Chapter 8

Property, plant and equipment

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8.1 Introduction

This chapter considers the accounting requirements affecting property, plant and equipment (PPE). With the exception of impairments, which are dealt with in detail in chapter 11, this chapter covers the following matters.

- Initial recognition and measurement.
- Measurement subsequent to initial recognition, which can be based on cost or fair value.
- The concept and methods of depreciation.
- Selling of other derecognition.

This chapter deals with IAS 16, 'Property, plant and equipment', IAS 40, 'Investment property', IAS 23, 'Borrowing costs', IFRIC 1, 'Changes in existing decommissioning, restoration and similar liabilities', and parts of IAS 38, 'Intangible assets'.

IAS 16 should be applied in accounting for property, plant and equipment, except where another IFRS requires or permits a different accounting treatment. [IAS 16 para 2]. The standard does not apply to:

- Biological assets related to agricultural activity (dealt with by IAS 41, 'Agriculture').
- Recognising and measuring exploration and evaluation assets (dealt with by IFRS 6, 'Exploration for and evaluation of mineral resources').
- Mineral rights and mineral reserves such as oil, natural gas and similar non-regenerative resources.
- Property, plant and equipment classified as held for sale in accordance with IFRS 5 (dealt with by IFRS 5, 'Non-current assets held-for-sale and discontinued operations').

[IAS 16 para 3].

IAS 16 also does not deal with investment property, because IAS 40 does. In this chapter, we discuss IAS 40 in section 8.8, although many other parts of the chapter are also relevant because investment property can be measured on a cost basis.

8.2 Recognition of initial and subsequent costs

IAS 16 defines property, plant and equipment as:

> *"...tangible items that:*
>
> *(a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and*
>
> *(b) are expected to be used during more than one period."*

[IAS 16 para 6].

Cost is defined as *"...the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction"*. [IAS 16 para 6]. Other consideration could, for example, include an asset given up in exchange.

The standard considers the question of how individual items may be identified and the extent to which items may be aggregated. It does not prescribe the unit of measurement, but states that judgement is needed in

applying the recognition criteria to an entity's particular circumstances. [IAS 16 para 9]. Such judgements may include whether individual items should be aggregated and treated as a single item of property, plant and equipment and whether large items should be broken down into significant component parts, which are then treated as separate individual items (perhaps with different useful lives).

Disaggregation is the separation of an asset into its significant components. This is necessary because the standard requires that each part of an item of PPE that has a cost that is significant in relation to the total cost of the item, must be depreciated separately. [IAS 16 para 43]. This does not necessarily mean that these significant components have different useful lives or provide a different pattern of benefits to the entity than the main asset. However, that will often be the case and different useful lives or different depreciation rates or methods will then have to be used for the significant components. For example, an aircraft and its engines may need to be treated as separate depreciable assets and this will be required if they have different useful lives. Another example of a component might be the lining of a blast furnace, where the lining has to be replaced periodically, and thus has a different useful life from the rest of the furnace. Examples of separate components are given in example 8.1.

On the other hand, it notes that it may be appropriate to aggregate individually insignificant items of property, plant and equipment, such as moulds, tools and dies and to apply the recognition criteria to the aggregate value. The standard also states that spare parts and servicing equipment are normally treated as inventory and expensed as consumed. However, major spare parts and stand-by equipment should be treated as PPE when they are expected to be used during more than one period. In the same way, if the spare parts or servicing equipment can only be used in connection with an item of PPE they are accounted for as property, plant and equipment. [IAS 16 para 8]. Where this is the case, the spare parts or servicing equipment would be depreciated over a period that does not exceed the useful life of the related asset. An example of such spare parts and their treatment as PPE is given in example 8.1.

Example 8.1 – Spare parts treated as property, plant and equipment

SAS AB – Report and Accounts – 31 December 2008

Accounting and valuation policies (extract)

Tangible fixed assets (extract)

Tangible fixed assets are carried at cost less accumulated depreciation and any impairment. These assets are depreciated to their estimated residual values on a straight line basis over their estimated useful lives. As the components of aircraft have varying useful lives, the Group has separated the components for depreciation purposes.

Costs for routine aircraft maintenance as well as repair costs are expensed as incurred. Extensive modifications, including the required major overhauls of engines, and improvements to non-current assets are capitalized and depreciated together with the asset to which the work is related over its remaining useful life. Investment in own and leased premises is amortized over their estimated useful lives, but not over a period exceeding the remaining leasing period for leased premises.

Income from the sale or disposal of a tangible fixed asset is calculated as the difference between the sales value and carrying amount. The gain or loss that arises is recognized in the statement of income.

Depreciation is based on the following estimated periods of useful economic life:

Asset class	
Aircraft	20*
Spare equipment and spare parts	20*
Engine components (average)	8
Workshop and aircraft servicing equipment	5
Other equipment and vehicles	3-5
Buildings	5-50

* *Estimated residual value after a useful economic life of 20 years is 10%.*

The recognition principle above should be applied to all PPE costs at the time they are incurred. Such costs include the costs of acquiring or constructing the asset and costs incurred subsequently to add to, replace part of or service the asset. [IAS 16 para 10]. The standard also deals in detail with certain aspects of initial and subsequent costs and these requirements of the standard are described in the following sections.

Initial costs

IAS 16 considers the situation where items of PPE are acquired that, by themselves, may not generate economic benefits, but which are necessary to enable other assets to do so. Examples are assets necessary to ensure safety or to comply with environmental regulations. The standard confirms that such assets should be recognised because they enable other assets to generate economic benefits in excess of the benefits that could otherwise have been derived from those assets. However, the resultant carrying amount of those assets and the related assets is reviewed for impairment to ensure that the combined carrying amount does not exceed their combined recoverable amount. An example is given of a chemical manufacturer that has to install new chemical handling processes to comply with environmental requirements. Such related plant enhancements are capitalised to the extent that they are recoverable (when taken together with the related chemical plant), because without them the entity is unable to manufacture and sell chemicals. [IAS 16 para 11]. A short case study relevant to this in shown as case 8.A

Case 8.A – Costs incurred before planning permission is granted

Entity A is developing a fixed asset property for its own use. It is incurring costs on the development prior to obtaining planning permission.

IAS 16 states that the cost of an item of PPE should be recognised as an asset when it is probable that future economic benefits associated with the item will flow to the entity and the cost of the item can be measured reliably. It can be argued that there are two phases to the development. First, a feasibility stage where all costs should be expensed; second, a development phase where capitalisation is acceptable, subject to the IAS 16 criteria. Judgement needs to be exercised for each situation. In some cases, planning permission will be a formality; the feasibility stage might, therefore, be completed some time before the planning permission is given. If, for example, the company regularly obtains planning permission, has been told informally that it will be granted, has experience of getting it and it will be given in a short space of time, there may be sufficient evidence that there is access to and control over future economic benefit such that the costs may be capitalised. However, in other situations where planning consent is not a formality (for example, if the company has been trying to get planning permission for some time and still has no indication of whether it will be granted), it seems unlikely that the company can demonstrate access to future economic benefit. If the costs do not meet the definition of an asset, they are an expense and should be written off to the income statement as incurred.

