

**ACIL Tasman**

Economics Policy Strategy

To Greg Watkinson, Simon Farnbach  
From David Campbell  
Regarding Pricing for supply from call options  
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# Memorandum

## Purpose

To provide further thoughts on the question of how water pricing might be handled under the call option management strategy set out in our earlier Procurement Framework paper.

## Issues

You are considering a procurement model in which an IPE is responsible for managing a portfolio of call options for future supply and for shaping and overseeing, if not hands-on operating, the process that will exercise the options if and as needed. If an option is exercised, then there is a question of what price is to be paid for water supplied from the resultant infrastructure.

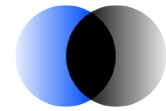
A possible example would be the presence of a readiness option to bring into the system new supply capacity characterised by a new desalination plant. The readiness option involves agreed payments in order to have available the ability to deliver a desalination plant of given capacity within a specified time period from the option being exercised. The function of the readiness option is to safely sustain a maximum delivery time – which in turn offers scope for safely delaying commitment to full construction, with resultant benefits in the form of a non-zero chance of being able to deliver a substantial deferral of large costs and possibly later to tap into more cost effective technologies.

If the exercise of the option merely results in the facility being built and owned by the project proponent, with no associated pricing arrangements, then there is a potential problem. The IPE, Water Corporation etc will have paid some or all of the construction costs, but the owner of the asset will then have substantial market power, assuming the facility is needed to meet demand. Pricing could, in theory, be pitched up towards the fully attributed cost of an alternative new entrant; in the short term it may be possible to price even above these levels, with no allowance for payments received.

Clearly the original call option and exercise provisions need to manage the risks here.

## Pricing within the call options

You will recall that I recommend that call options formally relate to willingness to provide volumes of water within specified lead times. The detail of the project that underpinnings the bidding provides a form of physical hedge, to allow due diligence to be performed to ensure that the capability will be in place. The IPE needs the ability to audit the proposed mechanism/mechanisms for it to discharge its responsibilities to security of the supply/demand balance. But the focus of the IPE is in the supply that



could be accessed if needed – within a specified time frame. The technology is secondary, and should be shaped by the market and evolving technological options.

The decision to ‘commit’ to actually building a desalination plant would really involve replacing a call option with a reasonably long lead time (perhaps 2 years) with one with a much shorter lead time of hours or days. Committing to actually run the desalination plant and store in-system involves introducing new call options for almost immediate supply. The system portfolio of supply options is evolving but each could be viewed as a call option up to the point at which product is actually drawn down to meet a demand that could not otherwise have been met. The IPE may not control all the call options – almost certainly the retailers will in respect of existing assets, though with IPE involvement in the strategy via the review of the operational plans.

Furthermore, I assume that there is no intention to bar a private provider from entering the market and building a desalination plant (subject to normal approvals) even without a contract with the IPE or Water Corporation. It would take a brave investor – but this would be an extreme version of an investor willing to wear all the dispatch risk and retaining complete control over pricing strategy. Such an investor would need to ensure pricing strategy was not so high as to favour the IPE triggering one of its call options. I am not sure where you are heading on access arrangements, but an access regime that fully recognised the impact on portfolio option-value of providing access (something not done by the proposed Sydney access regime) could accommodate an even more aggressive strategy without great distortion.

The owner of such a facility could well justify and receive very high payments for water or short-delivery time call options in the middle of a drought – relating to lead times shorter than alternative projects would require. I see no downside for the IPE in this – it would be entitled to contract for or exercise alternative call options instead of exposing itself to such pricing, and should be well-placed to assess whether the prices are justified. The owner of the asset would have taken on a substantial risk and could reasonably expect high prices in peak events – just as can occur in the NEM where the very high prices at times are needed to cover the fixed costs of new entry.

In effect, the IPE has a residual function to play. After factoring in trends in demand and DM, existing assets, rainfall patterns and trends and any new augmentation investment, it needs to determine if the portfolio of call options is adequate, excessive or inadequate and needs to act to respond. I strongly suspect that the need for the IPE to act will emerge ahead of a preemptive private investment in supply without any contract backing. The IPE will be able to insert a more cost effective strategy into its portfolio than a single project builder could offer – largely because of the value of the readiness approach that works against preemptive investment in major works. But I can see no reason to dictate that all new supplies come through the IPE – just as I see no need to dictate that any DM decisions, down to me installing a low flow shower head, should be under contract to the IPE.

Moving back from the extreme of a preemptive investment, we have a range of possible offerings to the IPE. They can involve different allocations of the risks of preemptive construction and different levels of access to revenue streams when and if supply is needed. I cannot see a call option being offered to the IPE – in the hope that the IPE will make up-front payments to secure the option – that does not include specification of pricing rules. Possibilities include:



1. An offer by the proponent to fully absorb construction and standing operating costs, in return for firm contracts to take enough water at a specified price within a specified time period to make the investment risks acceptable – where they would not have been acceptable without these undertakings.
  - Effectively, there would be some form of take-or-pay contract in relation to at least some supply. These contracts would clearly involve prices above the marginal operating cost of delivering the water – because these revenue streams need to defray some fixed costs to achieve their purpose of reducing the investment risk to commercially acceptable levels.
    - … These contracts could be at a fixed cost, or could be related in some way to an indicator of system value of water – the IPE will naturally be modelling and estimating an index of the marginal value of current consumption; residential price levels might have a role etc. Different choices entail different risk allocations. From a proponent point of view, fixed pricing could look most attractive, though the scope for some variation that broadly offsets variation in volume requirements might support a more stable revenue stream.
  - The remaining supply capacity, if any, might be retained by the proponent and be available to be priced at what the market would pay at the time. This could include later contracting for call options, based on this surplus capacity, to the IPE – where these call options would have very short lead time. The IPE would need to decide optimal timing for any contracts over this capacity and in general would be keen to enter into contracts ahead of the point where a competitive alternative ceases to be available within the needed lead time.
  - There are parallels here with electricity investments, where the project proponents seek options over some capacity at prices sufficient to reduce risks to commercially acceptable levels, but still aspire to making profits from their discretionary generation capacity.
2. As a variant, a proponent builds the facility at proponent expense and receives a firm supply contract for, say, 3-5 years – with penalty provisions (not necessarily full cost – perhaps full cost less marginal operating cost) in respect of supply not required.
  - This could allow the IPE to lock in prices across a time period when alternative options with adequate lead time might be scarce, but allow it to delay any longer-term commitment safe in the knowledge that there should be sound alternatives to limit any market power.
3. An offer by the proponent to build a facility on a full capital cost recovery basis and to operate the facility on the basis of coverage of operating costs – probably in the form of a fixed annual charge plus a volume payment that should approximate the marginal cost of production (inclusive of an adequate commercial return).
  - This model has the potential advantage of pricing supply at its true marginal cost, reducing the scope for perverse incentives as to where to actually draw water as a result of the nature of the commercial arrangements. However, it allocates all dispatch risk to the contracting agency. Of course, this model will feel very familiar.
  - The capital payment could be up-front, or could take the form of an annual capacity payment, contracted for an extended period.



#### 4. Various hybrids of these.

A point highlighted by these is that the market power issue is a function of lead time. As in electricity, an individual supplier can have a lot of market power in the short term – and it will probably make sense for the IPE to develop contracts that guard against *abuse* of this – but not necessarily against use. Allowing proponents some access to the upside opportunities of very short-term demand for water may be highly cost effective, and prices up to the alternative scarcity value of the water at the time need not necessarily be exploitative if the project operator had accepted dispatch risk.

In the longer term, the IPE will have access to a much wider range of alternatives for slotting satisfactory call options into the portfolio. Any proponent gambling on being able to command excessive prices for long periods will be vulnerable to the IPE developing hedge strategies to cover just that risk. One approach is to contract for a longer term with the proponent; another is to develop insurance options that minimise the likelihood of the proponent being needed to meet demand despite excessive prices. More aggressive DM; a desalination readiness option that has been advanced by actual construction of time critical components, such as inlet/outlet pipes; movement towards scarcity based pricing to users, so that demand provides a natural hedge for the supply incentives; short- or long-term water trades etc could all be considered as portfolio responses to these risks.

## Innovation in pricing and risk allocation

One of the points we made in our Framework paper was that we saw value in encouraging the market to innovate in risk allocation mechanisms. This would require a willingness to invite call options that span the above ranges:

- From preemptive through readiness to firm physical infrastructure and water in storage;
- From infrastructure costs being borne solely by the proponent through to them being borne solely by the system;
- From forward revenue streams guaranteed to cover remaining costs through to less guarantee accompanied by greater access to upside.

The IPE will need to be fairly transparent about its approach to portfolio risk management – but this in turn should point to opportunities for the market to offer options to allow better and more cost effective risk management. It also does not preclude early identification of a straightforward procurement/pricing approach suited to dealing with early market nervousness about how to approach the opportunities. This could allow invitation to put forward options within the standard approach, but with an explicit invitation to consider variants that might offer real value to the IPE, with a list of points presented that highlight areas of opportunity for better risk management, with links into capital payment and supply pricing arrangements.

I hope these comments help. Apologies for any sloppiness associated with their quick assembly and happy to discuss at any time.