



# SYSTEMS REFERENCE DELIVERABLE



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## Generic smart grid requirements – Part 2-1: Grid related domains

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**GENERIC SMART GRID REQUIREMENTS –****Part 2-1: Grid related domains****FOREWORD**

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IEC SRD 62913-2-1, which is a Systems Reference Deliverable, has been prepared by IEC systems committee Smart Energy.

The text of this Systems Reference Deliverable is based on the following documents:

Draft SRD	Report on voting
SyCSmartEnergy/78/DTS	SyCSmartEnergy/96/RVDTS

Full information on the voting for the approval of this Systems Reference Deliverable can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC SRD 62913 series, published under the general title *Generic smart grid requirements*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

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## INTRODUCTION

Under the general title *Generic smart grid requirements*, the IEC SRD 62913 series consists of the following parts:

- *Part 1: Specific application of the Use Case methodology for defining generic smart grid requirements according to the IEC systems approach;*
- Part 2 is composed of 5 subparts which refer to the clusters that group several domains:
  - *Part 2-1: Grid related domains* – these include transmission grid management, distribution grid management, microgrids and smart substation automation;
  - *Part 2-2: Market related domain;*
  - *Part 2-3: Resources connected to the grid domains* – these include bulk generation, distributed energy resources, smart home / commercial / industrial / DR-customer energy management, and energy storage;
  - *Part 2-4: Electric transportation related domain;*

The IEC SRD 62913 series refers to 'clusters' of domains for its different parts so as to provide a neutral term for document management purposes simply because it is necessary to split in several documents the broad scope of smart energy.

The purpose of the IEC SRD 62913-2 series is to initiate the process of listing, organizing, making available the Use Cases which carry the smart energy requirements that should be addressed by the IEC core technical standards. The IEC's systems approach will require adapted tools and processes to facilitate its implementation, and until they are available to IEC technical committees, National Committees and experts, the IEC SRD 62913-2 series should be seen as an illustration and the first stepping stone towards this systems approach implementation. Referencing, naming and grouping Use Cases or requirements will be further developed when tools such as IEC Use Case repository are available (using SGAM and other classification methods). The current content of the IEC SRD 62913-2 series is not exhaustive, but the current content illustrates the priorities for the smart energy domain at the time of publication. It is important that the content in terms of Use Cases, roles and requirements continues to grow to encompass the requirements of the broad smart energy stakeholders (both within the IEC community and more generally the other market stakeholders).

Use Cases are, for now, classified as follows.

- For business Use Cases: SGAM Domain {G|T|D|DER|CP} (multiple domains possible) / B\_{Business Use case number}/SB\_{ sub BUC Use case number/...}
- For system Use Cases: SGAM Domain {G|T|D|DER|CP} (multiple domains possible) / (sub) Business use Case Ref /S\_{ System Use cases number}/SS\_{ Sub System Use cases number/...}

The document for each domain is composed as follows.

- Purpose and scope.
- Business analysis: to address the domain's strategic goals and principles regarding its smart grid environment. It also lists business Use Cases and system Use Cases identified, their associated business roles and system roles (actors) and the simplified role model highlighting main interactions between actors.
- Generic smart grid requirements: extracted from Use Cases described in Annex B.
- Annex A lists links between domains and technical committees.
- Annex B includes a complete description of Use Cases per domain based on IEC 62559-2.
- Bibliography.

This document is based on the inputs from domain experts as well as existing materials in a smart grid environment.

## GENERIC SMART GRID REQUIREMENTS –

### Part 2-1: Grid related domains

#### 1 Scope

This part of IEC SRD 62913 initiates and illustrates the IEC’s systems approach based on Use Cases and involving the identification of generic smart grid requirements for further standardization work for grid related domains – i.e. grid management regrouping: transmission grid management, distribution grid management, microgrids and smart substation automation domains – based on the methods and tools developed in IEC SRD 62913-1.

The Grid management domain groups Use Cases and associated requirements common to the EHV, HV and MV/LV networks operations and the business analysis of the general electric network life cycle. Use Cases specific to parts of the general electric network are described in transmission grid management, distribution grid management, microgrids and smart substation automation clauses.

This document captures possible “common and repeated usage” of a smart grid system, under the format of “Use Cases” with a view to feeding further standardization activities. Use Cases can be described in different ways and can represent competing alternatives. From there, this document derives the common requirements to be considered by these further standardization activities in term of interfaces between actors interacting with the given system.

To this end, Use Case implementations are given for information purposes only. The interface requirements to be considered for later standardization activities are summarized (typically information pieces, communication services and specific non-functional requirements: performance level, security specification, etc.).

This analysis is based on the business input from domain experts as well as existing material on grid management in a smart grid environment when relevant. Table 1 highlights the domains and business Use Cases described in this document.

**Table 1 – Content of IEC SRD 62913-2-1:2019**

Domain	Content	Scope
Grid management	Described with 1 business Use Case	Asset management
Transmission grid management	n/a	
Distribution grid management	Described with 1 business Use Case and 2 system Use Cases	Network operations in real time using new automations / centralized voltage control
Microgrids	Described with 1 business Use Case	
Smart substation automation	Described with 1 business Use Case	

#### 2 Normative references

There are no normative references in this document.