Review for AEMC of the Proposed NEMMCO Rule for System Restart Ancillary Services

Final Report

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Table of Contents

1 Introduction 1
1.1 Purpose of review 1
1.2 Methodology and Structure of Report 1
2 NEMMCO Rule 2
2.1 System Restart 2
2.2 Background to the NEMMCO Review 2
2.3 Proposed Rule Change 3
3 Setting SRAS Requirements 5
3.1 SRAS has public good characteristics 5
3.2 The objective should be to minimise costs 6
3.3 The appropriate specification of SRAS will vary by location 7
3.4 Efficient procurement will depend on information from the market 9
3.5 Managing Procurement 10
4 Procuring SRAS 11
4.1 Selection Criteria 11
4.2 Procurement options 13
4.3 Is the market for SRAS competitive? 14
4.4 Assessment of options against criteria 16
5 NEMMCO's Proposed Approach 18
5.1 Outline of NEMMCO's approach 18
5.2 Conclusion on NEMMCO's proposed approach 19
6 Conclusions 20
6.1 Specification 20
6.2 Longer Procurement Process 20
6.3 Longer Term Contracts 21

1 Introduction

1.1 Purpose of review

The purpose of this review is to provide advice to the Australian Energy Markets Commission (AEMC) on the Rule proposal for System Restart Ancillary Services (SRAS).

Specifically the AEMC engaged Firecone to advise on:

- The extent to which the market for SRAS is competitive or has the potential to be competitive; and
- Based on the analysis of the issue above, what would be an appropriate design for a market for SRAS.

1.2 Methodology and Structure of Report

The analysis contained in this report is based on the review of existing analysis and reports prepared by NEMMCO in support of the proposed Rule, review of submissions made by industry to the AEMC, discussions with NEMMCO and selected industry participants to clarify the technical and commercial aspects of SRAS and a high level review of the approach to procuring SRAS internationally focusing on the United Kingdom and New Zealand.

The report is structured as follows:

- Section 2 briefly summarises NEMMCO's obligations with respect to SRAS and the key elements of the proposed Rule.
- Section 3 discusses the objective in purchasing SRAS services, and the implications for how the service should be specified.
- Section 4 discusses the options for procuring SRAS.
- Section 5 describes and assesses NEMMCO's proposed approach.
- Section 6 gives our conclusions.

2 NEMMCO Rule

2.1 System Restart

A major disruption to electricity supply can result in significant amounts of generation and load no longer being connected to the power system. In these circumstances, capacity is required to restart the power system independent from any external electricity supply.

Types of restart services can include[1]:

- inherent black start sources – generating units that can start without being connected to external power supplies such as hydro generating units;
- combination system restart sources – large generating units which can be started from a nearby small power station such as thermal power stations with adjacent blackstart gas turbine generating units; and
- trip to house load schemes (or islanding schemes) – large generating units that can disconnect from the transmission network and continue to supply their own auxiliaries or an isolated segment of system load.

Following restart, the system is restored to full operations. This may be done over a number of hours, by building out from the generator providing the restart service, and progressively adding additional generation and load while ensuring the system remains stable.

2.2 Background to the NEMMCO Review

NEMMCO is required under clause 4.3.1(p) of the National Electricity Rules "to procure adequate system restart ancillary services to enable NEMMCO to co-ordinate the response to a partial or total black system condition". A black system is defined as being "the absence of voltage on all or a significant part of the transmission system or within a region, following a major disruption affecting one or more power stations and a significant number of customers".

Clause 3.1.4 Market Design Principles also requires NEMMCO to prepare and publish a report on:

(1) a long term strategy for the provision of *system restart* services, taking into account:

(i) the need to ensure sufficient *system restart* services to restore normal power system operation;

(ii) the desirability of acquiring supplementary *system restart* capability on a competitive basis to reduce the time required to resupply *loads* where benefits outweigh costs; and

[1] NEMMCO Scoping Paper "Review of system restart ancillary service arrangements" (February 2003)

(iii) options, including *embedded generation*, that could be developed over a 3 year period to provide *system restart* capability;

(2) the operation and effectiveness of the *spot market* for *market ancillary services* within the overall *central dispatch* and any recommendations for their improvement, including:

(i) simplification of the arrangements for the provision of *market ancillary services*; and

(ii) improving the determination of *market ancillary services* requirements.

