



COVER SHEET FOR SUBMISSIONS

2017 review of climate change policies Discussion Paper

Overview

The Discussion Paper provides an overview of the Government’s current climate change policies and invites input from business and the community on how Australia can build on the success of current policies to achieve our 2030 target.

To guide input, questions are posed at the end of each section. Stakeholders are encouraged to include a one-page executive summary.

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Optional: to assist with reviewing feedback please indicate if your submission addresses the following

Electricity sector policies (including the Renewable Energy Target)	Yes / No	Emissions Reduction Fund	Yes / No	Safeguard Mechanism	Yes / No
Managing policy impacts	Yes / No	Energy efficiency and productivity	Yes / No	Research development and innovation	Yes / No
Voluntary action	Yes / No	International units	Yes / No	Long-term goals	Yes / No
Sectors discussed (Please list)	Electricity, Resources and Manufacturing	If other (Please describe)			



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Submissions are due by 5:00pm AEST, Friday, 5 May 2017. Any submissions received after this date will be considered at the Government's discretion.

Where possible, submissions should be sent electronically, preferably in Microsoft Word or other text-based formats, to the email address listed below. Submissions may be sent to the postal address below.

All submissions must include a cover sheet.

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Climate Change Policies Review – Discussion Paper submissions

2017 Review Branch

Department of the Environment and Energy

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South Australian Chamber of Mines and Energy

Review of Climate Change Policies

Submission to

Department of Environment and Energy

May 2017

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Representing, promoting and protecting the resources industry of South Australia

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SACOME

The South Australian Chamber of Mines and Energy (SACOME) is the peak industry association for all companies with business interests in the resources industry in South Australia, including those with business, vocational or professional interests in minerals exploration, mining and processing, oil and gas exploration, extraction and processing, power generation, transmission and distribution, logistics, transport, infrastructure, and those with clients in these sectors.

Executive Summary

The South Australian Chamber of Mines and Energy (SACOME) is pleased to have the opportunity to make a submission to the Department of Environment and Energy on the Review of Climate Change Policies. With the Commonwealth governments ratification of the Paris (COP 21) Agreement to commit to keeping global temperature increase below 2°C and the 2030 emissions reduction target of 26-28% against 2005 levels there is clear direction on emissions reduction policy.

Emissions reductions policies should employ market based mechanisms that deliver efficient and effective emissions reductions at the least cost to the economy. SACOME strongly favours market mechanisms for the pricing of carbon and such policies, particularly where they apply to electricity generation, should be assessed against reliability and affordability of energy, and implications for system strength in the National Electricity Market ("**NEM**").

It is essential that climate change policies are guided by the following key principles:-

- Market based;
- Trade competitive;
- Simple and efficient;
- Effective in reducing emissions;
- Technology neutral;
- Broad based; and
- Complements energy policies.

SACOME represents members who operate in trade exposed industries, competing in globalised markets. South Australia's trade competitiveness should not be unduly compromised by emissions reduction policies. Appropriate protections should be given to trade exposed industries, especially those that compete with companies from jurisdictions without similar policy arrangements. The expectation being any assistance packages remain in place to assist trade exposed industries for as long as required.

The growth of renewable technologies in South Australia with the assistance of the Renewable Energy Target ("**RET**") has presented challenges to the electricity market that have resulted in volatile prices and degraded system security. Events in the past 12 months have demonstrated, in the absence of coordinated emission reduction and energy policies, network disruptions will occur with negative impacts on pricing and supply.

SACOME emphasises that policies adopted by the government must be market based with respect to lowering carbon emissions and that all related energy policies are assessed against reliability, security and affordability of the proposed development of lower carbon generation.

The following submission responds to the questions regarding electricity generation and resources, manufacturing and waste industries. SACOME has also included its response to the Finkel Review (Appendix A) as it discusses further the impacts of low carbon policies on network and price stability.

Responses to Questions

Electricity Generation

What are the opportunities and challenges of reducing emissions from the electricity sector? Are there any implications for policy?

