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**Energy efficiency and renewable  
energy sources — Common  
international terminology —**

**Part 2:  
Renewable energy sources**

**iTeh STANDARD PREVIEW**  
*Efficacité énergétique et énergies renouvelables — Terminologie  
internationale commune —  
Partie 2: Sources d'énergie renouvelables*  
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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/IEC JPC2, *Energy efficiency and renewable energy sources — Common terminology*

ISO/IEC 13273 consists of the following parts, under the general title *Energy efficiency and renewable energy sources — Common international terminology*:

- *Part 1: Energy efficiency*
- *Part 2: Renewable energy sources*

## 0 Introduction

### 0.1 General

The aim of this part of ISO/IEC 13273 is to support activities related to energy and deal with renewable energy sources. The terms were selected based upon their relevance and transverse nature. ISO/IEC 13273 is a horizontal standard in accordance with IEC Guide 108. It addresses the fundamental principles and concepts of renewable energy sources, which is relevant to a number of technical committees, with the goal of improving coherence and common characteristics for energy terms. This part of ISO/IEC 13273 does not address terms specific to topics such as environmental sustainability or nuclear energy terms but rather transverse energy terminology.

It is intended to be of help to technical practitioners and other interested parties who either use or develop International Standards in this subject field.

With the growth in the number International Standards that directly or indirectly relate to energy, there is an increasing need for an agreement on a common language in the domain.

