Hydro Tasmania
the renewable energy business

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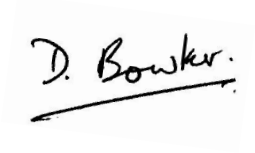
Dear Mr Appleyard

2010 FCAS Investigation – IES Draft Report on Raise Contingency FCAS – Price Control Mechanism

Please find Hydro Tasmania's submission to the Draft Report prepared by IES.

If you have any queries please contact David Bowker on 6230 5775 or via email david.bowker@hydro.com.au

Yours sincerely



David Bowker
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Hydro Tasmania Submission on IES Draft Report on Raise Contingency FCAS – Price Control Mechanism

1. Introduction

In this submission, Hydro Tasmania makes some comments on the IES draft report. We have then taken the opportunity to provide more detail on the way our proposed methodology would work after accommodating some of the comments made by IES.

2. Response to IES Draft Report.

Although Hydro Tasmania does not agree with all of the observations made by IES in its Draft Report (*Raise Contingency FCAS – Price Control Mechanism*, 18 June 2010), Hydro Tasmania endorses IES' principal conclusion that:

> "regulation of Hydro Tasmania's provision and pricing of FCAS contracts should be the preferred price control mechanism."[1] (page ii)

Hydro Tasmania welcomes IES' confirmation of the difficulties involved in separating FCAS and energy outcomes. Hydro Tasmania considers that the regulation of hedge contracts offers the Regulator the best prospect of regulating raise contingency FCAS without introducing adverse impacts to other aspects of the NEM. Hydro Tasmania also considers that the regulation of hedge contracts is the best option for achieving a practicable and workable regulatory outcome.

Hydro Tasmania acknowledges concerns expressed by IES, Aurora Energy and AETV as to the desirability of a transparent regulatory outcome, and encourages the design by the Regulator of a price control mechanism that maximises the use of objectively identifiable inputs.

Although the point appears moot in light of IES' recommendation of what Hydro Tasmania considers to be the most appropriate price control mechanism for raise contingency FCAS, Hydro Tasmania is obliged to observe that it does not agree with elements of IES' economic characterisation and a number of IES' comments concerning spot market dispatch. IES fails to recognise a range of practical constraints on Hydro Tasmania's behaviour in making spot offers, including hydrology, inter-regional interactions and financial contract positions.

Hydro Tasmania is also concerned that some comments by IES could be interpreted as excluding Hydro Tasmania's return on assets and the costs of synchronous condenser operation from consideration. This would be contrary to regulation 33(2) of the *Electricity Supply Industry (Price Control) Regulations*.

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[1] Raise Contingency FCAS – Price Control Mechanism, draft IES report, 18th June 2010, p.ii

3. Hydro Tasmania's proposed design for pricing methodology

Hydro Tasmania outlined a proposed methodology in its earlier submission. In this section, we amplify our description of the approach and provide more detail as to how it should work. This is done by looking at:

1. Determining the Cost Elements
2. Pricing the Cost Elements
3. Considering Confidentiality
4. Hedge Contract Principles

3.1 Determining Cost Components

The *cost components* included in Hydro Tasmania's hedge pricing principles are as follows:

- **Inefficient Generation as a result of providing FCAS:**

The energy foregone when operating plant away from its efficient turbine rating to provide FCAS raise. Energy foregone is calculated as the volume of additional water converted to megawatt hours (MWh) of electricity that the water could have been used to generate at efficient output. The foregone generation can then be valued as the sum of the foregone electricity value, based on an appropriate unit cost, and the foregone REC value.

For example, a generator is dispatched for R6 at its lower break point of 10MW (max FCAS capability) for 16hrs/day. At 10MW the efficiency, as a percentage of maximum efficiency, is 40%. Therefore, in simple terms the water consumed would have produced 2.5 times the output (25MW) had it been used in the energy market at maximum efficiency. The cost is therefore the volume (25MW – 10MW = 15MW) multiplied by the duration (16hrs) multiplied by the price reference.

It is essential that the foregone electricity value is based on an appropriate long-run measure of cost in order to be reflective of the true cost to Hydro Tasmania of providing raise FCAS services. Without doing so the value would fail to capture the capital cost of providing FCAS services that arises due to the fact that providing FCAS results in a net loss of generation of electricity and hence deprives Hydro Tasmania the opportunity to recover capital in respect of that lost generation.

