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JUN 2007

13 June 2007

Queensland Competition Authority
GPO Box 2257
Brisbane Qld 4001

Dear Sir/Madam

Please find attached a copy of the CPM Submission relating to the Authority's 2007 investigation of the proposed pricing practices of the Gladstone Area Water Board.

CPM are keen to talk through our submission with the Authority at your convenience. Please advise an appropriate time to undertake this discussion. Unfortunately we will be unable to address this matter in the week beginning 25 June 2007.

Should you have any queries regarding this paper, contact should be made with the undersigned.

Yours faithfully



David Coucill

Commercial Manager

Attach

Callide Power Management

Submission to Queensland Competition Authority review of Gladstone Area Water Board 2007 Contingent Source Strategy

Callide Power Management (“Callide” or “CPM”) welcomes the opportunity to comment on the Authority’s current investigation, concerning a proposal by GAWB to incur certain “preparatory” expenditures relating to the possible future development of a pipeline to the Fitzroy catchment as a contingent supply source of water.

CPM’s understanding of the current proposal can be summarised as follows:

- GAWB wishes to pursue a program of preparatory activities, at a cost of approximately \$24 million in today’s terms, in relation to the proposed Fitzroy River pipeline project. This project includes a bulk water conveyance pipeline to the northern regions of Gladstone, from a yet-to-be-constructed weir on the Fitzroy River, plus an upstream water treatment facility;
- the preparatory work would allow for the Fitzroy River pipeline, should it proceed, to be delivered over an accelerated 24 month delivery timetable;
- this preparatory work would not, of itself, provide for any increase in supply or enhancements to supply reliability. The works are simply a form of “insurance” in that they allow GAWB to respond more quickly in the future to any emerging supply deficit;
- the costs of preparatory work would be shared uniformly by all customers, but the impact would be deferred until 2010/11 by capitalising expenditures into the regulatory asset base at the commencement of the next price review. At this time the estimated impact is an increase in the order of \$51/ML;
- should certain (yet to be articulated) triggers be enacted, then GAWB would pursue its preferred Fitzroy River pipeline option. The capital cost of this project is estimated at \$345 million, up considerably from the \$110-\$144 million cost estimate provided in GAWB’s 2004 *Strategic Water Plan*;
- GAWB’s intent appears to be that the costs of this supply augmentation would be shared equally across the customer base, by volume, though the current information does not clearly describe what the resulting price impact would be.

CPM is one of GAWB’s three primary customers. Individually, CPM accounts for around one fifth of GAWB’s current supply volume, and therefore has a significant interest in any proposals which impact on the reliability and/or cost of water in the Gladstone region.

CPM requires water for cooling and other ancillary purposes at its Callide “C” power station. As such, CPM is critically concerned with supply reliability, but also with the appropriate balance between reliability and cost. In any commercial water-use application, there is a point at which increasing reliability is not financially justified by the cost of doing so; where the value of reliability to the user is not sufficient to cover its cost.

As a fundamental principle, GAWB needs to be encouraged to deliver services, now and into the future, which customers value, that are delivered in an efficient way, and which represent the most efficient combination of new and existing, conventional and innovative, supply augmentation and demand management options available.

CPM's concerns are substantive and threefold:

1. GAWB has failed to demonstrate the value of spending a significant sum of money now on preparatory work relating to the Fitzroy River pipeline, as compared to the insurance benefit that this provides and other potential ways in which the same (or higher) benefit might be acquired;
2. GAWB's comparative evaluation of the Fitzroy River pipeline option, as a supposedly superior option to others, is flawed. Particular deficiencies relate to the treatment of scaleability and comparative supply reliability, in comparison to demand management options (through power station dry-cooling, for instance) and non-conventional supply options like desalination;
3. GAWB's continuing reluctance to consider any commercially-differentiated options with respect to water supply products of varying reliability. Instead, GAWB relies on a presumption of a homogenous industrial customer base, in which each customer has a common valuation of supply reliability improvements and a uniform capacity to access (and cost of accessing) alternative supply/demand management options.

These issues are explored further in the body of this submission.

Should GAWB be allowed to spend \$24 million on preparatory works relating to the Fitzroy River pipeline option?