Although not specifically addressed in IAS 16, we consider that once such a cost has been classified as an expense, it cannot then be re-classified as an asset at a later date. This differs from the situation where a cost that was originally recognised as an asset has been written down for impairment and that impairment is subsequently reversed in accordance with IAS 36.

Subsequent costs

Once an item of property, plant and equipment has been recognised and capitalised, a company may incur further costs on that asset at a later date. IAS 16 requires that subsequent costs should be capitalised, that is recognised as an asset, only if they meet the recognition criteria in the standard. As explained above these are that:

- It is probable that future economic benefits associated with the item will flow to the entity.
- The cost of the item can be measured reliably.

[IAS 16 para 7].

All other subsequent costs should be recognised as an expense in the period in which they are incurred. For example, the cost of adding a new wing to a hotel should be capitalised as it will meet the recognition criteria of paragraph 7 of IAS 16. The additional rooms increase the revenue earning capacity of the hotel so it is probable that future economic benefits will arise and the cost can be reliably measured. However, the cost of cleaning the hotel, is a period cost of servicing the hotel and should be expensed as incurred.

Thus the standard explains that the costs of the day-to-day servicing of an item of PPE are not recognised as an asset. Instead such costs are recognised in profit or loss as incurred. Day-to-day servicing costs would include costs of labour and consumables and may include the cost of small replacement parts. The purpose of this type of expenditure is often known as 'repairs and maintenance'. [IAS 16 para 12]. The reason why such

costs are expensed rather than capitalised is that they do not add to the future economic benefits of the item of property, plant and equipment. Rather they maintain the asset's potential to deliver the level of future economic benefits that it was expected to provide when it was originally acquired. These subsequent repair and maintenance costs do not, therefore, qualify for recognition as an asset in their own right.

Consider a newly purchased item of property, plant and equipment. Before the asset is depreciated, an assessment must be made of the appropriate useful life, residual value and depreciation method to use. As part of this assessment, it will be expected that there will be certain future costs associated with the asset in order to keep the asset in a good enough condition to perform at expected levels over the expected useful life, such as routine maintenance and repairs. Such costs will not meet the recognition criteria for property plant and equipment in IAS 16 paragraph 7, instead they are recognised in profit or loss as incurred.

By contrast an entity may acquire an asset at a price that reflects the entity's obligation to incur expenditure in the future that is necessary to bring the asset to the location and condition necessary for it to be capable of operating in the manner that management intends. A building might be acquired that requires substantial repairs, or renovation, for example a new roof. In such circumstances the subsequent cost of replacing the roof is capitalised because the cost meets the asset recognition criteria in the standard. It increases the future economic benefits expected to be obtained from the building and can be reliably measured. Case 8.B illustrates.

Case 8.B – Capitalising the cost of remodelling a supermarket

Entity A, a supermarket chain, is renovating one of its major stores. The store will have more available space for in-store promotion outlets after the renovation and will include a restaurant.

Management is preparing the budgets for the year after the store re-opens, which include the cost of remodelling and the expectation of a 15% increase in sales resulting from the store renovations, which will attract new customers.

The expenditure in remodelling the store will create future economic benefits (in the form of 15% of increase in sales) and the cost of remodelling can be measured reliably, therefore it should be capitalised.

Replacement parts and overhauls

The standard requires that the costs of a replacement component be recognised as an asset if they meet the recognition criteria described above. If such costs meet those criteria and are capitalised the carrying amount of the part or parts that are replaced is derecognised, that is the accumulated cost and depreciation of the replaced parts is eliminated. This applies whether or not the replaced part or component had been separately depreciated. If the cost and depreciation of the replaced part or component cannot be identified then it is acceptable to use the cost of the replacement as a proxy for the cost of the replaced part when it was acquired or constructed. [IAS 16 paras 13, 70].

Examples of parts that may require replacement are the lining of a blast furnace that may require replacement after a specified number of hours of use, or aircraft interiors such as seats and galleys that may require replacement several times during the airframe's life. Other examples of parts that may require replacement less frequently are the interior walls of a building or a non-recurring replacement. [IAS 16 para 13]. A non-recurring replacement might be, for example, the replacement of a ventilation system with a new system that meets current health and safety requirements. Case 8.C illustrates.

Case 8.C – Depreciating an asset that requires periodic replacement

A small manufacturing company has recently acquired a new factory, which cost C1m for the freehold and has a residual value of C100,000. This factory has a flat roof, which needs replacing every ten years at a cost of C100,000.

The company is considering two alternative approaches:

- To regard the item as one asset and, therefore, to depreciate the whole factory over its useful economic life of 30 years, charging C30,000 per annum.
- To regard the roof as a significant part of the item and depreciate the cost of the roof of C100,000 over 10 years, giving a depreciation charge of C10,000 per annum and to depreciate the remainder of the factory of C900,000 down to its residual value of C100,000 over 30 years, giving a depreciation charge of C26,667.

Whichever approach is adopted, in year 10 when the roof is replaced the carrying amount attributable to the replaced roof will be written off.

In the first accounting approach above the cost and accumulated depreciation of the old roof could be C100,000 and C33,333 respectively. Therefore, there would be a loss on disposal of C66,667 (the C100,000 replacement cost is used as a proxy for the original cost of the old roof as the actual cost is not determinable. No residual value is assumed for the old roof in calculating the accumulated depreciation).

If the second accounting treatment is adopted the carrying amount of the old roof in year 10 will be nil and the cost and accumulated depreciation of C100,000 are written off, with no profit or loss on disposal arising.

The above alternative treatments have only been used to illustrate the principle. The second approach given is the correct method to use under IFRS. Clearly, it more accurately reflects the company's consumption of economic benefits of the factory, resulting in an even charge to the income statement of C36,667 per annum, over the 30 years of the useful economic life of the factory. As the component in this case is significant this second approach is the one required by paragraph 43 of IAS 16.

The standard notes that: *"A condition of continuing to operate an item of property, plant and equipment (for example an aircraft) may be performing regular major inspections for faults regardless of whether parts of the item are replaced"*. [IAS 16 para 14]. This distinguishes pure inspection costs from costs of replacing parts, which are covered by the previous section above.

Overhaul costs typically include replacement of parts and major repairs and maintenance. As replacement of parts is dealt with separately by the standard, the question which remains is whether major repairs and maintenance costs are included under the term 'inspection'. The answer to this is that it will depend on whether or not repair and maintenance costs meet the standard's criteria for recognition as an asset. As noted above the standard states that the costs of 'day-to-day servicing' of an item do not meet the standard's asset recognition criteria. However, major repair and maintenance programmes carried out as part of a periodic inspection and overhaul and that result in future economic benefits may well qualify for recognition. The dry-docking of a ship would be another example of such an event.

