Contractor Owned Plant - The Cost of Owning - Part I

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Where a contractor is delayed or disrupted on a project, the delay or disruption may give rise to a claim for additional payment for prolonged working, standing, or idling time for plant. Why, though, should a contractor be entitled to additional payment if its plant is tied up longer on one project due to excusable and compensable events, which are the liability of an employer? The answers are:-

- wear and tear on the item of plant in use;
- lock-up of resources;
- loss of opportunity to earn income with the plant elsewhere;
- business efficacy.

Had the plant been hired then the additional costs for prolonged hire would have been reimbursable as direct loss and/or expense (the HKIA Standard Form of Building Contract). There should be no difference when it comes to contractor-owned plant.

This article, the first of a three-part series, considers some of the complications in assessing financial claims for contractor-owned plant and why, in BERA's opinion, a common sense and business-like approach should be taken to assess the cost of owning plant. Part two of this series considers capital lock-up, replacement and earning potential in times of inflation or deflation. Part three considers plant operating costs and their relationship to owning costs.

To help explain the principles, a worked example is used for a Caterpillar 330L hydraulic excavator purchased new in 1996, by DIG Ltd, for a delivery price of HK$1,400,000 (i.e. the all-in cost). A similar philosophy can be used for other items of plant, including plant, which was not new, when it was purchased.

The cost is calculated on the basis that the excavator was to be used on projects where optimum productivity had to be achieved.

Legal Authority

One practical solution to assessing the cost of owning plant would be to use a fair hire rate as the basis of the financial claim. However, this approach was rejected by the English courts. In Alfred McAlpine Homes North Ltd v Property and Land Contractors Ltd (1995) 76 BLR 59, the judge considered an arbitrator's ascertainment of a claim by reference to reasonable hire charges. The contract was on the JCT Form of Building Contract, 1980 Edition which has similar wording to clause 24 of the HKIA Standard Form of Building Contract for the ascertainment of direct loss and/or expense. Lloyd, J had this to say:

"That in ascertaining direct loss or expense under clause 26 of the JCT conditions in respect of plant owned by the contractor the actual loss or expense incurred by the contractor must be ascertained and not any hypothetical loss or expense that might have been incurred whether by way of assumed or typical hire charges or otherwise".

Lloyd, J went onto hold that "*to ascertain*" meant to "*find out for certain*". This judgement was a correct interpretation of the word "*ascertain*" but presents practical problems as reviewed in this article.

The actual cost of owning plant can cover an array of items including depreciation, interest on the money invested and maintenance. All are supported by legal precedents (see B. Sunley & Co. Ltd v Cunard White Star Ltd [1940] 2 All ER 97). Many variables influence each item making it impossible, in BERA's opinion, to ever "*find out for certain*" the actual cost incurred by a plant owner until the item of plant is sold and all expenditure can be collected together.

Although it was not a case referring to plant costs, it was interesting to read the judgement in the case of How Engineering Services Ltd v Lindner Suspended Ceilings Floors and Partitions (1999) 64 CLR 67 where the meaning of "*ascertainment*" was watered-down by Dyson J to include, in appropriate instances, the "*exercise of judgement*".

Plant-Owning Cost

To obtain a return on its investment in the excavator, DIG Ltd must be able to recover, over the life of the item of plant, the following:-

- the difference between the delivery price and the residual value (i.e. depreciation);
- the other costs of owning the excavator such as finance and insurance;
- capital lock-up (considered in next month's article);
- replacement provisions and inflation / deflation (considered in next month's article); and
- overheads and profit (considered in next month's article).

Depreciation

If the excavator is purchased for a specific project and later sold at the end of that project then the cost of depreciation may be calculated based on invoiced transactions and the duration of the project. However, where the excavator was owned for a number of years and worked on different projects then the cost of depreciation, at any one time, i.e. when the claim effects started and then, again, when they finished, is not a matter for "*ascertainment*" as the cost can only ever be "*assessed*".

Useful Plant Life

Many factors affect depreciation - we will start first with the useful plant life. This is normally expressed in plant hours ("p.h.'s") and is related to the useful plant life, which will vary according to a number of factors, not least:-

- the types of jobs and operating conditions in which the excavator has worked;
- the degree of care and skill taken by the operator;
- the quality and extent of maintenance; and
- the efficiency and productivity required.