2.3 Proposed Rule Change

The changes proposed by NEMMCO[2] for the procurement of SRAS that were considered as part of this review are outline in Table 1 below:

Table 1: Proposed SRAS Rules Considered

Rule	NEMMCO's Proposed Approach
System Restart Standard	Recommends regulatory body determines outcome based system restart service
Service Definition	Minimum requirements for type, number and independence of services including primary and secondary services differentiated in terms of availability and reliability
Procurement Criteria	Restart services assigned to specific sub-networks Preference for restart services that contribute to faster restoration Objective of minimising cost subject to ensuring overall service quality Option to purchase additional restart services
Tendering Process	17 month process 9 months notice of NEMMCO intention to contract
Contract Length	Primary services – 4 years with option to extend to 6 years Secondary services – 1 year contract

[2] NEMMCO Final Report "Review of System Restart Ancillary Services" (July 2004)

Ensuring reasonable terms and conditions	Objective is attainment of economic efficiency Prices should be based on efficiently incurred long run incremental costs Remuneration sufficient to encourage efficient investment and innovation in provision of SRAS Prices should provide a normal return on capital adjusted for risk Seek to procure combination of services resulting in best value for money Dispute adviser to ensure prices close to outcome that would be obtained in a competitive market

3 Setting SRAS Requirements

This section describes why an SRAS service needs to be procured, the objectives in procuring SRAS, and the key characteristics of the supply of SRAS which have an implication for how the service should be specified. The next section then considers how the service should be procured.

The key points covered in this section are:

- *Public Good:* SRAS has strong public good characteristics. It needs to be purchased through an agent, taking decisions on behalf of consumers, rather than relying on a market-driven level of SRAS;

- *Objective:* an agent purchasing SRAS requires clarity on the objective being addressed. Power systems are subject to infrequent system collapse, with high costs. SRAS acts as an 'insurance' against system collapse, through ensuring restoration of supply. The objective should be to minimise costs, that is the expected value of the costs from system collapse, and the costs of SRAS;

- *Locational variation:* the single objective described above means that the appropriate specification of SRAS will depend on the probability of system collapse, the expected costs following a system collapse, and the characteristics and costs of SRAS services. All three vary across the NEM as a whole, but are similar within distinct sub-networks. A single NEM objective for SRAS will lead to differing levels of SRAS procurement within those sub-networks; and

- *Determining SRAS requirements:* following an outage, a SRAS service will ensure a lower level of unserved energy than if the SRAS had not been procured. The impact of SRAS on unserved energy will depend on its availability, speed of provision, location and scale. Determining an appropriate specification requires interaction with the market to explore these characteristics, and the cost, of SRAS.

This section therefore concludes that SRAS should be purchased by an agent on behalf of consumers, against a single objective. This will lead to different specifications of the service to be procured at different locations. The next section considers how to efficiently procure the desired level of SRAS.

3.1 SRAS has public good characteristics

SRAS has characteristics of a public good. In the event of a system collapse, restarting the electricity system benefits all the users of the electricity system. It is not possible to exclude electricity consumers from receiving the benefits of system restart. This would create a free-rider problem if SRAS were procured through the market. It would be possible for some electricity consumers to indicate a low willingness to pay for restart, but to benefit from the restart based on payments by others. The implication is that SRAS needs to be procured by an agent acting on behalf of consumers.

3.2 The objective should be to minimise costs

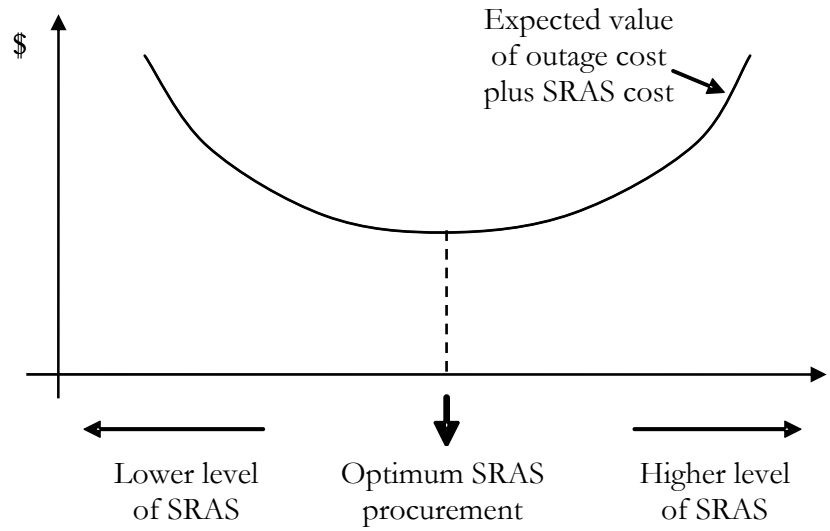
An agent procuring SRAS needs to have a clear objective to determine the appropriate level of SRAS to be purchased. System blacks are rare events, but have high costs when they occur. SRAS services reduce those costs by ensuring restoration of supply in the event of a system black. The issue is what level of SRAS payments to incur in response to reasonable expectations as to the likelihood and impact of a system black.

If too low a level of SRAS is procured, then an outage might continue for a longer period than it need. On a forward looking basis, the expected costs of outage are higher than they need to be, and it would be cheaper to purchase more SRAS and reduce the expected cost of a system outage.

Conversely, if too high a level of SRAS is bought, the expected cost of outages will be low, as there will be greater certainty of rapid restoration of supply. However, the costs of purchasing SRAS services will be high. A reduction in SRAS services, and SRAS costs, would reduce total costs, since the offsetting increase in expected costs of an outage would be less than the cost savings from purchasing less SRAS.