Overhaul costs then may involve three elements, inspection, replacement of parts and major maintenance. Replacement of parts is dealt with separately by the standard and repairs and maintenance are also dealt with separately under the general recognition principle. The standard requires that, when each major inspection is carried out, the cost is recognised as part of the carrying amount of the item of PPE as a replacement if it meets the asset recognition criteria in the standard. Any remaining carrying amount relating to the previous inspection is derecognised. This treatment is regardless of whether or not the cost of the previous inspection was separately identified and depreciated when the item was acquired or constructed. Where the cost of the previous inspection was not separately identified, the estimated cost of a future similar inspection may be used as a proxy for the cost of the previous inspection when calculating the carrying value of the previous inspection that needs to be derecognised. [IAS 16 para 14]. This treatment follows the same principles as apply to replacement parts or components, as above.

An aircraft, for example, may be required by law to be inspected/overhauled every three years. In such a case, IAS 16 requires a proportion of the cost of the asset equivalent to the expected overhaul cost to be identified and depreciated over the period to the next inspection/overhaul if it represents a significant part of the asset's cost. The actual cost of the overhaul or inspection is then capitalised, provided that it meets the recognition criteria, that is it is probable that future economic benefits will flow to the entity and the cost can be measured reliably. This inspection/overhaul cost is then depreciated over the period to the next inspection/overhaul. The cost and depreciation attributed to the overhaul originally should be removed from the balance sheet once the cost of the new overhaul has been capitalised to avoid double counting. The remainder of the asset is depreciated over the full useful life of the asset, on the basis that the appropriate overhauls will be carried out as they are due.

8.3 Initial measurement

Basics

The basic principle in IAS 16 is that items of property, plant and equipment that qualify for recognition should be initially measured at cost. [IAS 16 para 15]. This is normally straightforward as it is generally the

price paid. Where an asset is self-constructed, the production cost will be ascertained by aggregating the price paid for material, labour and other inputs used in the construction.

IAS 16 states that cost of an item of property, plant and equipment comprises:

- The purchase price, including import duties and non-refundable purchase taxes less any trade discounts and rebates.
- Directly attributable costs of bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.
- The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located. The obligation to incur these costs arises either when the item is acquired or as a result of using the item during a particular period other than for the purpose of producing inventories during that period.

[IAS 16 para 16].

Examples of directly attributable costs are:

- The cost of employee benefits as defined in IAS 19, 'Employee benefits', that arise directly from the construction or acquisition of the item.
- The costs of site preparation.
- Initial delivery and handling costs.
- Installation and assembly costs.
- Professional fees.
- Costs of testing whether the asset is working properly (commissioning costs), after deducting the net proceeds of sale of any items produced while bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management (such as samples produced during testing).

[IAS 16 para 17].

Employee benefits are defined in IAS 19 as all forms of consideration given by an entity in exchange for service rendered by employees. [IAS 19 para 7]. The types of benefit include:

- Short-term employee benefits such as wages, salaries and social security contributions, paid annual leave and paid sick leave, profit sharing and annual bonuses and non-monetary benefits such as medical care, cars, housing and free or subsidised goods or services.
- Post-employment benefits such as pensions, other retirement benefits, post-employment life insurance and post-employment medical care.
- Other long-term employment benefits, including long service leave or sabbatical leave, jubilee or other long-service benefits, long-term disability benefit and deferred bonuses or profit sharing and other deferred compensation.
- Termination benefits.
- Share-based payment.

[IAS 19 paras 1, 4 and IFRS 2].

Clearly, the above types of cost will normally be relevant only where an asset is being constructed, although capitalisation may also be possible during the commissioning phase before an asset is capable of operating in the manner intended by management. Not all of the above costs will be eligible or relevant even then. For example, termination benefits paid to employees who have left employment would not be relevant as they would not be involved in constructing the asset. The list is useful, however, in answering some frequently asked questions, such as whether the costs of an employee share scheme, social security costs and company pension contributions may be considered to be directly attributable costs. The answer is that they may,

provided always that they are incurred in bringing an asset to the location and condition necessary for it to operate in the manner intended by management.

Only costs that are directly attributable may be capitalised. Although it is tempting for management, particularly in start-up situations such as opening a new mine or a new manufacturing or retailing operation, to regard all the initial costs as capital to be carried forward and recovered (hopefully) when the operation is up and running successfully, this is forbidden by the standard. Only the costs that are directly attributable to the item of property, plant and equipment, and not the general operating costs, may be capitalised. The standard lists types of costs that are not 'directly attributable' as follows:

- Costs of opening a new facility.
- Costs of introducing a new product or service (including costs of advertising and promotional activities).
- Costs of conducting business in a new location or with a new class of customer (including costs of staff training).
- Administration and other general overhead costs.

[IAS 16 para 19].

Case 8.D illustrates.

Case 8.D – Capitalisation of directly attributable costs

Entity A, which operates a major chain of supermarkets, has acquired a new store location. The new location requires significant renovation expenditure. Management expects that the renovations will last for three months during which the supermarket will be closed. Management has prepared the budget for this period including expenditure related to construction and remodelling costs, salaries of staff who will be preparing the store before its opening and related utilities costs.

Management should capitalise the costs of construction and remodelling the supermarket, because they are necessary to bring the store to the condition necessary for it to be capable of operating in the manner intended by management. The supermarket cannot be opened without incurring the remodelling expenditure, and thus the expenditure should be considered part of the asset.

However, the cost of salaries, utilities and storage of goods are operating expenditures that would be incurred if the supermarket was open. These costs are not necessary to bring the store to the condition necessary for it to be capable of operating in the manner intended by management and should be expensed.

Start-up costs

Start-up costs and similar pre-production costs do not form part of the cost of an asset. Initial operating losses incurred prior to an asset achieving its planned performance are recognised as an expense. The same would apply to operating losses that occur because a revenue earning activity has been suspended during the construction of an item of property, plant and equipment. Such losses should also be expensed. An example might be where a hotel is being refurbished and is, therefore, closed for a period. The losses incurred in that period (rents, wages etc) would be expensed as incurred as they would not form part of the cost of improvements.

An example of where costs should not be capitalised relates to a new hotel or bookshop, which could operate at normal levels almost as soon as it has been constructed or opened, but where demand usually builds up slowly and full use or sales levels will be reached only after several months. In such a case, initial operating losses in the start-up period are not costs that may be capitalised. Similarly, marketing and similar costs associated with generating demand for the services of the item of property, plant and equipment may not be capitalised as part of the asset. Cases 8.E and 8.F illustrate.

Case 8.E – Operating costs incurred in the start-up period

An amusement park has a 'soft' opening to the public, to trial run its attractions. Tickets are sold at a 50% discount during this period and the operating capacity is 80%. The official opening day of the amusement park is three months later.

Management claim that the soft opening is a trial run necessary for the amusement park to be in the condition capable of operating in the intended manner. Accordingly, the net operating costs incurred should be capitalised.

The net operating costs should not be capitalised, but should be recognised in the income statement. Running at 80% operating capacity is sufficient evidence that the amusement park is capable of operating in the manner intended by management.

Case 8.F – Pre-opening rentals

A new store is being developed on a rented site. Can the rentals incurred before the store is opened be capitalised and then amortised over the period of the lease?

No. The rentals would not qualify for capitalisation as part of the cost of the store fixed assets, as they are not costs directly attributable to bringing the assets to the location and condition necessary for them to be capable of operating in the manner intended by management. [IAS 16 para 16]. The rentals are in effect part of the start-up costs, which should be expensed. [IAS 16 para 19].