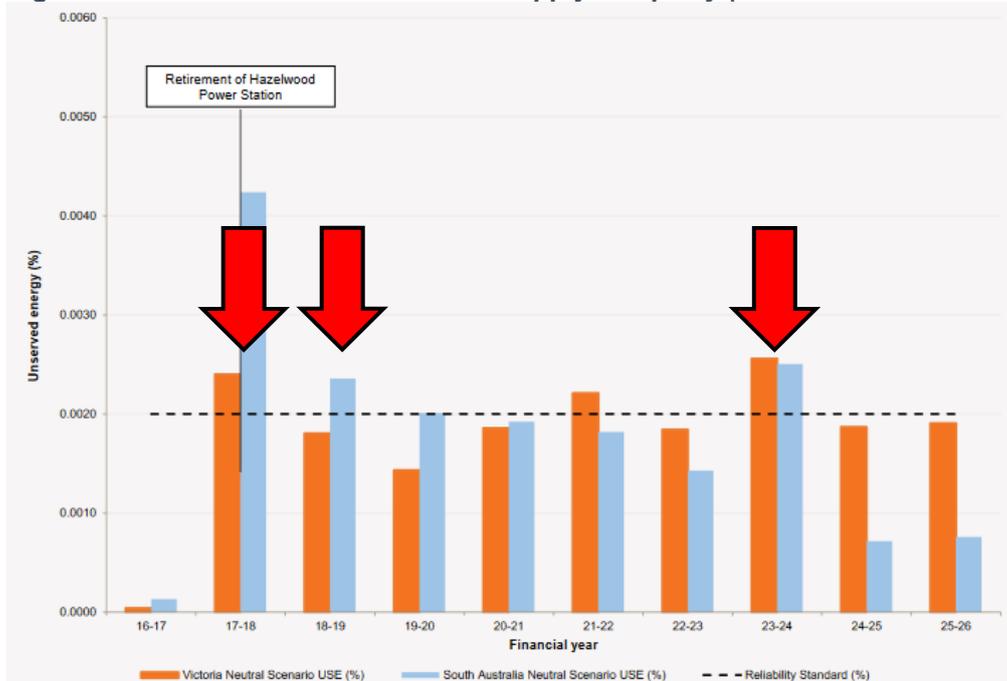
There are opportunities to replace retiring thermal generation units with lower emission units as needed by the respective electricity network. SACOME’s policy position on energy markets acknowledges the drive to a lower carbon generation sector, and it also places emphasis on ensuring reliability, security and affordability are at the forefront of any policy or mechanism.

The Emissions Reduction Fund (“ERF”) has been an avenue for generators to switch to lower carbon fuels or new plant processes. However, under a review of the projects granted, this has only been an opportunity for industrial users with onsite co-generation facilities. The Renewable Energy Target (“RET”) requires 33,000GWh of renewable electricity to be installed by 2020 and will continue to 2030.

The integration of large penetrations of inverter connected non-synchronous generation in South Australia (Wind and Solar PV) with the incentive of the RET have led to challenging conditions in network management and the erosion of system strength. The retirement of thermal generation has led to a higher reliance on the Heywood interconnector (South Australia to Victoria) and wind generation that have decreased network resilience.

This is demonstrated by the Australian Energy Market Operator (“AEMO”) annual report, Electricity Statement of Opportunities (“ESOO”), which forecasts with the withdrawal of Hazelwood power plant, periods of high demand will see low reserve conditions where the reliability standards will not be met (see Figure 1; red arrows).

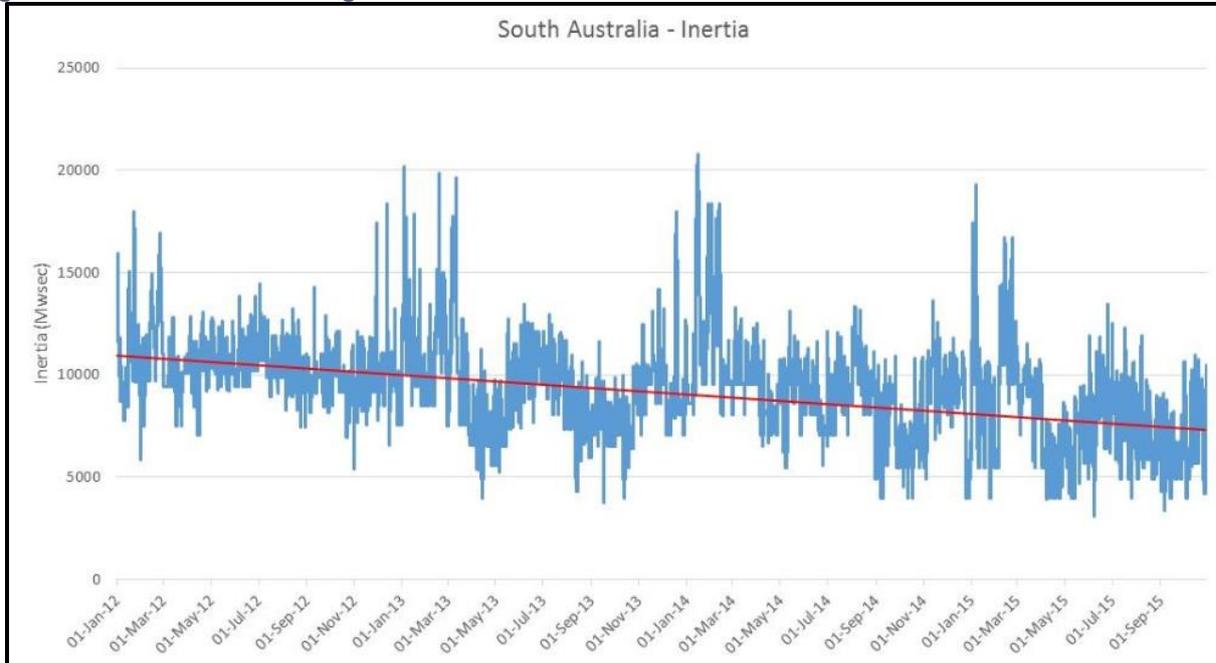
Figure 1 - Victoria and South Australia supply adequacy (Neutral Growth scenario)



Withdrawal of synchronous thermal generation due to the growth of non-synchronous generation has reduced the level of inertia in the South Australian network. This lack of inertia is impacting on

the networks ability to absorb rapid changes in frequency. Inertia provides the immediate response before frequency control and ancillary services (“**FCAS**”) can respond to rebalance the network. Figure 2 demonstrates the decline in inertia in SA.