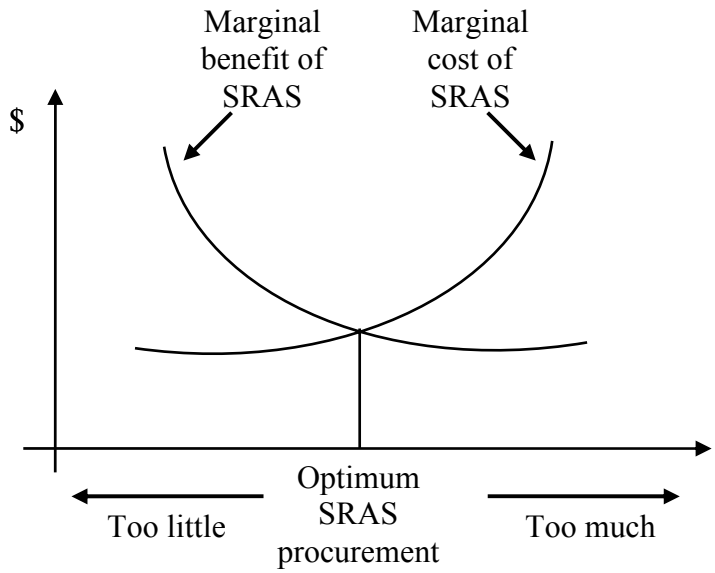
As this discussion illustrates, the objective when purchasing SRAS should be to minimise the combined cost of system outages and of SRAS services. This will occur when the marginal cost of a change in the level of SRAS being bought is equal to the change in the expected value of outage costs resulting from that change in SRAS procurement. This is illustrated in Figure 1 below.

Figure 1: Optimum procurement of SRAS



Another way of illustrating this would be to say that the optimum procurement of SRAS is where the marginal benefit from SRAS (in terms of a reduced expected cost of system outage) is equal to the cost of SRAS provision. This is illustrated in Figure 2 below:

Figure 2: Optimum level of SRAS supply



We note that it might be possible to procure additional SRAS. For example, a State Government might want to ensure faster restoration in the event of an outage than would be expected following NEMMCO's procurement of SRAS. This would require that the boundaries of sub-networks coincided reasonably with jurisdictions.

3.3 The appropriate specification of SRAS will vary by location

A possible conclusion would be that SRAS should be bought, from the lowest cost provider, to minimise costs (i.e. expected outage costs and SRAS costs) across the NEM. However, this would be incorrect:

- The NEM is a long network which is loosely interconnected. It is likely that any major system outage would apply to only part of the network, rather than the network as a whole;
- Within different parts of the network, the probability of outage and the load affected will vary. As a result, the appropriate level of SRAS will also vary; and
- SRAS has to be procured on a locational basis, to ensure it is reasonably close to load. SRAS performance and cost is dependent on the generation industry in the area concerned.

As a result, both the requirement for SRAS and its availability and cost will vary between sub-networks within the NEM. This section sets out these arguments, and the need for a locational specification of SRAS.

The NEM has a long, thin transmission network. Some parts of the network are relatively densely interconnected. At other parts of the network, inter-connection is thin. As a result it

is quite probable that a system outage would be confined to a sub-network, rather than applying to the network as a whole.

Within any sub-network, the probability of a system outage, and the load affected, will vary. As a result, the need for SRAS will vary by location. In some parts of the network, the risk of outage will be higher than in others. Similarly, in some parts of the network, an outage would lead to a larger loss of load than in others.

Procurement of SRAS will reduce the expected cost of outages. The expected cost is a function of:

- the probability of outage – the higher the probability of a system black within a sub-network, the greater the expected cost;
- the unserved energy caused by an outage – loss of large amounts of load creates higher costs than loss of lesser amounts, and prolonged outages create higher costs than shorter outages; and
- the cost of unserved energy. For simplicity, we have assumed there is a uniform valuation of the cost of unserved energy, equivalent to VoLL.

SRAS will affect the duration of an outage, and so the total level of unserved energy following an outage. It will not have an impact on the probability of outage or the value of lost load.

If the performance and cost of SRAS providers were reasonably uniform, the conclusion would be clear – some sub-networks face higher outage costs than others, SRAS reduces the unserved energy from an outage, and so more SRAS should be procured in sub-networks with a higher expected outage cost. However, the differing requirement for SRAS within sub-networks is matched by differing performance and cost of the SRAS services available. This creates an additional complexity in determining the appropriate specification of the desired SRAS service.

The procurement of SRAS needs to be undertaken on a locational basis, rather than for the NEM as a whole. In the event of an outage, it will be necessary to 'build out' from the provider of SRAS services, progressively adding new generation and new load, and ensuring the continued integrity of the transmission system. SRAS services need to be procured reasonably close to major loads, to avoid excessive delay in restoration of supply.