Self-constructed assets

An entity might obtain a non-current asset by constructing it, using its own labour and materials. In this case, the same principles as above are used for determining cost. Example 8.2 relates to this.

Example 8.2 – Accounting policy for self-constructed items of property, plant and equipment

Bayer AG – Report and Accounts – 31 December 2008

4. Basic principles, methods and critical accounting policies (extract)

Property, plant and equipment (extract)

The cost of acquisition comprises the acquisition price plus ancillary and subsequent acquisition costs, less any reduction received on the acquisition price. The cost of self-constructed property, plant and equipment comprises the direct cost of materials, direct manufacturing expenses and appropriate allocations of material and manufacturing overheads. Where an obligation exists to dismantle or remove an asset or restore a site to its former condition at the end of its useful life, the present value of the related future payments is capitalized along with the cost of acquisition or construction upon completion and a corresponding liability is recognized.

If the construction phase of property, plant or equipment extends over a long period, the interest incurred on borrowed capital up to the date of completion is capitalized as part of the cost of acquisition or construction in accordance with IAS 23 (Borrowing Costs).

Software development costs

Computer software development costs may arise in several ways as discussed in more detail in chapter 9. In some cases an asset comprises both tangible and intangible elements and judgement is needed to determine which element is more significant.

For example, computer software for a machine that cannot operate without that specific software is an integral part of the machine and is treated as property, plant and equipment. The same applies to an operating system of a computer. Where software is not an integral part of the related hardware, it is treated as an intangible asset. [IAS 38 para 4]. An example of capitalisation of software as property, plant and equipment, where it is an integral part of another tangible asset is given as example 8.3.

Example 8.3 – Capitalisation of software as property, plant and equipment

TeliaSonera AB – Report and Accounts – 31 December 2008

Note 4 (Consolidated) (extract)

Significant Accounting Policies (extract)

Property, plant and equipment are measured at cost, including directly attributable borrowing costs, less accumulated depreciation and any impairment losses. Software used in the production process is considered to be an integral part of the related hardware and is capitalized as plant and machinery.

Decommissioning costs

As mentioned above, the cost of an item of PPE includes the estimated costs of dismantling and removing the asset and restoring the site on which it is located ('decommissioning costs'). However, this is only allowed when there is a corresponding obligation recognised as a provision under IAS 37, 'Provisions, contingent liabilities and contingent assets'. This is consistent with example 3 in Appendix C to IAS 37, in which the costs relating to an obligation to restore damage caused by the installation of an oil rig are set up as a provision under IAS 37 and the costs are also included as part of the cost of the oil rig.

Whilst IAS 16 does not apply to mineral rights or mineral resources such as oil, natural gas and similar non-regenerative resources (see 'Scope' above), it does apply to property, plant and equipment used to develop or maintain those assets. Accordingly, in the above example IAS 16 applies to the capitalisation of cost and the decommissioning provision in respect of the obligation to restore the damage caused by the installation of the oil rig, because the rig is an asset that is used to develop the oil resources.

At first glance, it seems odd to capitalise decommissioning costs that are not going to emerge until later in the asset's life. However, where the entity has an obligation as a direct consequence of acquiring or constructing property, plant and equipment to incur further costs in the future that it cannot avoid, a provision is recognised in accordance with IAS 37. Therefore, the decommissioning costs at the end of the asset's life are just as much a cost of acquiring or constructing the asset as the costs incurred at the start of the asset's life. Example 8.4 illustrates capitalisation of the estimated cost of decommissioning.

Example 8.4 – Capitalisation of the estimated cost of decommissioning and restoration and changes in provisions

TeliaSonera AB – Report and Accounts – 31 December 2008

Note 4 (Consolidated) (extract)

Significant Accounting Policies (extract)

Intangible assets, and property, plant and equipment (extract)

Property, plant and equipment are measured at cost, including directly attributable borrowing costs, less accumulated depreciation and any impairment losses. Software used in the production process is considered to be an integral part of the related hardware and is capitalized as plant and machinery. Property and plant under construction is valued at the expense already incurred, including interest during the installation period. To the extent a legal or constructive obligation to a third party exists, the acquisition cost includes estimated costs of dismantling and removing the asset and restoring the site. The cost of replacing a part of an item of property, plant and equipment is recognized in the carrying value of the item if it is probable that the future economic benefits embodied within the item will flow to TeliaSonera and the cost of the item can be measured reliably. All other replacement costs are expensed as incurred. A change in estimated expenditures for dismantling, removal and restoration is added to and/or deducted from the carrying value of the related asset. To the extent that the change would result in a negative carrying value, this effect is recognized as income. The change in depreciation charge is recognized prospectively.

Examples of decommissioning costs that may be capitalised as part of the cost of the asset typically arise in oil and gas and electricity industries where environmental damage is caused by the construction and commissioning of the facility (for example, an oil platform or nuclear plant). Similar costs are incurred in other industries, such as, abandonment costs in the mining and extractive industries, clean up and restoration costs of landfill sites and environmental clean up costs in a number of industries.

Inevitably, there are likely to be significant changes in the initial (and subsequent) estimates of decommissioning costs of an asset, particularly where asset lives are long. These may be due to changes in legislation, technology, timing of the decommissioning, management's assumptions etc. The question is how these changes in estimates should be reflected when such obligations had previously been recognised as a provision and the cost capitalised as part of the cost of the asset. These issues together with the problems associated with discounting are dealt with by IFRIC 1, 'Changes in existing decommissioning, restoration and similar liabilities'.

For assets measured using the cost model (which is used by most companies for most assets), changes in the measurement of an existing decommissioning, restoration and similar liability and changes in the discount rate should be accounted for as follows:

- Changes should be added to, or deducted from, the cost of the related asset in the current period, subject to the following bullet point.
- The amount deducted from the cost of the asset must not be greater that the asset's carrying amount (that is, the deduction must not give rise to a 'negative asset'). If the decrease in the liability exceeds the asset's carrying amount, the excess must be recognised immediately in profit or loss.
- If the adjustment results in an addition to the cost of the asset, for example where the liability has increased, the entity must consider whether the new carrying amount is fully recoverable or not. If there is an indication that the asset may not be fully recoverable the entity should carry out an impairment test and account for any loss in accordance with IAS 36.

[IFRIC 1 para 5].

The interpretation adds that the adjusted depreciable amount of the asset is depreciated over its useful life. Once the asset has reached the end of its useful life (that is, when it is no longer being used by the entity) changes in the decommissioning or restoration liability are recognised in profit and loss as they occur. In practice, decommissioning often takes a considerable period after an asset has reached the end of its useful life, so this is an important and relevant requirement. [IFRIC 1 para 7].

The interpretation also deals with the periodic unwinding of the discount, IFRIC considered whether the unwinding of the discount was a borrowing cost for the purpose of IAS 23 (revised) and decided that it was not, because the provision for decommissioning was not a borrowing. Therefore, it decided that the unwinding of the discount would not qualify for capitalisation under IAS 23 (revised) and should be charged to profit or loss as a finance cost as it occurs. [IFRIC 1 paras 8, BC26, BC27].