Figure 2 - South Australia Region Inertia



The September 2016 system black, where a lack of system inertia led to a 6 Hz rate of change of frequency (“**RoCoF**”) event¹, resulted in millions of dollars of lost production and repairs for SACOME members. The cost of the outage for those members over this period ranged from millions of dollars a day in lost productivity to tens of millions in repairs and restart procedures.

The State-wide industrial impact was estimated to be at least \$367 million². SACOME, in discussions with members, has estimated the impact of the system black and other supply interruptions over the past 12 months to be over \$230 million. The current network characteristics and impact on market dynamics is a major factor in these additional costs.

This is an issue that ElectraNet has noted in its RIT-T South Australian Energy Transformation report as an area of concern. RoCoF events, like the one that occurred on 28 September 2016, are increasing in South Australia. Figure 3 demonstrates the increasing frequency of larger RoCoF events in South Australia.³

ElectraNet emphasized that “where the RoCoF exceeds 3 Hz/s, it becomes highly unlikely that the Frequency Operating Standard will be met, with a consequent high risk of a ‘system black’ event”.⁴ Since 2010, RoCoF events exceeding 3Hz/s has increased to greater than 20%.

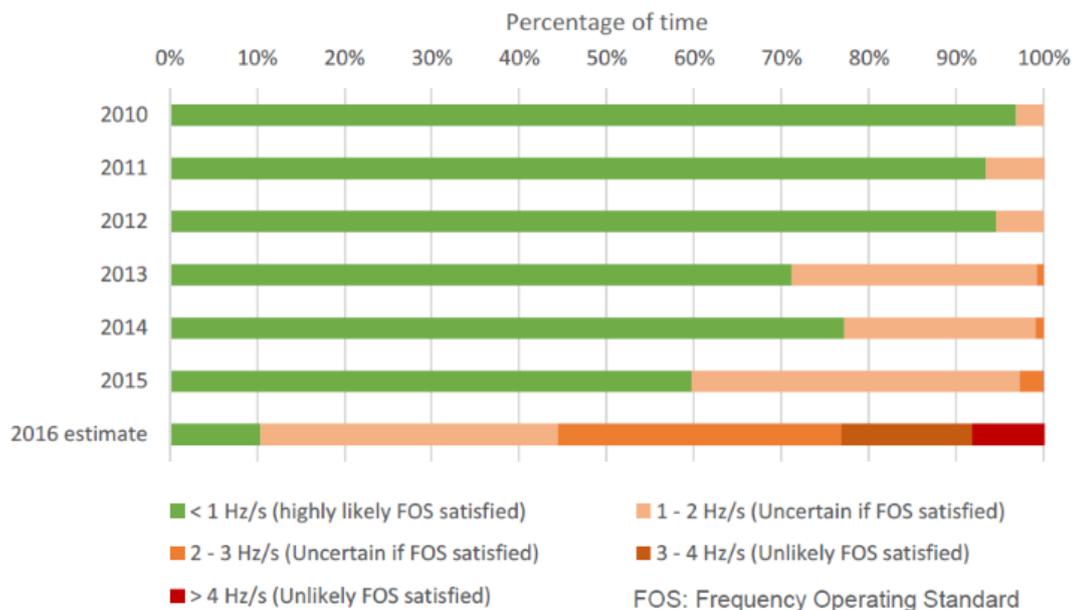
¹ AEMO, *Black System South Australia – 28 September 2016: Third Preliminary Report*, December 2016, p 58.

² The Australian, *Today in SA: blackout cost \$367m but could have been worse*, 9 December 2016

³ ElectraNet, *South Australian Energy Transformation: RIT-T Project Specification Consultation Report*, 7 November 2016, p 26.

⁴ *Ibid*, p 27.

Figure 3 - Increasing exposure to RoCoF in South Australia for separation



Source: AEMO Future Power System Security Program, Progress Report, August 2016

SACOME advocates for a policy that is technology neutral, market based and retains global competitiveness. While technological solutions ensure that there is no detrimental effect to security, reliability, or affordability, recent events in South Australia have demonstrated that there is a need for regulatory and market-based mechanisms that ensure there is no detrimental impact whilst lowering carbon emissions.

How can energy and climate policy be better integrated, including the impact of state-based policies on achieving an effective national approach?

System security reviews currently being undertaken, such as the Independent Review into the Future Security of the National Electricity Market (“**Finkel Review**”) and Australian Energy Markets Commission and AEMO reviews, demonstrate the need for rules and standards on new non-synchronous generation. The ability for the network to adjust to faults and events will depend on the inherent strength in the network dictated by the rules and markets established to maintain system security and reliability standards.

State and Commonwealth policies will require a set of standards and rules to ensure that services that were provided as a by-product of thermal generators essential to grid stability and reliability are maintained. This would entail that any policy to lower emissions in the electricity generation sector is tested against the impact on security, reliability and affordability.

