



SLOVENSKI STANDARD
SIST EN IEC 62746-4:2025

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Sistemski vmesnik med sistemom upravljanja z energijo odjemalca in sistemom upravljanja moči - 4. del: Vmesnik virov na strani povpraševanja (IEC 62746-4:2024)

Systems interface between customer energy management system and the power management system - Part 4: Demand Side Resource Interface (IEC 62746-4:2024)

Systemschnittstelle zwischen Kunden-Energiemanagementsystemen und Energiemanagementsystemen- Teil 4: Anforderungsseitige Ressourcen-Schnittstelle (IEC 62746-4:2024)

Interface entre le système de gestion de l'énergie côté client et le système de gestion de puissance - Partie 4: Interface de ressources côté demande (IEC 62746-4:2024)

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Systems interface between customer energy management
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(IEC 62746-4:2024)

Interface entre le système de gestion de l'énergie côté
client et le système de gestion de puissance - Partie 4:
Interface de ressources côté demande
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Systemschnittstelle zwischen Kunden-
Energiemanagementsystemen und
Energiemanagementsystemen- Teil 4: Anforderungsseitige
Ressourcen-Schnittstelle
(IEC 62746-4:2024)

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EN IEC 62746-4:2025 (E)**European foreword**

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Systems interface between customer energy management system and the power management system –
Part 4: Demand Side Resource Interface**

**Interface entre le système de gestion de l'énergie côté client et le système de gestion de puissance –
Partie 4: Interface de ressources côté demande**

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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms, definitions and acronyms	9
3.1 Terms and definitions.....	9
3.2 Acronyms.....	11
4 Reference and information models	11
4.1 General approach	11
4.2 Reference communication model	13
4.3 Information Model	15
4.3.1 General	15
4.3.2 Resource Modelling	15
4.3.3 Resource location modelling	17
4.3.4 Resource capability and qualification modelling	19
4.3.5 Energy schedule modelling	20
4.3.6 Bid/offer modelling.....	22
4.3.7 Dispatch modelling	23
4.3.8 Commodity and price modelling	24
5 Core modelling and shared enumerations.....	26
5.1 Master resource identifiers.....	26
5.2 Compound classes.....	27
5.2.1 General	27
5.2.2 Compounds with quantity, unit symbols and unit multipliers	27
5.2.3 Date/Time Interval Compound	28
5.2.4 Status Compound	28
5.2.5 Street address, street detail and town detail compounds	28
5.2.6 Electronic address and telephone number compound	29
5.2.7 Document & agreement classes.....	30
5.2.8 Location, coordinate system & position point classes.....	31
5.3 Shared data types.....	32
6 Message Profiles	35
6.1 General.....	35
6.2 Market DER profile.....	36
6.2.1 General	36
6.2.2 Applications.....	36
6.2.3 Schema	36
6.3 Reference energy curve profile	40
6.3.1 General	40
6.3.2 Applications.....	40
6.3.3 Schema	41
6.4 Bid/offer curve profile.....	44
6.4.1 General	44
6.4.2 Applications.....	44
6.4.3 Schema	45
6.5 Dispatch Profile	50

6.5.1	General	50
6.5.2	Applications	50
6.5.3	Schema	50
6.6	Commodity price exchange profile	53
6.6.1	General	53
6.6.2	Applications	53
6.6.3	Schema	53
7	Message sequences	55
7.1	General.....	55
7.2	Inform	57
7.3	Incentivise	57
7.4	Plan	57
7.5	Schedule.....	57
7.6	Report.....	57
7.7	Evaluate	58
Annex A	(informative) Use case: Incentive-based building energy management.....	59
A.1	Overview.....	59
A.2	Objectives.....	59
A.3	Actors	60
A.4	Process overview.....	61
A.5	Process details	63
A.5.1	Pre-setup condition notification.....	63
A.5.2	Price notification and energy consumption plan notification	64
A.5.3	Energy consumption assignment	65
A.5.4	Operation report	66
A.5.5	Suppression control	67
A.6	Possibilities for control parameters	68
A.7	Implementation using CIM Profiles defined in this document	68
Annex B	(normative) Profile UML diagrams.....	69
Annex C	(normative) XML schemas	72
Annex D	(informative) Sample XML	73
Bibliography	74
Figure 1	– IEC 62746-4 representation	12
Figure 2	–SPS-CEMS communication logical model.....	13
Figure 3	– SPS-AEMS-CEMS communications logical model	14
Figure 4	– Example of "stacked" aggregators.....	15
Figure 5	– Resource model	16
Figure 6	– Location model.....	17
Figure 7	– Node mapping.....	18
Figure 8	– Connectivity and pricing / nodes & zones	19
Figure 9	– Capacity and qualification model.....	20
Figure 10	– Energy schedule model	21
Figure 11	– Price-based versus self-schedule	22
Figure 12	– Price-sensitive bids/offers	23
Figure 13	– Dispatch model	24

Figure 14 – Commodity model	25
Figure 15 – Price model	26
Figure 16 – MarketDER schema	37
Figure 17 – ResourceCapacity sub-schema	39
Figure 18 – ResourceCertification sub-schema	40
Figure 19 – Reference energy curve schema	41
Figure 20 – ResourceTimeSeries sub-schema	42
Figure 21 – Time Points sub-schema	44
Figure 22 – Bid/offer curve schema.....	45
Figure 23 – Product Bid sub-schema	46
Figure 24 – Price-Sensitive Bid/offer sub-schema	46
Figure 25 – BidPriceCurve Sub-Schema	47
Figure 26 – CurveDatas sub-schema	48
Figure 27 – BidSelfSched sub-schema.....	48
Figure 28 – TimePoints sub-schema	49
Figure 29 – MarketDERInstruction schema	50
Figure 30 – DistributedResourceActualEvent sub-schema	51
Figure 31 – InstructionClearing sub-schema	52
Figure 32 – MarketOccurrence sub-schema.....	53
Figure 33 – CommodityPriceExchange Schema	54
Figure 34 – Commodity price schema	55
Figure 35 – Sequence diagram	56
Figure 36 – Examples of Energy Values for Demand Response Exchanges	58
Figure A.1 – A configuration example of demand-side resource	60
Figure A.2 – The whole view of this use case.....	62
Figure A.3 – Pre-setup condition notification.....	63
Figure A.4 – Price notification and energy consumption plan notification.....	64
Figure A.5 – Energy consumption assignment.....	65
Figure A.6 – Operation report	66
Figure A.7 – Suppression control	67
Figure B.1 – MarketDER	69
Figure B.2 – ReferenceEnergyCurve	70
Figure B.3 – MarketDERBidOffer	70
Figure B.4 – MarketDERInstruction	71
Figure B.5 – CommodityPriceExchange	71
Table 1 – List of acronyms	11
Table 2 – Attributes of IdentifiedObject	26
Table 3 – Attributes of FloatQuantity	27
Table 4 – Attributes of ActivePowerChangeRate	27
Table 5 – Attributes of Seconds	27
Table 6 – Attributes of Minutes	27
Table 7 – Attributes of DateTimeInterval	28

Table 8 – Attributes of Status.....	28
Table 9 – Attributes of StreetAddress.....	28
Table 10 – Attributes of StreetDetail	29
Table 11 – Attributes of DownDetail	29
Table 12 – Attributes of ElectronicAddress.....	29
Table 13 – Attributes of TelephoneNumber	30
Table 14 – Attributes of Document	30
Table 15 – Attributes of Agreement.....	30
Table 16 – Attributes of Location	31
Table 17 – Attributes of CoordinateSystem	31
Table 18 – Attributes of PositionPoint	31
Table 19 – UnitSymbol & UnitMultiplier data types	32
Table 20 – Yes/No, priority and currency data types	32
Table 21 – Market-related enumerations	33
Table 22 – Price-related enumerations.....	33
Table 23 – Resource-related enumerations.....	34
Table 24 – Scheduling-related enumerations	35
Table 25 – Attributes of MarketDER.....	38
Table 26 – Attributes of ResourceCapacity	39
Table 27 – Attributes of ResourceCertification	40
Table 28 – Attributes of ResourceTimeSeries	43
Table 29 – Attributes of TimePoints	44
Table 30 – Attributes of DistributedBid	45
Table 31 – Attributes of ProductBid.....	46
Table 32 – Attributes of BidSchedule	47
Table 33 – Attributes of BidPriceCurve	47
Table 34 – Attributes of CurveDatas	48
Table 35 – Attributes of BidSelfScheduleAttribute	49
Table 36 – Attributes of TimePoints	49
Table 37 – Attributes of DistributedResourceEventActual.....	51
Table 38 – Attributes of InstructionClearing	52
Table 39 – Attributes of MarketOccurence	53
Table 40 – Attributes of CommodityPriceExchange	54
Table 41 – Attributes of CommodityPrice	55
Table A.1 – Actors in this use case	61
Table A.2 – Information Exchanged in Pre-setup condition notification.....	63
Table A.3 – Information exchanged in price notification and energy consumption plan notification	65
Table A.4 – Information exchanged in energy consumption assignment	66
Table A.5 – Information exchange in operation report	67
Table A.6 – Information exchanged in suppression control.....	68
Table A.7 – Mapping messages from this use case to CIM Profile.....	68

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SYSTEMS INTERFACE BETWEEN
CUSTOMER ENERGY MANAGEMENT SYSTEM
AND THE POWER MANAGEMENT SYSTEM –**

Part 4: Demand-side resource interface

FOREWORD

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IEC 62746-4 has been prepared by IEC technical committee 57: Power systems management and associated information exchange. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
57/2719/FDIS	57/2746/RVD

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 International Standard 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 62746 series, published under the general title *Systems interface between customer energy management system and the power management system*, can be found on the IEC website.

