Notice of intention to declare the supply of raise contingency frequency control ancillary services by Hydro Tasmania as a declared electrical service

Issues Paper

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Office of the Tasmanian Economic Regulator
Level 5, 111 Macquarie Street, Hobart TAS 7000
GPO Box 770, Hobart TAS 7001
Phone: (03) 6233 6323 Fax (03) 6233 5666

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INVITATION TO MAKE SUBMISSIONS

The Regulator is empowered under the *Electricity Supply Industry (Price Control) Regulations 2003* to make determinations regulating the prices that may be charged by an electricity entity for the supply of a declared electrical service.

Regulation 19(2) states that:

> The Regulator, by notice published in the Gazette, may declare a good or service provided by an electricity entity to be a declared electrical service if the Regulator is of the opinion that -
>
> (a) the electricity entity has substantial market power in respect of that good or service; and
>
> (b) the promotion of competition, efficiency or the public interest requires the making of the declaration.

The Regulator must then conduct an investigation into the pricing policies of the electricity entity in respect of the declared electrical service.

The Regulator is of the opinion that Hydro Tasmania has substantial market power in the provision of raise contingency frequency control ancillary services (raise contingency FCAS) and that the promotion of competition, efficiency and the public interest requires the making of the declaration.

The Regulator proposes that the period of declaration be three years, the minimum period the Regulator considers it would take for new generation to enter the market or other supply arrangements for raise contingency FCAS to be developed, noting that Regulation 21 enables the Regulator to revoke a declaration at any time, if the Regulator is of the opinion that:

- Hydro Tasmania no longer has substantial market power in respect of the declared electrical service (eg there is prospective or actual effective competition in the market); or
- that the declaration is no longer required for the promotion of competition, efficiency or the public interest.

Regulation 19(3) requires that before making a declaration the Regulator must give written notice of the intention to make the declaration and the reasons for doing so. The Regulator must also allow submissions to be made on the proposal to declare.

The Regulator has prepared this Issues Paper providing detail of the relevant services, the circumstances that, in the Regulator's view, warrant the making of a declaration, and an assessment of how the supply of raise contingency FCAS meets the criteria under Regulation 19 for declaration.

Submissions are invited as to whether the Regulator should declare the supply of raise contingency FCAS by Hydro Tasmania as a declared electrical service.

Submissions may be made to office@economicregulator.tas.gov.au or to the Office of the Tasmanian Economic Regulator, GPO Box 770, Hobart 7001. A copy of the Issues Paper is available on the Tasmanian Economic Regulator's website: www.economicregulator.tas.gov.au.

The closing date for submissions is Friday, 21 August 2009.

Following consideration of submissions, the Regulator will decide whether to declare the service.

The contact officer for this project is Jane Hyland, Director, Office of the Tasmanian Economic Regulator. Email office@economicregulator.tas.gov.au or phone (03) 6233 6323.

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GLOSSARY OF TERMS

Term	Meaning
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AETV Power	The trading name of Aurora Energy (Tamar Valley) Pty Ltd
Aurora Energy	Aurora Energy Pty Ltd
CCGT	closed cycle gas turbine
Delayed raise contingency FCAS	five minute raise contingency FCAS
ESI Act	*Electricity Supply Industry Act 1995*
Fast raise contingency FCAS	six second raise contingency FCAS
FCAS	frequency control ancillary services
FCSPS	Frequency Control Special Protection Scheme
Hydro Tasmania	The trading name of the Hydro-Electric Corporation
Market generator	Generator registered as such under the NER
MWh	Megawatt hour
National Electricity Law	*National Electricity (South Australia) Act 1996*
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company
NEMDE	National Electricity Market Dispatch Engine
NER	National Electricity Rules
OCGT	open cycle gas turbine
Price Control Regulations	*Electricity Supply Industry (Price Control) Regulations 2003*
Regulator	Tasmanian Economic Regulator who is the regulator for the purposes of the ESI Act
Slow raise contingency FCAS	sixty second raise contingency FCAS
UFLSS	Under frequency load shedding scheme

1 INTRODUCTION

In April 2009, the Australian Energy Regulator reported significantly high prices in all three raise contingency frequency control ancillary services (FCAS) markets in Tasmania for the first three weeks of April 2009.[1] The high pricing of these services also generated complaints from some Tasmanian generators with claims that Hydro Tasmania's substantial market power in the supply of these services was negatively impacting on competition in the Tasmanian electricity generation market.

The Australian Energy Market Operator (AEMO) is responsible for controlling the frequency of the Tasmanian power system within the Tasmanian frequency operating standards. To do this, it purchases FCAS from National Electricity Market (NEM) participants in eight distinct spot markets for FCAS, which include three raise contingency FCAS spot markets. Participants must register with AEMO for each of the eight FCAS markets in which they wish to provide their services.

Raise contingency FCAS are supplied in the Tasmanian region of the NEM by registered service providers which comprise Hydro Tasmania (the only registered provider of raise contingency FCAS in Tasmania) and mainland suppliers through the frequency control facility provided by Basslink. In certain circumstances, transmission of the required raise contingency FCAS over Basslink is not possible. It must, therefore, be sourced from within the Tasmanian region, ie from Hydro Tasmania.

The costs of raise contingency FCAS in the NEM are met globally by market generators in proportion to the energy they generate during the relevant five minute dispatch interval of the market. However, where local regional requirements determine the cost of the local services, all generators in the Tasmanian region bear the costs in proportion to their output during the relevant period. Hydro Tasmania, as the sole registered provider of these services in the Tasmanian region, receives these payments.

Through high pricing of blocks of its energy, Hydro Tasmania can ensure that Basslink is importing cheaper electricity from Victoria to Tasmania. When Basslink is importing at or close to its limit, Hydro Tasmania, as the only source of raise contingency FCAS in the Tasmanian region, can (and has) bid its FCAS at such high levels that competing Tasmanian generators can be liable for FCAS costs that exceed the revenue they receive from generating electricity. These generators are therefore compelled in the short-term to curtail their generation, shut down, hedge their exposure with the sole provider and price setter, Hydro Tasmania, or seek higher prices for their energy, which will inevitably translate into higher prices paid by Tasmanian customers.

[1] Weekly market analysis reports of April 2009, published by the Australian Energy Regulator

Hydro Tasmania's ability to set raise contingency FCAS prices in the Tasmanian region at any level it so chooses and exercise control through its energy and FCAS bidding behaviour, can make it uneconomic for competitors to generate electricity and deter new entrant generators into the Tasmanian energy market.

In consideration of this matter, the Regulator has noted that the requirements and the probable costs for the provision of raise contingency FCAS will increase with the change to Tasmania's frequency operating standards by the end of 2009 and further developments in the FCAS markets. However, it is not the actual costs of delivery of the services that is at issue, but rather, it is the behaviour of Hydro Tasmania. As the dominant provider of raise contingency FCAS in the Tasmanian market, Hydro Tasmania's bidding of these services into the NEM and the impact of this behaviour on the market, raises the question as to whether regulation is required, by an independent body, of the prices at which these services are supplied.

The Regulator considers that there are compelling reasons to exercise its power under Regulation 19 of the *Electricity Supply Industry (Price Control) Regulations 2003* to 'declare' frequency control ancillary services (FCAS) as a 'declared electrical service' within the Tasmanian jurisdiction.

Regulation 19(2) of the Price Control Regulations states that:

> The Regulator, by notice published in the Gazette, may declare a good or service provided by an electricity entity to be a declared electrical service if the Regulator is of the opinion that -
>
> (a) the electricity entity has substantial market power in respect of that good or service; and
>
> (b) the promotion of competition, efficiency or the public interest requires the making of the declaration.

The Regulator considers that Hydro Tasmania has substantial market power in the provision of all three raise contingency FCAS (fast, lower and delayed) and that the promotion of competition, efficiency and the public interest requires the making of the declaration.

The Regulator, therefore, provides notice that the Regulator intends to declare the supply of raise contingency FCAS by Hydro Tasmania as a declared electrical service.

Before making a declaration, the Regulator must give written notice of the Regulator's intention to make the declaration, provide reasons for making the declaration, and invite submissions. This Issues Paper is designed to assist interested parties in making submissions on the matter.

Following consideration of submissions made in response to this Issues Paper, the Regulator will make a decision as to whether to declare raise contingency FCAS as a declared electrical service. If the Regulator declares the service, the Regulator will give notice of the investigation and, in accordance with Regulation 23, will

conduct an investigation into the pricing policies of Hydro Tasmania in respect of the service. On completion of the investigation, the Regulator will make a determination that regulates the prices that may be charged by Hydro Tasmania for its supply.

