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Virtual Power Plants

Part 2: Use Cases

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National foreword

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Virtual Power Plants-
Part 2: Use Cases

INTERNATIONAL
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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 7
4 System requirements 9
4.1 General considerations 9
4.2 Basic requirements 9
4.2.1 General 9
4.2.2 Privacy 9
4.2.3 Cyber security 9
4.2.4 Adaptability, flexibility and interoperability 9
4.2.5 Communication and information 10
4.2.6 Reliability 10
4.3 Operational risks of VPPs 10
4.3.1 General 10
4.3.2 Major 10
4.3.3 Moderate 10
4.3.4 Minor 10
5 Business roles 11
5.1 VPP participant 11
5.2 DER owner 11
5.3 System operator 11
5.4 Electricity market operator 11
6 Actors 11
7 Application scenarios and functions 11
7.1 Overview 11
7.2 Functions 12
8 VPP use case 12
8.1 Overview 12
8.2 Use case template 12
8.3 Use case matrix 12
8.4 Use case development 13
8.4.1 General 13
8.4.2 Description of the use case 14
8.4.3 Diagrams of use case 26
8.4.4 Technical details 42
8.4.5 Step by step analysis of use case 49
8.4.6 Information exchanged 68
9 Summary of standards gap analysis 70
10 Conclusion and recommendations 70
Bibliography 72

Figure 1 – Use case matrix development methodology 13

Table 1 – Use case list 14
Table 2 – Scope and objectives of use case 16
Table 3 – Narrative of use case 19
Table 4 – Key performance indicators 22
Table 5 – Use case conditions 24
Table 6 – Diagrams of use case 26
Table 7 – Diagram(s) of actors 43
Table 8 – Grouping of China 44
Table 9 – Grouping of Japan 45
Table 10 – Grouping of Australia 46
Table 11 – Grouping of Germany 47
Table 12 – References 47
Table 13 – Scenario conditions 49
Table 14 – Steps of scenarios 54
Table 15 – Information exchanged 68
Table 16 – Conclusion of use cases 71

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VIRTUAL POWER PLANTS –

Part 2: Use cases

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IEC TS 63189-2 has been prepared by subcommittee 8B: Decentralized electrical energy systems, of IEC technical committee 8: System aspects of electrical energy supply. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
8B/136/DTS	8B/198/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 63189 series, published under the general title *Virtual power plants*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

The virtual power plants use cases are developed to facilitate the standardization in this area from a system perspective. The use cases capture the basic information, business roles, actors, scenarios, and processes from practical business applications, pilot projects, and academic researches of virtual power plants in different countries. This document is developed to capture the requirements in the form of use cases that contain the scenarios and steps in a logical sequence so that it cannot only be understood by interested parties to obtain their related requirements, develop a virtual power plant, or operate a virtual power plant, but also establish a nomenclature for the functions, roles, etc. Meanwhile, the use cases in the document apply to any types of DER aggregation (physical, virtual, small and large), and also to microgrids.

Interested parties for this document include, but are not limited to:

- virtual power plant operator
- distributed generation operator
- demand response service operator
- electrical energy storage operator
- electric vehicle operator
- electric vehicle charging station with storage
- power system operator
- electricity market operator
- transmission and/or distribution company
- energy service company
- energy information provider
- regulator

The major objectives of this document include:

- to build common understanding of the business, system and functional requirements and thus to facilitate further development of VPPs;
- to investigate future standardization needs, in order to ensure the easy implementation, performance and interoperability of VPPs;
- to serve as an input to the IEC Use Case management repository, the purpose of which is to collect, administer, maintain, and analyze generic use cases.

VIRTUAL POWER PLANTS –

Part 2: Use cases

1 Scope

This document is applicable to virtual power plants (VPPs) that consist of distributed generation, controllable loads, and electrical energy storages.

This part of IEC 63189 is to provide VPPs use cases that capture the basic information, business roles, actors, scenarios, and processes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 SRD 62913-1:2019[1], *Generic smart grid requirements – Part 1: Specific application of the Use Case methodology for defining generic smart grid requirements according to the IEC systems approach*

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
aggregator
party who contracts with a number of other network users (e.g. energy consumers) in order to combine the effect of smaller loads or distributed energy resources for actions such as demand response or ancillary services

[SOURCE: IEC 60050-617:2017, 617-02-18]

3.2
controllable load
CL
load of particular consumers which under contract shall be reduced, for a limited period of time, at the request of the distribution supply undertaking

Note 1 to entry: Controllable load can be increased as well as reduced, according to the request of the distribution supply undertaking.

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1 This publication was withdrawn.