Where affordability is impacted due to low carbon policies, trade exposed industries should receive the revenue from these policies to reinvest in transitional arrangements and invest in infrastructure that supports a low carbon power supply. This is similar to the mechanism under emissions intensity and trading schemes where the revenues offset the detrimental impact to the economy.

Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the electricity sector?

The primary concern for SACOME and its members is the planned integration and withdrawal of generation that is assessed against reliability, security and affordability. Until carbon reduction policies take these measures into account properly, industry will continue to bear the burden of the current transition.

Resources, Manufacturing and Waste

What are the opportunities and challenges of reducing emissions from the resource, manufacturing and waste sectors? Are there any implications for policy?

The Emissions Reduction Fund (“ERF”) has demonstrated a mechanism where industrial facilities can reduce their emissions by switching to more efficient plant equipment or using a different combustion source for heat or electricity. SACOME members are continually looking to lower their impact on the environment through risk management processes and replacing old plants with more efficient technologies.

The Safeguard mechanism that compliments the ERF is an important component to protect trade exposed industries. Industry generally supports the safeguards mechanism as it exists presently. There is an upcoming review in 2020 of the baseline which will be referenced to best practice. The resources sector with long investment lead times will need certainty of the Government’s intentions for the baseline threshold.

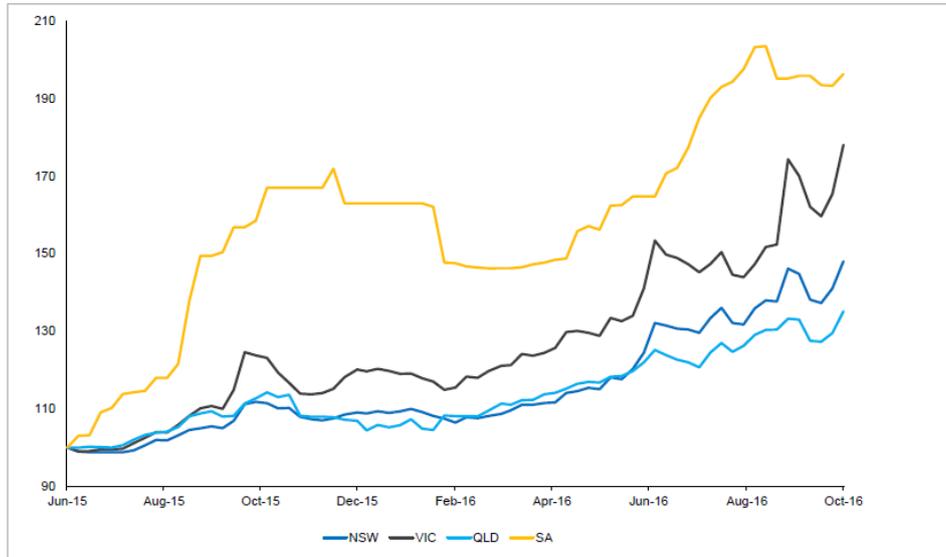
Currently the threshold as it stands does not assist in retaining the competitiveness of large metalliferous processing facilities. The baseline threshold should be lowered to ensure that Australian metal processing is internationally competitive. Any adjustments should be developed in consultation with industry to determine baseline thresholds that maintain competitiveness while meeting objectives of lowering emissions across all sectors.

It is important that the ERF along with other financial incentives and mechanisms, including the Export Finance and Insurance Corporation (“EFIC”) and the Northern Australia fund, continue to offer opportunities for industrial users to upgrade facilities. These mechanisms have enabled South Australian industrial users to finance plant upgrades that reduce all emissions while improving efficiencies and reducing costs.

Maintaining global competitiveness is critical for export exposed businesses such as those in mining. While SACOME members have reduced costs to compete in a depressed commodity market, they are now experiencing challenging energy costs due to the current uncoordinated approach to energy policy. Climate change policies such as the RET have enabled rapid growth of wind and solar PV in South Australia, yet this has caused challenges in the market resulting in instability and volatility.

SACOME’s submissions to the Finkel (refer to Appendix A) and AEMC reviews on system security, recommend the future development of low carbon policies need to include assessment on the impact on security and reliability. These aspects will derive inputs to the market price for electricity. As has been seen in South Australia, volatility and lowered system strength - due to withdrawal of thermal generation - has caused higher futures pricing for electricity (see Figure 4). This is impacting on industries ability to operate in a competitive market.

Figure 4 Future baseload wholesale prices CY 2017 indexed



Source: NEM Futures

Appendix A: SACOME's Finkel Review submission

Independent review into the future security of the national electricity market

Submission to

The Department of Environment and Energy

May 2017

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EXECUTIVE SUMMARY

The South Australian Chamber of Mines and Energy (“**SACOME**”) is the peak industry association for companies with business interests in the resources industry in South Australia, including those with business, vocational or professional interests in minerals exploration, mining and processing, oil and gas exploration, extraction and processing, power generation, transmission and distribution, logistics, transport, infrastructure, and those with clients in these sectors.