In the absence of an appropriate long-run measure of the value of energy foregone, it would be necessary to consider the cost of 'out of merit order generation'.

- **Critical inertia**:

Since the impact on Basslink flow is quite dramatic when FCAS requirements increase due to low inertia, the assumption applied is that supplying critical[2] inertia is always more cost effective than providing additional FCAS raise. The principal method of increasing inertia is dispatching plant in synchronous condenser mode, which is much like using generators as large synchronous motors[3]. The costs running synchronous condensers include energy drawn from the system, reduction in RECs (bi-directional metering) and maintenance.

- **Cost of the FCAS Regulation Process:**

These are the costs incurred by Hydro Tasmania as a result of the regulation process. This includes the costs of the investigation charged to Hydro Tasmania directly by the Regulator and the costs incurred internally as a result of the regulation.

In order to determine pricing of individual hedge products the cost of these elements, inefficient generation, critical inertia and the cost of the FCAS regulation process must be estimated and then allocated across on-island generators.

All of these elements rely on the development of representative dispatch scenarios for the period of the hedge. In order to develop these dispatch scenarios a number of assumptions need to be made. These assumptions include:

- expected on island competitor generation;
- expected hydro generation;
- Basslink flow (including duration of exports where little or no local requirement exists); and
- average contingency size.

These assumptions, combined with planned outages and other known commitments (eg Gordon River environmental flow), are used to derive a proxy dispatch for the period.

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[2] Critical inertia is the minimum level of inertia to reduce the level of fast raise significantly

[3] For a more detailed explanation of inertia, please see the "Information Pack" provided to OTTER in September 2009, available:

http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/Information_pack_provided_by_Hydro_Tasmania_at_presentation_to_OTTER_on_10%20September_2009_090916.pdf/$file/Information_pack_provided_by_Hydro_Tasmania_at_presentation_to_OTTER_on_10%20September_2009_090916.pdf

The above assumptions can not be publicly available since they are commercially sensitive. These assumptions would, however, be made available to the Regulator. See Appendix A for a list of cost components and proposed information disclosure.

3.2 Pricing of the Cost Components

Establishment of the reference dispatch(s) allows reasonable estimates of the volumes applicable to each cost component that can then be used in the cost calculations. The following tables provide a description of the type of calculation applicable to each cost component and suggests a relevant *external price reference*.

Inefficient Generation

Cost component	**Cost calculation**	**Price reference**
Foregone energy	Inefficiency * Unit Cost	New Entrant LRAC
Foregone REC	Inefficiency *REC probability * REC price	REC Spot Price
Start up cost	No. additional starts * Start up costs	Start up costs

Critical Inertial (synchronous condenser)

Cost component	**Cost calculation**	**Price reference**
Energy absorbed	Volume (MWh) * energy price	Forward Vic contract price
REC reduction	Volume (MWh) * REC price	REC Spot Price
Start up cost	No. additional starts * Start up costs	Start up costs

Cost of the FCAS Regulation Process

FCAS Regulation Process Determination	Total Resource Cost proportionally allocated to generators	Fixed value (total cost proportioned per quarter).

New Entrant LRAC as an appropriate unit cost measure

It is proposed that a 'new entrant LRAC' be used as a reasonable unit cost measure as it represents the theoretical foregone electricity value for an efficient new entrant in the Tasmanian market and removes the need for any assessment of whether Hydro Tasmania's actual cost is 'efficient'. This is consistent with the IES report which states that Hydro Tasmania's costs "may be higher or lower than the efficient new-entrant cost which is arguably the more appropriate cost to employ"[4]. New entrant LRAC for Tasmania has been estimated by several independent consultants including IES and ACIL Tasman.

As noted above, it is essential that the unit cost measure be long run. Any departure from a long run measure of cost may warrant the inclusion of other cost components. This may include additional costs associated with out of merit, a reordering of higher valued water, generation.

Costing Inertia

IES suggested that Hydro Tasmania should seek to be paid for inertia by AEMO. Work has been underway for some time by AEMO to assess the relative merits of an inertia market. Hydro Tasmania supports the purchase of inertia by AEMO but it may be some time in coming to fruition. Hydro Tasmania considers that inertia must still be costed until an arrangement can be put in place with AEMO.