An illustration of an accounting policy is given in example 8.4 above.

Capitalisation of borrowing costs

IAS 16 requires capitalisation of costs to take place only in respect of the period in which the activities necessary to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management are being undertaken. Thus, capitalisation should cease when substantially all the activities necessary to get the asset ready for use are complete, even if the asset has not yet been brought into use. [IAS 23 para 22]. IAS 23 states that 'ready for use' means when the physical construction of the asset is complete even though routine administrative work might still continue. For example, if minor decoration of a property to a purchaser's specification is all that is outstanding this indicates that the asset is substantially complete. [IAS 23 para 23].

Examples of borrowing costs are:

- Interest expense calculated using the effective interested method (described in IAS 39, 'Financial instruments: Recognition and measurement').
- Finance charges in respect of finance leases recognised in accordance with IAS 17, 'Leases'.
- Exchange differences arising from foreign currency borrowings to the extent that they are regarded as an adjustment to interest costs.

[IAS 23 para 6].

The types of asset that may fall within the definition are not limited to PPE, but also include assets such as inventories that require a 'substantial period of time' to bring them to a saleable condition. IAS 23 does not define 'substantial period of time'. Management exercises judgement when determining which assets are qualifying assets, taking into account the nature of the asset. An asset that normally takes more than a year to be ready for use will usually be a qualifying asset. Once management chooses the criteria and type of assets, it applies this consistently to those types of asset. Management discloses in the notes to the financial statements, when relevant, how the assessment was performed, which criteria were considered and which types of asset are subject to capitalisation of borrowing costs. Property, plant and equipment that fall within the definition might include manufacturing plant, power generation facilities and construction of investment properties. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

IAS 23 states that only directly attributable borrowing costs should be capitalised. 'Directly attributable' means those borrowing costs that would have been avoided (for example, by avoiding additional borrowings or by using the funds paid out for the asset to repay existing borrowings) if there had been no expenditure on the asset. [IAS 23 paras 8, 10].

Where an entity borrows specifically for the purpose of obtaining a qualifying asset, the borrowing costs attributable to obtaining that asset are readily identifiable. However, where such specific borrowings are not taken out and an entity funds the asset out of general borrowings, it may be difficult to identify a relationship between particular borrowings and a qualifying asset and thus to determine the borrowings that could have been avoided had there been no expenditure on the asset.

Such a situation might occur where an entity has a centralised treasury function, which uses a range of debt instruments carrying different rates of interest and lends funds to group companies, perhaps at different interest rates or even interest free. Other difficulties may arise where an entity uses foreign currency loans or operates in a highly inflationary economy. In such situations, the standard states that determining the amount of borrowing costs that is directly attributable to obtaining a qualifying asset is difficult and that the exercise of judgement is required. [IAS 23 (revised) para 11]. However, the standard helps by giving guidance for capitalisation where funds are borrowed generally, as well as for the more straightforward situation where funds are borrowed specifically to obtain a qualifying asset.

IAS 23 gives guidance on how borrowing costs to be capitalised should be determined. If a particular borrowing can be specifically associated with expenditure on constructing or producing the asset, the amount of borrowing costs capitalised is limited to the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. [IAS 23 para 12]. Case 8.G illustrates this.

Case 8.G – Specific borrowing costs capitalised

An entity has borrowed C1m specifically to finance the cost of constructing a new head office. The loan is drawn on 1 February 20X9 and during the year the entity pays interest on that loan at a rate of 12% until 1 November 20X9 when the interest rate is increased to 13% due to a rise in LIBOR. Construction on the building does not begin until 1 September 20X9 and continues without interruption until after the year end on 31 December 20X9. During the period of construction the entity incurs directly attributable costs of C100,000 in September 20X9 and C250,000 in each month from October 20X9 to December 20X9 (for simplicity it is assumed that these costs are incurred on the first day of each month). Each month the borrowings, less any amount that is to be expended for the building works in that month are re-invested and earn interest at a rate of 5% per annum.

During the year ended 31 December 20X9, the entity, therefore, incurs interest on the C1m loan totalling C111,667 and earns interest on the re-invested portion of the loan of C37,917.

The interest paid and received during the period of construction is as follows:

	C
Interest payable for September 20X9 at 12%	10,000
Interest payable for October 20X9 at 12%	10,000
Interest payable for November 20X9 at 13%	10,833
Interest payable for December 20X9 at 13%	10,834
Total interest payable during period of construction to end December	41,667
Interest receivable on re-invested funds of C900,000 in September 20X9	3,750
Interest receivable on re-invested funds of C650,000 in October 20X9	2,708
Interest receivable on re-invested funds of C400,000 in November 20X9	1,667
Interest receivable on re-invested funds of C150,000 in December 20X9	625
Total interest receivable to end December 20X9	8,750
Net initial cost	32,917

As stated above, to the extent that borrowings are raised specifically for obtaining a qualifying asset the amount of borrowing costs that may be capitalised is the actual costs during the period of construction less any investment income on the temporary investment of the borrowings. Under IAS 23, the amount of borrowing costs that may be capitalised on specific borrowings is, therefore, C32,917, being interest paid of C41,667 from 1 September to 31 December 20X9 less interest received of C8,750 from 1 September to 31 December 20X9.

It might be argued that IAS 23 could be interpreted to mean that all of the interest paid in the period, that is C111,667 less the interest received of C37,917, could be capitalised. The reason this is not so is that prior to 1 September 20X9, when construction commences, the borrowing costs cannot be said to be directly attributable to the construction of the asset, as no expenditure on the asset is being incurred. The standard sets out detailed rules on when capitalisation may commence and these are described below under 'Period of capitalisation of borrowing costs'.

Where funds are borrowed generally and used for financing the asset's construction or production, the amount of borrowing costs eligible for capitalisation should be determined by applying a capitalisation rate to the expenditure on that asset. The capitalisation rate should be the weighted average of the borrowing rates applicable to the borrowings of the entity that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs capitalised during a period should not exceed the amount of borrowing costs incurred during the period. [IAS 23 para 14].

IAS 23 does not define 'expenditure on the asset', to which the capitalisation rate should be applied. A suitable method of calculating such expenditure would be to calculate the weighted average carrying amount of the asset during the period (including borrowing costs previously capitalised) and apply the capitalisation rate to the resultant figure.

In calculating which general borrowings to include in the weighted average in a group situation, judgement is needed. It may be appropriate in some cases to include all borrowings of a parent and its subsidiaries when calculating the weighted average borrowing costs, particularly where the treasury function is managed centrally within the group or where the parent and the subsidiary are all within the same geographical area and their borrowings are generally at similar rates. In other cases, for example, where each subsidiary is responsible for managing its own treasury function or where there are many overseas subsidiaries, which borrow at different rates in different currencies to finance their capital expenditure, it may be appropriate for each subsidiary to calculate the weighted average applicable to its own borrowings.