The Regulator proposes that the period of declaration be three years, noting that Regulation 21 enables the Regulator to revoke a declaration at any time, if the Regulator is of the opinion that:

- Hydro Tasmania no longer has substantial market power in respect of the declared electrical service (for example, there is prospective or actual effective competition in the market); or
- that the declaration is no longer required for the promotion of competition, efficiency or the public interest.

The Regulator intends to make a decision on the declaration of the service by no later than 25 September 2009. Should the Regulator declare the service, then the Regulator will publish the timetable for the investigation and determination of prices in a Final Decision Paper.

2 BACKGROUND

As part of Tasmania's entry into the NEM, the Australian Competition and Consumer Commission (ACCC) authorised a vesting contract between Hydro Tasmania and Aurora Energy that underpinned energy sales for non-contestable customers. The vesting arrangements included a requirement on Aurora Energy to secure between 10 and 25 per cent of its non-contestable load with a generator other than Hydro Tasmania and the remainder placed with Hydro Tasmania.[2]

These arrangements expired in 2007. Aurora Energy and Hydro Tasmania subsequently entered into replacement hedge arrangements which are still in place. In addition, Aurora Energy entered into a long-term hedge agreement with the proponent of the greenfield gas fired Tamar Valley Power Station (TVPS) which underpinned its construction and future operation. The TVPS has since been purchased by the State Government and is now operated by a wholly-owned subsidiary of the State-owned company and retailer Aurora Energy Pty Ltd.

Aurora Energy (Tamar Valley) Pty Ltd, trading as AETV Power, holds a licence to generate electricity in Tasmania. Over the past six months, AETV Power has commissioned three 40 MW FT8 Twinpac gas turbine generators and a Rolls Royce 60 MW dual fuel open cycle gas turbine (OCGT). These generators are intended to operate as peaking plant, that is, they generate at periods of high demand, which normally coincides with high prices. A 203 MW closed cycle gas turbine (CCGT) is expected to be operational by the end of September 2009 and is presently undergoing commissioning tests.

AETV Power commenced its commercial generation on 1 April 2009 with the running of its FT8 gas turbine generators. This coincided with its new hedge arrangements with Aurora Energy taking effect.

To maintain system security in the NEM, AEMO is required to procure frequency control ancillary services (FCAS) globally from the market. Market generators meet the costs of raise contingency FCAS services in proportion to their output during the relevant period. A significant proportion of the Tasmanian contingency FCAS requirements (depending on Basslink operating conditions) can only be procured for the Tasmanian region from a local provider. Hydro Tasmania is presently the only registered participant in the FCAS market that can provide raise contingency FCAS in the Tasmania region. Where the local regional FCAS requirements determine the cost of the services, the provider receives all revenue for the provision of the services from local market generators.

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[2] ACCC, *Applications for Authorisation, Tasmanian Derogations and Vesting Contract, Tasmania's NEM entry*, November 2001

On 1 April 2009, Hydro Tasmania changed its bidding strategy of energy and FCAS in the NEM. The combined effect resulted in significant costs to Tasmanian generators. The Australian Energy Regulator (AER) reported the following:[3]

> On 1 April Hydro Tasmania changed its bidding strategy to price all raise FCAS for periods of the day at $5 000/MWh (prior to that time these services were priced at $2/MWh). This continued into Thursday and Friday and led to prices for all raise contingency services at these times reaching $5 000/MWh. During the high priced FCAS periods Hydro Tasmania also offered two thirds of its capacity in the energy market at just under $5 000/MWh.

AEMO reported that[4]:

> With Basslink importing into Tasmania at its limit and local generators being either ramp rate constrained or fully dispatched, generation offered in the higher priced bands had to be dispatched in Tasmania.

Hence the spot price for energy was high, which meant that TVPS had to generate to cover its hedge contract with Aurora Energy. However, it was then exposed to high costs for its share of the FCAS raise requirements.

Hydro's bidding strategy continued in a similar manner until AETV Power secured a short-term hedge arrangement to protect it from the high FCAS prices bid by Hydro Tasmania.

Hydro's bidding strategy was highlighted in each of three AER weekly analysis reports in the period 29 March to 18 April 2009. The total costs for raise contingency services in Tasmania for each of these three weeks were reported by the AER to be around $10 million, $10 million, and $7.3 million respectively.[5] In the week immediately prior to this period, the total costs in Tasmania were $32 000 and, for the week following, $55 000.[6] (Note that during this period AEMO reported that "outcomes appear to be consistent with dispatch offers and power system conditions during the event".[7])

Those Tasmanian market generators that were generating at the time contributed to the significant FCAS costs in proportion to their output. Hydro Tasmania was able to fully recover its own proportion of the local FCAS costs through its local FCAS revenue; other generators incurred the remaining costs which would have been

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[3] AER, *Weekly Market Analysis, 29 March-4 April 2009*

[4] AEMO, *Pricing Event Reports - April 2009*

[5] AER, weekly market analysis reports, 29 March-4 April 2009, 5 April-11 April 2009, 12 April-18 April 2009

[6] AER, weekly market analysis reports, 15-21 March 2009 and 19-25 April 2009

[7] AEMO, *Pricing Event Reports - April 2009*

significant at the high prices experienced.[8] AETV Power chose to cease generating at times of high FCAS prices, as the FCAS costs exceeded the revenue it could make through generating. This delayed the commissioning of its generators.

AETV Power estimates that had it continued to generate whilst FCAS prices were high, FCAS costs of between $0.5 million to $1.0 million per day would have been incurred between 1 and 3 April 2009. Another generator affected by Hydro Tasmania's bidding strategy has indicated that Hydro Tasmania's behaviour has put its expansion plans on hold and the risk of this behaviour in the future may force its closure.

AETV Power's three FT8 and Rolls Royce gas turbines are not designed to provide large quantities of FCAS and this is typical of gas turbine peaking plant of this size. The operator of peaking plant would typically not expect to forego energy generation at peak times in the NEM to provide FCAS that has, to date, been readily available at low prices. AETV Power has indicated that its CCGT is capable of providing some ancillary services to the market. However, it will not be able to provide enough raise contingency FCAS to fully mitigate against its exposure to Hydro Tasmania's pricing of raise contingency FCAS, and may have to enter into a hedge arrangement with Hydro Tasmania to further limit its exposure.

2.1 Frequency control ancillary services

Frequency control ancillary services are required to maintain the frequency of the power system within frequency operating standards determined by the AEMC. An amount of FCAS must be purchased by AEMO in each of eight exclusive FCAS markets. These FCAS are classified as follows:

- *Regulation FCAS* are services that are employed to ensure that continual minor frequency deviations during typical load and generation variations are maintained within the normal operating band.[9]
- *Contingency FCAS* are fast, slow and delayed services used for recovering larger frequency deviations that have arisen from contingent events such as the loss of a generating unit or transmission line.
  - fast services provide a fast acting response to arrest frequency deviations within the first six seconds of a contingent event;
  - slow services provide a slower acting response to stabilise frequency deviations within 60 seconds of the event; and

[8] Note that Hydro Tasmania would not have received all FCAS revenue during the three week period as a small proportion would have been paid to mainland generators at times when FCAS was provided by Basslink.

[9] The normal operating band is the range in which frequency deviations, which occur during typical load and generation variations, are tolerated as it is not realistic to maintain a constant frequency of 50 Hz.

- delayed services provide further stability to the system by returning the frequency to the normal operating band within five minutes.

As the frequency may need to be adjusted up or down, each of these four FCAS services can be further categorised as ‘raise’ or ‘lower’ services.

Generators are compensated for being enabled to supply FCAS whether or not a contingency event occurs.

The subject of this paper is the raise contingency FCAS which are required to be available to correct the frequency in the event of a contingency event which results in a decrease in frequency.

Contingency events which may influence the requirements for contingency raise FCAS in Tasmania include tripping of the largest generating unit, a single transmission line circuit and/or Basslink. The amounts required are usually determined by the amount of power which is tripped off, the load on the power system, and the inertia of the power system.

For the purposes of this Issues Paper, the three raise contingency FCAS are denoted fast, slow and delayed raise contingency FCAS.

Contingency FCAS services in the NEM are recovered from market participants (generators or customers) on a user pays basis. The cost of raise contingency FCAS requirements are recovered from market generators in proportion to the energy they generate in the relevant five minute dispatch interval. Conversely, the costs of lower contingency FCAS services are met by market customers in proportion to their consumption in the relevant half hour trading interval.

It is the Regulator’s intention to declare all three raise contingency FCAS as declared electrical services.

2.2 Provision of contingency FCAS in Tasmania

Generally, AEMO will source the necessary FCAS from all interconnected regions in the NEM in a co-optimised manner using its NEM Dispatch Engine (NEMDE) which runs every five minutes to balance supply and demand. That is, NEMDE determines the optimal dispatch of energy and FCAS, based on the energy and FCAS bids and offers, to minimise the cost across the NEM.

