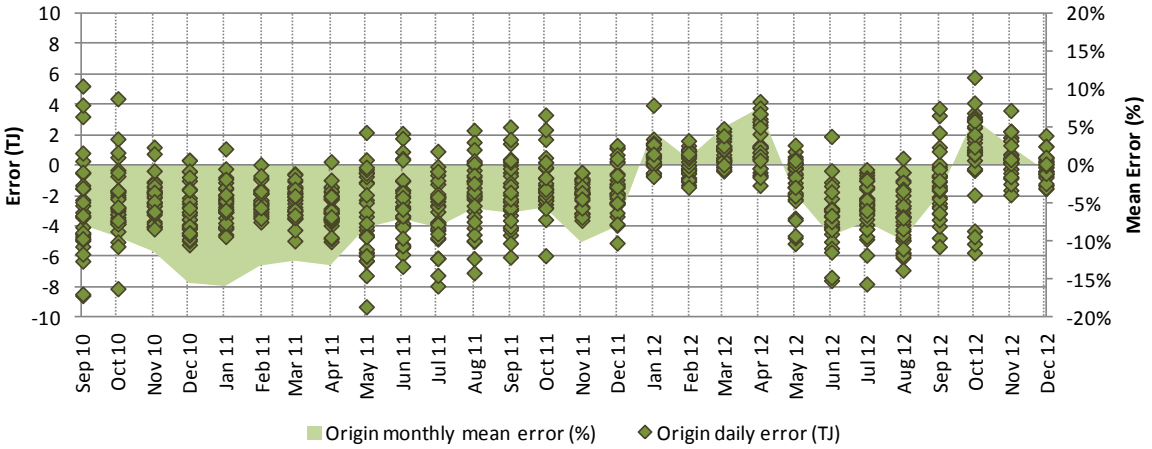


Figure 3 below illustrates the forecasting performance of Origin in the Adelaide hub from market start. The figure shows monthly mean percentage error as a proportion of total demand and actual monthly error, with negative errors representing under forecast demand. It can be seen that, at times, Origin has systemically under forecast demand, although this trend is not evident in 2012.

Figure 3: Error as a proportion of total load (%) and actual error volumes (TJ)



The AER contacted Trading Participants which it considered to have a problematic demand forecasting performance. Those participants included Incitec Pivot (**Incitec**), Adelaide Brighton Cement Limited (**ABL**), Origin Energy and AGL Energy. The AER sought information, such as the process used to develop the best estimate forecast demand, measures taken to reduce/minimise forecasting errors associated with factors that are predictable and actions taken to follow up on significant forecasting errors. The key aspects of the four responses are summarised below.

The AER observed that Incitec had a tendency to over forecast demand for the Brisbane hub since market start. Incitec responded that its load is used wholly at its 40 year old Gibson Island plant and that the least predictable factor affecting the accuracy of demand forecasts is plant reliability. It noted that the instances of over forecasting identified by the AER each corresponded to forced outages of the plant. Such an outage requires the plant to be operated at reduced rates to ensure a safe operating environment. As these events are unpredictable, they impact on the accuracy of demand forecasting by resulting in an over forecast of actual demand. Incitec explained that demand may also

be over forecast when plant is being brought back online following an outage as plant performance at this time can be variable.

Incitec is currently pursuing a company-wide initiative which sets a maximum daily forecast deviation and a maximum absolute cumulative monthly forecast deviation. The AER considers Incitec's over forecasting from time to time to be understandable given its operating situation. The AER considers Incitec's initiative to place a cap on daily and cumulative monthly forecasting deviations to be good practice and demonstrates a concerted effort to minimise these deviations.

ABL stated that its tendency to over forecast demand for the Adelaide hub was consistent with the physical and operational characteristics of its Birkenhead plant which makes up its entire load. While ABL aims for this plant to operate at maximum production levels for 24 hours a day 365 days a year, unplanned partial and full outages decrease its demand for gas below forecast levels and therefore an over forecasting of demand. ABL has a 24 hour gas trading team in operation to monitor gas consumption of its plants and the duty trader will make any required renominations if possible. There is a detailed system of governance including a formal induction process for staff and internal reporting on demand forecasting performance. The AER considers that while a level of over forecasting is likely to be a result of its operational circumstances, the systems and governance arrangements that are in place for demand forecasting indicate that ABL aims to minimise forecasting deviations.