In consolidated financial statements the limitation applied is the consolidated amount of borrowing costs, because consolidated financial statements should be prepared so far as possible as if they were the financial statements of a single entity. The limitation on capitalising borrowing costs, described above, is sometimes objected to by companies that have little borrowing, but which are using cash resources to finance the construction of property, plant and equipment. The argument put forward is that cash being used to finance the construction could otherwise have been used to earn interest and it is, therefore, fair to attribute a notional borrowing cost representing the opportunity cost of the cash employed in financing the asset's construction. IAS 23 does not accept this argument limits the amount that can be capitalised to the actual borrowing costs incurred. [IAS 23 para 3]. General borrowings are illustrated in cases 8.H and 8.I.

Case 8.H – General borrowings used to finance qualifying assets

The entity uses general borrowings to finance its qualifying assets. However, cash flows from the operating activities would be sufficient to finance the capital expenditures incurred during the period. Can management claim that the general borrowings are used to finance working capital and other transactions (for example, merger and acquisition activity) but not to finance the qualifying assets, in which case no borrowing costs would be capitalised?

No. It is presumed that any general borrowings in the first instance are used to finance the qualifying assets (after any funds specific to a qualifying asset). This is the case even where the cash flows from operating activities are sufficient to finance the capital expenditure.

Case 8.I – General borrowing costs: weighted average capitalisation rate

As in the previous example, an entity constructs a new head office building commencing on 1 September 20X9, which continues without interruption until after the year end on 31 December 20X9. Directly attributable expenditure on this asset is C100,000 in September 20X9 and C250,000 in each of the months of October to December 20X9. Therefore, the weighted average carrying amount of the asset during the period is C475,000 ((100,000 + 350,000 + 600,000 + 850,000)/4).

The entity has not taken out any specific borrowings to finance the construction of the asset, but has incurred finance costs on its general borrowings during the construction period. During the year the entity had 10% debentures in issue with a face value of C2m and an overdraft of C500,000, which increased to C750,000 in December 20X9 on which interest was paid at 15% until 1 October 20X9, when the rate was increased to 16%. The capitalisation rate of the general borrowings of the entity during the period of construction is calculated as follows:

	C
Finance cost on C2m 10% debentures during September – December 20X9	66,667
Interest at 15% on overdraft of C500,000 in September 20X9	6,250
Interest at 16% on overdraft of C500,000 in October and November 20X9	13,333
Interest at 16% on overdraft of C750,000 in December 20X9	10,000
Total finance costs in September – December 20X9	96,250

Weighted average borrowings during period $= \frac{(2 \text{ million} \times 4) + (500{,}000 \times 3) + (750{,}000 \times 1)}{4}$

$= C2{,}562{,}500$

Capitalisation rate = total finance costs in period/weighted average borrowings during period

$= 96{,}250/2{,}562{,}500$

$= 3.756\%$

The capitalisation rate, therefore, reflects the weighted average cost of borrowings for the 4 month period that the asset was under construction. On an annualised basis 3.756% gives a capitalisation rate of 11.268% per annum, which is what would be expected on the borrowings profile.

Therefore, the total amount of borrowing costs to be capitalised

= weighted average carrying amount of asset × capitalisation rate
= C475,000 × 11.268% × 4/12
= C17,841

Some groups of companies with little or no borrowing have subsidiaries that are engaged in constructing assets. In such circumstances, it is possible for the subsidiary to capitalise interest in its own financial statements on finance provided by another group entity, even though at the consolidated financial statements level such intra-group interest must be eliminated, because the group as a whole has not incurred interest on those borrowings. But where another group member borrows externally and lends to the construction subsidiary, any interest capitalised will remain on consolidation, subject to the overall limit that capitalised borrowing costs cannot exceed the consolidated borrowing costs incurred.

IAS 23 gives quite specific rules regarding which period should be used to determine the finance costs to be capitalised. It states:

" The commencement date for capitalisation is the date when the entity first meets all of the following conditions:

(a) it incurs expenditures for the asset;

(b) it incurs borrowing costs; and

(c) it undertakes activities that are necessary to prepare the asset for its intended use or sale."

[IAS 23 para 17].

Therefore, where borrowings have been incurred specifically to fund an asset's construction, the costs of those borrowings cannot be capitalised in the period before the commencement of the activities necessary to get the asset ready for use. Whilst these activities would often coincide with the commencement of the asset's physical construction, they also encompass more than the asset's physical construction. They include technical and administrative work prior to the commencement of physical construction, for example drawing up site plans and obtaining planning permission. However, they exclude holding the asset when no production or development that changes the asset's condition is being undertaken. For example, borrowing costs incurred while land acquired for building purposes is held without any development activity taking place do not qualify for capitalisation. [IAS 23 para 19]. Case 8.J relates to this.

Case 8.J – Period of capitalisation

Entity A has purchased a piece of land formerly used for agricultural purposes in order to construct a new factory. Entity A has applied to the local authorities for permission to change the use of the land from agricultural to industrial. The process is expected to last six months, but entity A's management are confident approval will be given as the new factory will bring 1,000 new jobs to the area.

Entity A has financed the purchase of the land with a bank loan, which will be repaid over seven years.

The application to the local authorities for the change in use of the land is an activity necessary to prepare the asset for its intended use. Entity A, therefore, capitalises borrowing costs in respect of the loan used to finance the land's purchase while local authority approval is awaited.

This conclusion relies on the expectation that the local authorities will approve the change in use of the land. If entity A was to become aware during the approval process that approval is unlikely to be given, it should cease capitalising borrowing costs and test the asset for impairment.

IAS 23 also states that *"An entity shall suspend capitalisation of borrowing costs during extended periods in which it suspends active development of a qualifying asset"*. [IAS 23 para 20]. The standard explains that borrowing costs may be incurred during an extended period in which activities necessary to prepare an asset for its intended use are interrupted. It states that such costs do not qualify for capitalisation. However, it states that capitalisation is not normally suspended during a period when substantial technical and administrative work is being carried out. Capitalisation is also not suspended when a temporary delay is a necessary part of the process of getting an asset ready for its intended use. An example given in the standard is an extended period during which high water levels delay construction of a bridge, where such high water levels are common during the construction period in the geographic region involved. [IAS 23 para 21].

Government grants

The carrying amount of assets may be reduced by the amount of government grants. [IAS 16 para 28]. Government grants are dealt with in IAS 20, 'Accounting for government grants and disclosure of government assistance'. IAS 20 is discussed in chapter 15.

Exchanges of assets

An item of PPE may be acquired in exchange for another non-monetary asset or for a combination of non-monetary and monetary assets. The cost of such an acquired item is measured at fair value unless:

- the exchange transaction has no commercial substance; or
- the fair value of neither the asset received nor the asset given up can be reliably measured.

This applies even if the entity cannot immediately derecognise the asset given up. 'Fair value' is defined in IAS 16 as *"... the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction"* (see para 16.193). [IAS 16 para 6]. If the acquired item is not measured at fair value (because, for example, one or both of the two exceptions described above apply) it is measured at the carrying amount of the asset given up. [IAS 16 para 24]. 'Carrying amount' is defined in IAS 16 as *"...the amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses"*. [IAS 16 para 6].