The Caterpillar Company is unique in that it produces annually a handbook, which is very detailed. Until a contractor can build up a history of plant performance from its own experience, the handbook can be used as a guide to plant costing. The Caterpillar Performance Handbook (1995) refers to the useful plant life for three operating conditions for a 330L hydraulic excavator i.e.

		p.h.'s
Moderate	Shallow depth utility construction	15,000
Average	Sandy clay / sandy gravel site formation works	12,000
Severe	Hard digging in rock or shot rock	10,000

In BERA's experience, the useful plant life in the Caterpillar Handbooks is associated with the levels of productivity also provided in the Handbooks. Plant can survive longer than the recommended useful plant life but it will not perform at optimum productivity or efficiency in later years. At the end of the useful plant life, the excavator can be reconditioned, scrapped, or downgraded to less demanding work. Either way, there is a residual value.

DIG Ltd's excavator was expected to operate in average to severe working conditions (i.e. a plant life of 11,000 p.h.'s). This was an informed estimate based on a projection of DIG Ltd's expected future workload. But beware! The range is wide - an excavator working in severe conditions will have 2/3rds the useful plant life of an excavator operating in moderate conditions.

Residual Value

There is then the excavator's re-sale or trade-in value to consider (the residual value). This will vary greatly according to the physical conditions and operating history of the excavator and whether it is to be reconditioned, scrapped or down-graded.

	HK$	Depreciation HK$
Delivery Price	1,400,000	
Allow 25% depreciation for 1st year	350,000	350,000
Value of excavator at end of 1st year	1,050,000	
Allow 25% depreciation for 2nd year	262,500	262,500
Value of excavator at end of 2nd year	787,500	
Allow 25% depreciation for 3rd year	196,875	196,875
Value of excavator at end of 3rd year	590,625	
Allow 25% depreciation for 4th year	147,656	147,656
Value of excavator at end of 4th year	442,969	
Allow 25% depreciation for 5th year	110,742	110,742
Value of excavator at end of 5th year	332,227	
Allow 25% depreciation for 6th year	83,057	83,057
Residual value of excavator at end of 6th year	249,170	
Total depreciation		1,150,830
Plant life		÷ 11,000 p.h's
Hourly depreciation (average)		$104.62 / p.h

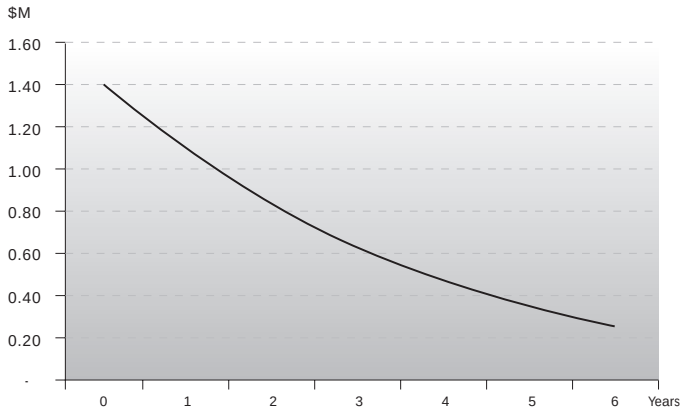

Figure 2 - Depreciation on the written down value method

Moreover, in a restricted market place such as Hong Kong, the residual value will also depend upon market forces as, if there is no work for the excavator, then the price for which it could be sold would be less then it would be if there was ample work for it.

If the excavator is purchased from new, and replaced at the end of its useful plant life, a residual value of 15% (excluding external factors) is a rule of thumb allowance. Actual re-sales and re-sale attempts will provide an indication of a fair residual value but once again there is a wide range.

Depreciation - Methods of Assessment

Consider then the methods of assessing depreciation. The Caterpillar Performance

Handbook recommends a simple straight line write-off based solely on the number of years or hours that the owner expects to use the plant gainfully (see **Figure 1**). In this way, provision is made for plant depreciation including wear and tear.