NOTE The following print types are used:

- UML classes are formatted using bold and italics, for example ***RegisteredResource***.
- UML class attributes are formatted using italics, for example *mRID*.
- Message profile names are formatted using bold, for example **MarketDER**.

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
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INTRODUCTION

The IEC 62746 series defines interfaces between grid operator systems and systems located at residential, commercial, and industrial customer sites often referred to as Customer Energy Management Systems (CEMs). These interfaces are documented in detail in IEC 62746-3.

Customer owned resources can be a combination of load and generation which respond to signals provided by grid and/or market operators. These resources are identified and managed as individual resources with specific capabilities, or as virtual resources with an aggregated set of capabilities.

The IEC 62746 series describes the interface between Customer Energy Management Systems (CEMs) and the grid management systems including those within Distribution System Operators and Transmission System Operators. Each CEMS is designed to control resources associated with a residential, commercial, or industrial facility with the potential for a hierarchy of energy management systems.

Initial focus is on demand response and support for demand-side management; later developments are expected to include storage resources as well as grid support services from new demand-side resources. The interface applies to many types of communications, for example among multiple aggregators, or between an aggregator and multiple customers. Scenarios that publish import and/or export limits as part of a market-based systems or as part of an operational reliability framework, sometimes known as operating envelopes, are also supported.

This document describes CIM profiles corresponding to the Use Case described in Annex A.

Statements have been added to certain figures, tables, schemas, and enumerations throughout the document that indicate that they are reproduced with the permission of the UCA International User Group (UCAIug). These items are derived from the Common Information Model (CIM).

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SYSTEMS INTERFACE BETWEEN CUSTOMER ENERGY MANAGEMENT SYSTEM AND THE POWER MANAGEMENT SYSTEM –

Part 4: Demand-side resource interface

1 Scope

This part of the IEC 62746 series describes CIM profiles for Demand-Side Resource Interface and is based on the use case shown in Annex A of this document.

Schemas associated with this document were generated using the CIM101 UML and leverages the Market package. This document defines profiles complimentary to other standards, namely those in IEC 61970, IEC 61968, and IEC 62325.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and acronyms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

3.1.1

aggregation

collection of the capabilities of multiple resources into a single virtual resource

Note 1 to entry: A common use of aggregation is to collect many small resources and offer their capabilities in the form of a single larger resource to a market.

[SOURCE: IEC 62746-3:2015, 3.1.1]

3.1.2

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 for ancillary services

[SOURCE: IEC 60050-617:2009, 617-02-18]

3.1.3

aggregator energy management system

collection of hardware and/or software components which together act as an intermediary between a Service Procurement System and multiple Customer Energy Management Systems

3.1.4**customer energy management system**

collection of hardware and/or software components which together coordinate the electricity usage and production among various Distributed Energy Resources

3.1.5**demand response**

action resulting from management of the electricity demand in response to supply conditions

[SOURCE: IEC 60050-617:2009, 617-04-16]

3.1.6**Distributed Energy Resource**

Generators (with their auxiliaries, protection, and connection equipment), including loads having a generating mode (such as electrical energy storage systems), connected to a low-voltage or a medium-voltage network

Note 1 to entry: DER may include associated protection, control, and monitoring capabilities, and may consist of aggregated DER units.

Note 2 to entry: DER may also interact with the area EPS (typically a distribution network) by providing energy to the distribution network, by adapting their behaviour based on distribution network conditions, and/or by providing other transmission and distribution network-related services.

[SOURCE: IEC 60050-617:2009, 617-04-20, modified – notes taken from IEC 61850-7-420:2021, 3.1.13]

3.1.7**operator role**

"upper" side of the DER communication chain, representing the entity which is responsible for procuring services and distributing operational controls and prices

3.1.8**resource role**

"lower" side of the DER communication chain, representing the entity which is responsible for providing services and responding to operational controls and prices

3.1.9**service procurement system**

collection of hardware and/or software component which together procure services to make the electrical grid more reliable and/or less costly

3.1.10**technical role**

role that identifies responsibilities associated with participation within information exchanges with other actors

Note 1 to entry: Actors defined by use cases have assigned roles with associated responsibilities. Technical roles are physically realized through software and associated systems integration infrastructure.

[SOURCE: IEC 62746-3:2015, 3.1.14]