An FCAS bid submitted for a raise service represents the amount of additional MWs that a registered provider can contribute to the system in the given timeframe in order to raise the frequency. Basslink is able to transfer FCAS to cater for contingency events in Tasmania at certain operational levels through its interconnection with the rest of the NEM by either increasing power transfers into the Tasmanian grid (raise services) or reducing the amounts transferred into the Tasmanian grid (lower services).

However, it is not able to transfer FCAS to cater for its own tripping and, at various times, its transfer ability is limited, in which case some or all of the FCAS requirements need to be sourced by AEMO locally within the Tasmanian region.

Hydro Tasmania is the only registered provider of all three raise contingency FCAS markets in the Tasmanian region.

2.2.1 Options for sourcing raise contingency FCAS in Tasmania

Raise contingency services are provided by technologies that can locally detect the frequency deviation and respond in a manner that corrects the frequency. These include:

- Generator governor response: where the generator governor reacts to the frequency deviation, for example, by opening a turbine steam valve of a thermal generator or increasing the flow of water for a hydro generator.
- Load shedding: where a load can be quickly disconnected from the power system.
- Rapid generation: where, to correct a low frequency, a frequency relay will detect a low frequency and correspondingly start or increase the output from a fast acting generator.

Other potential sources of raise contingency services include inductive coupling (flywheels), and battery storage systems. However, these technologies would be expensive and generally only applicable under special circumstances (such as where very small variations in frequency were absolutely necessary).

Generators in general

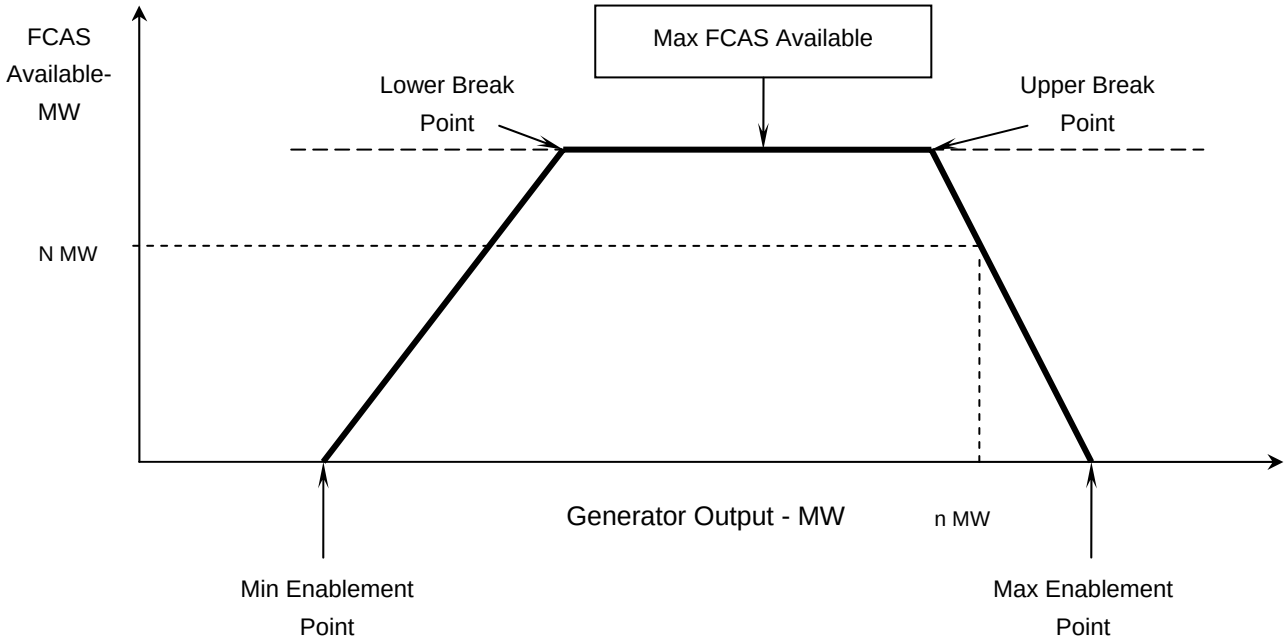
For the purpose of dispatch in the NEM, the technical capability of a generator to deliver energy and FCAS is expressed in the form of a trapezium. The generator is bound by maximum and minimum enablement points and the maximum and minimum break points between which the maximum volume of the service is assumed to be available. Dispatch of FCAS from each generator must be such that the generator remains within the relevant FCAS trapezium.

Figure 2.1 shows a generic FCAS trapezium. A market generator dispatched in the energy market at ‘n’ MW can be enabled by NEMDE to provide up to ‘N’ MW of the relevant FCAS. A generator dispatched between an enablement limit and a corresponding breakpoint can be moved in the energy market in order to obtain more FCAS. For example, if a generator were dispatched between the maximum enablement limit and the upper breakpoint, NEMDE may constrain the generator in the energy market in order to obtain more FCAS provided that this led to the lowest cost to the NEM.

In principle, for generators, the cost of providing raise contingency FCAS should approach the marginal value of energy less the marginal cost of production since

energy production is essentially forgone in order to remain available but not used, except on the rare occurrence of a contingency event.

Figure 2.1: Generic FCAS Trapezium



Hydroelectric generators

Tasmania's power system is supplied predominantly by hydro generating units. Hydroelectric generators have technical advantages over other types of generation with respect to the supply of ancillary services. The advantages include:

- fast response
- better part-load efficiency
- better controllability
- lower maintenance costs
- minimum to no startup (unit commitments) costs.

Tasmanian hydro generators are limited in their capacity to provide fast raise (and lower) contingency FCAS due to the configuration and design of their associated water conduits and turbines. However, they are more readily able to provide slow and delayed raise contingency FCAS. The availability of contingency FCAS may be increased by dispatching generators at part load additional to those required for supply of energy. Even so, with all hydro generators in Tasmania (on line and operating) at their optimum outputs, the maximum fast raise contingency FCAS which could possibly be dispatched in Tasmania is only about 200 MW. The corresponding maximum amount of slow raise FCAS would be about 1500 MW

(however, this would require all hydro units to be on line and operating at their minimum outputs which is not a likely generating regime).

The costs of provision of raise contingency FCAS from hydro-generators should be relatively low as it is normal to operate them as close as possible to their point of maximum efficiency which is normally less than their maximum capacity. Hence raise contingency FCAS can generally be provided by hydro generators without needing to forego generation.

Gas turbines

Open cycle gas turbines are generally used as peaking plant, capturing high priced energy at periods of high demand, and are not normally designed to provide large amounts of FCAS. AETV Power operates three FT8 gas turbines and a Rolls Royce OCGT. AETV Power has advised that the FCAS capability of these OCGT machines is limited. As a general observation, the few OCGTs that are registered in the NEM to provide FCAS are mainly large plant running for a large proportion of the time.

When operational, AETV Power's CCGT would be capable of providing some FCAS, but this is insufficient to cover its exposure to high FCAS prices. AETV Power has advised that for every MW of FCAS provided by the CCGT, its generation capacity would be reduced by a factor of 1.5.

Load shedding

Raise contingency FCAS services can be provided through load shedding, that is, the FCAS requirement is reduced through the shedding of load. Frequency protection relays on the power system network sense the decline of frequency and automatically initiate load shedding to preserve the operation of the network.

Local customers can register with AEMO to provide raise contingency FCAS in the NEM. However, there is a finite amount of large blocks of industrial load that can be readily shed in Tasmania and these loads are most likely already participating in load shedding schemes.

Load shedding schemes are generally employed for specific events, for example, the Frequency Control Special Protection Scheme (refer section 2.2.2) which activates on a Basslink trip and the Under Frequency Load Shedding Scheme (UFLSS).

Tasmania's UFLSS is an emergency control system that automatically trips blocks of system load to recover from low frequency conditions that accompany multiple supply contingencies such as a series of generator trips or if the FCSPS fails. As at December 2008, the Tasmanian UFLSS comprised seven blocks of industrial load, that is, 60 per cent of Tasmania's load.[10] A load can participate in multiple load

[10] AEMC Reliability Panel, *Tasmanian Frequency Operating Standard Review, Final Report*, December 2008

shedding schemes as long at the need to initiate both schemes simultaneously is not considered to be a credible event.

Shedding blocks of major industrial load in these schemes is a less than optimal solution from Tasmania's economic perspective, as being tripped results in loss of production. Therefore, participation in the FCAS market as well as participating in load shedding schemes may not be attractive to Tasmanian loads.

No Tasmanian loads are, or have been, registered participants in any raise FCAS markets to date.

2.2.2 Operation of Basslink

Transfer of FCAS

The Basslink frequency controller provides fast correction for frequency changes on both the mainland and in Tasmania by changing its power flow and is therefore able to transfer FCAS up to Basslink's bid availability.