CPM supports well-founded spending on project planning and other preparatory works, where this spending offers a clear benefit to users. This benefit might be in securing a future water supply source, where the need for such a source is justified by credible demand projections, or in maintaining a desired level of supply reliability to existing users, within acceptable cost bounds.

CPM expects the QCA to critically review the expenditures proposed by GAWB, having regard to:

- the amount needing to be spent now, as compared to what may be able to be deferred for one or several years; and
- the relative merits of the Fitzroy River pipeline versus other possible supply augmentation/demand management alternatives (discussed further, below).

The proposed preparatory works do not deliver any additional water into the catchment in the near term, and hence have no impact whatsoever on supply reliability.

What they do is allow for an accelerated development of the Fitzroy River pipeline option, should that option be developed at some point in the future. The present value of this accelerated development benefit therefore is significantly affected by how far out in time the pipeline may be built.

According to GAWB's 2006 *Drought Management Plan*, current demand projects potentially could exhaust existing storage volumes in Awoonga Dam in 190 months – or around 15-16 years. The critical variable here is future inflows. The 190 month timeframe is based on a continued repeat of the worst 10 year sequence of inflows on record. It is possible that average inflows over the next 10 to 20 years could be even less than the worst 10 year sequence on record; though equally true that inflows could be higher.

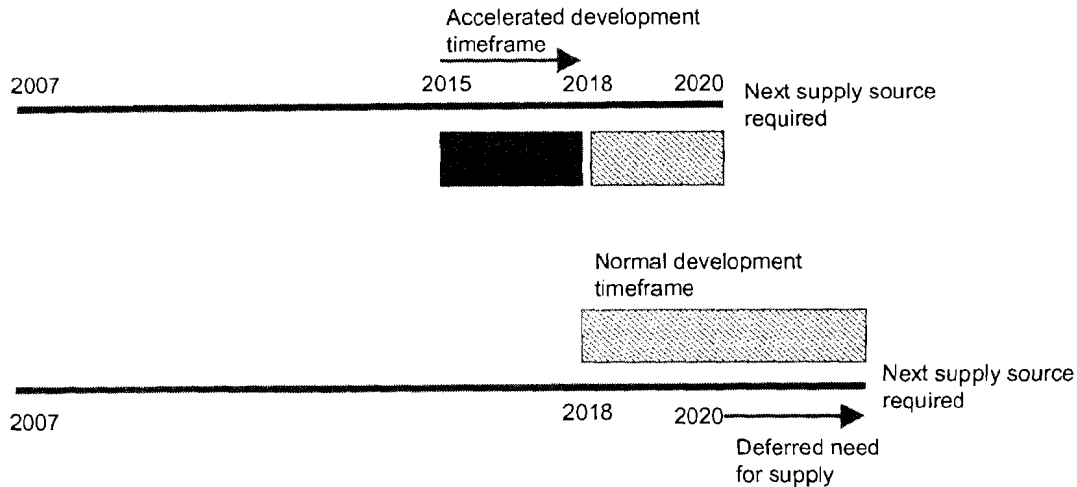
It is very possible, then, that the Fitzroy Pipeline may not need to be developed until well beyond 2022. In CPM's view it is questionable whether there is a need to spend significant sums now, in 2007 and 2008, on a project which quite probably will not be needed for another decade and a half, if at all.

The QCA must critically review the expenditures and activities proposed by GAWB, to determine which are absolutely essential now, and which might be deferred.

CPM is especially concerned that GAWB may, as a foundation user, end up paying for a significant share of the State's costs in acquiring and developing the proposed Stanwell-Gladstone Transport Infrastructure Corridor, in which the proposed Fitzroy River pipelined will be located. CPM understands this corridor is proposed as a multi-user infrastructure corridor, and could potentially accommodate 10 or more separate pipelines. The prospective existence of this corridor, and the evident amount of 'spare capacity' it contains, casts doubt on the need for GAWB to spend significant funds now to secure a right-of-way for the proposed pipeline. There is very little risk of access to the Stanwell-Gladstone corridor being lost in the medium term.