The characteristics of SRAS – including its reliability, speed of restoration, scale, and location – will determine what impact it has on the expected duration of an outage. However, SRAS is efficiently supplied as a by-product of energy generation. The revenues from energy far outweigh the potential revenues from SRAS. As a result, generation investment decisions will be designed to maximise returns from energy generation, and owners of generation plant will consider SRAS as a relatively minor additional service and revenue stream.

This means that the nature of the generation industry will determine the feasible nature of a SRAS service. Some generation is capable of fast restoration while other will require

significant time to restart. Some providers of SRAS services will be able to quickly support larger volumes of load than others. The cost of SRAS also varies significantly depending on the type of generation. The costs of SRAS for hydro generation will be lower than the costs for a thermal generator which also requires a small scale auxiliary generator.

It follows that the application of a single outcome-based standard for SRAS is likely to result in significant variation in procurement of SRAS within each sub-network. The requirement for SRAS will vary, as will the performance characteristics and cost of SRAS services. A single specification of SRAS standards on a narrower basis (such as a time to restoration of a defined proportion of load) would be inefficient in minimising costs.

3.4 Efficient procurement will depend on information from the market

The purpose of SRAS is to reduce the expected costs of system outage. The procurement of SRAS should aim to minimise the combination of the expected costs of outage, and the direct costs of SRAS.

The probability of outage, the load affected, and VOLL are not dependent on SRAS. However, the likely impact of SRAS on reducing the level of unserved energy during an outage will be affected by:

- the reliability of a SRAS service, and so the certainty that it will be available in the event of an outage;
- the speed with which a SRAS service can be provided;
- the location of a SRAS service, its proximity to major loads and other generators, and the implications for the time required to restore supply by building out along the network; and
- the MW available from a SRAS provider, and the implications for the wider restoration of generation within the sub-network.

The direct costs of the SRAS service will be dependent on commercial agreement with the SRAS provider.

It follows that a decision on the appropriate level of SRAS, based on the objective described above, is dependent on information from potential SRAS providers on technical features of the service that they can provide, and on costs. That information needs to be obtained through interaction with the market of potential SRAS providers.

We note that NEMMCO have also indicated that this information should be sought by grouping potential providers into broad bands:

- Primary restart services which need to be available 98% of the time and are highly likely to perform in the manner intended if and when called upon to do so; and

- Secondary restart services which need to be available 75% of the time and are more likely that not to perform in the manner intended if and when called upon to do so.

We note that some market participants consider this distinction to be too broad and ill-defined. Clearly it would be desirable to have more specific information, provided it was available and reliable. In this report we have not explore the appropriate level of detail in specification of SRAS service.

Providers of SRAS will be required to describe and warrant the capability of the individual restart service. They will be subject to high level assessment and modelling to confirm the viability of the service to meet NEMMCO's specifications. This will be followed by physical testing to confirm the restart service functionality and reliability. Providers of SRAS services will be required to provide cost information with their tender.

Decisions on the appropriate level of SRAS procurement need to draw on this information on the costs and performance characteristics of available SRAS services.

3.5 Managing Procurement

This section has argued that:

- a single NEM-wide objective should be established for the procurement of SRAS. Broadly, this should be to minimise the expected costs of outages and of SRAS procurement;

- based on this objective, the optimum level of SRAS procurement should be determined for distinct sub-networks, based on information on both expected outage costs and the expected performance and cost of SRAS; and

- the decision on SRAS procurement should be informed by interaction with the market to determine the characteristics and costs of SRAS services which are available.

It may be desirable for the AEMC to establish the single NEM-wide objective; the Reliability Panel to determine the optimum procurement of SRAS within sub-networks; and NEMMCO to lead the analysis, and the interaction with the market, to inform that decision.

4 Procuring SRAS

This section analyses how best to procure SRAS, following its specification. It is valuable to consider specification and procurement separately, since they raise different issues. However, as discussed above, the appropriate specification will need to be informed by the characteristics and cost of SRAS available from the market. As a result, specification and procurement will in practice be less distinct than set out in this report.

The section looks in turn at criteria for effective procurement, the main procurement options, the level of competition in provision of SRAS, and the conclusions on a preferred procurement option.

4.1 Selection Criteria

Our starting point is to consider how to select between procurement options. Our suggested selection criteria are economic efficiency and minimising cost to consumers.

Standard economic efficiency criteria cover:

- *Static efficiency* – are SRAS services being provided by the lowest cost operators?
- *Dynamic efficiency* – will SRAS services be provided by the lowest cost operators over time?
- *Allocative efficiency objective* – is an appropriate amount of SRAS services being purchased?

We would also suggest a financial criterion:

- *Minimise cost to consumers* – the price for SRAS services is in line with efficient costs.

Static efficiency requires that the SRAS service is provided by the lowest cost provider. NEMMCO have raised concern that a lack of competition may mean that prices are above efficient costs, and SRAS providers are making high profits from the service. This does not necessarily reflect any loss of economic efficiency. If SRAS is indeed being procured from the lowest cost provider, then the effect of higher prices may be simply a transfer from electricity consumers to the owners of the plant providing SRAS. However, as we discuss below, over-pricing could lead to a loss of allocative efficiency.