The South Australian market in the National Electricity Market (“**NEM**”) has the highest penetration of non-synchronous generation (42.2%; 2016) and is presently experiencing greater volatility and higher prices. The retirement of baseload generation in South Australia, due to changing market conditions, is resulting in a reduction of synchronous generation that has traditionally provided the frequency control and inertial services critical to the stability and reliability of the network.

The continuation of this trend may result in deindustrialisation of the State. SACOME members have identified that it is becoming increasingly difficult to justify further capital expenditure to upgrade or build new plant.

The Australian Energy Market Operator (“**AEMO**”) in partnership with network participants (i.e. TNSPs) conduct regular studies on the integration of non-synchronous technologies to identify issues; the Australian Electricity Market Commission (“**AEMC**”) along with the Australian Energy Regulator (“**AER**”) provide the necessary regulation and rules for the market to operate effectively. In this context, the powers to coordinate responses to critical issues of system security and strength are absent.

Events over the past 12 months in South Australia, such as the network characteristics at the time of the 28 September 2016 system black, have been well documented in prior assessments. Responses to these events to alter the market rules or policies have only occurred after actual event occurs. This is no longer acceptable by business or the public. There needs to be a mechanism that can direct governing bodies or AEMC to adjust policies or rules to mitigate a detrimental reduction in system strength where critical issues have been identified prior to failures occurring.

Any response to system security and strength must have the appropriate powers and assess future developments on a technology neutral basis to provide tangible solutions. As this review identifies low carbon as a key metric to consider, any low carbon policies should strive to unify under a single policy framework as to not create a fragmented national system where market failures occur and system strength is put at risk.

SACOME has responded to questions in the review that pertain to discussion on system strength and volatility in the South Australian market.

To ensure that businesses can remain globally competitive in South Australia, SACOME’s recommendations are:

RECOMMENDATIONS

- 1.1** This review acknowledges there exists the ability to analyse and report on the conditions that impact on system security within AEMO and network stakeholders. SACOME further recommends rule changes to give AEMO, or another competent authority, greater powers of direction to ensure system security. These rule changes need to be expedited given the usual period required for them to come into force.
- 2.3** Continual assessment of system security is required and linked to powers that can direct market regulators and rule makers to alter the system to improve security if needed.
- 3.1** Targets to reduce emissions and plans to replace higher emitting generation should be technology neutral and incorporate a technical assessment that compares the proposed policy or project against a set of technical standards to ensure no net loss to system strength.

Nuclear power should be considered alongside other generation choices to ensure comprehensive assessments are undertaken with respect to system strength, affordability and low carbon criteria.
- 3.2** There needs to be an appropriate plan in place where proposals for new generation or low carbon market policies be assessed against the three metrics identified in this review, affordability, system strength (reliability & security), and low carbon. The gas markets review will also need to take into account the increasing difficulty to contract gas for variable generation to limit the impacts on affordability and system security.
- 3.4** There is a specific review of low carbon policies to ensure they are operating effectively to ensure a drive to lower carbon emissions while not at the expense of system strength or affordability. Any analysis and recommendations of the review must be technology neutral while ensuring there is an orderly transition to lower emissions generation sources. If required, delaying withdrawals of synchronous generation if it is shown to have a large detriment to system security.
- 4.1** The early adoption of rule changes to provide market mechanisms and signals to generators to provide the necessary frequency control and system strength services.
- 5.4** An investigation be undertaken to identify where low cost renewable generation can contribute to the forward contracts market and determine if a futures market can be established to enhance competition and liquidity.
- 6.1** There are legislative measures in place for strategic resources, such as natural gas, to ensure such resources are available for extraction and use unless precluded by proven scientific and/or environmental reasons.
- 7.6** There is continual monitoring of the assessments by AEMO with the assistance of private network operators. Additionally, any new powers are enabled to determine the level of criticality for system security issues identified and the issuing of rule and policy directives to ensure standards of system security are met.

RESPONSES TO QUESTIONS

1. Technology is Transforming the Electricity Sector

1.1 *How do we anticipate the impacts, influences and limitations of new technologies on system operations, and address these ahead of time?*

Through partnerships with network participants and market operators, any new energy policies that are assessed at the outset to have fundamental technical differences to the current fleet of generators should require a full integration assessment. In 2014 with increasing penetrations of wind and solar PV in the South Australian system the Australian Energy Market Operator (AEMO) in partnership with ElectraNet undertook an analysis of integration of renewable generation with the stated intent:

“...to provide information about the secure operation of the South Australian power system under specific conditions”⁵⁶

In 2016 AEMO and ElectraNet provided an update to this study to report on the actions in the 2014 report and further steps required. This is an example of the level of detail that needs to be undertaken as these studies identified the critical components of the system to ensure stability and security, namely:

- 1) The Heywood interconnector linking SA and Victoria is operational^{7,8};
- 2) Power system frequency control in SA, particularly under conditions when the SA power system is, or could become, separated from the remainder of the National Electricity Market⁹; and,
- 3) Sufficient Synchronous generation is connected and operating in the SA power system¹⁰.

