NEC Secondary Option X21
Whole Life Cost

Presented by

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About Us

GVE Commercial Solutions Ltd are a firm of consultant quantity surveyors specialising in the NEC forms of contract.

Our NEC capability has principally been acquired through practical application and experience within 'live' project environments assisting both contractors and subcontractors.

Our specialist NEC services include;

- Commercial and contract management of projects,
- Bespoke training,
- Project health check reviews,
- Contract reviews,
- Programme management,
- Dispute avoidance and/or resolution.

For further information please see our website: www.gvecs.co.uk
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Whole Life Cost

Background

Although 'whole life cost' is recognised as the basis for obtaining value for money, there remains confusion with associated terms, including;

- whole life cost,
- life cycle cost,
- total cost of ownership,
- asset service life.

The ISO 15686 series of standards was published in 2008 and was titled 'Buildings and Constructed Assets - Service Life Planning'.

Part 5 of this series specifically related to 'life cycle costing.

The intention was to establish clear terminology and a common methodology for life cycle costing to facilitate wider use.

Definitions

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ISO 15686 Part 5 provides various definitions for terminology which I have 'simplified' as follows;

Whole Life Cost

All associated 'net' costs of <u>using</u> an asset throughout its serviceable life.

Whole Life Costing

Methodology used to determine whole life cost.

Life Cycle Cost

All associated 'net' costs of an asset throughout its serviceable life.

Life Cycle Costing

Methodology used to determine life cycle cost.

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Whole Life Cost

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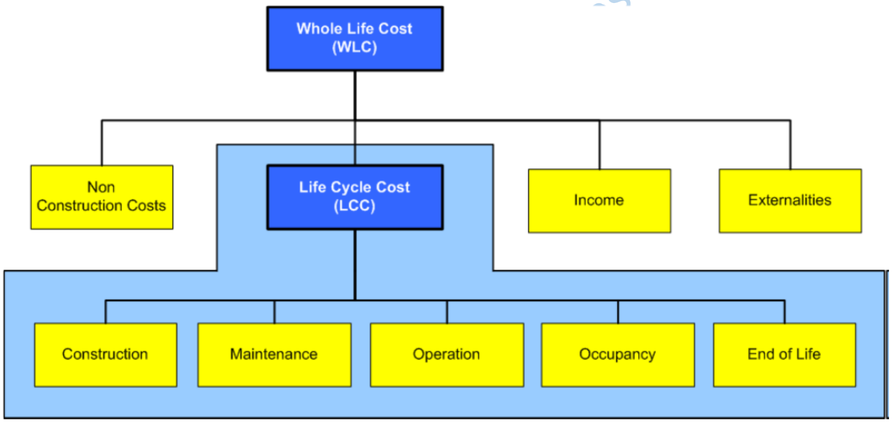
ISO 15686 Part 5 presents Life Cycle Cost as a sub-set of Whole Life Cost, as follows;



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Example

You are looking to purchase a car to use for a period of 5 years.

- Initial purchase,
- Routine maintenance,
- Fuel costs,
- Insurance and breakdown cover,
- Component replacement,
- Parking, taxation and road use charges,
- Corrective maintenance.
- End of term re-sale value.

The above can all be calculated in monetary terms, but there are other ‘costs’ and ‘benefits’ which cannot be quantified in the same way;

- Comfort and refinement,
- Reliability,
- Environmental consideration.

Time Value of Money

Whole Life Costing assesses the expenditure and income of different categories over a future period of time.

The value of money decreases over time, although each expenditure and income occurs at a different point in time.

To allow for a consistent comparative assessment of ‘cost’ you need to account for what the money will be worth at the time it is paid.

Present Value (PV)

This is the value of money at the present time, as follows;

$$PV = \frac{\text{Future Value}}{(1+\text{Discount/Interest Rate})^{\text{(Number of years)}}}$$

This calculates how much money you need today to pay for a particular future expenditure.

Time Value of Money

Net Present Value (NPV)

This is essentially the summary of all PV assessments,

$$NPV = \sum \frac{\text{Cash Flow}}{(1+\text{Discount Rate})^{(\text{Number of years})}}$$

This calculates what the likely financial outcome will be.

The calculation can be used to compare the outcome for different options to assess value for money.

Problems with the calculation

Although the calculation provides a comparative basis, many of the data inputs are based on an assumption of future conditions.

NEC Suite

NEC Suite

Secondary option X21 can be found in the following NEC forms of contract:

- Engineering and Construction Contract (ECC),
- Engineering and Construction Subcontract (ECS),
- Term Service Contract (TSC),
- Term Service Subcontract (TSS),
- Facilities Management Contract (FMC),
- Facilities Management Subcontract (FMS),
- Supply Contract (SC).

The wording between the different ‘types’ of contract differs, although the principal intention is the same.

Option X21

ECC - X21.1

'The Contractor may propose to the Project Manager that the Scope is changed in order to reduce the cost of operating and maintaining the asset.'

Any such proposal must demonstrate that the cost of *'operating and maintaining'* the asset would be reduced.

A change to the Scope must be the direct cause of how any proposed cost savings are achieved.

As the Scope *'specifies and describes the works'*, any such proposal would lead to a change to what is being delivered.

There is no formal procedure associated with any such 'proposal', including specific interactions both before and after it is submitted.

ECC - X21.2

'If the Project Manager is prepared to consider the change, the Contractor submits a quotation which comprises'

- *a detailed description,*
- *the forecast cost reduction to the Client of the asset over its whole life,*
- *an analysis of the resulting risks to the Client,*
- *the proposed changes to the Prices and*
- *a revised programme showing any changes to the Completion Date and Key Dates.*

The NEC User Guide states that the PM 'instructs' the submission of a quotation, although sub-clause X21.2 does not mention 'instruction'.

The quotation provisions are quite extensive and require sufficient information to allow an 'informed' decision to be made.

The quotation is not required to be prepared in accordance with any specified conditions, as is the case for a compensation event.

ECC - X21.3

'The Project Manager consults with the Contractor about a quotation. The Project Manager replies within the period for reply. The reply is acceptance of the quotation or the reasons for not accepting it. The Project Manager may give any reason for not accepting the quotation.'

Any 'consultation' would need to be undertaken promptly to ensure complying with the required timescales.

The 'period for reply' may be extended but only by agreement (cl 13.5).

The NEC User Guide suggests that there may only be a limited time for this decision, although it may be useful for the Contractor to state a 'long stop' date by which a decision is required.

Any 'non acceptance' is essentially a stated reason(s) for not accepting.

What if the PM simply doesn't respond?

ECC - X21.4

'The Project Manager does not change the Scope as proposed by the Contractor unless the Contractor's quotation has been accepted.'

This prevents the PM from 'adopting' any good ideas without the Contractor assuming any benefit from the proposal.

Does this mean that the PM can implement 'part' of a submitted proposal?

ECC - X21.5

'When a quotation to reduce the costs of operating and maintaining an asset is accepted the Project Manager changes the Scope, the Prices, the Completion Date and the Key Dates accordingly and accepts the revised programme. The change to the Scope is not a compensation event.'

Note that the Prices, the Completion Date and Key Dates can be *'changed in accordance with the contract'*.

The Scope, however, can only be changed by *'an instruction given in accordance with the contract',* which is given under clause 14.3.

Note that it states that the change to the Scope is not a compensation event, although this does not align with clause 60.1 (1).

How does the 'revised programme' relate to the Accepted Programme?

Things to Consider ...

Is your project suitable for including X21?

If a proposal reduces the Prices, is this a 'whole life cost' or 'value engineering' proposal?

Clarity of the procedural requirements and interactions.

Is it possible to include benefits other than cost?

Identify an appropriate methodology as to how any 'cost saving' assessments are made.

Possible amendments to the wording and Contract Data to provide clarity of requirements.

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