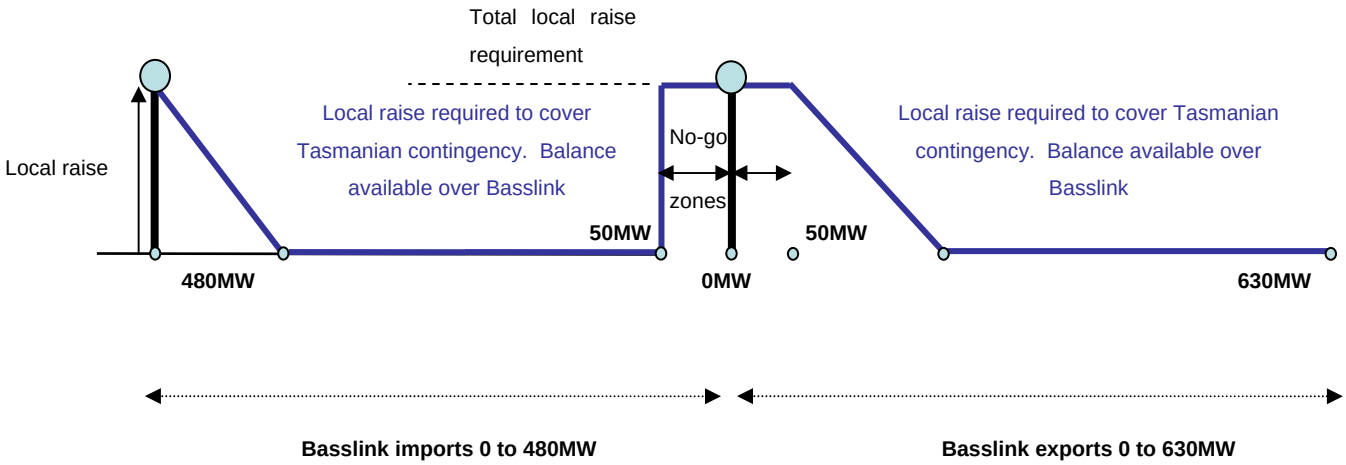
However, there are restrictions on what can be provided via Basslink depending on the margins between Basslink flows and Basslink limits (usually maximum export of 600 MW and maximum import of 480 MW[11]), and a no-go zone (± 50 MW) in which Basslink is unable to transfer FCAS.

When Basslink is at or close to its rated import capacity or its no-go zones, or in the event that Basslink is out of service, the local requirement for raise contingency FCAS to cater for a local contingency event (ie generator or transmission line trip) must be supplied from local generators.

These constraints, in terms of the amount of raise FCAS which must be generated locally to cater for local contingencies, are shown in Figure 2.2 below.

[11] Basslink does not operate at its maximum physical import of 480 MW. In practice its import is limited by the amount of interruptible load in the Frequency Control Special Protection Scheme (FCSPS).

Figure 2.2 Local contingency FCAS requirements for Tasmania



Note that local raise contingency FCAS are required to ensure that the frequency standards are maintained when Basslink changes from export to import.

Basslink Frequency Control Special Protection Scheme

With Basslink, the size of the largest contingency events which could occur in Tasmania increased with the possibility of Basslink tripping on export (600 MW) or import (300 MW[12]).

As it would not have been possible for such contingency events to be accommodated in a power system the size of Tasmania using the FCAS services normally available, Basslink was provided with a Frequency Control Special Protection Scheme (FCSPS).

The Basslink FCSPS operates automatically in response to a Basslink trip and initiates load or generator shedding, depending on the Tasmanian load demand and Basslink import or export.

In the event of a trip of Basslink when importing to Tasmania, the FCSPS automatically and dynamically sheds the required amounts of load. Certain large customers are paid by Hydro Tasmania for making their load available for interruption. The more load that Hydro Tasmania can contract for the FCSPS, the larger the Basslink import that can be accommodated, up to its physical limit of 480 MW.

[12] Basslink is physically capable of 480 MW flows on import. Total contracted load for the FCSPS is of the order of 300 MW.

The FCSPS has the effect of reducing the contingency FCAS requirement in the event of a Basslink trip to one that can be managed locally by the dispatch of local FCAS.

However, the raise contingency FCAS requirement to cater for a Basslink trip on import must be sourced locally and cannot be transferred over Basslink.

If the FCSPS is unavailable or if some of the contracted load is not available for shedding by the FCSPS, the raise contingency FCAS requirement which must be sourced locally is increased significantly and/or the import capability of Basslink is constrained.

2.2.3 Amount of raise contingency FCAS required

Local Generator Event

The key determinants for the total amount of raise contingency FCAS required are the size of the largest contingency event, the demand and the power system inertia. Hence, the amount will vary with the system load and generation and other operating conditions in Tasmania.

The approximate requirements for fast raise contingency FCAS to cater for a local generator[13] contingency event are shown in Table 2.1 as a function of the Tasmanian load, and correspond roughly to the values that would be expected if there were no transfer across Basslink. These values are based on a typical generation pattern, as the amount and type of generation on line at any time will determine power system inertia which is a key determinant of the amount of FCAS required.

When Basslink is importing, or if wind generation forms a significant portion of the generation mix, the power system inertia in Tasmania will be less, hence the FCAS requirement greater.

[13] Corresponding to a trip of 144 MW of generation - Hydro Tasmania's John Butters and Gordon power stations each operate 144 MW generating units.

Table 2.1 Raise contingency FCAS to cater for a local generator event

Tasmanian load (MW)	Fast raise FCAS (MW)	Slow Raise FCAS (MW)
900	93	117
1000	88	109
1400	67	84
1800	48	60

Source: NEMMCO advice of 8 August 2008 for the AEMC Reliability Panel Tasmanian Frequency Operating Standard Draft Report

Raise contingency FCAS must be dispatched to cater for local events such as generator trips. However, the contingency FCAS needed to meet these requirements can be dispatched in either Tasmania or the mainland, depending on the ability of Basslink to transfer these contingency FCAS as described in section 2.2.2.

Basslink Event

Typical values for raise FCAS to cater for a Basslink trip on import are shown in Table 2.2. These values are essentially independent of import over Basslink due to the operation of the FCSPS.

As indicated in section 2.2.2 above, when Basslink is importing, the raise contingency FCAS requirement to cater for a Basslink trip on import must be sourced locally and cannot be transferred over Basslink.

Table 2.2 Raise contingency FCAS to cater for a Basslink trip

Tasmanian load (MW)	Fast raise FCAS (MW)	Slow Raise FCAS (MW)
900	16	64
1000	19	73
1400	33	107
1800	47	142

Source: NEMMCO, *Basslink Energy and FCAS Equations, Version No 2.0, Final*

Summary

In summary, the raise contingency FCAS requirements to cater for the loss of the largest generator are typically 48 to 93 MW for fast raise and 60 to 117 MW for slow raise. These requirements can be dispatched in Tasmania or the mainland subject to the constraints on the transfer of the relevant services over Basslink.

However, the raise contingency FCAS requirements to cater for Basslink tripping on import, are typically 16 to 47 MW for fast raise and 64 to 142 MW for slow raise depending on the system load. Furthermore, these requirements must be sourced locally, although any additional raise contingency FCAS to cater for local

contingency events (such as loss of the largest generator) can be transferred from the mainland subject to any constraints on the transfer of the relevant services over Basslink.

The local raise requirement is provided by Hydro Tasmania as the only registered provider of FCAS in Tasmania.

2.3 Tasmanian frequency operating standards

AEMO is responsible for managing the frequency of the electricity power system to meet the requirements of the applicable frequency operating standards. These standards define the range of allowable frequencies under different conditions, including the normal operation of the power system and in the event of various contingencies.

AEMO is responsible for procuring sufficient ancillary services to maintain the frequency within the ranges defined by the frequency operating standards.

The frequency operating standards for Tasmania are determined by the AEMC Reliability Panel and, to date, have not been as tight as that which applies in the NEM on the mainland. The significantly wider standards recognise that a large proportion of installed hydroelectric generators are unable to change their output rapidly and relatively large fluctuations in power can occur in Tasmania (compared to that of the mainland) from the operations of large industrial users, generator trips, transmission line trips and power transfers over Basslink.

This has meant that some higher efficiency thermal generating generators, such as large industrial CCGTs or co-generation steam turbines cannot meet the NER minimum access standards in terms of frequency ride-through in Tasmania and, therefore, cannot connect to the Tasmanian network.[14] This has been a significant barrier to entry into the Tasmanian region for these types of generating units.

In December 2008, the AEMC Reliability Panel completed a review of the Tasmanian frequency operating standards.[15] In that review, it weighed up the costs and benefits of tightening the standards. Identified benefits included greater diversity of generating technologies that can be connected to the Tasmanian power system to mitigate material risks[16] to the security of the electricity supply in Tasmania, and facilitation of competition in the Tasmanian wholesale electricity market.

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[14] These generating units generally must trip for frequencies below around 47 Hz. The present Tasmanian frequency operating standards allow frequencies down to 46 Hz under extreme system conditions.

[15] AEMC Reliability Panel, *Tasmanian Frequency Operating Standard Review, Final Report*, December 2008

[16] Material risks cited include higher than expected load growth, continued low hydro inflows, a prolonged outage of Basslink, or loss of the ageing Bell Bay generating units.

The AEMC Reliability Panel concluded in its final report of the review that marginally greater net benefits would be delivered through tighter frequency operating standards in Tasmania provided that there was a limit on the contingency size 144 MW (ie the existing maximum generator contingency in Tasmania). Without a contingency limit, the increased cost of fast raise contingency FCAS would be significant.[17]

The AEMC Reliability Panel's decision of 18 December 2008 was:

> … expected to lead to reduced electricity costs in Tasmania in the long-run by allowing more higher efficiency generating units to connect without imposing materially higher FCAS costs and significantly impacting wind farm penetration, provided the size of the largest generator contingency is limited.

The effect of the AEMC Reliability Panel's decision is that a wider range of new technologies can connect to the Tasmanian power system. However, where a generator's capacity is greater than 144 MW (as in the case of AETV Power's 203 MW CCGT), then to operate up to its full capacity it will need to implement an arrangement similar to the Basslink FCSPS (refer section 2.2.2) such that contracted load will automatically trip to limit the size of the resulting contingency to no more than 144 MW.

Note that a load can be contracted to operate on multiple schemes as long as the need to initiate both schemes simultaneously is not deemed to be a credible contingency.

2.4 Charging for raise contingency FCAS

Raise contingency FCAS services in the NEM are procured by AEMO from the market and the costs are recovered from generators. As raise contingency FCAS requirements are mostly set to manage the loss of a generator on the system, all payments for these three services (fast, slow and delayed) are recovered from generators in proportion to the energy they generate in the relevant five minute dispatch interval. Each generator, therefore, is liable to pay the market price for the three raise contingency services whenever it generates.

Generators are paid for being enabled whether or not a contingency event occurs. AEMO determines the raise contingency FCAS requirements for each region based on demand and available supply in real time and co-optimises between the FCAS and energy markets to minimise the total cost of energy and FCAS to the NEM. As a consequence, counter-price flows for energy will sometimes occur.

Costs for contingency FCAS are allocated to the region, rather than globally, where local regional requirements determine the costs of the local FCAS. Under this

[17] A tighter band requires more FCAS to limit the frequency deviation for a given contingency event.

arrangement, market generators in Tasmania are exposed to higher charges for raise contingency FCAS services than generators in the rest of the NEM:

- when the local FCAS requirement cannot be met by import of such services over Basslink; or
- where the local requirement is determined by the residual requirements to cater for a trip of Basslink;

and the price offered for the local services exceeds the price in the remainder of the market.

There are generally few options in the NEM for hedging financial risks associated with the outcomes of FCAS markets; one reason being the general difficulty in finding a natural counterparty. However, in the Tasmanian region, there is such a counterparty in Hydro Tasmania.

2.5 Prospective regulatory changes

2.5.1 Changes to FCAS requirements under new Tasmanian frequency operating standards

The present frequency operating standards do not differ from those in place immediately before Tasmania's entry into the NEM. At a light system load of 900 MW, with a maximum generator contingency size of 144 MW, the typical fast raise contingency FCAS requirement under the existing frequency operating standards is 93 MW.[18] However, under new tightened standards[19], again with a 144 MW contingency, that requirement will increase to 126 MW. Note that:

> The FCAS requirements at higher loads are less dramatic and reduce as the system inertia increases, while the FCAS availability increases with the generally higher levels of generation running.[20]

It is acknowledged that the increased FCAS requirement will come at additional cost.

2.5.2 Cost impact of changes to the Tasmanian frequency operating standards

The AEMC Reliability Panel determined new Tasmanian frequency operating standards in December 2008. These will take effect when a number of implementation issues are addressed. These are expected to be completed by the

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[18] NEMMCO advice of 8 August 2008 for the AEMC Reliability Panel Tasmanian Frequency Operating Standard Draft Report

[19] The new frequency standard will take effect when all pre-conditions are met or by 31 December 2009

[20] AEMC Reliability Panel, *Tasmanian Frequency Operating Standard Review, Final Report*, December 2008, p.26

end of September 2009. In the final report of its review of the standards, the AEMC Reliability Panel acknowledged that the changes to the Tasmanian frequency operating standards will result in a small increase in the FCAS requirements, particularly for raise contingency FCAS as shown in the light load example above.

Hydro Tasmania has indicated that the provision of the additional fast raise FCAS services required under the new standards would cost it $3.5 million per annum to provide.[21]

The AEMC Reliability Panel also acknowledged that in tightening the standards, many of the benefits would accrue to the new higher efficiency generating unit, whilst the costs of increased FCAS would be recovered from all generators. The AEMC Reliability Panel put forward two alternative cost recovery mechanisms that could be explored; both options being for a form of "runway pricing" where the costs of the additional FCAS required to meet the tighter frequency operating standards would be ultimately met by the new generator.

2.5.3 Proposed change to the National Electricity Rules for ancillary services payments

On 29 January 2009, Hydro Tasmania lodged a proposal with the AEMC for a change to the NER to "implement causer pays for ancillary services in Tasmania". In that proposal, Hydro Tasmania is seeking to give effect to the alternative cost recovery mechanism raised in the AEMC Reliability Panel's review report (refer section 2.5.2). That is, that the costs of additional FCAS required to meet the new tighter Tasmanian frequency operating standards, be recovered from local generators registered with AEMO after 18 December 2008 that could not meet the existing Tasmanian frequency operating standards.

Were this Rule change to be given effect, AETV Power would, in effect, pay for the incremental FCAS costs associated with the additional FCAS required under the new standards and result in a lesser cost for other Tasmanian market generators.

The AEMC has advised that the making of its draft determination on this proposed rule change has been deferred to 13 August 2009 "in order to allow time to properly consider new and complex issues relevant to the Rule change proposal."[22]

Irrespective of this Rule change, the existing market generators would continue to pay the FCAS prices bid by Hydro Tasmania while it remains the sole supplier of FCAS, with the additional FCAS being supplied by more expensive means.

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[21] Hydro Tasmania submission of 20 March 2009 to the AEMC's consultation on the Rule change proposal: *Causer pays for ancillary services to control the Tasmanian frequency*

[22] AEMC, Notice under National Electricity Law, 21 May 2009

2.5.4 System inertia

System inertia will become an issue in the future particularly with the growth of wind generation in the generation mix in Tasmania driven by government climate change policies. Inertia has the effect of arresting the rate of frequency changes and assists recovery from transient events. As system inertia falls, the fast FCAS requirement increases exponentially. An increasing proportion of low or zero inertia forms of generation, such as solar and wind power, and imports across Basslink, lead to the displacement of high inertia generation. Fast raise contingency services may not be fast enough to meet the frequency operating standards.

On 21 May 2009, AEMO changed the way it calculates Tasmanian FCAS requirements such that the inertia of the largest generator is now taken into account in calculating the contingency FCAS requirements for a local generation event.[23]

2.6 FCAS pricing history

2.6.1 Pre-NEM entry

Prior to NEM entry on 29 May 2005, all ancillary services were procured by Transend Networks, as System Controller, from Hydro Tasmania. The total costs for contingency FCAS (raise and lower) in the 11 month period leading up to NEM entry were $715 000 for fast and slow contingency FCAS and $905 000 for delayed contingency FCAS – a total of $1.72 million. The System Controller's costs were allocated to the causer of the need for ancillary services, or where no clear 'causer' was identified, to those who benefited from the service.

Table 2.3 shows the total costs for the procurement of contingency FCAS (both raise and lower contingency FCAS).

Table 2.3: Raise and lower contingency FCAS costs prior to NEM entry

	2001-02 $m	2002-03 $m	2003-04 $m	2004-05[1] $m
Fast and slow	0.835	0.819	0.877	0.715
Delayed	0.927	0.908	0.973	0.905
Total FCAS costs	**1.762**	**1.727**	**1.850**	**1.720**

Note 1: 2004-05 covers only the 11-month period leading up to NEM Entry on 29 May 2005.

2.6.2 Post NEM entry

Since Tasmania's entry into the NEM, FCAS has been procured by AEMO from the market. The frequency operating standards operating in Tasmania remained unchanged from that which applied prior to NEM entry hence the raise contingency

[23] NEMMCO, *Communication No 3379 – Changes to Tasmanian FCAS requirements including inertia and demand impacts*, 18 May 2009

FCAS requirements in the Tasmanian region for a 144 MW generator contingency remained materially unchanged. Under certain circumstances, FCAS can be imported from the mainland, where FCAS tends to be priced at a lower level, to Tasmania. However, residual FCAS, to cater for a Basslink trip, must be procured by AEMO from local sources at prices set by the sole FCAS provider, Hydro Tasmania.

Table 2.4 shows the raise contingency FCAS costs and total FCAS costs in Tasmania since NEM entry. Note that some services are sourced globally by AEMO but a high proportion is paid to Hydro Tasmania – a significant increase on the revenue Hydro Tasmania received prior to NEM entry.

Table 2.4 Raise contingency and total FCAS costs since Tasmania's entry into the NEM

	2005-06 $m	2006-07 $m	2007-08 $m	2008-09 $m
Fast	4.45	2.13	3.62	6.95
Slow	0.4	0.6	0.99	15.46
Delayed	0.94	1.73	3.24	15.94
Total raise contingency FCAS costs	**5.79**	**4.45**	**7.85**	**38.35**
Total FCAS costs	**13.57**	**10.18**	**11.83**	**45.68**

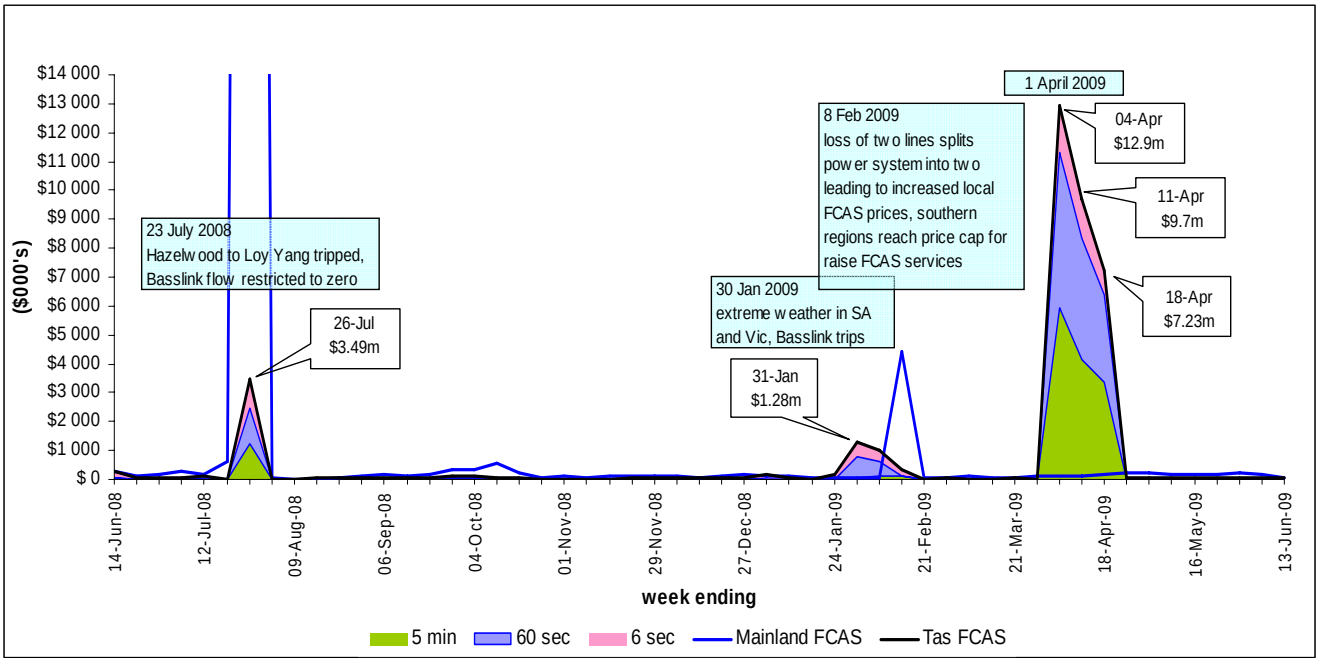
Figure 2.3 below illustrates the total raise contingency FCAS costs paid per week by mainland NEM generators and those paid by Tasmanian market generators from 14 June 2008 to 13 June 2009.

As can be seen, prices are generally low under typical operating conditions and increase significantly as a consequence of events that require sourcing of local FCAS at dramatically increased prices. Two price spikes occurred in Tasmania when Basslink was constrained (or tripped) due to significant events requiring the dispatch of high priced local FCAS in Tasmania.

The significant weekly costs in early April have not been attributed to such an event, rather they reflect the outcomes of Hydro Tasmania's bidding strategy.

The average weekly cost of raise contingency FCAS in Tasmania for the year to 28 March 2009 was $170 445. The average weekly raise contingency FCAS price since NEM entry, and prior to 1 April 2009, was less than $20/MWh for 95 per cent of the time and never exceeded $50/MWh.

Figure 2.3: Weekly raise contingency FCAS costs - mainland and Tasmania



2.6.3 Post 1 April 2009

FCAS prices for all three raise contingency ancillary services reached $5 000/MWh for 12.5 hours in total in the first three days of April. This increase was attributed by the Australian Energy Regulator (AER) to a change in Hydro Tasmania's bidding strategy, whereby Hydro Tasmania bid all of its raise contingency services at $5 000 during these times.[24]

The AER reported that during these high priced FCAS periods, Hydro Tasmania also offered two-thirds of its capacity in the energy market at just under $5 000/MWh. As the only market participant registered to provide FCAS in Tasmania, Hydro Tasmania received all revenue for Tasmanian FCAS from the generators generating at the time.[25] Note that had the price for these services exceeded $5 000/MWh, the AER would have been required under the National Electricity Rules (NER) to investigate and report on the circumstances giving rise to such high prices.[26]

The total cost of FCAS in Tasmania for the week (29 March to 4 April 2009) was reported by the AER to be $13 million comprising almost entirely the cost of raise contingency FCAS. FCAS payments made by Hydro Tasmania amounted to $10 million (noting that Hydro Tasmania receives all revenue for Tasmanian FCAS and is therefore immune from price fluctuations); AETV Power paid $330 000 (but

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[24] AER, *Weekly market analysis 29 March-4 April 2009*

[25] Generators included Roaring 40s and AETV Power

[26] Clause 3.13.7 (e) of the NER

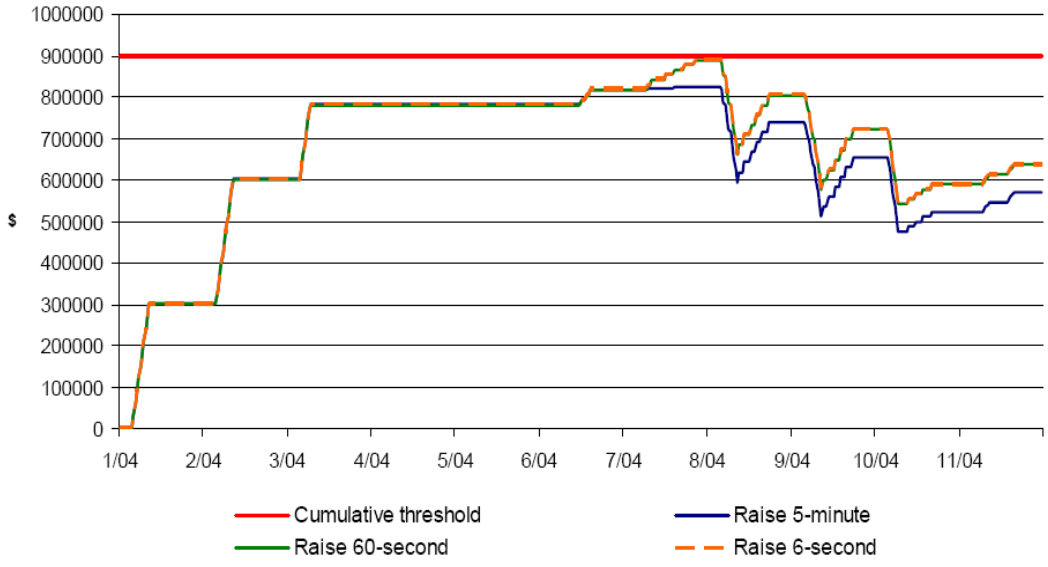
received only $200 000 from the spot market for generation output from the station). Other market generators, including Roaring 40s wind farm, were also exposed to these high costs as they were generating at the time.

The total cost of FCAS for that week of $13 million in Tasmania was the same as the turnover in the energy market. The total cost of FCAS on the mainland for the same period was $176 000, less than one per cent of turnover in the energy market.

The following week, 5 April to 11 April 2009, FCAS prices were again high for raise contingency FCAS in Tasmania with around $10 million paid for these services. Again this was attributed by the AER to the continuation of Hydro Tasmania's bidding strategy that began on 1 April.

During the week, the cumulative price for fast raise contingency FCAS and slow raise contingency FCAS reached $890 000, as illustrated in Figure 2.4. Had the cumulative price of an ancillary service exceeded $900 000, administered pricing would have been invoked under the NER, resulting in an ancillary service price cap of $300/MWh. Such price caps are designed to protect and sustain electricity trading during periods of sustained high prices and are invoked if "market prices rise to levels which are likely to cause substantial financial stress".[27] An administered price cap has never been invoked in the NEM for ancillary services.

Figure 2.4 Cumulative price of raise contingency FCAS 5 April 2009 to 11 April 2009



Source: Weekly market analysis 5-11 April 2009, Australian Energy Regulator

The AER again reported high FCAS prices in the week 12 April to 18 April 2009 due to the continuation of Hydro Tasmania's bidding strategy for raise contingency FCAS. Raise contingency FCAS costs amounted to $7.3 million with FCAS prices

[27] AEMO, *Briefing paper: operation of the administered price provisions in the National Electricity Market*, February 2009

reaching $1 000/MWh or more from Sunday 12 April to 16 April 2009. The AER reported a change in bidding strategy from 4.00 am on 17 April (the start of the trading day) with FCAS prices returning to pre-April levels.[28]

The average weekly price for raise contingency FCAS during the three week period was $311/MWh.

Note that AEMO reported in its Pricing Event Reports for April 2009 that "outcomes appear to be consistent with dispatch offers and power system conditions during the event".

The average weekly cost of raise contingency FCAS in Tasmania for the period 19 April 2009 to 27 June 2009 fell to $53 452, significantly less than the $9 million weekly average for the first weeks of April.

2.7 Events of early April 2009

On 1 April 2009, AETV Power commenced commercial generation with the running of its FT8 gas turbine generators. This coincided with its new hedge arrangements with Aurora Energy taking effect.

For 12 and a half hours in total on 1 to 3 April 2009, Hydro Tasmania priced all its raise contingency FCAS at $5 000/MWh. During these high priced periods, Hydro Tasmania offered two thirds of its energy capacity in the energy market at $5000/MWh. As Basslink was importing at its maximum[29], all raise contingency FCAS requirements had to be sourced in the Tasmanian region. This bidding strategy had the effect of exposing AETV Power to high energy pool costs if it did not generate and high FCAS costs if it did. All generators generating at the time, contributed to the significant local FCAS costs which were paid to Hydro Tasmania.

AETV Power was compelled to withdraw from the market as its FCAS costs exceeded the revenue it could receive from generating. Other generators that continued to operate, or third parties in power purchase agreements with Tasmanian generators, found themselves liable for significant and unexpected FCAS costs.

Hydro Tasmania's bidding strategy continued until 17 April 2009, when AETV Power secured a short-term hedge arrangement for raise contingency FCAS to protect itself from high raise contingency FCAS prices and allow it to continue to conduct its commissioning tests.

From 17 April 2009, raise contingency FCAS prices returned to pre-April levels and have remained there since. The actions of other generators to limit their exposure are unknown.

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[28] AER, *Weekly market analysis, 19 April-25 April 2009*

[29] AEMO, *Pricing Event Reports – April 2009*

3 DECLARATION OF SERVICES

Regulation 19 of the Price Control Regulations provides the Regulator with the power to declare a good or service provided by an electricity entity to be a declared electrical service if the Regulator is of the opinion that –

(a) The electricity entity has substantial market power in respect of that good or service; and

(b) The promotion of competition, efficiency or the public interest requires the making of that declaration.

Where an entity has substantial market power in the relevant market, it has the ability to charge higher prices, and/or provide a lower level of quality for the good or service than would be provided by a competitive market. Without the discipline of competition or regulation, a misallocation of resources may result since prices no longer reflect the underlying economic efficient costs. In these circumstances, economic regulation may be applied to promote efficiency, to protect the public interest and promote competition in upstream and downstream markets.

Under Regulation 19, the possession of substantial market power is of itself insufficient to justify the declaration of a service. Both limbs (a) and (b) of Regulation 19 must be satisfied, that is, declaration is only warranted if it can be demonstrated that the promotion of competition, efficiency or the public interest also requires the making of the declaration.

The following provides guidance on how the Regulator has applied the test to raise contingency frequency control ancillary services.

3.1 Substantial market power

Markets are the primary and preferred mechanism for the provision of goods and services. The objectives of regulation include the prevention or limit of the abuse of market power. Substantial market power needs to be considered from the perspective of consumers and of actual or potential market competitors.

The courts have often looked to market share to determine the degree of market power. However, a large market share does not necessarily mean that there is a substantial degree of market power. The ease with which competitors are able to enter the market needs also to be considered.

This was expressed in *Eastern Express Pty Ltd v General Newspapers Pty Ltd (1992)*[30] where it was stated that:

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[30] *Eastern Express Pty Ltd v General Newspapers Pty Ltd (1992)* 35 FCR 43, per Lockhart and Gummow JJ.

> Market power is concerned with power which enables a corporation to behave independently of competition and of competitive forces in a relevant market.
>
> The primary consideration in determining market power must be taken to be whether there are barriers to entry into the relevant market…. To what extent is it rational or possible for new entrants to enter the market?

The word 'substantial' imports a 'greater rather than less' degree of power.

In *Dowling v Dalgety Australia Ltd (1992)*[31] the following major factors were taken into account in identifying market power:

- the ability of a firm to raise prices above the supply cost (the minimum cost an efficient firm would incur in producing the good) without rivals taking away customers in due time;
- the extent to which the firm's conduct in the market is constrained by that of competitors or potential competitors;
- the market share of the firm, although this alone is not generally determinative of market power;
- the existence of vertical integration, although this alone is not generally determinative of market power; and
- the extent to which it is rational or possible for new entrants to enter the market – ie the extent of barriers to entry.

In summary, substantial market power will be said to exist when:

- there is ineffective or no competition such that the entity can raise prices or lower service standards without detriment to its business; and
- the existence of actual competitors or potential competitors does not work to reduce prices to levels that reflect their economic cost or improve services to meet customer value expectations.

To be able to demonstrate the existence of (or lack of) market power and the existence or otherwise of effective competition, the relevant market must also be defined.[32] The definition of the market is important, as too narrow a definition of market may result in an appearance of more market power than actually exists, too broad a definition may create the appearance of less market power than actually exists. Important factors in defining a relevant market include the geographical boundary within which the alternative services are available and the period of time necessary for an effective competitor to enter the market.

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[31] *Dowling v Dalgety Australia Ltd (1992)* 34 FCR 109, per Lockhart J.

[32] *Queensland Wire Industries Pty Ltd v Broken Hill Pty Co Ltd (1989)* 167 CLR 177

Issues

Hydro Tasmania is the sole registered provider of raise contingency FCAS in the Tasmanian region. When Basslink is not importing at or close to its limits or within its "no-go" zone, Hydro Tasmania is competing globally with other generators on the mainland for the provision of FCAS. However, when Basslink is importing at its limits, switching between import and export, or has tripped, all raise contingency FCAS services are provided by Hydro Tasmania. Moreover when Basslink is importing, the local raise contingency FCAS requirements to cater for a Basslink trip must be provided locally by Hydro Tasmania. In the absence of competitive forces, Hydro Tasmania can, therefore, price its services in Tasmania as it sees fit.

Prior to 1 April 2009, Hydro Tasmania had no significant on-island competition in the energy market besides Roaring 40s and Bell Bay Power (both wholly-owned subsidiaries of Hydro Tasmania). Bell Bay Power and Hydro Tasmania were the only registered providers of raise contingency FCAS. In those circumstances where raise contingency FCAS were required to be dispatched locally, Hydro Tasmania and Bell Bay Power received the revenue, and Hydro Tasmania, Bell Bay Power, Roaring 40s and other entities that deliver power to the NEM paid for those services.

On 1 April 2009, AETV Power commenced its commercial generation with the running of its FT8 gas turbine generators. This coincided with its new hedge arrangements with Aurora Energy taking effect.

At times of high energy prices, AETV Power is compelled to generate to limit its exposure to high energy pool costs. However, from 1 April 2009, Hydro Tasmania's bidding of energy and FCAS at significantly high prices resulted in AETV Power paying more for FCAS than it could make from energy sales. Although this behaviour is not contrary to the NER, it illustrates the exercise of market power as Hydro Tasmania was able to significantly increase prices for raise contingency FCAS without detriment to its own business, while its competitors were unable to take any action within the market to affect this outcome.

This is further illustrated in AETV Power being compelled to secure a short-term hedge arrangement to limit its exposure to high FCAS prices, and Hydro's subsequent cessation of the high pricing of FCAS.

As noted earlier, a firm can be said to have market power where it is not rational or possible for new entrants to participate in the market. The Regulator must, therefore, consider whether it is possible, and rational, for market participants to enter the market and provide raise contingency FCAS.

Wind generators are unable to supply raise contingency FCAS services. Whilst gas peaking plant in theory can provide raise contingency FCAS services, there is not a 1:1 linear relationship between the reduction in generation capacity and the provision of raise FCAS. This suggests that it is not a rational decision for AETV Power, or new entrant gas generator, or wind generator to make a large investment in the provision of raise FCAS. Therefore, in the current market environment, it appears unlikely that a current or potential new entrant to the Tasmanian generation sector would be willing, or physically able, to offer raise contingency FCAS services

to an extent that would eliminate Hydro Tasmania's market power in the provision of these services.

In addition, the existence of actual or potentially high priced raise contingency FCAS may be a deterrent to any new generator entering the market. Significant costs incurred in setting up to provide FCAS or to modify generators to produce it in sufficient quantities to limit or reduce its exposure may result in either potential owners not being willing to enter the market, or only being willing to enter at a significant discount against construction costs.

As discussed in section 2.2.1, Tasmanian loads can provide raise contingency FCAS through load interruptability. However, the prices ordinarily paid for FCAS provide little incentive to do so.

Taking into account these factors, the Regulator has concluded that Hydro Tasmania has significant market power in the provision of raise contingency FCAS services in Tasmania.

3.2 Promotion of competition, efficiency or the public interest

The second limb of Regulation 19 involves three elements. The use of the word 'or' suggests that only one of these elements needs to be satisfied for the purpose of the test. Therefore, for simplicity each element is considered separately in the following discussion.

3.2.1 Promotion of competition

The regulation of maximum prices in a given market may not of itself promote competition in that market, but it can assist with promotion of competition in the upstream or complementary goods or service markets by providing economically efficient prices for access to its services by all participants. For example, coupled with regulations that constrain discriminatory behaviour, the setting of maximum prices for network services ensures that all generators, existing or potential, can connect to the network and dispatch energy into the system at fair and reasonable prices. This is of course not to say that it will guarantee competition, but rather that it may prevent an inequitable barrier to competition in downstream markets.

Consumers need to be assured that they are paying economically efficient prices for all electrical services to assist them in maintaining economically efficient prices themselves in the global market.

As discussed above, the existence of high priced raise contingency FCAS can make it uneconomic for a generator to run if it is not able to supply sufficient FCAS for its own needs. Further, no generator is likely to want to enter the Tasmanian market unless it can be assured that there is some constraint on the behaviour of the dominant generator and sole registered provider of FCAS that would limit new entrants' exposure. The Regulator considers that regulation of the price for raise contingency FCAS would provide sufficient assurance to new generators that they are paying economically efficient prices for these services, which may lead to

increased competition in the energy market, ie it would promote competition in the complementary energy market. With new entrant generators, it may also lead, in the longer term, to competition in the Tasmanian FCAS market. Competition in both the energy and FCAS markets should result in economically efficient prices in these markets, promoting competition in downstream markets as well.

3.2.2 Promotion of efficiency

In a competitive market, efficiency is promoted through the allocation of resources to the lowest cost/highest value good or service and maximises the overall value to society of the value of goods and services produced – ie competitive markets drive productive, allocative and dynamic efficiency.

Where the price of a good or service exceeds the true economic cost of producing those services, then resources will not be efficiently allocated, either within the industry or in downstream markets. It is apparent that the prices charged for raise contingency FCAS by Hydro Tasmania from 1 April to 17 April 2009 do not reflect the economic cost of producing those services. Since NEM entry on 29 May 2005 and up to 28 March 2009, the average weekly raise contingency FCAS prices have been less than $20/MWh for 95 per cent of the time and have never exceeded $50/MWh. In the period 29 March 2009 to 18 April 2009, the average weekly price was $311/MWh.

Regulation, for example, through the setting of maximum prices to levels commensurate with their economic costs can therefore promote efficiency, both within the industry and in downstream markets.

However, in setting maximum prices the Regulator would need to be cognisant of the following factors;

- the imposition of regulated price caps preventing competitive outcomes, eg by setting maximum prices below sustainable levels, such that competition would not emerge;
- the imposition of regulated prices leading to a misallocation of resources, eg through regulatory risk impacting on investment decisions;
- distortion/misallocation of resources, ie allocative efficiency may not be maximised, both within the entity (eg distortion of investment decisions), in downstream markets and across the economy. This could arise if maximum prices are set either too low or too high, or if the regulatory framework itself is flawed and creates incentives that may bias business decisions;
- stifling of innovation in the industry, thus dynamic efficiency may not be maximised; and
- distortions in the allocation of costs/prices between regulated and unregulated services and between user groups.

As noted in section 3.2.1, the Regulator considers that the setting of a regulated maximum price for raise contingency FCAS would, in the longer term, increase competition in both the energy and FCAS markets, which should lead to economically efficient prices emerging in these markets. This is consistent with the objective of the National Electricity Law[33]:

> … to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to –
>
> (a) price, quality, safety reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

3.2.3 Promotion of the public interest

The public interest in this matter includes both promoting efficiency through appropriate regulation of price and the redressing of the inequality of bargaining power arising when some classes of customers face a monopoly supplier.

The ACCC in its assessment of Applications for Authorisations is only able to grant an authorisation if it is satisfied in all possible circumstances that there is likely to be a 'benefit to the public'. The Regulator is of the view that if something is to the 'public benefit' then it is likely to also be 'in the public interest'. In this regard the ACCC[34] notes that public benefits that have been recognised include:

- fostering business efficiency;
- industry rationalisation;
- promotion of industry cost savings;
- promotion of competition in the industry;
- promotion of equitable dealings in the market;
- expansion of employment;
- development of import replacements;
- growth in export markets; and
- arrangements that facilitate the smooth transition to deregulation.

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[33] Section 7 of the *National Electricity (South Australia) Act 1996*

[34] See for example, the ACCC Determination in relation to *Applications for Authorisation – Amendments to the National Electricity Code Network and Distributed Resources*, February 2002.

The Regulator should also consider whether it is in the public interest to regulate maximum prices by means of the Price Control Regulations. Thus relevant factors include whether an alternative regulatory regime is adequate or more appropriate taking account of cost and effectiveness.

To fully consider the public interest, the Regulator would need to consider what the future would be with and without the regulation of a given service under the Price Control Regulations.

Without regulation of this service, there is no guarantee that Hydro Tasmania will not continue to price its raise contingency FCAS, of which it is the sole registered provider in Tasmania, in such a way as to inhibit competition in the energy market. Hydro Tasmania is likely to continue to dominate the market for these services as it is not rational to expect new entrants into the FCAS market. As a consequence, it is unlikely that robust competition in either the FCAS or energy markets will emerge. Other generators will continue to pay high prices for raise contingency FCAS and this potentially may result in a decline in competition and higher prices for customers.

As noted in sections 3.2.1 and 3.2.2 the Regulator considers that declaration and regulation of these services would promote competition and efficiency. That is, prices are likely to reflect the economic costs of providing raise contingency FCAS and energy prices in the longer term. Thus, it should also lead to cost efficiency in both the FCAS and energy markets.

Further, the Regulator considers that the declaration and regulation of contingency FCAS would also promote equitable dealings in the market for these services, the energy market, and potentially other FCAS services as other generators capable of providing FCAS enter the market.

Therefore, the Regulator considers that the declaration and regulation of these services is in the public interest.

3.3 Duration of a price determination

The development of new generation projects takes some years to complete from the time of initial planning. For example, the development of the Tamar Valley power station has taken over two and a half years, noting that the plant was built on the site of an existing generator. A new generator on a greenfields site may take even longer.

Therefore, the Regulator is proposing that the declaration, in the first instance, be for a period of three years, being the minimum time the Regulator considers it would take to plan and build a new generator on a greenfields site.

In proposing this, the Regulator notes that Regulation 21 enables the Regulator to revoke a declaration at any time, if the Regulator is of the opinion that:

- Hydro Tasmania no longer has substantial market power in respect of the declared electrical service (for example, there is prospective or actual effective competition in the market); or
- that the declaration is no longer required for the promotion of competition, efficiency or the public interest.

4 CONCLUSIONS

The Regulator is of the view that Hydro Tasmania has substantial market power in the provision of raise contingency FCAS and that the promotion of competition, efficiency and the public interest requires the making of the declaration.

The Regulator proposes that the period of declaration be three years, the minimum period the Regulator considers it would take for new generation to enter the market or other supply arrangements for raise contingency FCAS to be developed, noting that Regulation 21 enables the Regulator to revoke a declaration at any time, if the Regulator is of the opinion that:

- Hydro Tasmania no longer has substantial market power in respect of the declared electrical service (eg there is prospective or actual effective competition in the market); or
- that the declaration is no longer required for the promotion of competition, efficiency or the public interest.