The equivalent of bringing forward the time needed to develop the next supply option, is to push back in time the need for it (see Figure 1, below).

Figure 1: Equivalence of accelerated development with deferred project need



An option here could be to direct funding toward dry cooling of one (or several) generating units at CPM's power station (and/or CS Energy's existing Callide "B" plant). The effect of this would be to reduce CPM's (and CS Energy's) draw from Awoonga Dam, prolonging the longevity of the existing supply volumes held in storage, and pushing back in time the need for a further supply augmentation.

On GAWB's own analysis, dry-cooling is cost-competitive with the Fitzroy River pipeline and, CPM would argue, advantaged in terms of its scalability:

- CPM's investigations suggest that a capital spend of in the order of \$50 million, per unit, on dry-cooling technologies would allow for a reduction in water usage of between 60-80%;
- Thus, for roughly double the cost of preparatory expenditures proposed for the Fitzroy River pipeline, GAWB could reduce the annual water consumption from Awoonga Dam by up to 5,000ML, or about 1/10th of current demand.

The effect of such a strategy is two-fold.

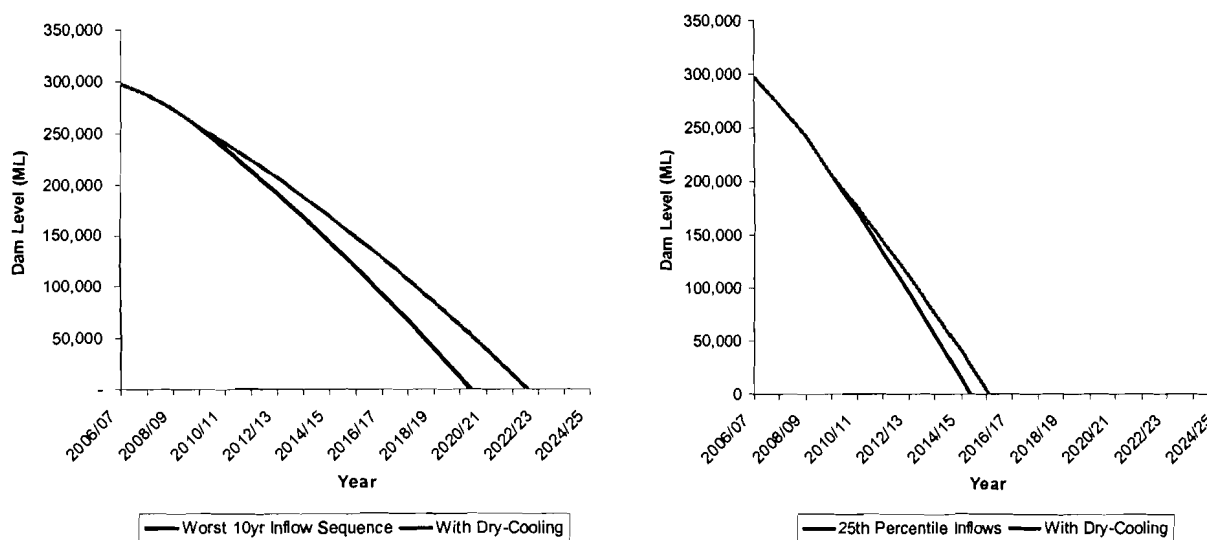
First, it would prolong significantly the capacity of the existing Awoonga storage to supply existing (and forecast future) users, in an environment of depressed inflows. The two scenarios used in the figures below are a repeat of the worst 10 year sequence of inflows (as used by GAWB in its *Drought Management Plan*) and an even more conservative assumption of average annual inflows equal to the lowest 25 percentile inflows.

Each figure plots the fall in storage volumes due to the cumulative effect of demand, losses and the projected level of inflows. The figures show the impact of demand being reduced, from 2010/11, by 5,000ML annually, representing the potential impact of dry-cooling.

These scenarios show that dry-cooling of a single unit would afford GAWB and users at least a full year of additional supply, and more plausibly two or more years. A strategy of dry-cooling more than one generating unit would amplify this benefit.

This additional time would increase the probability of a significant rainfall event reoccurring, mitigating the need for a contingent supply source. It would also allow further time to assess other contingent supply options, such as desalination.