SACOME welcomes the inclusion of these studies to assess where there are limitations to the network. The actions also need to demonstrate the appropriate level of urgency for critical problems. These two studies identified the exact issues that were a part of the 28 September 2016 system black in South Australia.

This event was the result of a severe storm causing phase to ground faults along three transmission lines that resulted in the loss of 445MW of wind generation due to fault ride through constraints. The loss of generation resulted in flows across the Heywood interconnector increasing to 900MW causing the interconnector to trip to prevent damage. At the time of the storm, inertia in the South Australian grid was low due to the large level of intermittent non-synchronous generation online¹¹. The combination of islanding, low inertial response and low levels of synchronous

⁵ (Australian Energy Market Operator 2014)

⁶ (Australian Energy Market Operator 2016b)

⁷ *ibid*

⁸ *ibid*

⁹ (Australian Energy Market Operator 2014)

¹⁰ (Australian Energy Market Operator 2016b)

¹¹ (Australian Energy Market Operator 2016c)

generation online resulted in the large rate of change of frequency (“RoCoF”) event that led to the system black.

The elements in this event were all reported in the October 2014 and February 2016 reports by AEMO and ElectraNet¹². When the decision to retire Northern was announced and the market operating Heywood at near capacity (78%¹³) combined with high levels of non-synchronous generation this should have triggered urgent action from AEMO and Governments to implement network changes to ensure system security. One key action was to monitor and respond to low inertia conditions (high non-synchronous generation) by limiting interconnector flows. On 28 September 2016 Heywood was operating at near capacity into South Australia in a period of low inertia conditions with only 330MW of synchronous generation online to provide the islanded inertial response.

SACOME recommends that this review acknowledges there exists the ability to analyse and report on the conditions that impact on system security within AEMO and network stakeholders. SACOME further recommends rule changes to give AEMO, or another competent authority, greater powers of direction to ensure system security. These rule changes need to be expedited given the usual period required for them to come into force.

In South Australia’s case, there should have been a signal or directive to improve the inertia in the system to ensure that a RoCoF limit was not exceeded that could lead to system black, as occurred on 28 September 2016.

2. Consumers are Driving Change

2.3 How do we ensure the needs of large-scale industrial consumers are met?

Large industrial users SACOME represents identify that affordability, reliability and security are key criteria that are required to be able to operate competitively. The review into the future security of the NEM identifies the energy trilemma of affordability, system strength, and low carbon generation. While SACOME members are striving to limit their emissions to move into a low carbon future, however, this cannot be at the total expense of their operations that are critical to the South Australian economy and community.

As discussed in the response to question 1.1 there needs to be a mechanism to issue notifications or alerts to enhance system strength when prior assessments identify key components that impact a markets system strength. Then there needs to exist the market mechanisms to ensure that security standards are adhered to.

The events in South Australia over the past 12 months have impacted SACOME members in the areas of reduced production, damaged plant and loss of revenue. For some members who are

¹² For further discussion on the limits of large penetrations of non-synchronous intermittent generation see the following studies. The impacts of large penetrations of generation as outlined in the following studies predates the findings in the AEMO-ElectraNet studies in 2014 and 2016, hence these impacts are well known: (Deloitte Access Economics 2015), (Kyritsis 2017), (Milligan 2016), (Poolla n.d.), (Tielens 2012), (Ulbig 2014)

¹³ (Australian Energy Market Operator 2016c); Using figures in report of 500MW across Heywood.

looking to expand or upgrade existing operations, these market failures are increasing the risk perception of potential investors.

SACOME recommends that continual assessment of system security is required and linked to powers that can direct market regulators and rule makers to alter the system to improve security if needed.

3. The Transition to a Low Emissions Economy is Underway

3.1 *What role should the electricity sector play in meeting Australia's greenhouse gas reduction targets?*

SACOME recommends an orderly transition to reduce pollution and carbon emissions while maintaining system strength. There needs to be a technical assessment of the changes to the market from proposed or planned projects to determine the overall net impact of emission reductions. These issues require assessment in terms of their criticality. To determine the least cost, highest abatement of emissions pathway, all technology choices should be available for assessment.

SACOME notes with respect to technology neutrality, the review on page 63, appendix D, lists all available technologies it has excluded nuclear power that also has an operating emissions of 0 kg CO₂-e/MWh. As demonstrated in other jurisdictions, for example France and Sweden, nuclear provides a clear avenue for emissions reduction. Nuclear is classified as a synchronous generator that provides the traditional system strength services that other thermal generators provide, essentially a like-for-like replacement with no detrimental impact on inertia and frequency control.

SACOME recommends that targets to reduce emissions and plans to replace higher emitting generation should be technology neutral and incorporate a technical assessment that compares the proposed policy or project against a set of technical standards to ensure no net loss to system strength.

SACOME recommends that nuclear power should be considered alongside other generation choices to ensure comprehensive assessments are undertaken with respect to system strength, affordability and low carbon criteria.

3.2 *What is the role for natural gas in reducing greenhouse gas emissions in the electricity sector?*

Gas generation either through a combined cycle or open cycle gas turbine (“**CCGT**” & “**OCGT**”) provides a like for like replacement to existing emissions intensive generation that has existed in the NEM based on dispatchability of electricity and synchronicity. Modern gas fired turbines have lifecycle emissions of between 670 and 450g CO₂e/kWh irrespective of whether the gas is conventional or unconventional¹⁴.