Delivery price	$1,400,000
Residual value (15%)	($210,000)
Depreciation	$1,190,000
Plant life	÷11,000 p.h's
Hourly depreciation (average)	$108.19/p.h.

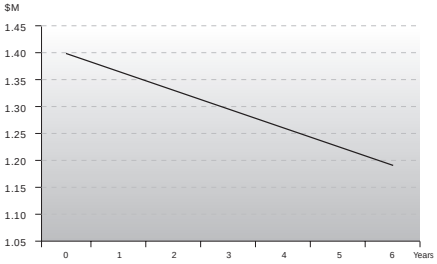

Figure 1 - Straight line method of depreciation

Alternatively, depreciation can be calculated on the written down value method illustrated in **Figure 2**.

The method in **Figure 2** reflects the fact that plant (like a car) can depreciate most in the early years. Therefore, rather than an average depreciation cost over the 11,000 plant hours, an average per annum can be calculated. However, where a claim includes several excavators this is rather impractical, as there would be a different unit cost for each excavator dependent upon age/ usage.

The example in **Figure 2** produces an average hourly depreciation very close to the straight-line method of depreciation as similar data was used.

There are two practical problems with the method at **Figure 2**. First, no published tables exist for the yearly depreciation of plant (at least BERA are not aware of any). Second, the method also introduces a further variable to the depreciation calculation, i.e. the age of the plant.

Relationship Between Age and Plant Life

Many textbooks refer to an average of 1,800 p.h.'s per annum for calculating the cost or age of an excavator (i.e. plant life of 11,000 p.h.'s (1,800 p.h.'s per annum = 6 years). This may not be correct. An excavator, which works double shifts, will clock up plant hours a lot quicker than an excavator on intermittent use. Therefore, just because an excavator exceeds a certain age it does not mean that either the plant hours have been exceeded or the manufacturer's literature is wrong. That excavator may have been idle for long periods or it may have been totally or partially reconditioned. On this basis there can be no depreciation when the excavator is standing, as no plant hours are being clocked-up.

Company Accounts

The method used to depreciate plant in the company accounts may seem an obvious place to consider cost. A word of caution though. If the company uses a straight-line write-off method over 6 years then everything from an office computer (with a 3-year life) to a dump truck (with a 15-year life) could be written off over 6 years! This would mean that, by year 7, the dump truck would have been completely written-off and, hence, would be valued at nil. A depreciation assessment in year 7, based upon the company accounts, would value the dump truck at zero. This is obviously wrong.

The corollary would be that in years 1 to 6 the depreciation cost based upon the company accounts would be higher than it actually was. Again, this is obviously wrong.

Clearly, if the company accounts do not reflect the realities of the situation, the depreciation cost should be re-calculated properly for the purposes of a financial claim.

Insurance

In **Figure 3** allowance is made for the cost of insurance over the life of the excavator. Most hire purchase agreements will require the value of the plant to be insured during the finance period with an all risks policy. Thereafter, any insurance will be at the discretion of the owner.

$$\frac{\text{average annual premium}}{\text{estimated usage per annum}} = \frac{\text{HK\$10,000}}{\text{1,800 p.h.}}$$

$$= \underline{\text{HK\$5.56 / p.h.}}$$

Figure 3 - Insurance

Finance

In **Figure 4** allowance is made for the cost of the finance charges. The excavator was purchased by DIG Ltd on hire purchase over 2 years at 6.5% simple interest.

$$\frac{\text{delivery price x interest rate x finance period}}{\text{plant life}}$$

$$= \frac{\text{HK\$1,400,000 x 6.5\% x 2.0 years}}{\text{11,000 p.h.'s}}$$

$$= \$16.55 \text{ /p.h.}$$

Figure 4 - Finance charges

Conclusions

It should be apparent from this article that, when it comes to assessing plant cost, the task is more art than science. There is plenty of room for "*exercising judgement*". Plant-owning costs are rarely about invoiced transactions or professional valuations. Accordingly, BERA submit that a prudent assessment of the cost of plant should never lose sight of the market rental rate as this will, at least, provide some guidance as to the validity of the judgments exercised and provide an overall reality check on the assessments which have to be made when considering the cost of company-owned plant.

The next article considers capital lock-up, replacement and earning potential in times of inflation or deflation.

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