Figure 2: Improvement to supply longevity with dry-cooling of one generating unit

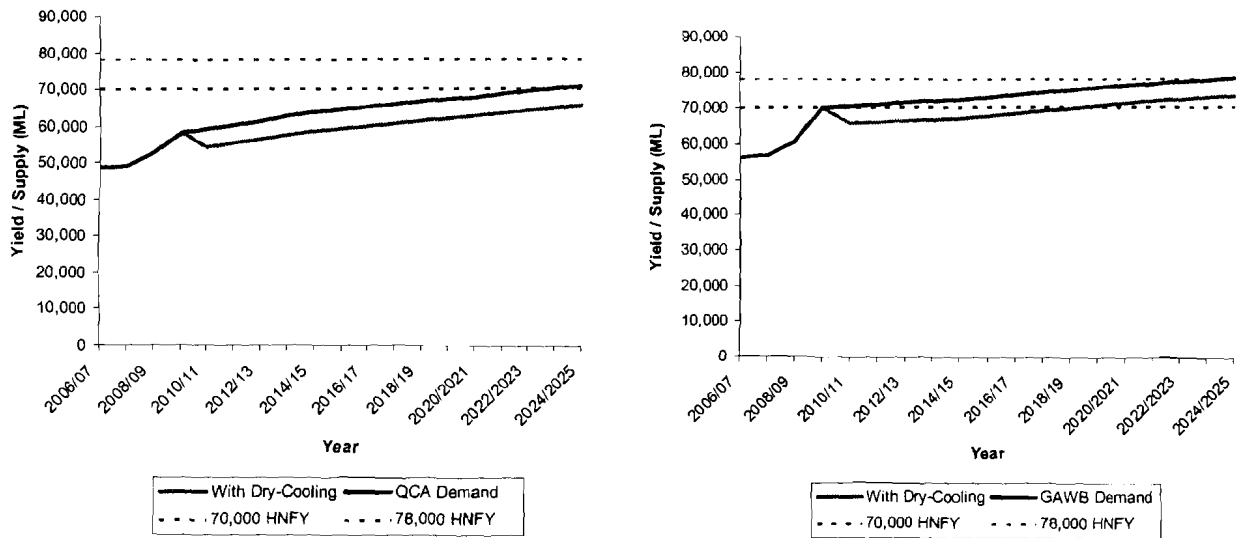


Note: The left hand figure uses the average of the worst 10 year sequence for annual inflows, per information in GAWB’s Drought Management Plan, plus assumed annual losses of 30,000ML. Demand is as per the QCA’s preferred planning scenario, as provided in the 2004 prices investigation, and excludes the impact of any voluntary or mandatory demand restrictions.. The right-hand figure is equivalent, save for inflows are determined at the 25th percentile level, bringing forward in time the modelled failure of Awoonga Dam.

Second, by reducing demand in the very near term, potentially as early as 2010/11, the dry-cooling option would defer in time the need for any ‘normal’ supply augmentation. This benefit does not accrue from preparatory works on the Fitzroy River pipeline.

Depending on the demand scenario considered (the figures below look at two – the QCA’s previously reported “preferred” planning scenario, and a compilation GAWB’s most recent demand forecasts from its 2006 *Drought Management Plan* and as advised to the QCA for the 2004 prices investigation), reducing consumption by 5,000ML per annum pushes out considerable the time required for the next supply augmentation; potentially to well beyond 2024/25, the last year in this analysis.

Figure 3: Deferral of 'normal' supply augmentation with dry-cooling



Important also is the modelled sustainable yield of Awoonga Dam. Shown above are both the 70,000ML figure, based on the current allowable extraction limit, and the higher 78,000ML figure should Awoonga reach its fully supply level of 40m.

In CPM's view, the QCA must demonstrate that the value of the dry-cooling option is inferior to the Fitzroy River pipeline preparatory expenditures, against the requirements of the Ministers' referral notice *vis* the prudence of GAWB's contingent source strategy, timing of expenditures and level of efficient costs.