However, an assessment is required into how upstream gas markets operate, as the ability to source affordable gas in a market that incorporates a high penetration of variable generation is becoming increasingly difficult. SACOME members have identified that the ability to contract long

¹⁴ (National Renewable Energy Laboratory 2014)

term gas is becoming increasingly difficult and may lead to market failure as gas generation becomes more variable.

Generators with gas contracts that have obligations for annual and daily contract quantities with maximum daily and hourly quantity limits, may violate the terms of these contracts when a high variable in generation is required. The difficulty in determining the quantities within tolerance margins under variable generation can lead generators to purchase gas on the spot market that can result in high generation costs and thereby higher cost of electricity. This was seen with the additional demand for gas on the 7 July 2016 high price event.

SACOME recommends there needs to be an appropriate plan in place where proposals for new generation or low carbon market policies be assessed against the three metrics identified in this review, affordability, system strength (reliability & security), and low carbon. The gas markets review will also need to take into account the increasing difficulty to contract gas for variable generation to limit the impacts on affordability and system security.

3.3 What are the barriers to investment in the electricity sector?

3.4 What are the key elements of an emissions reduction policy to support investor confidence and a transition to a low emissions system?

Currently there are technology choices in the market that provide two of the three key metrics outlined in the review, affordability and low carbon, but they are at the detriment to the third, system strength.

Non-synchronous generation in the market is subsidised through the RET that provides renewable energy generators with up to \$92/MWh. This means that those generators with low operating and maintenance costs can bid into the market first and displace other generation. By the variable nature of the two dominating renewable energy technologies in the market (wind and solar PV) are always deployed when they produce with no regard for system strength criteria. Uncertainty with national and state energy policies has precluded investment in all generation including low carbon generations and storage that is required to limit the variable nature of this generation.

SACOME recommends that there is a specific review of low carbon policies to ensure they are operating effectively to ensure a drive to lower carbon emissions while not at the expense of system strength or affordability. Any analysis and recommendations of the review must be technology neutral while ensuring there is an orderly transition to lower emissions generation sources. If required, delaying withdrawals of synchronous generation if it is shown to have a large detriment to system security.

4. Integration of Variable Renewable Electricity

4.1 What immediate actions could be taken to reduce the emerging risks around grid security and reliability with respect to frequency control, reduced system strength, or distributed energy resources?

Currently there is an AEMC assessment of a series of rule changes that were proposed by the South Australian government and generators to introduce market mechanisms to ensure system strength and frequency control. This is in parallel to the System Security Market Frameworks

(“**SSMF**”) review by the Commission that will detail a set of options to deliver secure energy at the best price for consumers.

The outcomes of this review alongside the AEMO Future Power System Security (“**FPSS**”) program reports are required to be assessed by a competent body to ensure that further changes to rules or technical standards are addressed.

SACOME recommends the early adoption of rule changes to provide market mechanisms and signals to generators to provide the necessary frequency control and system strength services.

4.3 Is there a need to introduce new planning and technical frameworks to complement current market operations?

4.3.1 Should there be new rules for generator connection and disconnections?

An assessment is required to determine system strength which should factor into retirements and appropriate measures taken by all managers of the NEM at no net loss to consumer or supplier. If these assessments determine a detriment to the market in terms of affordability, security or reliability then there should be technical limits and rules to ensure no net detriment.

4.3.2 Should all generators be required to provide system security services or should such services continue to be procured separately by the power system operator?

Generators that enter the market that are shown through an independent assessment to reduce system strength should procure their own or install plant to ensure that there is no deterioration of system strength. market mechanisms are required to provide incentives for system strength services, such as frequency control and inertia.

It may be necessary to consider the introduction of a “capacity charge” to ensure that that additional normally underutilised synchronous power generation could be brought online in an expedited manner.