Static efficiency assumes a constant capital stock. *Dynamic efficiency* requires that costs are minimised over time, with new investment where this is economic. NEMMCO have raised concerns that the short procurement period excludes potential lower cost providers of the SRAS service. If the procurement was more extended, parties might be able to make relatively minor investments which would reduce their costs, and might make them the lowest cost provider.

Allocative efficiency requires the appropriate allocation of resources to the production of goods and services. Broadly, this requires that a service (such as SRAS) is provided up to the point where the marginal benefit from consumption is equal to the marginal cost of production.

Producing more or less than this level of output would lead to a reduction in economic welfare.

It follows that high prices for SRAS could lead to a loss of allocative efficiency – NEMMCO might procure less SRAS than it would if the prices reflected the economic cost of providing SRAS services. However, we note:

- In most markets, consumption decisions are based on the responses of many different consumers to prices. In the SRAS market, there is a single, well-informed, purchaser of SRAS services; and

- The view that some SRAS services are over-priced is entirely based on NEMMCO's analysis, since prices are not public. However, if NEMMCO conclude that economic costs are below the prices they are being offered – and have a strong information base to support that analysis – then they can also ensure allocative efficiency by purchasing on the basis of economic costs.

High prices can also act as a signal for market entry. For example, average prices in the energy market have varied significantly between regions of the NEM, and regions with high prices have subsequently seen higher levels of generation investment. In this sense, high prices are a mechanism for both dynamic efficiency (new generation enters the market) and allocative efficiency (energy consumption remains at efficient levels). It would clearly be damaging to economic efficiency to prevent price signals playing that role.

However, price signals are not always a barrier to entry. In other cases, there may simply be a discontinuity in the supply curve. One provider of SRAS may have significantly lower costs than existing providers, or than potential new providers following investment. In this case, the higher price will simply reflect a distribution between consumers and providers of SRAS, and will not lead to dynamic efficiency gains through new investment.

A further possible concern is *minimising costs to consumers*. The bulk of the concerns raised by NEMMCO relate to the price they pay for SRAS in a thin market. As discussed, our understanding is that those concerns mainly relate to over-pricing (that is, paying the owners of SRAS services more than is required to provide the service) rather than to loss of economic efficiency (that is, procuring the SRAS from inefficient providers or procuring the wrong amount of SRAS).

We note that analysts have often concentrated on economic criteria, and to date there has been no great clarity on whether or not distributional issues should be taken into account. The NEM objective includes promoting the long term interests of consumers with respect to price. Other things being equal, this objective is better met if prices are close to efficient costs rather than well above them. In other words, we assume that the AEMC is not indifferent to a transfer from consumers of electricity to shareholders in generation companies. Where there are no harmful impacts to other objectives – and in particular dynamic efficiency – we assume the AEMC would prefer solutions which reduce costs to consumers.

4.2 Procurement options

There are two broad approaches available for the procurement of SRAS services:

- *Competitive market* – procure by specifying the SRAS services required and undertake a competitive tender to select service providers; or

- *Regulation* – specify both the SRAS services required and the basis on which prices should be determined.

There may also be intermediate options, for example to rely on competitive procurement, but have a residual power to impose regulation if it appeared that competitive procurement was ineffective. NEMMCO is seeking an intermediate approach. They would mainly rely on competition but would have a residual power to effectively impose efficient prices through recourse to a dispute adviser.

Procurement through a competitive market would typically require specification of a service, seeking offers from a number of potential providers, and awarding to the provider who best met the selection criteria. Prices would be set through competitors forming a view on the price that they needed to offer to win the procurement. For the lowest cost provider, the price would probably be based on their estimate of the price likely to be offered by their closest competitor.

Regulation would entail specifying a service, identifying the lowest cost provider (either through a competitive tender, or through analysis of cost characteristics of potential providers) and determining a reasonable price for buying the service from that provider. As the price would no longer be set through the interaction of willing buyers and willing sellers, this approach might also require powers – ultimately based on legislation – to enforce the provision of the service at a regulated price.

Both approaches create the possibility of prices diverging from efficient costs. Under a competitive procurement, this would happen if there is a large gap between the lowest cost provider and the next most competitive. Under a regulated option, this would happen if there is regulatory error in estimating efficient costs. Regulators often seek to avoid this by reference to benchmarks. However, there may be few appropriate cost benchmarks for providers of SRAS.

