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**Environmental management —  
Material flow cost accounting —  
Guidance for phased implementation  
in organizations**

*Management environnemental — Comptabilité des flux matières —  
Recommandations pour la mise en application par phases dans les  
organisations*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 1, *Environmental management systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Achieving the Sustainable Development Goals (SDGs) established by the United Nations in 2015 has become a high priority for society. In particular, Goal 12 requires both governments and private sectors to ensure sustainable consumption and production patterns. Companies of all sizes need to achieve improvements in material and energy efficiency for sustainable production.

A number of International Standards provide guidance on material flow cost accounting (MFCA), which is an approach to assess material efficiency within an organization (see ISO 14051) and to enhance material efficiency in cooperation with supply-chain partners (see ISO 14052). While organizations are encouraged to implement MFCA based on ISO 14051, depending on levels of operations, they may prefer a more simplified approach to MFCA. To address this need, this document provides guidance for organizations to initiate a phased implementation of MFCA. This approach focuses on the most relevant production process to enhance material efficiency along with cost reductions, possibly leading to additional business opportunities (e.g. a green supply chain).

This document can be used independently of ISO 14051 and ISO 14052. However, the basic philosophy of MFCA as well as the terms and definitions are the same as in ISO 14051. In addition, this document has been designed to help organizations to identify new business opportunities regarding material and energy efficiency. Large organizations can also use this document as a starting point for their implementation of MFCA in a specific department or process.

This document provides:

- common terminologies;
- principles;
- a calculation approach, analysis and improvement;
- an application of the MFCA implementation result.

[Annex A](#) gives a case example of an MFCA implementation in organizations.



# Environmental management — Material flow cost accounting — Guidance for phased implementation in organizations

## 1 Scope

This document gives practical guidelines for the phased implementation of material flow cost accounting (MFCA) that organizations, including small and medium-sized enterprises (SMEs), can adopt to enhance their environmental performance and material efficiency.

The phased approach provides flexibility that allows organizations to develop their MFCA activities at their own pace, according to their own circumstances. The resulting information can act as a motivator for organizations to seek opportunities to simultaneously generate financial and environmental benefits by reducing material losses and energy consumption.

This document is applicable to any organization, regardless of its level of development, the nature of its activities, or the location at which these activities occur.

This document provides basic calculation procedures to analyse saving potentials by avoiding material losses. Detailed calculation procedures or information on techniques for improving material or energy efficiency are out of the scope of this document.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **energy cost**

cost for electricity, fuels, steam, heat, compressed air and other like media

Note 1 to entry: Energy cost can be either included under material cost or quantified separately, at the discretion of the organization.

[SOURCE: ISO 14051:2011, 3.4]

### 3.2

#### **energy use**

application of energy

EXAMPLE Ventilation; lighting; heating; cooling; transportation; data storage; production process.

Note 1 to entry: Energy use is sometimes referred to as “energy end-use”.

[SOURCE: ISO 50001:2018, 3.5.4]