Defects in GAWB's comparative evaluation of supply options

In the period leading up to 2003, the storage volume held within Awoonga Dam fell to very low levels. This situation resulted in GAWB adopting a program of voluntary, then mandatory, water use restrictions for its customers. As the drought continued attention turned to possible contingent supply sources, and the Board selected as its preferred option and began some preliminary works on a pipeline to the Fitzroy catchment.

In 2003 a significant rainfall event occurred. It provided large inflows to Awoonga Dam, sufficient to both lift the previous water use-restrictions and for GAWB to cease work on the Fitzroy pipeline proposal.

Since that time GAWB has maintained a preference for the Fitzroy River pipeline as the next supply option for the region. This preference has held notwithstanding material changes in the cost of this project and the emergence of other, prospectively very attractive, supply and demand management options.

CPM is concerned that the evaluation framework used by GAWB, and as reported in its submission to the QCA as part of this investigation, is not sufficiently robust, nor is it applied impartially, to justify an investment of the scale being considered. Some particular concerns include:

- various claims which support the Fitzroy River pipeline over other project options are unsubstantiated. For instance, the pipeline is claimed to offer a benefit in that it diversifies supply sources. Diversification is not of itself a benefit; what is a benefit is any improvement in reliability. Only anecdotal evidence is provided as to how accessing supply from an adjacent surface water catchment would boost reliability in Gladstone and for all the customer base;
- evaluation criteria are duplicative and repetitive – 'wider regional benefit' and 'social impact' both appear to cover similar ground, for instance. This has the effect of 'double counting' some purported advantages/disadvantages;
- the relevance of some criteria is dubious – 'wider regional benefit' is an irrelevant criterion on which to base a water supply decision, and in any event the basis for a preference for the pipeline on this criterion is unclear;
- the use of 'annualised \$/ML' figures, essentially a form of levelised cost, is misleading. GAWB's calculation of annualised cost assumes that the each option operates at its full capacity immediately upon commissioning. It does not account for the (very likely) scenario in which the capacity of the 30GLpa Fitzroy pipeline option would take a long time to be fully taken-up by demand. The effect of this is to bias the evaluation against 'scaleable' options like dry-cooling and desalination;
- CPM disputes GAWB's assertion that a pipeline asset is inherently 'scaleable' (refer page 92 of GAWB's *Strategic Water Plan*) – as water cannot be pressurised, like, say natural gas or coal-seam methane, there is substantially less flexibility to modify, once built, the throughput capacity of a water pipeline;
- desalination and dry-cooling are both rated worse on the "risk – to cost" criterion, with no clear justification for this and despite the preferred pipeline's capital cost nearly trebling since GAWB's 2004 *Strategic Water Plan*;
- in the 2004 *Strategic Water Plan* GAWB rates desalination as *less reliable* than the Fitzroy Pipeline, on account of the former's stated "mechanical reliability" of 96% versus a hydrological reliability of 99% for the Fitzroy weir. This assertion is nonsensical. With storage options, a desalination project can be designed to be sufficiently reliable to deliver drought mitigating water supply (as observed elsewhere in the country). In contrast, all surface water storages are exposed to climatic variability and therefore some level of hydrological risk. CPM considers it misleading to emphasise the hydrological risks of the Awoonga catchment, as justification for proceeding with a contingent supply option, without

acknowledging that the same risks clearly must now or will in the future affect an adjacent surface water catchment.

The scalability of options like dry-cooling and desalination is a key advantage over conventional source options like the Fitzroy River pipeline. They are inherently modular, and allow for supply enhancements (or demand reductions) to be more 'incremental' in nature. This avoids the risk of large increases in capacity being stranded by unrealised demand forecasts.

CPM is especially concerned on this point given GAWB's previous history of over-estimating demand to support of its proposed capital investment program.

In 2000, and prior to the most recent augmentation of Awoonga Dam, GAWB's 'medium series' demand forecast was that demand would reach 61,205ML in 2004-05, increasing to 112,515ML in 2021. Although moderated downwards somewhat by the QCA, this demand projection was still deemed sufficient to justify the raising of Awoonga Dam and a near doubling of its yield and costs.

Contrast these projections to the current situation. Annual demand now is just less than 56,000ML, and the QCA's most recent forecasts are that demand will increase to just more than 70,000ML by 2024/45 – some 37% below the level predicted by GAWB for three years earlier, and still well below the assessed supply capacity of Awoonga Dam.

GAWB has provided no clear indication of the true cost to users should the Fitzroy pipeline be developed. This evaluation is essential before commitment or selection of particular options with consequent up front costs. As noted above, the presentation of an 'annualised cost' figure is not equivalent to a cost impact for users. The latter depends critically on how quickly the supply capacity is taken-up, not just unitised average capacity cost.

This information is absolutely critical for users, such as CPM, to make informed decisions about the relative value of improved supply reliability – itself not quantified – and higher cost supply.

Allowing users to make individual choices about supply reliability

GAWB has proposed that preparatory costs incurred in respect to the Fitzroy River pipeline project be recovered via increased prices for its entire customer base. GAWB's allegation is that enhancements to supply reliability, and supply augmentations generally, are common-user investments from which all users benefit:

“... all customers benefit from the timely supply from an alternative source that reduces the risk of supply failure. Similarly, all customers benefit if the preparatory expenditure – which enables shorter lead time – allows delay of triggering the full construction ... (page 112, GAWB submission to the QCA)

GAWB also maintains that:

“Most customers clearly articulated a desire to achieve improved water reliability *at an acceptable cost.*”
(page 7, *Strategic Water Plan*, emphasis added)

While all customers benefit from such investments, the *distribution of benefits* is not equal, and nor is the *value* of increasing/maintaining supply reliability uniform across the customer base.

The pipeline would increase supply to GAWB, offsetting demand at Awoonga and freeing more supplies for CPM. However, CPM has no direct access to pipeline water. Should Awoonga dry completely, CPM could not access any supply from the pipeline. CPM therefore benefits less from the pipeline than customers with direct access.

CPM also considers that in a severe drought despite the Fitzroy pipeline that industrial users will be constrained as compared to Councils.

Customers are in the best position to judge their own expected costs from drought and their tolerance of supply risks. GAWB should consider a number of measures to better match customer security preferences with supply reliability. This would be most effective where it is done on an individual customer basis.

One alternative is to offer an opt-in scheme for any drought-related supply reliability enhancement. That is, GAWB could negotiate with each customer their need for increased supply security, realised through either the Fitzroy pipeline or some other contingent supply/demand management option. Those customers seeking premium supply security could opt in to such a scheme, meeting its costs via increased water prices. Those opting out of the scheme would accept the existing (lower) supply security – relying on continued supply from Awoonga Dam – and would continue with their current pricing.

Where system demand grows beyond Awoonga's FSL capacity – where the pipeline/other supply project would have been built in the normal course of business – it could be moved from a 'drought asset' to a normal regulated asset. That is, it could be reintegrated into GAWB's regulatory asset base and its costs (remaining capital costs and operating costs) met across the entire customer base.

At this point the assets would be fully utilised and costs equitably spread, unlike the present where customers are funding GAWB's over-capitalisation of the 2000 dam upgrade project.

In its 2004 *Strategic Water Plan* GAWB appeared reluctant to consider such individual arrangements. The Plan stated:

“The provision by GAWB of a number of different products offering different levels of reliability would clear add considerable complexity to GAWB’s pricing methodology, operational practice, and *Drought Management Plan*.”
(page 10, *Strategic Water Plan*)

CPM believes such concerns are overstated. GAWB already offers several differentiated products, including treated/untreated water, and water delivered to different offtake points. Each are priced differently, according to the underlying costs.

The *Drought Management Plan* also contemplates different use-restrictions for municipal versus industrial customers. At certain low supply levels, supply to industrial customers is discontinued altogether, while a restricted level of supply is maintained for Calliope and Gladstone Councils. The result is that the reliability of supply to Councils is already higher than for industrial customers; demonstrating that GAWB is already offering reliability-differentiated products, albeit without explicit price differentiation.

In CPM’s view, such an ‘opt in’ arrangement would provide a truly robust test of customers’ willingness to pay for enhanced supply reliability. It would put a discipline on GAWB to clearly articulate the expected reliability improvements, and the related costs, at different levels of take-up.