The approach proposed by NEMMCO is an intermediate option that mainly relies on competition. However, it combines this with an obligation on how parties must set their prices in a tender and an ability to impose prices established through a cost build up rather than through the market. The steps in this process are as follows:

- NEMMCO seeks tenders from SRAS providers with a requirement that prices should be based on efficiently incurred long run incremental costs;

- if NEMMCO considers that it is unable to acquire the required amount of restart services on reasonable terms and conditions, then it will enter into good faith negotiations with selected tenderers;

- in assessing the reasonableness of the terms and conditions of conforming tenders, NEMMCO will have regard for what would be offered by an efficient producer of a substitute service on a comparable scale and technology operating in a competitive market;

- tenderers involved in good faith negotiations with NEMMCO will be required to provide information on a confidential basis to demonstrate that their price is based on an efficiently incurred long run incremental cost of providing the particular restart service;

- if NEMMCO and the tenderer are unable to reach agreement on terms and conditions it may be referred to a dispute adviser who must use best endeavours to ensure that remuneration for the service closely approximates the outcome that would be obtained in a competitive market.

This cannot be fully characterised as regulation, since prices could be set through competitive tender. However, it goes beyond the 'threat of regulation, which is usually understood as the threat of introducing regulatory powers if this should be required. Rather, NEMMCO propose to establish the regulatory power (an ability to impose efficient prices through recourse to a dispute adviser), and to have the ability to exercise that regulatory power if needed.

We note that it unclear how NEMMCO would enforce this requirement. They indicate that participants would not be able to walk away after dispute resolution was initiated. However, enforcement appears to be limited to not paying for the service. The net result may be the same as if participants walked away – that is, they will not provide the service and they will receive no revenue for the service. In practice, this may mean that enforcing the prices arising from the dispute resolution would still require voluntary agreement by both parties.

4.3 Is the market for SRAS competitive?

The decision between competition and regulation is affected by whether the market is competitive or not. Competitive models would generally be preferred where they should result in reasonable prices. Regulatory solutions – which require relatively high levels of intervention – are generally applied to natural monopolies. The cost characteristics of natural monopolies may mean that there can only be one provider, and it is not possible to set prices through competition between providers.

Our views on the likely level and intensity of competition in provision of the service are based on review of the material prepared by NEMMCO, submissions made on the proposed rule and discussions with both NEMMCO and industry. Relevant factors include:

- ***Number of potential providers –*** it appears that the number of tenderers for the SRA service is low in most sub-networks. However, we note that this does not necessarily indicate a lack of competition. It may often be clear who is the lowest cost provider, given technical characteristics of different generators in the sub-network. This might mean that other providers would be unwilling to enter the market, but may still place an effective cap on the prices offered.

- ***Barriers to entry –*** whilst the level of investment required is dependent on the type of generation plant, the costs of developing restart capacity are not prohibitive and it is technically feasible for a number of generators to develop restart capacity. It may be relatively low cost for new generation investments to include modifications to enable them to provide an SRAS service;

- ***Specification –*** the specification of the nature and number of restart services required is a significant factor in the depth of the market. For example requiring a rapid and very reliable service may lead to a very thin market;

- ***Tendering process –*** the current lead times for providing SRAS services appear to have had an adverse impact on the number of potential SRAS providers; and

- ***Contract length –*** the short contract length does not allow sufficient time for new SRAS providers to recover the cost of their investment.

It therefore appears that the market is limited, but may not be as limited as indicated by recent experience in procurement. There are also steps which could be taken to increase the depth of competition.

Although steps can be taken to improve competition, it is likely to remain the case that there are relatively few providers, that one provider may have significant cost advantages, and that the prices which emerge from a competitive procurement will include some degree of economic rent.

No information has been provided to assess the possible extent of 'over-payment'. However, we understand from discussion with NEMMCO that the cost of restart services in the current financial year will be around $13M. Informal discussions with NEMMCO suggest that they consider the cost may be inflated in some cases due to the lack of competition, and that they base this on a comparison of prices from SRAS providers drawing on similar technologies. Without wishing to introduce spurious accuracy, the possible level of transfer from electricity consumers to providers of SRAS seems to be at most a few million dollars.

We conclude that steps could be taken to improve outcomes under competitive procurement; that this is likely to leave some degree of 'over-payment'; and that there is no firm quantification of the level of over-payment, and no indication that it is likely to be sufficient to justify introduction of new regulatory or 'quasi-regulatory' powers.

4.4 Assessment of options against criteria

A high level evaluation of the two approaches against the criteria is shown in Table 2.

Table 2: Evaluation against selection criteria

	Market Approach	Regulated Approach
Static Efficiency	Should ensure that lowest cost operator supplies services	Lowest cost operator still likely to supply services. There is a possibility that the lowest cost provider would be unwilling to provide the service, due to regulatory error in calculation of efficient prices
Dynamic Efficiency	Most likely to encourage investment to reduce costs of SRAS services over time	May reduce incentives to invest, by capping returns
Allocative Efficiency	NEMMCO as a single informed purchaser of SRAS services, should be able to specify the appropriate amount of SRAS services	NEMMCO as a single informed purchaser of SRAS services, should be able to specify the appropriate amount of SRAS services
Minimise Cost to Consumers	SRAS prices will be set by the market leaving potential for accumulation of rents to suppliers	Regulation may reduce the potential for rents accumulating to suppliers, but also creates the risk of regulatory error.

