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TECHNICAL SPECIFICATION

**Recommendations for small renewable energy and hybrid systems for rural
electrification –
Part 5: Acceptance, operation, maintenance and replacement**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RECOMMENDATIONS FOR SMALL RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

Part 6: Acceptance, operation, maintenance and replacement

FOREWORD

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62257-6, which is a technical specification, has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This technical specification is based on IEC/PAS 62111(1999); it cancels and replaces the relevant parts of IEC/PAS 62111.

This technical specification is to be used in conjunction with

IEC 62257-1: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 1: General introduction to rural electrification*

IEC 62257-2: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 2: From requirements to a range of electrification systems*

IEC 62257-3: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 3: Project development and management*

IEC 62257-4: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 4: System selection and design (to be published)*

IEC 62257-5: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 5: Safety rules: Protection against electrical hazards (to be published)*

IEC 62257-6: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 6: Acceptance, operation, maintenance and replacement*

IEC 62257-7-1: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 7-1: Generators photovoltaic arrays (under consideration)*

IEC 62257-9-2: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 9-2: Microgrid (under consideration)*

IEC 62257-9-3: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 9-3: Integrated system – User's interface (under consideration)*

IEC 62257-9-4: *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 9-4: Integrated system – User's installation (under consideration)*

The text of this technical specification is based on the following documents:

| | |
|---------------|------------------|
| Enquiry draft | Report on voting |
| 82/371/FDIS | 82/384/RVC |

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard;
- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

The IEC 62257 series intends to provide to the different players involved in rural electrification projects (such as project implementers, project contractors, project supervisors, installers, etc.) documents for the setting-up of renewable energy and hybrid systems with a.c. nominal voltage below 500 V, d.c. nominal voltage below 750 V and nominal power below 100 kVA.

These documents are recommendations:

- to choose the right system for the right place;
- to design the system;
- to operate and maintain the system.

These documents are focused only on rural electrification concentrating on but not specific to developing countries. They must not be considered as all inclusive to rural electrification. The documents try to promote the use of renewable energies in rural electrification; they do not deal with clean mechanisms developments at this time (CO₂ emission, carbon credit, etc.). Further developments in this field could be introduced in future steps.

This consistent set of documents is best considered as a whole with different parts corresponding to items for safety, sustainability of systems and at the lowest life cycle cost as possible. One of the main objectives is to provide the minimum sufficient requirements, relevant to the field of application that is: small renewable energy and hybrid off-grid systems.

The purpose of this technical specification is to propose a methodology to achieve the best technical and economic conditions for acceptance, operation, maintenance and replacement of equipment and complete system life cycle.

RECOMMENDATIONS FOR SMALL RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

Part 6: Acceptance, operation, maintenance and replacement

1 Scope

This technical specification is intended to describe the various rules to be applied for acceptance, operation, maintenance and replacement (AOMR) of decentralized rural electrification systems (DRES) which are designed to supply electric power for sites which are not connected to a large interconnected system, or a national grid, in order to meet basic needs.

The majority of these sites are:

- isolated dwellings;
- village houses;
- community services (public lighting, pumping, health centers, places of worship or cultural activities, administrative buildings, etc.);
- economic activities (workshops, micro-industry, etc.).

It proposes a methodology to achieve the best technical and economic conditions for acceptance, operation, maintenance and replacement of equipment and complete system life cycle.

It does not substitute for technical manuals provided by manufacturers for each equipment. The complexity of the system and application will dictate the level of required AOMR documentation.

2 Normative reference

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62257 (all parts) *Recommendations for small renewable energy and hybrid systems for rural electrification*