Allocation Methodology

Allocation Methodology is the other key element in determining the price of the hedge. In general terms, with regard the inefficient generation component, Hydro Tasmania allocates its cheapest capability to its own liability and then moves up the supply cost curve until the Tasmanian requirement is met. Therefore, competitors are attributed the costs of supply above Hydro Tasmania's self provision up to and including the marginal supplier pro-rated on expected energy output. The synchronous condenser component is proportioned across all generators, including Hydro Tasmania, based upon expected energy output. Hydro Tasmania also proposes that the Cost of the FCAS Regulation Process will also be proportioned this way.

3.3 Confidentiality

The IES Draft Report concludes that "There would be benefit therefore in the pricing methodology and its inputs being agreed upfront and made available to participants"; essentially a fully transparent process[5]. In principle Hydro

[4] Raise Contingency FCAS – Price Control Mechanism, draft IES report, 18th June 2010, p.33.

[5] Raise Contingency FCAS – Price Control Mechanism, draft IES report, 18th June 2010, p.33

Tasmania broadly agrees in making the process transparent and agree with IES that "This would obviate the need for the process of review"[6].

However, there is a need to protect the integrity of Hydro Tasmania's commercial information that it would not expose to the general market and in particular to Hydro Tasmania's competitors.

Hydro Tasmania proposes to provide most contractual information to participants and additional commercial information to the Regulator. Effectively this is a semi-transparent process that has as many variables as possible defined and referenced to external values (eg. new entrant LRAC). This process would allow the Regulator to approve the value of pricing parameters in advance of a hedge contract being entered into.

3.4 Hedge Contract Principles

A version very close to the above methodology has been utilised in the current hedge arrangements with Aurora (AETV), which is considered fit for purpose. It is important to understand that the end pricing is very much influenced by both the type of cover requested and the terms included that limit Hydro Tasmania's risk exposure. In this case the use of terms is preferred to "pricing in" outliers or extreme events. Typical, but not standard terms, could include:

- limits on variable liability covered;
- services covered and mechanism;
- exclusion events (e.g. Gordon and Basslink forced outages);
- period;
- termination clauses; and
- reopening clauses (e.g. new entrant in region).

Given the various forms a hedge contract might need to take to manage various parties risks and the propensity for changes in the regional supply demand equation; Hydro Tasmania strongly suggests that the form of Regulation provide for customisation of products to meet the requirements of all parties.

It is proposed that the regulation be applied to a plain vanilla contract with some standard terms but parties should be free to enter into other arrangements for raise FCAS on a commercial basis. The standard contract would cover liability for all three raise FCAS products. Some of the proposed characteristics of the standard contract would be:

Term: The standard contract will have a term which finishes no later than the end of the determination.

[6] Raise Contingency FCAS – Price Control Mechanism, draft IES report, 18th June 2010, p.33

Pricing: The pricing for a contract will be set based on the parameters at the time of signing and will not change for the duration of the contract unless one of the re-openers in the contract is triggered

Setting Parameters: Since there are likely to be relatively few contracts, it is proposed that the parameters will only be set when there is a request for a contract. This would consequently require a notice period of 6 weeks prior to the commencement date of the contract in order to allow approval of the parameters.

Appendix A: Disclosure of cost components

Dispatch Scenarios		
Component	**Source**	**Disclosure**
Forecast hydro generation	Hydro Tasmania	Regulator only
Forecast Basslink flow (including duration of exports where little or no local requirement exists)		
Forecast competitor on-island generation		
Forecast Victorian spot price		
Forecast contingency size		
Planned Outages	MTPASA	Market
Other commitments	Various	Current requirement
Inefficient Generation		
Component	**Source**	**Disclosure**
Foregone energy (MWh)	Hydro Tasmania	Market
REC probability		
No. of starts		
Start up cost		
Unit cost (new entrant LRAC)	ACIL Tasman or IES	
REC price	AFMA	

Critical Inertia		
Component	**Source**	**Disclosure**
Vic forward price curve	SFE	Market
REC price	AFMA	
REC reduction (MWh)	Hydro Tasmania	
No. of starts		
Start up cost		
FCAS Regulation Process		
Component	**Source**	**Disclosure**
FCAS Regulation process costs	Hydro Tasmania	Market
Hedge admin cost		