It should be possible to identify the most efficient provider, and static efficiency should be achieved under either option. However, there is a risk of regulatory error in price setting. If this led the regulator to impose prices which were too low, this could lead to withdrawal by the most efficient provider, unless regulation was supported by an obligation to provide the service at the regulated price. In addition, regulation is likely to have higher transaction costs than competition.

Dynamic efficiency requires the minimisation of costs over the long term. It is likely that efficient investment could be promoted under either option. However, competitive solutions are likely to provide higher returns to investors. If there is any difference between the two options, competition is likely to perform better due to these higher returns.

Allocative efficiency requires that the correct level and quality of service is purchased, given its marginal costs and marginal benefits. A competitive solution may result in higher prices. If procurement decisions are made on the basis of prices, rather than underlying costs, this could result in under-supply of the service and a loss of allocative efficiency.

However, SRAS is not procured by multiple buyers. Rather, NEMMCO acts as the agents of consumers in the purchase of SRAS. This provides an opportunity for NEMMCO to ensure allocative efficiency, by acting as an informed purchaser of services.

A significant difference between the options is the cost to consumers:

- Under a competitive procurement, prices are likely to reflect the costs of the next best provider. If there is a large gap between the cost of different providers, this could result in prices well above efficient costs; and

- Under a regulated procurement, prices are intended to reflect the efficient costs of supply. This could reduce the cost of over-pricing.

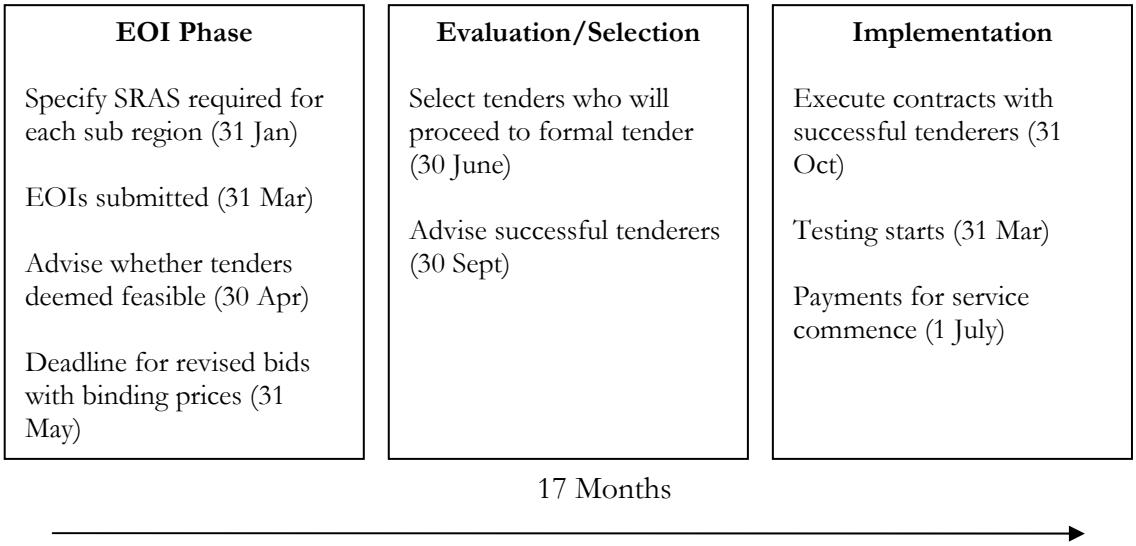
However, we note it is far easier to state the intention to set efficient prices than it is to apply it. A common approach is to (a) seek benchmarks for information on efficient costs; and (b) adjust these benchmarks for any differences in the operating environment faced by the regulated entity. It is likely that information on both will be scarce for the SRAS service.

5 NEMMCO's Proposed Approach

5.1 Outline of NEMMCO's approach

NEMMCO is proposing a competitive tender process for procuring SRAS for each sub region. A summary of the tender process and timelines is detailed in Diagram 1 below:

Diagram 1: NEMMCO's revised tender process



However, whilst NEMMCO are continuing with a competitive tender process for the procurement of SRAS services, they are also proposing to establish obligations on the prices that SRAS service providers can charge and a quasi-regulatory mechanism to enforce efficient pricing if this does not emerge from the competitive process. NEMMCO proposes[3] that to ensure reasonable terms and conditions, it will adopt the following principles for procuring SRAS services:

- NEMMCO's overarching objective in the purchase of non-market ancillary services should be the attainment of economic efficiency[4];
- The tenderer involved in good faith negotiations with NEMMCO must provide to NEMMCO (on a confidential basis) the information necessary to properly inform good faith negotiations;
- Prices should be based on efficiently incurred long run incremental costs of providing the service;

[3] " NEMMCO - Review of system restart ancillary service arrangement – Final report" (April 2004)
[4] Despite this, we note that the focus appears to be on the scale of any transfers, rather than on evidence of economic inefficiency.