5. Market Design to Support Security and Reliability

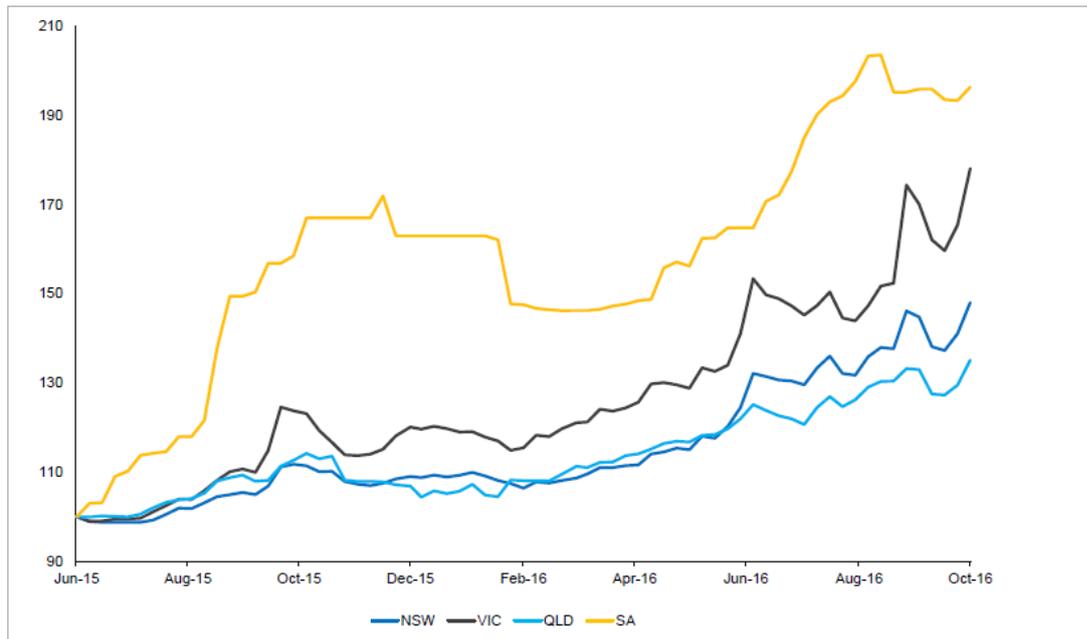
5.2 Is liquidity in the forward contract market for electricity adequate for the needs of commercial and industrial consumers and, if not, what can be done?

Based on consultation with energy market traders and operators SACOME has been informed that there is negligible liquidity in the South Australian forward contract market. This is shown by estimates of the Herfindahl-Hirschman Index in the South Australian market of 3300-3400¹⁵ demonstrating the lack of competition that has seen futures pricing above \$100/MWh, illustrated in Figure 1.

SACOME members are reporting that they are being offered forward contracts between \$120/MWh and \$190/MWh because of the volatility and liquidity in the market attracting a significant risk premium. This is exacerbated by the loss of baseload generation that resulted in the forward contract prices seen in figure 1 where the withdrawal date of Northern is just prior to the indexed Jun-15 date.

¹⁵ (McConnell 2016)

Figure 1: Future baseload wholesale prices CY 2017 indexed



Source: NEM Futures

5.3 Are commercial and industrial users experiencing difficulties in obtaining quotes for supply?

As discussed above in question 5.2 SACOME members are reporting difficulties in obtaining affordable quotes for supply.

5.4 What impact will an increasing level of renewable generation have on the forward contract market and what new products might be required?

Unless non-synchronous generation can contribute to a competitive forward contract market there should be an assessment as to whether limits are put on further development of this type of generation. Generation companies in the future may be required to ensure that there is a portfolio of dispatchable synchronous generation in a single market to maintain affordability and system strength, or to request non-synchronous generators provide sufficient level of synthetic inertia to ensure affordability and system strength.

SACOME recommends an investigation is undertaken to see where low cost non-synchronous generation can contribute to the forward contracts market and determine if a futures market can be established to enhance competition and liquidity.

6. Prices Have Risen Substantially

6.1 What additional mechanisms, if any, could be implemented to improve the supply of natural gas for electricity generation?

The recent decisions by the Victorian government and the South Australian liberal party to announce moratoriums and exploration bans on conventional and unconventional gas involving

hydraulic fracture stimulation are detrimental to the continued supply of gas. These policies damage the reputation of the jurisdiction in which they occur for further exploration and production investment, send an incorrect message that these resources are too dangerous to extract, and lock up a critically needed strategic energy source.

Successive inquiries into unconventional gas have shown that properly regulated and monitored projects, and decades of safe operation in many jurisdictions locally and internationally, have demonstrated to pose no risk to the public or environment. This is reinforced by the established record of compliance and negligible impact by gas companies in South Australia. However, while the recommendations of these inquiries do not recommend moratoria and demonstrate no systemic harm, a contrary policy position is taken on the development of gas for political purposes alone.

SACOME recommends that there are legislative measures in place where a resource is deemed to be a strategic resource, such as natural gas, should be available for extraction and use unless precluded by proven causal scientific and/or environmental reasons.

7. Energy Market Governance is Critical

7.1 *Is there a need for greater whole-of-system advice and planning in Australia's energy markets?*

7.1.1 *If so, what are the most appropriate governance arrangement to support whole-of-system advice and planning?*

As discussed in earlier responses there are presently the correct authorities that can assess the market in partnership with network stakeholders to identify opportunities and risks, and those to manage and regulate the rules of the NEM. There exists standards that are set and measured to ensure system strength. However, there is not the coordinated approach to take these assessments to provide rule and policy directives to ensure system security.

Recent experiences in South Australia demonstrate that events could have been prevented if the outcomes identified in the assessments were acted upon with the necessary urgency.

7.1.2 *Do the roles of ministers and energy market institutions need further clarification?*

The roles of ministers and energy market institutions require further clarification.

7.6 *How can decision-making be appropriately expedited to keep up with the pace of change?*

Continuation of annual reviews of system strength are required as they impact the continued development of variable non-synchronous integration.

SACOME recommends continual monitoring of the assessments by AEMO with the assistance of private network operators. Additionally, new powers should be enabled to determine the level of criticality for system security issues identified and the issuing of rule and policy directives to ensure standards of system security are met.

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