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# Petroleum and natural gas industries — Life cycle costing —

## Part 3: Implementation guidelines

ICS 75.180

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The UK participation in its preparation was entrusted to Technical Committee PSE/17, Petroleum and natural gas industries, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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## **Petroleum and natural gas industries — Life-cycle costing —**

### **Part 3: Implementation guidelines**

*Industries du pétrole et du gaz naturel — Estimation des coûts globaux de  
production et de traitement —*

*Partie 3: Lignes directrices sur la mise en oeuvre*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 15663 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15663-3 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum and natural gas industries*.

ISO 15663 consists of the following parts, under the general title *Petroleum and natural gas industries — Life-cycle costing*:

- *Part 1: Methodology*
- *Part 2: Guidance on application of methodology and calculation methods*
- *Part 3: Implementation guidelines*

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## Introduction

The principle objective of ISO 15663 is to speed up the adoption of a common and consistent approach to life-cycle costing within the oil industry. This will happen faster and more effectively if a common approach is agreed internationally.

Life-cycle costing is the systematic consideration of all relevant costs and revenues associated with the acquisition and ownership of an asset. It is an iterative process of estimating, planning and monitoring costs and revenues throughout an asset's life. It is used to support the decision making process by evaluating alternative options and performing trade-off studies. While it is normally used in the early project stages evaluating major procurement options, it is equally applicable to all stages of the life-cycle, and at many levels of detail.

This part of ISO 15663 has been produced to provide guidance on practical steps that can be taken to introduce the organizational and functional aspects of life-cycle costing into the offshore oil and gas business. It focuses on the implementation issues identified by the industry, both those common to all and those specific to each participant. Key issues addressed are

- **life-cycle costing within the organization:**  
how it should be organized, coordinated and managed;
- **the contract:**  
the procedural elements of incorporating life-cycle costing within pre-qualification, tender and responses;
- **risk and uncertainty:**  
primarily viewed from the contractual standpoint within risk sharing or risk transfer frameworks (such as alliances);
- **communication:**  
across the supplier chain (operator <----> contractor <----> vendor), how it can be achieved and configuration control or an audit trail maintained.

Experience has demonstrated that

- **for the operator**, life-cycle costing integrates readily with existing appraisal techniques, can quantify and optimize costs and revenues over the total life of a field development, thereby reducing uncertainty,
- **for the contractor**, life-cycle costing provides techniques to support the extension of his role into areas such as maintenance management, integrated service provision, engineering services contracts and life-cycle costing consultancy,
- **for the vendor**, life-cycle costing provides a common and consistent basis for demonstrating improved service and quality, thereby extending his role beyond technical compliance and lowest price.

There are opportunities and challenges for all parties within the oil production industry to benefit from the introduction and use of life-cycle costing techniques.

The aim of this part of ISO 15663 is to provide practical guidance to operators, contractors and vendors in the introduction and role of life-cycle costing techniques. It seeks to address the issues associated with life-cycle costing within evolving industry custom and practice. This is illustrated in Figure 1 which shows the evolving situation.

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From Figure 1 it can be seen that

- vendors are often involved in early project stages such as FEED, during which they can add value in the area of system design,
- contractors and vendors are playing an increasing role in conceptual design and operations support.