The AER contacted Origin Energy regarding its tendency to under forecast demand for the Adelaide hub. Origin Energy's load comprises residential and small business customers, and commercial and industrial customers. Origin Energy's response noted that there has previously been a mismatch between the anticipated and actual transfer dates for transferring commercial and industrial customers which has led to forecast inaccuracies. Origin Energy reported on a measure that it would implement to more accurately monitor these transfers and reduce their effect on demand forecasts. It noted also that while its large customers (who each are large enough to affect the overall demand forecast) are required to submit daily nominations, the accuracy of those nominations will affect Origin Energy's demand forecasting performance.

Origin Energy has systems in place to monitor its demand forecasting performance, including a tool to reconcile the differences between forecast and actual parameters which can later be fed into the forecasting model. Origin Energy stated that any identified systemic forecasting errors are analysed to assess the cause of the errors. The AER recognises the revisions and improvements which Origin Energy has made to its forecasting systems to refine the forecasting process and believes that implementing these changes well will demonstrate a commitment to improve forecasting accuracy.

The AER found that AGL has a tendency to over forecast demand for the Adelaide hub. Like Origin Energy, AGL's load comprises residential and small business customers, commercial and industrial customers, and its largest customers have the ability to impact forecast reliability. AGL's demand forecasting model is regularly updated using historical data and the demand of its largest customers is forecast separately. Where forecast values do not fall within determined accuracy thresholds, AGL follows a process to manually adjust them. It has processes in place to assess forecasting accuracy and is considering adopting a further metric to track its forecasting performance over time. Staff receive on the job training and have access to AGL's recently completed documentation of the demand forecasting process. In preparing its response, AGL identified that one of its input parameters was not the most accurate source available, and will be switching to the more accurate source going forward.

The AER was generally satisfied with responses received from the four Trading Participants. All appear to have adaptive forecasting models that use historical data to improve forecasting accuracy. The AER encourages the use of thresholds to identify potential errors.

The AER is, however, concerned that although a number of participants stated that they conduct root cause analysis following every significant demand forecasting error, they continue to submit forecasts that appear to be systemically over or under their actual demand. The AER would expect an effective analysis of forecast errors to correct the observed systemic over or under forecasting, but this has not necessarily been the case.

The AER considers that this project has been successful in emphasising to Trading Participants the importance of demand forecasting. The AER has noticed that there has been an improvement in the number of significant errors. While this special compliance project has now concluded, the AER expects that demand forecasting performance will continue to improve as participants further develop their forecasting systems. The AER will continue to monitor STTM demand data as part of its regular compliance monitoring activity and will contact participants as necessary.

1.2 Victorian gas market

Part 19 of the Gas Rules sets out participants' responsibilities in the Victorian Gas Market. The rules outline how wholesale gas is traded within the market and AEMO's obligations to operate the physical system.

A number of errors by AEMO are reported on below.

1.2.1 AEMO Supply Demand Point Constraint errors

On 17 August 2012, a non material breach resulted in a scheduling error. The published schedule did not contain the supply demand point constraint (**SDPC**) at Culcairn which had been requested to reflect a reduced pipeline capacity due to a compressor outage.

In response to the 17 August 2012 event, AEMO:

- provided additional operator training clarifying policies and procedures
- initiated a review of the SDPC procedure
- liaised with participants to clarify information requirements when advising of SDPCs
- investigated options to streamline communication between AEMO and participants.

On 28 October, a further non material breach occurred when a SDPC at Bass Gas was not applied correctly to the relevant scheduling interval. The request was not processed within the required time due to human error, and this resulted in a small effect on market prices.

AEMO has published a report outlining the 17 August incident at Culcairn and the steps taken since by AEMO.[9] A report on the 28 October incident at Bass Gas is expected to be published soon.

[9] Available on the AEMO website.

1.2.2 AEMO Demand Forecast error

In November 2012 AEMO published audit reports from its Gas Market Auditor for the 2011-12 financial year. The Gas Market Auditors Report for the Victorian Gas Market[10] noted that on 15 December 2011, incorrect demand forecast numbers were used in the calculation of imbalance payments, leading to incorrect payments under Gas Rule 234. This resulted in a financial error of $8 500.

