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# Energy saving projects (EnSPs) — Guidelines for economic and financial evaluation



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# National foreword

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# Energy saving projects (EnSPs) — Guidelines for economic and financial evaluation

*Projets d'économies d'énergie — Lignes directrices pour l'évaluation économique et financière*



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# Foreword

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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).

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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.

This document was prepared by Technical Committee ISO/TC 301, *Energy management and energy savings*.

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.

# Introduction

A complete assessment of an investment in an energy saving project (EnSP) requires analysis of all costs and benefits over the lifetime of the investment. This assessment can be used to prioritize the EnSPs. However, it is important to consider the aim and scope at the outset because this will prescribe the course to be followed. The basic criterion for evaluating an investment decision in an EnSP is that the benefits resulting from the EnSP should be greater than the costs incurred within a defined time period for the return on the investment.

This document provides guidance on a methodological framework for the calculation, evaluation and reporting of economic status by defining economic indicators to facilitate the selection of energy performance improvement actions (EPIAs), EnSPs or opportunities. It provides examples and concepts to demonstrate the financial value of the activities related to energy savings to ensure the business connection to the organization.

This document is intended to help EnSP investment evaluators to determine an appropriate approach or type of analysis at an appropriate level of detail and to assist energy savings evaluators in completing consistent analyses using documented assumptions and reasoning. This document includes analytical techniques that are commonly required for an economic evaluation of an EnSP.

Where possible, the financial evaluation of an EnSP should follow the approved method of the organization making the investment, and the detailed approach outlined in this document should be adjusted based on guidance from the organization.

The aim of an economic and financial evaluation is to provide the information needed to make a judgement or a decision in relation to EnSPs.

The perspective of analysis is important, as it often dictates the approach to be used. Also, the ultimate use of the results of an analysis will influence the level of detail required. The decision-making criteria of the potential investor should also be considered.

This analysis approach provides a significantly better evaluation of the long-term implications of an investment than methods that focus on first cost or short-term results. In this document, evaluation methods can be applied to virtually any public or private business sector investment decision as well as EnSPs decisions. Such decisions include the evaluation of alternative solutions with different initial costs, operating and maintenance costs, and the evaluation of investments to improve energy performance.

The process approach and steps used for EnSPs economic and financial evaluation, which are used throughout this document, are illustrated in Figure 1.