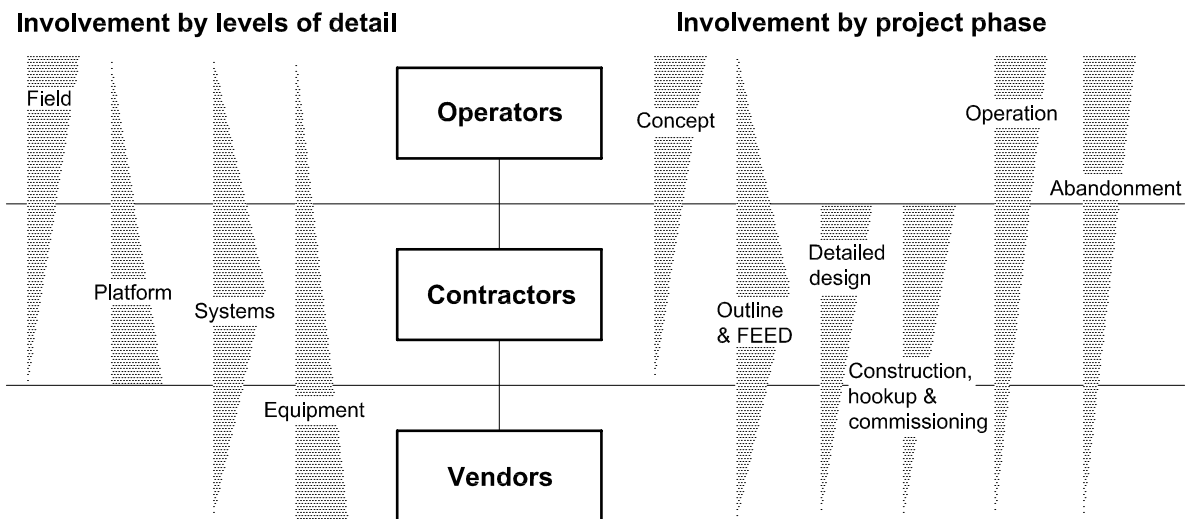


Figure 1 — The traditional role of participants is evolving and becoming less distinct

For a life-cycle costing implementation strategy, two key components emerge. These are the **interface issues** (the relationships between participants at the boundaries) and the **internal business processes** required to support the management and presentation of the information flowing across the interfaces.

In practical terms, these translate into the need for a non-prescriptive life-cycle costing implementation strategy that provides a basic framework to assist in the development and introduction of an engineering and design strategy and support strategy at all levels, together with its translation into a contract.

It should be noted that, whilst the provision of plant and equipment which has been optimized for whole life cost (WLC) performance may require its selling price to be increased, the integration of WLC/life-cycle costing principles into an equipment manufacturer's business should enable this optimum performance to be achieved without a significant increase in selling prices.

Equipment vendors and purchasers therefore need to work towards ensuring that wherever possible value, and not price, is increased by the life-cycle costing process.

This part of ISO 15663 is structured into the following sections:

- **the project or field life-cycle;**  
implementation issues specific to the different phases of the life-cycle.
- **common issues;**  
a variety of concerns common to all participants, the key one being the need for a focal point, or coordinator, within each organization.
- **the operator;**
- **the contractor;**
- **the vendor.**

The three last-mentioned sections addressing the implementation issues are considered important to each participant.



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Recognizing that there are cultural and procedural differences across different companies in the industry, this part of ISO 15663 does not set out to be prescriptive, but to isolate and amplify the issues under a series of headings. The guiding principle is that the life-cycle costing discipline does not stand in isolation, but should be integrated within existing support functions to extend their capability.

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# Petroleum and natural gas industries — Life-cycle costing —

## Part 3: Implementation guidelines

### 1 Scope

This part of ISO 15663 provides guidelines for the implementation of life-cycle costing for the development and operation of the facilities for drilling, production and pipeline transportation within the petroleum and natural gas industries. This part of ISO 15663 is applicable when making decisions on any option which has cost implications for more than one cost element or project phase. The process can be applied to a wide range of options, particularly when decisions are being considered on the following:

- the process concept;
- equipment location;
- project execution strategies;
- health, safety and environment;
- system concept and sizing;
- equipment type;
- equipment configuration;
- layout;
- maintenance and logistic support strategies;
- manning strategy;
- manning levels;
- operation strategies;
- facility modifications;
- spares and support strategy;
- reuse and/or disposal.

This part of ISO 15663 is applicable to all project decisions, but the extent of planning and management of the process will depend on the magnitude of the costs involved and the potential value that can be created.

The guidelines will be of value when decisions are taken relating to new investments in projects or during normal operation to optimize revenue.

### 2 Terms, definitions and abbreviated terms

For the purposes of this part of ISO 15663, the following terms, definitions and abbreviated terms apply.

#### 2.1 Terms and definitions

##### 2.1.1

##### **benefit**

creation of a capital asset, earning of revenue or improvement of a project environment