The error occurred when AEMO accepted demand forecasts which were submitted after the schedule cut-off time and put them into systems that it then did not use in the scheduling process. This was not in accordance with scheduling procedures. In January 2013, AEMO advised the AER that changes to its gas market management systems, implemented in October 2012, were designed to prevent this kind of scheduling error from occurring in the future.

1.2.3 AEMO retail market energy allocation error

The Gas Market Auditors Report for the Victorian Gas Market also noted an error within AEMO's settlement systems for the period 9 November 2011 to 7 March 2012. For this period, Basic Meter Profile (**BMP**) allocations for participants were incorrect and therefore participant imbalance and deviation payments under Gas Rule 235 were incorrect. AEMO calculated a financial effect of $110 000 from this error which was later reversed through the 118 day settlement revision process (rule 249 of the Gas Rules).

The issue was identified by a market participant who queried why it was receiving energy reads for a meter which should have 'churned away' (to another retailer) in November 2011. AEMO then identified that for the November to March 2012 period, completed customer transfers were not reflected in the BMP allocation system because the automated daily process that synchronises BMP with the Meter Register had been ineffective since 9 November 2011. This occurred due to a conflict between this process and another process. This issue was rectified on 8 March 2012, immediately after AEMO became aware of it.

AEMO advised the AER further in January 2013 that to mitigate the risk of a reoccurrence, its Information Management Technology Department has developed system monitoring alarms that run daily via email to capture processes that have not run successfully.

1.3 Bulletin Board

Part 18 of the Gas Rules sets out participants' responsibilities regarding the Bulletin Board. These obligations aim to facilitate greater transparency in gas production and gas pipeline flows to assist gas trading. The obligations also require participants to identify and report any potential conditions where curtailment of gas use might be necessary.

[10] Available on the AEMO website.

1.3.1 **Actual daily production and pipeline flow data**

Participants submit daily production and pipeline flow data as required by rules 166 and 174 of the Gas Rules.[11]

During the quarter, three facility operators failed on a total of eight occasions to submit daily flow Bulletin Board data to AEMO in time for it to be published in the relevant seven day file. This was an improvement on the previous quarter when six facility operators failed on a total of 15 occasions.

These provisions are not civil penalty provisions which narrows the enforcement options available to the AER. The AER will continue to monitor compliance with Bulletin Board requirements and, where appropriate, seek commitments from participants to improve their performance.

[11] Rule 169 also includes an obligation on storage providers to provide daily flow data.

2 Electricity

The AER is responsible for monitoring, investigating and enforcing compliance under the Electricity Law and Rules.

2.1 Investigations, market events and compliance issues

This part of the report provides an update on generator rebidding and outlines the importance of generator availability data being effectively communicated to the market.

2.1.1 **Rebidding**

Scheduled generators and market participants operating in the National Electricity Market (**NEM**) submit electricity offers and bids for each half hour trading interval. The offers and bids include available capacity for up to 10 price bands, and can be varied through rebidding.[12]

The AER adopted generator rebidding reasons as one of its special projects for 2011 and introduced a new rebidding enforcement strategy, as set out in the AER's *Compliance Bulletin No. 3*, published in December 2010.[13] Generators that submit offer, bid and/or rebid information that does not meet the requirements of the Electricity Rules will receive two warnings. On the third warning within six months, the AER will consider issuing an infringement notice. Where there is no third warning within six months of the first warning, the AER will reset a participant's warning count to zero. The AER has continued this approach to monitoring rebid reasons.