- Remuneration should be sufficient (but not more than sufficient) to encourage investment in non-market ancillary services and innovation in the provision of these services;

- Remuneration for providers of non-market ancillary services should provide for a normal rate of return on capital, adjusted for risk. This return should be equal, or close to equal, to the opportunity cost of capital employed;

- NEMMCO should seek to procure the combination of services that will result in the best value for money; and

- A dispute adviser must use best endeavours to ensure that remuneration for a non-market ancillary service provider should closely approximate the outcome that would be obtained in a competitive market.

5.2 Conclusion on NEMMCO's proposed approach

NEMMCO have indicated an over-arching objective of economic efficiency. However, their key concern appears to be a distributional one – over-pricing – rather than economic efficiency. As discussed above, NEMMCO can ensure static, dynamic and allocative efficiency in their purchase of SRAS regardless of prices offered.

NEMMCO are legitimately concerned to ensure that the prices paid represent value for money. However, they have provided no conclusive evidence that prices are currently inefficient, no demonstration that the scale of any inefficiency is sufficient to justify the introduction of a cost based pricing regime, and no evidence that such an approach can be implemented effectively and will lead to better overall outcomes in the procurement of SRAS services

Whilst NEMMCO considers that it may be paying too high a price for restart services in certain situations, this does not in itself justify the adoption of a cost based pricing regime. In competitive markets, providers tend to price at opportunity cost (that is the price of the next best provider). This does not necessarily create any loss in economic efficiency. It may create some transfers between consumers and providers of services, but does not show that their magnitude is sufficient to justify a regulatory response.

In the absence of clear demonstration of large scale financial transfers from a competitive procurement, and a clear basis for concluding that a cost based pricing regime would be more effective, it appears NEMMCO have not prepared an adequate case for the introduction of cost based pricing for SRAS.

NEMMCO have also recommended a number of steps to improve the outcomes from competitive procurement. These are considered in the next section.

6 Conclusions

We consider that a market based procurement of SRAS services without a residual threat of regulation is most likely to work towards the objective of the national electricity market "to promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system".

Competitive procurement should result in SRAS being procured from the most efficient provider. Whilst this may lead to some over-pricing, an adequate case has not been made that the extent of the over-pricing is sufficient to justify the imposition of a cost based pricing requirement. Moreover, no consideration has been given to the likelihood of regulatory error when effectively regulating prices in such a small market, to the direct transaction costs of regulation and to the wider impacts of what will be in practice regulatory powers into what is otherwise a competitive market.

If the NEM continues to rely on competitive procurement of SRAS, a number of steps could be undertaken to increase the effectiveness of that procurement. These are discussed below.

6.1 Specification

The specification of the type and location of restart services to be procured will have a significant influence on number of tenderers or potential providers of restart services. Whilst there will be a preference for well located fast restart services, the purchaser of SRAS services needs to determine the quantity and type of restart services that should be procured in light of offers received.

It is desirable for the procurement of SRAS services to be determined on the basis of information from the market. NEMMCO's proposed two tiered approach to specification including primary and secondary restart services reflect this. However, we note that a number of market participants have expressed the view that the distinction between the two types of services is not practical.

6.2 Longer Procurement Process

It is apparent from discussions with industry that the current tender process has had an impact on the number of generators tendering for restart services. The short time frame of six weeks between tender and contracting for service has meant that potential providers of restart services in effect had to have the service in place at the time of tendering. NEMMCO has recognised this as a problem and under the new tendering process restart facilities are not required to be installed and commissioned at the time of tender.

The new lead time of up to 17 months between tender close and contracting for the restart service will remove a current disincentive to new providers of restart services tendering for NEMMCO contracts. Consideration should also be given to further extending the length of time between awarding a restart contract and the service becoming available to encourage new restart services.

NEMMCO could also give consideration to pro-actively securing restart services from potential providers including new power stations. This is a feature of the approach to procurement in the United Kingdom. In their procurement strategy documents National Grid state that for each application to connect to the Transmission System they assess the desirability of the new powers station to provide system restart capability and negotiate on an individual basis[5].

6.3 Longer Term Contracts

NEMMCO is also proposing a two tiered approach to contracting for restart services. For primary restart services, the contract length is to be four years with potential extension by a further two years. For secondary restart services, the proposed contract length is one year.

There may also be potential to minimise the cost of restart services by negotiating with new entrants into the generation market. Relatively small investments may enable SRAS services to be provided at low cost. As these would be specific investments, made to supply a service to only one potential purchaser, the most appropriate commercial arrangement would be a long term contract, sufficient to enable recovery of the costs of the investment.

Longer terms contracts are a feature of the approach to the procurement of SRAS in the United Kingdom market. National Grid enters into long term system restart contracts which are typically 12-15 years in duration but can also be "evergreen" contracts that exist for the lifetime of the power station.

[5] National Grid Corporation, "Balancing Principles Statement" (September 2005)