

Toward an Alternative Procurement Strategy?

By Christopher R. Head

This article is the third in a special six-part series examining technically-related contractual issues that can arise during the development of privately financed hydroelectric projects. The focus of this article is on the effectiveness of the EPC procurement arrangements used for most private hydro projects.

Most privately funded hydro projects are implemented using EPC (engineering, procurement, construction) or turnkey contracts, because this arrangement is perceived to insulate the project company from construction risk and performance shortfalls. If such problems do occur they can be laid firmly at the turnkey contractor's doorstep, thereby effectively protecting the owner, and the lenders behind him, from any financial downside. That, at least, is the theory. But, as with so many things in life, there is often a gap between theory and practice.

The essential point of an EPC contract is that the owner enters it knowing exactly what he is going to get, including the delivery date and the final cost (as most EPC contracts are fixed price). From the owner's viewpoint, the key issues are therefore design, price, and quality management.

An earlier article in this series examined the consequence of moving design responsibility from the owner to the contractor. Those who read that article, in the March 2001 issue of *HRW* (pages 28-29), will recognize that this is an important issue that needs to be carefully considered. Anybody awarding a contract that gives the contractor effective control over project design from an early stage, without the right checks and balances being in place, is running the risk of not getting the project that he expects.

In considering price, it is worth looking at what happens in the procurement and implementation of a hydro EPC contract. The origin of the term "turnkey" is that the owner leaves everything to the contractor,

and at the end of the allotted construction period he simply collects the "key" to the project, and takes possession. The contractor is not only responsible for engineering, procurement, and construction, but also for his own quality control to ensure that the designs are in accordance with the project brief, and are being implemented correctly. It all sounds very attractive — but how does it actually work in practice?

One of the first problems that any prospective hydro owner will come up against is the difficulty of getting a serious price on an EPC basis. The reason for this lies in the nature of the works to be undertaken, which typically require three or more companies to combine their resources and very different skills to be able to deliver a completed project. In most cases, the lead will be taken by a civil contractor, but he will also need an equipment supplier and a design engineer. The success of the project will depend upon these diverse parties working closely together and jointly assuming risk, but the actual financial participation and risk profile make this an uneasy balancing act.

The equipment supplier generally will have no difficulty with the concept of a lump sum contract, but he certainly will not want to expose himself to the risk of cost overrun on the civil works, which he neither understands nor controls. The design engineer has a fairly small slice of the action in financial terms, yet he has the potential to save or lose the contractor large sums of money, depending on the way he exercises his skills to reduce cost without jeopardising the integrity of the design.

The civil contractor will find a lump sum price difficult to accept because he will be exposed to most of the site risk, over which he may have only partial control. He will, however, have minimal influence over the performance of the completed project as this is largely in the hands of his designer and the equipment supplier. As the lead contractor, he will be assuming responsibilities for work that lies far outside his direct control, and will price accordingly.

Any consortium bidding a hydro project therefore starts with some fairly severe internal contractual issues to be addressed. Each party will try to limit its

liabilities to its own areas of work, while, at the same time, protecting itself against the overflow of cost from other members of the consortium. The result of this is a layering of contingency sums, with the inevitable knock-on effect on the price.

To make matters worst, the job is likely to be on a remote site in a distant land, which adds a plethora of other uncertainties. In these circumstances, few reputable contractors are prepared to commit the resources needed to prepare a serious tender unless they are in direct negotiation (or on a very short shortlist) and bidding to an employer whose own position on the project is already secure.

With the layering of risk and additional cost of closely managing the EPC consortium, it is not surprising that EPC contracts for hydro projects are significantly more expensive than the traditional route where the owner arranges construction through a series of separate contracts. It is not easy to determine this premium, but most people in the industry would agree that the figure is probably at least 20 percent, and often 30 percent.

However, the issue is not as simple as that. Under the traditional system, with its re-measurable civil works, the final price is not known until the job is finished, and the record shows that cost and time overruns have been commonplace. A lot of the blame for those problems lies buried deep in the past, rooted in a claims culture brought about by over-rigid procurement procedures that forced public sector clients to accept the lowest tender, even when it is patently unrealistic.

Private sector clients need not be hampered in this way, and could, for example, follow the policy pursued by some companies of rejecting the lowest bid in the belief that the next lowest is probably nearer the correct price. There is no mileage to be gained by either party in entering into a contract at a price that is not sufficient for the scope of works required. However, it takes a brave employer to recognize this — and an even braver one to act on it!

Under the private financing scenario, lost production is of paramount importance. Late delivery as a result of contract disputes, or forced outages as a result of project failure, can be much more consequential than another 10 percent on the contract price.

The argument in favor of EPC hydro contracts would be more convincing if they delivered, as promised, on both price and schedule. Unfortunately, experience to date suggests that this is not the case. It now appears

that a significant proportion of such contracts fail to deliver the price and time certainty that is claimed for them. Furthermore, they appear to be giving rise to many more serious contractual disputes that are ending up in expensive arbitration or litigation.

Financiers conventionally require single-point responsibility and a predetermined price; and the fixed-price EPC contract with heavy liquidated damages, appears to meet these requirements. But, it is arguable

that the industry is paying a high cost for what may prove to be largely illusory benefits. There is a strong case for arguing that, with complex and highly site-specific, multi-disciplinary projects like hydro, the fixed price EPC contract is a crude instrument. We need to explore better arrangements that allow contractors to bid tighter prices against clearer project briefs that do not require the same risk contingencies. And, the owner has to be prepared to take upon himself some of the responsibilities that owners

took in the past. This obviously starts with recognition of the importance of adequate design and site investigation at the pricing stage.

The sacred cow of single-point responsibility is perhaps less of an issue with a mature technology like hydro, and there must be ways in which mezzanine or contingency financing can be brought into play to cover price variations within defined limits. It will take time to convince financiers, and a new generation of owners, that it might be better for the owner to take more responsibility — not less — and to exercise it through competent engineering, because in the end it will result in a cheaper and better project. ▲

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"The move toward EPC contracts has been driven by the belief that they pass all construction risk, and most performance risk, to the contractor "

— Extract from The Financing of Private Hydropower Projects, World Bank Discussion Paper No. 420.