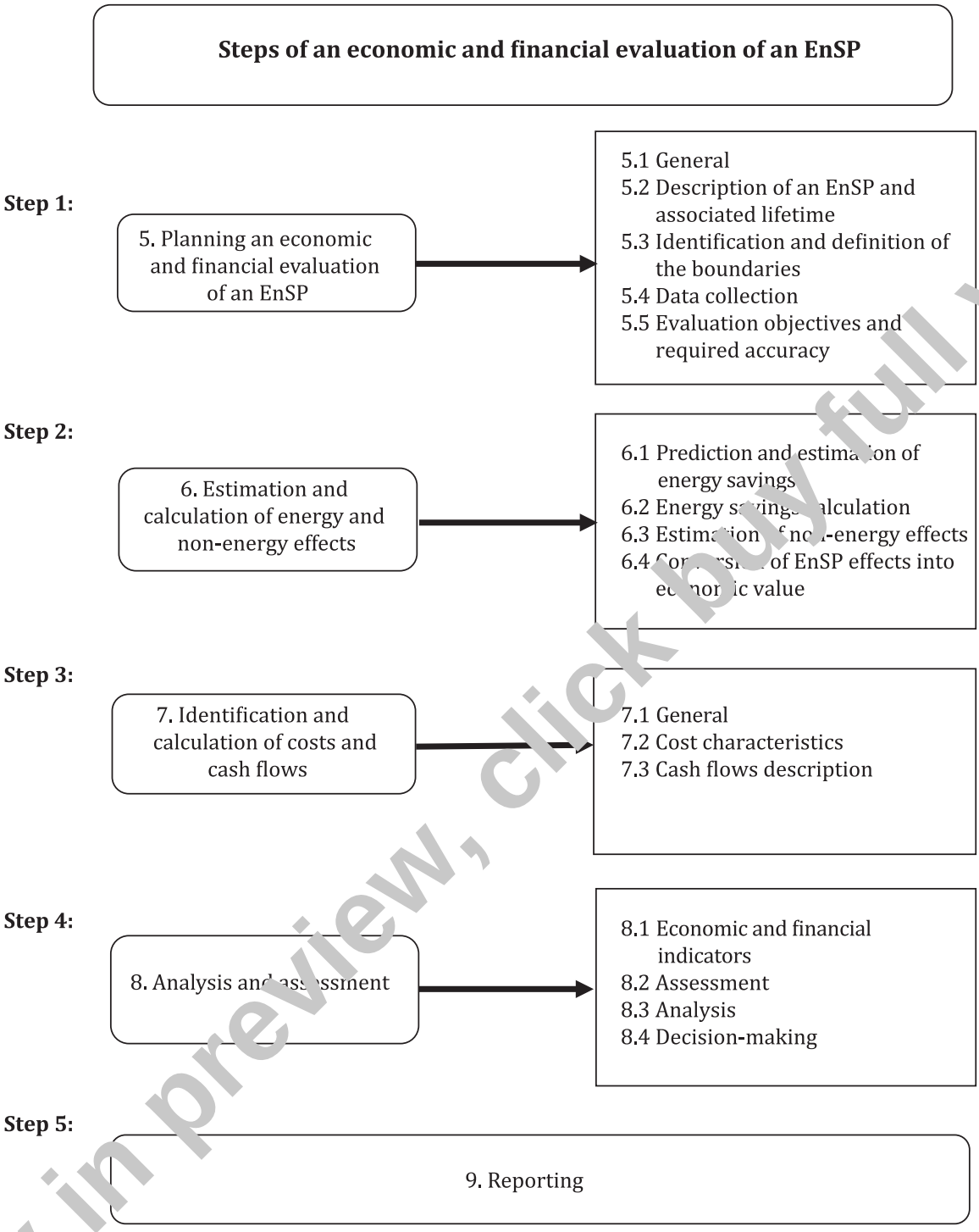


**Figure 1 — Economic and financial evaluation approach**

This document includes:

a) terms and definitions;

b) the types of costs that should be taken into account for the calculation of the economic and financial evaluation of EnSPs;

c) the data needed for the determination and calculation of costs related to the EnSP under consideration;

d) the calculation and assessment of economic and financial indicators (EFIs);

e) a general framework and rules for the economic priorities of EnSPs;

f) the principle of reporting and expression of results for the economic and financial evaluations of EnSPs.

This document provides indicators for the financial evaluation of all types of EnSPs. Those indicators include the internal rate of return (IRR), net present value (NPV), payback period (PP) and life cycle cost analysis (LCCA).

This document can be used by any organization during the important phases of an energy management system, such as energy review, design, procurement and management review, to prioritize and record energy performance opportunities accurately, consistent with ISO 50001.

This document also can be used by any stakeholder (e.g. policy makers, decision-makers, organizations, NGOs) that aims to quantify the cost of EnSPs over a specific period. Annex A provides guidance on the steps for an energy savings calculation. Annexes B to F provide an overview of the economic and financial evaluations with practical examples.

# Energy saving projects (EnSPs) — Guidelines for economic and financial evaluation

## 1 Scope

This document gives guidelines for how to compare and prioritize energy saving projects (EnSPs) before implementation, using economic and financial evaluation. It includes a common set of principles.

This document is applicable to all EnSPs and energy performance improvement actions (EPIAs) that are developed by stakeholders and organizations for improving energy performance, irrespective of the type and size of an organization and its energy use and consumption.

The methodology for quantification methods for predicted energy savings and measurement and verification (M&V) of the energy savings are not in the scope of this document.

NOTE The methodology for the estimation of the energy savings is critical when determining cost savings.

The methodology of the scenario generation (building) for future energy saving measures and actions is not covered by this document.

General rules and methodologies within this document can be used either independently or in conjunction with other standards and protocols.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes 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**
**annual cost**
sum of running costs and periodic costs or replacement costs paid on the year *n*

Note 1 to entry: The running cost is the money that needs to be spent regularly to run an *energy saving project* (3.11) or an *energy performance improvement action* (3.10), e.g. cost of maintenance, labour costs.

**3.2**
**capital cost**
initial construction costs and costs of initial adaptation where these are treated as capital *expenditure* (3.3)

[SOURCE: ISO 15686-5:2017, 3.1.2, modified — Note 1 to entry has been deleted.]

**3.3**
**expenditure**
money used to purchase, install and commission a capital asset

[SOURCE: ISO 15663-1:2000, 2.1.6, modified — “capital” has been deleted from the term.]