The standard notes that the result of the above analysis may be clear without the entity having to perform detailed calculations. [IAS 16 para 25]. This will often be the situation where similar assets are exchanged or an asset is sold for an equity interest in a similar asset. If essentially the company is in the same position as it was before the transaction and no material change has taken place in its net assets, no gain or loss is recognised on the transaction and the cost of the new asset is the carrying amount of the asset given up. However, the fair value of the asset received may provide evidence of impairment in the asset given up and in such a case the value assigned to the new asset should be written down. Effectively in such a situation, the fair value of the asset received is used to identify a pre-existing impairment of the asset given up. But as the exchange transaction itself lacks commercial substance, the new asset is recorded at the (adjusted) carrying amount of the asset given up, albeit that that amount is now the same as the fair value of the asset received. An example is given in case 8.K.

Case 8.K – Exchange of assets that lack commercial substance

Entity A exchanges car X with a book value of C13,000 and a fair value of C13,250 for cash of C150 and car Y which has a fair value of C13,100. The transaction lacks commercial substance as the company's cash flows are not expected to change as a result of the exchange; it is in the same position as it was before the transaction.

The entity recognises the assets received at the book value of car X. Therefore, it recognises cash of C150 and car Y as property, plant and equipment with a carrying value of C12,850.

Where there are no comparable market transactions, the fair value of either the asset given up or the asset received can still be reliably measured if:

- the range of reasonable estimates of fair value does not vary significantly, that is if the range is reasonably narrow; or
- if the range itself is not narrow, the probabilities of the various estimates within the range can be reasonably assessed and used in estimating fair values.

Where both the fair value of the asset given up and the fair value of the asset received can be estimated with equal reliability, the fair value of the asset given up is used to measure the cost of the asset received. However, if the fair value of the asset received can be measured with more reliability, that value is used. [IAS 16 para 26].

8.4 Subsequent measurement

Introduction

After initial recognition IAS 16 permits an entity to adopt either the cost model or the revaluation model. The adopted policy should be applied to the whole of a class of property, plant and equipment and not merely to individual assets within a class. [IAS 16 para 29].

The cost model requires that PPE should be carried at cost less accumulated depreciation and accumulated impairment losses. [IAS 16 para 30]. The revaluation model requires that, subsequent to initial recognition, PPE whose fair value can be reliably measured should be carried at a revalued amount, being fair value at the date of revaluation, less any subsequent accumulated depreciation and any subsequent accumulated impairment losses. Revaluations should be carried out with sufficient regularity that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period. [IAS 16 para 31].

Class of assets

IAS 16 requires that if a single item of PPE is revalued, then the entire class of PPE to which that item belongs should be revalued, although the policy need not be applied to all classes of property, plant and equipment. [IAS 16 para 36]. This reduces the scope for picking out individual assets for revaluation, just because they happen to have significantly increased in value. However, this requirement means that adopting a policy of revaluation may be more onerous and involve more complex record keeping than before.

However, for valuation purposes, an entity may adopt classes of assets narrower than, say, land and buildings and plant and machinery, provided that they meet the following definition: *"...a grouping of assets of a similar nature and use in an entity's operations"*. [IAS 16 para 37].

Other than ruling out classes of assets determined on a geographical basis, this definition is reasonably flexible, so that an entity can adopt meaningful classes that are appropriate to the type of business and assets held by an entity. However, separate disclosures must be made for each class of assets. For example, each class of assets must be presented as a separate category in the table of movements in property, plant and equipment in the notes to the financial statements. [IAS 16 para 73]. In practice, this effectively prevents the adoption of many narrowly defined classes of assets. Cases 8.L and 8.M illustrate.

Examples of classes of assets given in IAS 16 are:

- Land.
- Land and buildings.
- Machinery.
- Ships.
- Aircraft.
- Motor vehicles.
- Furniture and fittings.
- Office equipment.

[IAS 16 para 37].

Case 8.L – Revaluation on a class-by-class basis

Entity A is a large manufacturing group. It owns a considerable number of industrial buildings, such as factories and warehouses and office buildings in several capital cities. The industrial buildings are located in industrial zones, whereas the office buildings are in central business districts of the cities. Entity A's management want to apply the IAS 16 revaluation model to the subsequent measurement of the office buildings but continue to apply the historical cost model to the industrial buildings. Is this acceptable under IAS 16, 'Property, plant and equipment'?

Entity A's management can apply the revaluation model to just the office buildings. The office buildings can be clearly distinguished from the industrial buildings in terms of their function, their nature and their general location. IAS 16 permits assets to be revalued on a class-by-class basis. [IAS 16 para 36]. The different characteristics of the buildings enable them to be classified as different PPE classes. The different measurement models can, therefore, be applied to these classes for subsequent measurement. All properties within the class of office buildings must, therefore, be carried at revalued amount. Separate disclosure of the two classes must be given. [IAS 16 para 73].

Case 8.M – Implications of valuing fixed assets on an acquisition

Entity A is acquiring entity B, which has fixed assets that are a similar class of fixed assets to those already owned by entity A. Generally, where fixed assets are revalued, all the assets of that class have to be revalued. Does this mean that when the company fair values the acquired subsidiary's fixed assets, it is required to revalue its own fixed assets that are in the same class?

The fair value on acquisition is cost to the group of the fixed assets acquired, so no revaluation has taken place from a group perspective. Therefore, the existing tangible fixed assets of the same class held by the group do not need to be revalued (assuming that the group does not have a policy of revaluing its fixed assets).

Frequency of revaluations

One of the requirements of IAS 16 is that valuations should remain up-to-date, as old valuations that do not reflect current values have little meaning. IAS 16 does not specifically require valuations to be performed every year. Instead, it lays down the general principle that revaluations should be made with sufficient regularity that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period. [IAS 16 para 31]. This imposes no specific time interval for valuations.

The frequency of revaluations, therefore, depends on movements in the fair value. Where the fair value of a revalued item of PPE at the balance sheet date differs materially from its carrying amount, a further revaluation is necessary. Where fair values are volatile, such as is often the case with land and buildings, frequent revaluations may be necessary. The standard suggests that annual revaluations may be needed. Where movements in fair value are small, revaluations every three or five years may be sufficient. [IAS 16 para 34].

A material change in value might be defined as one that would reasonably influence the decisions of a user of the financial statements. It is a matter of judgement, which is ultimately the responsibility of management. However, in making that judgement, management would probably consult their valuers and consider, among other things, factors such as changes in the general market, the condition of the asset, changes to the asset and its location. In coming to their decision, management should consider the combined effect of all the relevant factors, as it is possible that the effect of one factor may be offset by other factors.

Clearly, management needs to have a process by which it can monitor the movements in fair value each year, even if this does not amount to a full annual revaluation. This process may take the form of obtaining information on general fair value movements from, and consultation with, valuers on an annual basis. Assets in a class may be revalued on a rolling basis, provided that the revaluation is completed within a short period of time and that the revaluations are kept up to date. [IAS 16 para 38].

Valuers

Valuation of land and buildings is normally undertaken by a professionally qualified valuers. [IAS 16 para 32]. That is, a person who:

- Holds a recognised and relevant professional qualification.
- Has recent relevant post-qualification experience.
- Has sufficient knowledge of the state of the market in the location and category of the asset being valued.