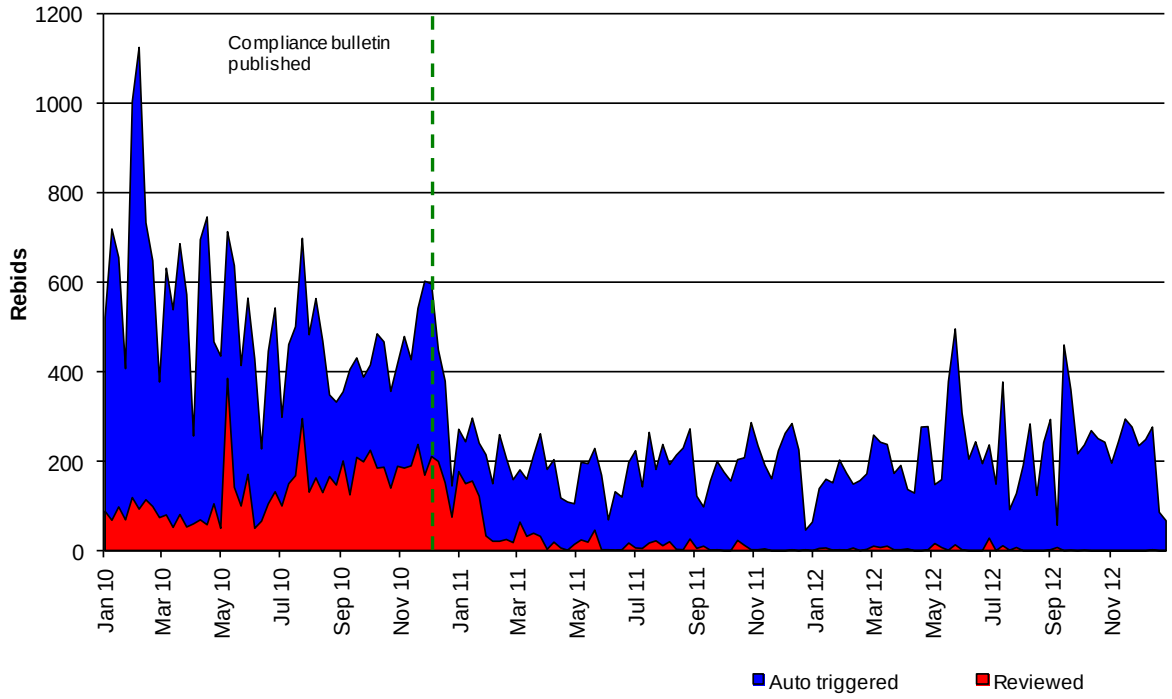
In June 2012 the AER published an updated *Compliance Bulletin No. 3*, to make it clear that, for the purposes of administering the three stage process and issuing warnings, the AER will rely on the cumulative count of non-compliant bids for all generating units under the same portfolio. In other words, where a parent company employs a common trading team for the bidding of multiple generating units in its portfolio, irrespective of whether these generators are different registered participants, the AER will count any non-compliant bids by that trading team together.

Figure 4 shows that since the compliance bulletin was first published (December 2010), the number of rebids detected by the AER's internal compliance system has fallen markedly. The number of rebids which required further review by the AER has also fallen significantly.

[12] Market participants must provide to AEMO, at the same time as a rebid is made, a brief, verifiable and specific reason for the rebid, plus the time at which the reason for the rebid occurred. Equivalent requirements apply where AEMO is advised, under clause 3.8.19 of the Electricity Rules, that a unit, service or load is inflexible. Clause 3.8.22A of the Electricity Rules requires that dispatch offers, dispatch bids and rebids are made in 'good faith'.

[13] The Compliance Bulletin is available on the AER website.

Figure 4: Rebids auto-triggered and reviewed per week



During the December 2012 quarter, the AER issued two initial warning notices – one in response to a rebid which did not include a time adduced and another for a rebid which reduced a unit's ramp rate to below the allowed minimum of 3MW/minute without a technical reason. There was also one participant whose warning count was reset.

2.1.2 Projected assessment of system adequacy data updates

As noted in the previous quarter, with the advent of a carbon price, there is an increased likelihood of generators' operating modes becoming much more dynamic. The AER expects any generator which is registered in the NEM to comply with all applicable obligations under the Electricity Rules, regardless of whether it is offline for any period of time.

AEMO publishes information on generator availability in its projected assessment of system adequacy (**PASA**) reports. It is important that participants provide timely and accurate information about generator availability to AEMO so it can be communicated effectively to industry. AEMO publishes three PASA reports:

- Short term PASA—short term power system supply/demand balance prospects for six days following the next trading day. This report is published every two hours.
- Medium term PASA—medium term power system supply/demand balance prospects for the next two years. This report is published weekly.
- Medium term PASA region availability—contains aggregated Medium term PASA data for each region specifically the PASA availability. This report is updated and published four times a day (except Sundays).

The AER was informed of a submission of incorrect data by a Queensland generator for the 6:00pm publication of the *Medium term PASA region availability* report on 24 October 2012. The generator

contacted AEMO as soon as it was aware of the error and submitted correct data to be used for the 9:00am update the next day. AEMO published a market notice into the event shortly before the updated data was released.

The AER understands that AEMO has reviewed its internal processes to improve the timeliness of announcements of PASA report errors to the market. Recognising the importance of participants being informed of generator availability, the AER will continue to closely monitor PASA data throughout 2013. The quality of PASA data may form the basis of a special compliance project for 2013.

2.2 Technical Audits

Auditing is one mechanism used by the AER to verify and assess compliance by registered participants with their obligations. The audits aim to ensure participants have robust and effective compliance programs in place that are consistent with Good Energy Industry Practice.

Since 2007, the AER has conducted regular technical compliance audits in the electricity sector of generators and network service providers on a rotating basis. These audits generally focus on the Electricity Rules clauses 4.15 and 5.7.4, particularly the requirement on electricity generators and network service providers to institute and maintain a compliance program in accordance with prescribed requirements.

The AER has now commenced a technical audit of Macquarie Generation's Bayswater Power Station. During 2013 it also intends to conduct audits of a large wind farm and the South Australian transmission network service provider, ElectraNet.

After each audit is completed, the AER will publish a summary of audit findings in its Quarterly Compliance Report.

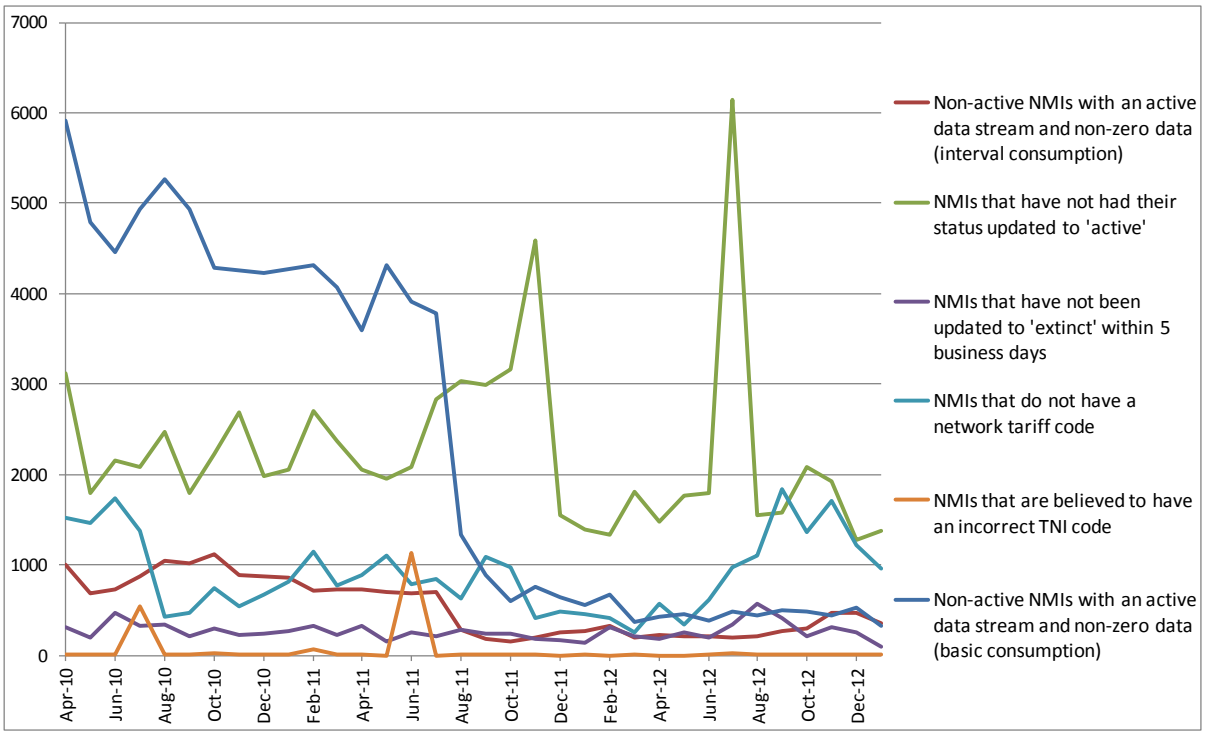
2.3 Metering compliance and performance

The AER and AEMO meet regularly to discuss metering compliance and performance issues. As the operator of the Market Settlement and Transfer Solution (**MSATS**), AEMO offers the AER valuable insight into problems and issues occurring in the metering space.

The AER has continued to monitor MSATS error data provided by AEMO. This data shows the number of errors made by each Local Network Service Provider (**LNSP**) in the last week of each month since April 2010. The AER monitors this data and will contact an LNSP that has a significant number of errors in any month seeking an explanation.

Figure 5 shows the total number of MSATS errors for the last week of each month since April 2010.

Figure 5: Total MSATS errors across all LNSPs



The AER will continue to monitor these AEMO metrics and is considering metering issues that could be explored as a special compliance project for 2013. Details of progress on the development of monitoring strategies will be reported in a future QCR.

2.4 TransGrid regulatory test for electricity supply to the NSW lower mid north coast

In June 2012, the AER received a complaint about a proposed Stroud to Lansdowne 330kV transmission line project being undertaken by TransGrid. The project formed part of the preferred option identified by TransGrid in the development of electricity supply to the lower mid north coast regulatory test (**TransGrid regulatory test**).

At the time of the TransGrid regulatory test, clause 5.6.6 of the Electricity Rules required an applicant who proposes to establish a 'new large transmission asset' to comply with various planning and consultation procedures, including undertaking the regulatory test.[14] Clause 5.6.6 and the regulatory test were designed to promote transparency in the way that a network service provider addresses limitations identified on its network. The intention of these arrangements is to ensure all credible investment options, including both network and non-network alternatives are considered equally by the TNSP.

Following the complaint, the AER reviewed the TransGrid regulatory test, in particular, compliance with clause 5.6.6 of the Electricity Rules.

[14] Version 3 of the regulatory test was the applicable version at the time. A copy of version 3 is available on the AER website.

While the AER's review was underway, TransGrid deferred and revised the Stroud to Lansdowne 330kV transmission line project. This followed the release of its 2012 Annual Planning Report which forecast a reduction in demand around the New South Wales mid north coast. TransGrid's latest estimates indicated that a smaller 132kV transmission line from Stroud to Taree, near Lansdowne, would probably be needed to meet forecast demand but not until the early 2020's.

The AER's review identified several compliance concerns in respect of clause 5.6.6 of the Electricity Rules. Clause 5.6.6 requires that the application notice and final report set out:

- the reasons for proposing the asset (including, where applicable, the actual or potential constraint or inability to meet the network performance requirements set out in schedule 5.1 or relevant legislation or regulations of a participating jurisdiction, including load forecasts and assumptions used),[15] and
- analysis of why TransGrid considers that the proposed asset is a reliability augmentation.[16]

In particular, the AER considers the application notice and final report:

- lacked the necessary detail regarding the nature of the network limitations in the area
- noted that the severity of the network limitations depended on flows on QNI, however lacked sufficient detail on how exactly the network limitations were affected
- did not provide detailed information of why the scope of network investment was needed to address emerging network limitations, nor identify specifically what the existing limits were
- noted that non-network options had been considered and that submissions had been received, albeit in 2006, however did not provide any detail on the non-network options considered nor why they were not considered alternative options and
- did not explain why it was necessary for the proposed transmission line forming the preferred option to connect to Ausgrid's Brandy Hill substation to address the identified network limitations.

Following the review, the AER wrote to TransGrid outlining its findings and seeking a commitment from TransGrid to undertake a new regulatory test for transmission (**RIT-T**)[17] for any developments required between Stroud and Taree closer to the time that the identified need is forecast to arise. TransGrid has acknowledged that more detail could have been provided for the project as part of its regulatory test but considers it did not breach the Electricity Rules. TransGrid has agreed to undertake a RIT-T for this project and, in light of AER concerns, will also review other regulatory tests conducted around the same time for which no investment decision has been made to ensure they are appropriate. TransGrid will also reflect these commitments in communications with its stakeholders.

[15] Clause 5.6.6(c)(1)(ii) and 5.6.6(h) National Electricity Rules (version 23).

[16] Clause 5.6.6(c)(6) and 5.6.6(h) National Electricity Rules (version 23).

[17] The RIT-T replaced version 3 of the regulatory test for transmission network investment on 1 August 2010. A copy of the RIT-T is available on the AER website.

2.5 Electricity transmission connections

In December 2011 the AER commenced a special compliance project in response to concerns raised by connection applicants about the Transmission Network Service Provider (**TNSP**) connections process. An ineffective connection process may increase costs, cause delays and discourage efficient new entry of generation capacity. Such outcomes are particularly problematic given the need for the electricity network to respond to changes in market conditions and environmental policy developments. This 2 year project aims to examine the transmission connection process and to explore methods to improve connections outcomes.

The relevant provisions of the Electricity Rules were designed to be high level,[18] with detailed issues to be resolved via a dispute resolution mechanism. However, connection applicants may be reluctant to jeopardise their future relationship with the network businesses by entering into a dispute resolution process.

When the AER announced this project in the December 2011 QCR, it proposed to carry out a survey of parties that have sought to connect to the National Electricity Market transmission network. A number of past and potential connection applicants contacted the AER expressing their willingness to participate in the AER's proposed survey.

The survey will focus on the TNSPs' performances in terms of timeliness, provision of information, cost, design, availability of competitive procurement and responsiveness to the connection applicant's commercial requirements. In mid-2012 the AER developed a draft survey and to encourage a balanced and impartial process, gave TNSPs an opportunity to comment on the draft. TNSPs made a number of comments about the draft survey which the AER will take into consideration in developing the final version.

The AER will seek feedback on connection applications over a relatively long period to widen the pool of potential survey responses and improve the depth of the data set. Parties who have submitted a connection inquiry to a TNSP since 16 November 2006 (i.e. since the current connections regime came into effect) will have the opportunity to participate in the survey process. Respondents will be asked to complete a separate survey for each connection inquiry.

Survey responses will be treated in confidence and only the aggregated results will be published. However, AER staff will carry out checks to ensure that a TNSP's performance is assessed only by parties that have genuinely participated in the connections process with that TNSP. In recognition that current connection practices are more relevant than past practices, the AER will give greater consideration to responses that relate to more recent connection applications.

Survey results could be used to:

- identify areas where breaches of the Electricity Rules may be occurring or the rules themselves are unworkable. This information could be used in developing the terms of reference for a transmission company compliance audit or rule review; and

[18] See clause 5.4A of the Electricity Rules

- compare transmission company performance, with a view to publishing the aggregated results, which may highlight systemic issues and provide transmission companies the opportunity to improve processes in this area.

The AER will shortly complete the final survey and distribute to relevant stakeholders. A broad summary of responses will be published in a future QCR, at which time the AER will consider how to deal with any compliance issues that have come to light in the survey process. The AER expects to this project to be completed at the end of 2013.

2.6 Participants not following dispatch instructions

In December 2011 the AER announced it would carry out a special compliance project during 2012 to examine the ability of generators to follow the dispatch instructions given to them by AEMO.

Clause 4.9.8(a) of the Electricity Rules requires a Registered Participant (namely, a generating unit) to comply with dispatch instructions given to it by AEMO unless doing so would, in the Registered Participant's reasonable opinion, be a hazard to public safely or materially risk damaging equipment.

AEMO must be assured that, other than in the limited circumstances allowed by the Electricity Rules, generating units will follow dispatch instructions at all times. This enables AEMO to assess its security management options based on accurate information and where necessary, issue directions to participants to maintain power system security.

When generators do not follow dispatch instructions, electricity system security may be put at risk. There may also be market inefficiencies and higher costs through greater reliance on Frequency Control Ancillary Services (and potentially lower network utilisation through higher safety margins in network limit calculations). Not following dispatch instructions may also be a method by which generators attempt to manipulate market outcomes. The AER released a compliance bulletin outlining its expectations for generators following dispatch instructions in December 2006.[19] The bulletin draws a distinction between following dispatch instructions and AEMO's non-conformance procedures which are established under clause 3.8.23 of the Electricity Rules.

As part of this special project, the AER examined generation data for the past three financial years and identified all dispatch intervals (**DIs**) where actual generation for a unit differed from its generation target. The AER then isolated those instances which it considered to have the greatest potential impact on market outcomes or system security by applying combinations of materiality thresholds (as set out below).

The AER's analysis identified 24 Registered Participants which, on various occasions, triggered the thresholds. It contacted the Registered Participants it considered to have the worst performance against the measures seeking an explanation for the observed non-compliances, and the actions that will be taken to ensure that the Electricity Rules requirements are met going forward.

A detailed description of each of the combinations of thresholds is set out below.

[19] Available on the AER website.

1. Dispatch price was less than $0/MWh or greater than $100/MWh

The AER considers that at times of particularly low or high dispatch prices, a generator may intentionally not follow dispatch instructions to earn profit. To isolate the incidents which may have the greatest effect on the market, a threshold was also placed on the extent of the divergence from target. For each generating unit over the last three financial years, the AER conducted a count of instances where:

- the dispatch price was less than $0/MWh or greater than $100/MWh; and
- the unit was missing its target by greater than 5MW or 5% of its bid availability for more than two consecutive DIs.

The AER contacted two Registered Participants in relation to not following dispatch instructions under this combination of factors.

2. Constraint directly affecting the generating unit was binding

The AER considers that diverging from a dispatch target may be particularly harmful to the market where a constraint is binding on the diverging unit as there is already some restriction in the power system. To maintain system security at times of binding constraints, it is particularly important that generating units follow dispatch instructions. To isolate the incidents which may have the greatest effect on the market, the AER also placed thresholds on the dispatch price at the time of non-compliance and the extent of the divergence from target. For each generating unit over the last three financial years, the AER conducted a count of instances where:

- the left hand side of a constraint affecting the generating unit is binding; and
- the dispatch price was less than $0/MWh or greater than $100/MWh; and
- the unit was missing its target by greater than 5MW or 5% of its bid availability for more than two consecutive DIs.

The AER contacted four Registered Participants in relation to not following dispatch instructions under this combination of factors.

3. Generating unit started generating while it had a zero target from AEMO

The AER considers that it may be harmful to system security when a unit starts generating without a target from AEMO. To isolate the incidents which may have the greatest effect on the market, thresholds were placed on the dispatch price at the time of non-compliance. For each generating unit over the last three financial years, the AER conducted a count of instances where:

- the dispatch price was less than $0/MWh or greater than $100/MWh; and
- the generating unit's target was zero but its metered generation is greater than 20MW for more than two consecutive DIs.

The AER contacted one Registered Participant in relation to not following dispatch instructions under this combination of factors.

The AER will continue this project in 2013. It will review the responses from Registered Participants and provide a summary of these in the next QCR.

2.7 Targeted compliance reviews

Targeted compliance reviews form an important part of the AER's monitoring program. The reviews explore participants' compliance practices and aim to improve stakeholder understanding of obligations.

The AER's targeted compliance reviews have recently focussed on Gas Rules obligations. Next quarter, it will instead examine obligations from the Electricity Rules, namely:

- the provisions relating to testing the performance of ancillary service providers
- the requirement to amend generator compliance programs based on changes to the template published by the Reliability Panel in 2012
- compliance with aspects of network businesses' distribution determinations.

A list of the provisions targeted under this process since June 2011 is provided in appendix A of this report.

2.8 Jurisdictional derogations

Chapter 9 derogations exempt Victorian smelter traders, New South Wales power traders and Queensland nominated generators (for the purposes of exempted generator agreements) from complying with the Electricity Rules to the extent there exists:

- any inconsistency between the Rules and a contractual requirement under the relevant agreement between the government and other entities
- any other specified exemption in the jurisdictional derogations.[20]

The relevant participants must give notice to the AER of any act or omission which partly or wholly constitutes non-compliance with the Electricity Rules. No instances of non-compliance were reported in the December 2012 quarter.

[20] Refer to Electricity Rules clauses 9.4.3 (smelter trader: Vicpower Trading), 9.12.3 (power traders: Delta Electricity and Macquarie Generation) and 9.34.6 (nominated generators: CS Energy and Stanwell Corporation).

Appendix A: Previous targeted compliance reviews

This is a summary of the provisions under the Electricity Rules and Gas Rules most recently targeted by the AER.

Quarter ending	Industry	Rule	Description
June 2011	Gas	172	Provision of linepack capacity adequacy indicators for the Bulletin Board
		378	Obligation to update information registered with AEMO
		435	Requirement to provide good faith, best estimate contingency gas offers
September 2011	Gas	300	Obligation to protect metering installations from unauthorised interference
		403	Obligation to investigate the circumstances of a MOS shortfall
		410	Obligation to make good faith, best estimate price taker bids (demand forecasts)
December 2011	Gas	180	Obligation to publish peak demand day information
		219	Obligation to notify AEMO of injection and withdrawal quantities
		254	Obligation to provide and maintain security (prudential requirements)
March 2012	Gas	336	Emergency procedures awareness
September 2012	Gas	213(2)(b) and (c)	Injection and withdrawal bids in the Victorian gas market