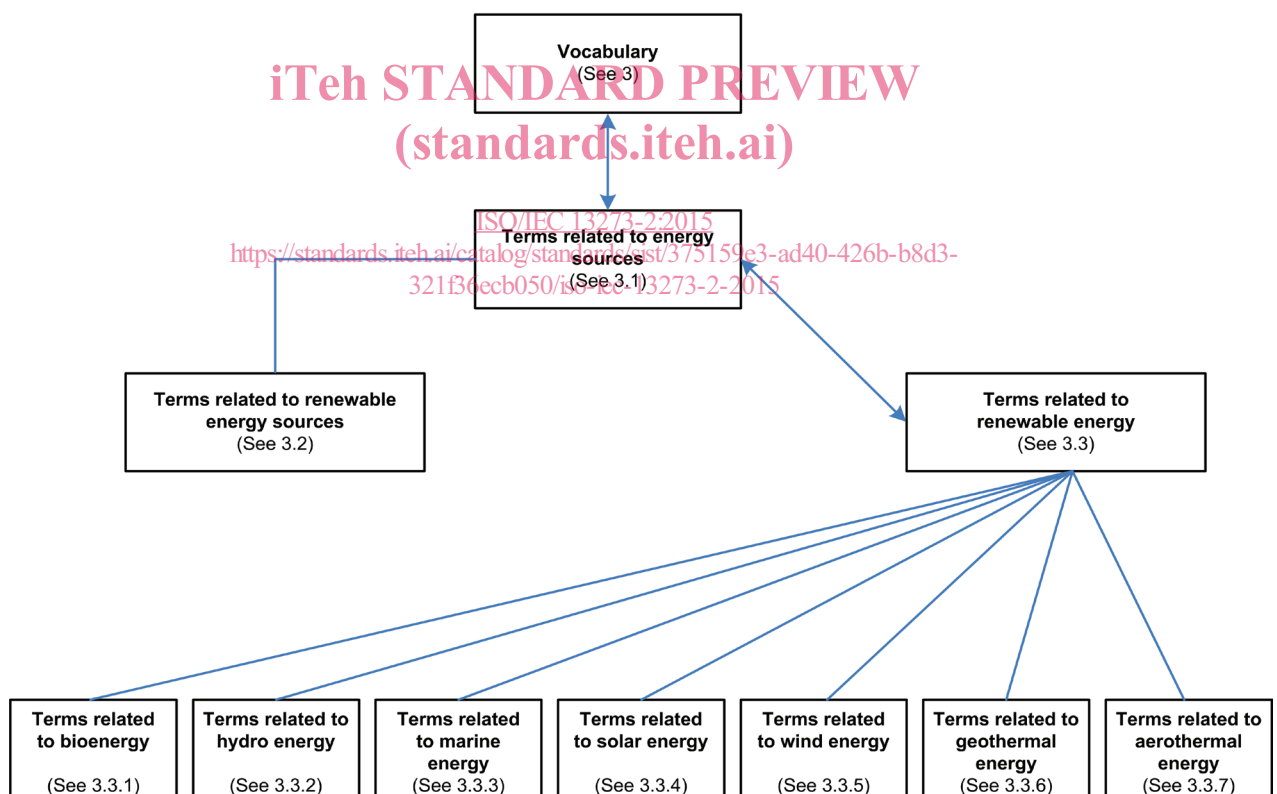


Figure 1 — Vocabulary structure

### 0.2 Vocabulary structure

This part of ISO/IEC 13273 deals with concepts belonging to the general energy subject field within which transversal concepts in the field of renewable energy sources. For energy efficiency, see ISO/IEC 13273-1.

The arrangement of terms and definitions in this part of ISO/IEC 13273 is based upon concept systems that show corresponding relationships among energy efficiency and renewable energy sources concepts

(see [Annex A](#) for additional diagrams on each group of terms). This arrangement provides users with a structured view of transversal energy concepts and facilitates their understanding. This terminology promotes a common understanding among all parties involved with renewable energy sources and facilitates effective communication. This part of ISO/IEC 13273 includes terms and definitions that are commonly used in renewable energy sources. The organization of terms is illustrated in [Figure 1](#). ISO/IEC 13273 is a first effort in the development of a complete set of terms related to energy, and will be updated as further terms and definitions are agreed upon.

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# Energy efficiency and renewable energy sources — Common international terminology —

## Part 2: Renewable energy sources

### 1 Scope

This part of ISO/IEC 13273 contains transversal concepts and their definitions in the subject field of renewable energy sources. This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For undated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

This section has been maintained to match the numbering of ISO/IEC 13273-1 and for potential future use.

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### 3 Terms and definitions

#### 3.1 Terms related to energy sources

##### 3.1.1 energy E

capacity of a system to produce external activity or to perform work

Note 1 to entry: Commonly the term energy is used for electricity, fuel, steam, heat, compressed air and other like media.

Note 2 to entry: Energy is commonly expressed as a scalar quantity.

Note 3 to entry: Work as used in this definition means external supplied or extracted energy to a system. In mechanical systems, forces in or against direction of movement; in thermal systems, heat supply or heat removal.

[SOURCE: 1986 World Energy Conference Energy Terminology glossary, modified – The word “the” at the beginning of the description was removed, the symbols were added as was the Note 1 to entry from ISO 50001:2011.]

##### 3.1.2 energy source

material, natural resource or technical system from which *energy* (3.1.1) can be extracted or recovered

Note 1 to entry: A press spring, flywheel or battery are examples of a technical system used as an energy source.

**3.1.3  
intermittent energy source**

source of energy that is not continuously available due to factors outside direct control

EXAMPLE Sun, wind.

Note 1 to entry: Note 1 to entry: Imbalances between energy production and energy demand caused by intermittent energy sources can be managed by energy storage ( see 3.1.5 in ISO 13273-1).

**3.1.4  
non-renewable energy source**  
energy source depleted by extraction

EXAMPLE Fossil fuels, uranium.

Note 1 to entry: Whether the energy stored in a technical system is renewable or not depends upon the nature of the original energy source.

[SOURCE: CEN-CLC/TR 16103:2010, 4.1.5, modified - The phrase “from a” was deleted before the word source, Note 1 to entry was added.]

**3.1.5  
renewable energy source**  
energy source not depleted by extraction as it is naturally replenished at a rate faster than it is extracted

Note 1 to entry: Renewable energy source excludes recovered or wasted energy.

Note 2 to entry: Organic fraction of municipal waste may be considered as a renewable energy source.