Normally, valuers would be independent of the entity (external valuers), but internal valuers might also be used. For example, an entity might have a policy of commissioning external valuations every three years, with a review by internal valuers each year. An internal valuer would normally be a director, officer or employee of the entity. By contrast an external valuer should not be a director, officer or employee of the entity, nor have a significant financial interest in the entity.

Bases of valuation

Under IAS 16, if a policy of revaluation is adopted, the basis of valuation used is 'fair value'. Fair value is defined in IAS 16 as *"...the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction"*. [IAS 16 para 6]. The fair value of land and buildings is usually determined from market-based evidence by an appraisal that is normally undertaken by a qualified valuer (see further para 16.196 onwards). The fair value of plant and equipment is usually the market value of the item determined by appraisal (but see further para 16.194 below). [IAS 16 para 32]. The International Valuation Standards Committee (IVSC) is a leading international authority on valuation methods to be adopted in relation to IFRS and its guidance is referred to in the paragraphs that follow.

Market value will reflect the highest and best use of the asset, which will usually be its existing use but may be for some other use. For example, if an entity owns a plot of land in a city centre on which it has a warehouse, the site may have potential for residential development, meaning that its market value could be significantly

higher than its value as an industrial site (although the entity would have to incur costs, such as relocation or closure costs, in order to realise that value).

Where there is no market-based evidence of fair value, because of the specialised nature of items of PPE and because the items are rarely sold except as part of a continuing business, they are valued using an income or a replacement cost approach. [IAS 16 para 33]. Second hand plant and equipment is rarely sold, other than as part of a continuing business. When it is sold, it is often as a result of, say, a business closure or insolvency and the market value achieved for the plant and equipment is often far below what its value would be in a continuing operation. Therefore, plant and equipment will often be valued on a depreciated replacement cost basis.

The depreciated replacement cost (DRC) basis of valuation is used for specialised items of property, plant and equipment, as there is no means of ascertaining a market value for such assets. Such assets are rarely, if ever, sold on the open market except as part of a continuing business.

Specialised properties might include:

- Oil refineries and chemical works where, usually, the buildings are no more than housings or claddings for highly specialised plant.
- Power stations and dock installations.
- Properties of such construction, arrangement, size or specification that there would be no market (for sale to a single owner occupier for continuation of existing use) for the properties.
- Standard properties of abnormal size in particular geographic areas that are isolated or remote from main business centres and which are located there for business or operational reasons, such that there is no market there for the properties.
- Schools, colleges and research establishments where there is no market for such properties from other competing organisations in the area.
- Hospitals, health centres and leisure centres where there is no competing market demand in the area.
- Museums, libraries and other similar public sector properties.

The method of calculating DRC described above is consistent with the present guidance given by the IVSC, which defines DRC as follows: *"The current cost of reproduction or replacement of an asset less deductions for physical deterioration and all relevant forms of obsolescence and optimisation"*. [GN 8 para 3.1]. Example 8.5 illustrates.

Example 8.5 — Depreciated replacement cost (DRC)

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3 Summary of principal accounting policies (extract)
(f) Property, plant and equipment (extract)

Property, plant and equipment, including oil and gas properties (Note 3(g)), are recorded at cost less accumulated depreciation, depletion and amortization. Cost represents the purchase price of the asset and other costs incurred to bring the asset into existing use. Subsequent to their initial recognition, property, plant and equipment are carried at revalued amounts. Revaluations are performed by independent qualified valuers on a periodic basis.

In the intervening years between independent revaluations, the directors review the carrying values of the property, plant and equipment and adjustments are made if the carrying values differ materially from their respective fair values.

Increases in the carrying values arising from revaluations are credited to the revaluation reserve. Decreases in the carrying values arising from revaluations are first offset against increases from earlier revaluations in respect of the same assets and are thereafter charged to the consolidated statements of income. All other decreases in carrying values are charged to the consolidated statements of income. Any subsequent increases are credited to the consolidated statements of income up to the respective amounts previously charged.

Revaluation surpluses realised through the depreciation or disposal of revalued assets are retained in the revaluation reserve and will not be available for offsetting against future revaluation losses.

17 Property, plant and equipment (extract)

A valuation of all of the Group's property, plant and equipment, excluding oil and gas reserves, was carried out during 1999 by independent valuers on a depreciated replacement cost basis. As at September 30, 2003, a revaluation of the Group's refining and chemical production equipment was undertaken by a firm of independent valuers, China United Assets Appraiser Co., Ltd., in the PRC on a depreciated replacement cost basis. The revaluation surplus net of applicable deferred income taxes was credited to reserves in shareholders' equity.

As at March 31, 2006, a revaluation of the Group's oil and gas properties was undertaken by independent valuers, China United Assets Appraiser Co., Ltd and China Enterprise Appraisals, on a depreciated replacement cost basis. The revaluation did not result in significant differences from their carrying values.

Treatment of accumulated depreciation when PPE is revalued

When an item of property, plant and equipment is revalued, IAS 16 requires that accumulated depreciation is treated in one of two ways:

- Eliminated against the gross carrying amount of the asset with the net amount restated to equal the revalued amount. This method is normally used for buildings.
- Restated proportionately with the change in the gross carrying amount of the asset such that the net book value of the asset after revaluation equals its revalued amount. This method is often used where an asset is revalued using an index to its depreciated replacement cost (DRC).

[IAS 16 para 35].

The amount of the adjustment to accumulated depreciation forms part of the revaluation increase or decrease, which is dealt with as described under 'Revaluation gains and losses' below. [IAS 16 para 35].

The first method described above is the simple one of comparing the revalued amount with the net book amount immediately before revaluation and accounting for the difference as described below under 'Revaluation gains and losses'. This method is illustrated by the following simple example:

Revaluation gains and losses

Under IAS 16 a revaluation surplus is credited to other comprehensive income (OCI), unless it reverses a revaluation decrease on the same asset previously recognised as an expense, where it should first be credited to profit or loss to that extent. [IAS 16 para 39].

IAS 16 does not specify that where an asset has previously been revalued downwards and is subsequently revalued upwards, the credit to profit and loss should be reduced by depreciation that would have been charged had the asset not been revalued downwards in the past. However, in our view this would be appropriate; as if this were not done it would amount to writing back that depreciation to profit and loss. This would be against the principle of IAS 16, which requires that the reversal of depreciation on the occasion of a revaluation should be taken to the revaluation surplus in reserves. This is shown in case 8.N.

Case 8.N – Recognition of revaluation gains and losses

Entity A has a policy of revaluing its property, plant and equipment. An asset cost C1,000 at the start of year 1. It has a useful life of 10 years and is being depreciated on a straight-line basis to nil residual value. It was revalued downwards at the end of year 1 to C850, which was assumed to be the asset's recoverable amount. The loss on revaluation in year 1 is recognised in the profit and loss account, because it is a fall in value below depreciated historical cost.

At the end of the following year (year 2) market values had risen to C1,050. The revaluation gain and loss are recognised as follows: