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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*



Reference number  
ISO/TS 50044:2019(E)

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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 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](http://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](#).

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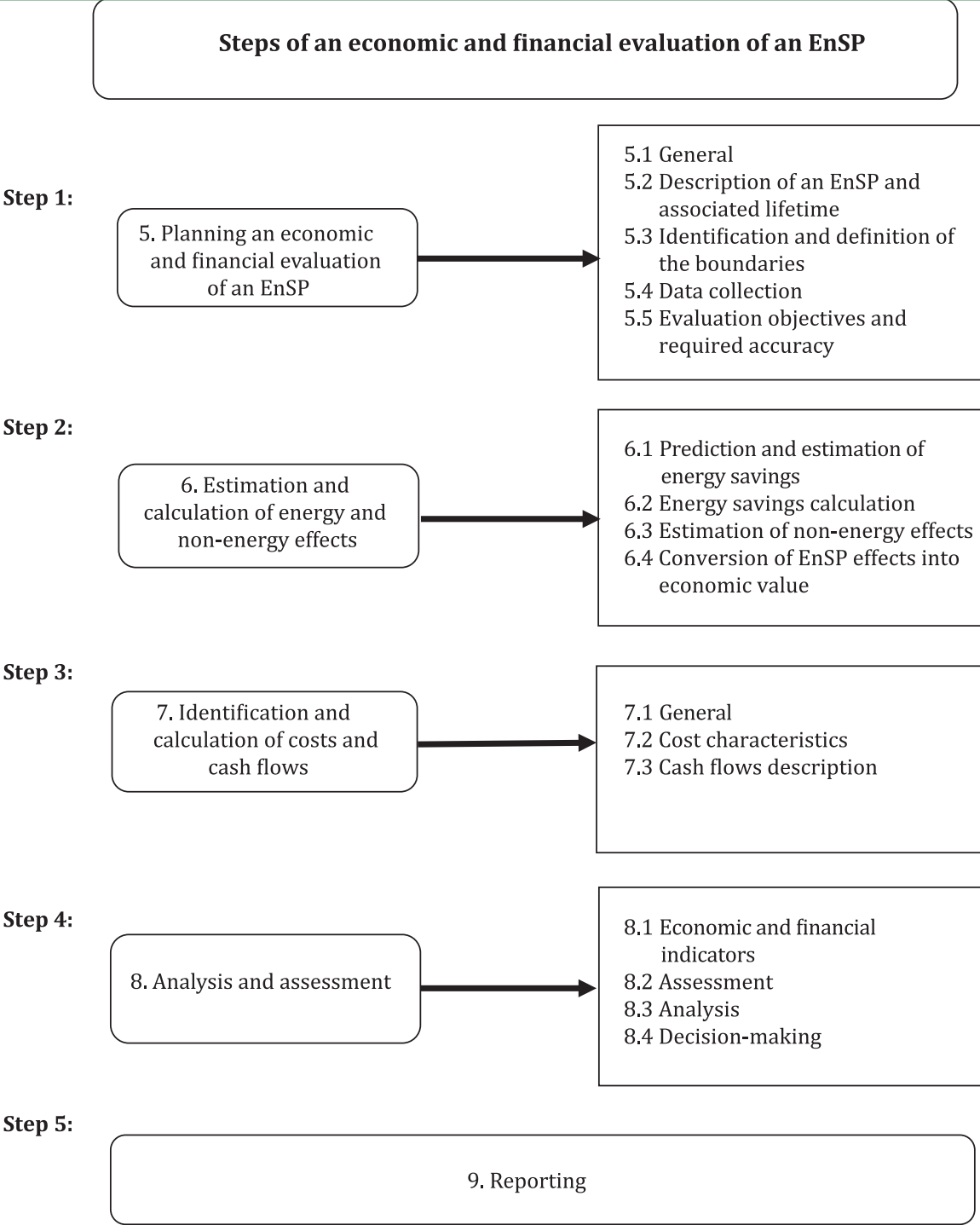


Figure 1 — Economic and financial evaluation approach

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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.