Note 3 to entry: Whether the energy stored in a technical system is renewable or not depends upon the nature of the original energy source.

Note 4 to entry: Criteria to categorise an energy source as renewable can differ amongst jurisdictions, based on local environmental or other reasons.

[SOURCE: CEN/CLC/TR 16103:2010, 4.1.3, modified – The phrase “as it is naturally replenished at a rate faster than it is extracted” was added to the end of the definition. The example was deleted. Note 1 to entry, Note 2 to entry, Note 3 to entry and Note 4 to entry were added.]

**3.1.6  
renewable energy**  
energy obtained from a *renewable energy source* ( [3.1.5](#) )

Note 1 to entry: Criteria to categorise an energy as renewable can differ amongst jurisdictions, based on local environmental or other reasons.

[SOURCE: IEV 617-04-11 March 2009- modified- The words “primary” at the start of the definition and the word “constantly” were deleted. “at a rate faster than it is extracted” was added after “replenished”. The example has been replaced by Note 1 to entry.]

**3.2 Terms related to renewable energy sources**

**3.2.1  
biomass**  
*renewable energy source* ( [3.1.5](#) ) in the form of material of biological origin excluding material embedded in geological formations or transformed to fossilized material

Note 1 to entry: The biomass includes waste of biological origin.

Note 2 to entry: The material includes animal by-products and residues and excludes peat.

Note 3 to entry: Biogenic organic fraction of municipal waste may be considered as a renewable energy source.



Note 4 to entry: Jurisdictions may require additional conditions be met for biomass to be considered as renewable.

[SOURCE: ISO 14021:1999/Amd1:2011, 3.1.1, modified - By beginning the definition with the wording “renewable energy source in the form of”. The words “and excluding peat” at the end of the definition was deleted and the exiting Note was replaced by adding four new notes.]

### 3.2.1.1

#### **biofuel**

fuel derived from biomass ([3.2.1](#))

[SOURCE: IEA InterEnerStat, Harmonization of definitions of energy products and flows, Final definitions, Part 2: Products, IEA, Paris, 9 December 2010.]

### 3.2.1.1.1

#### **solid biofuel**

solid fuel derived from *biomass* ([3.2.1](#))

[SOURCE: IEA InterEnerStat Harmonization of definitions of energy products and flows, Final definitions, Part 2: Products, IEA, Paris, 9 December 2010.]

### 3.2.1.1.2

#### **liquid biofuel**

#### **bioliquid**

liquid fuel derived from *biomass* ([3.2.1](#))

[SOURCE: IEA InterEnerStat, Harmonization of definitions of energy products and flows, Final definitions, Part 2: Products, IEA, Paris, 9 December 2010, modified - By replacing “used as fuel” by “fuel”.]

### 3.2.1.1.3

#### **biogas**

gas resulting from the fermentation or gasification of *biomass* ([3.2.1](#))

Note 1 to entry: Biogas can be of two different origins:  
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- a) biogas from anaerobic fermentation, principally composed of methane and carbon dioxide which two most notable examples are landfill gas and sewage sludge gas;
- b) biogas from thermal processes composed by a mixture containing hydrogen and carbon monoxide (usually known as syngas) along with other components produced by gasification or pyrolysis of biomass.

Note 2 to entry: Biogas is used as a fuel and also as feedstock in industrial processes.

[SOURCE: InterEnerStat, Harmonization of definitions of energy products and flows, Final definitions, Part 2: Products, IEA, Paris, 9 December 2010, modified - By replacing in the definition “arising” by “resulting” and by deleting “anaerobic”, “solid”,“(including biomass in waste)” and adding Note 2 to entry.]

## 3.3 Terms related to renewable energy

### 3.3.1 General

#### 3.3.1.1

#### **bioenergy**

*renewable energy* ([3.1.6](#)) derived from *biomass* ([3.2.1](#)) through conversion to *biofuel* ([3.3.1.1](#))