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CoG SG Report
European Standards available for Demand Response Implementation

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This document proposes a list of European standards available for the implementation of the flexibility mechanisms in preparation in the framework of the future European Network Code on Demand Response. It aims to feed into the work of Task Force 3 (Data Interoperability Modelling) of the Joint Working Group ENTSOE – EU DSO Entity - Implementing Regulations on Data Interoperability and Data Access.

Comments should be sent to:
Gilles Nativel : gilles.nativel@enedis.fr
convenors of the Adhoc group “Smart Grids - Set of standards” reporting to the CEN-CENELEC-ETSI CoG-SG.

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1 Purpose

As part of the ENTSOE-EU DSO Entity JWG's work on the implementation rules of the future Demand Response Network Code, the following original list of available standards has been drafted. The CoG Smart Grid (SG) has taken it upon itself to review this list and propose additions and clarifications.

A survey was conducted among CoG SG members and feedback was reviewed at the meeting on 9 April 2025. This work has made it possible to establish a proposal to complete the original list.

2 Updated list of available standards according to the survey

2.1 Original list

The Table 1 shows the original list of available standards as proposed by the JWG ENTSOE – EU DSO Entity.

Table 1 - Original list of available standards

Standards Numbers	More information	Comment
IEEE 2030.5/IEC 61850-7/IEC 61850-90-8	The IEEE 2030.5 (Smart Energy Profile 2.0) and IEC61850-7 sets of standards were created to enable the most comprehensive data exchange profiles for such emergency control interactions.	
OCPP	OCPP The Open Charge Point Protocol (OCPP) has developed an open standard that connects EV charging equipment to EV Charging Point Operators, preventing any vendor lock-in from charge point vendors.	
OpenADR	The Open Automated Demand Response standard has been developed to standardise data exchanges and seamlessly integrate DERs that are directly installed by consumers on their sites into the most relevant and rewarding flexibility revenue schemes from Service providers	
- IEC 62325	62325 The CIM Market model has been developed to ensure data exchange consistency between market interfaces.	
- IEC 62746	IEC 62746 standard family Systems specifies the interface between customer energy management system and the power management system. It adapts the OpenADR standard with CIM standard."	
IEC 62056 Suite	DLMS/COSEM Data Model and Data Format used in the AMI but also to exchange real-time data at the edge between logical and physical devices	

2.2 Proposal of new list

It is proposed to cite only European standards or those that can be quickly adopted as European Standards (for example, IEC standards that can be taken up at CENELEC level) describing the data models for the exchange of information necessary for the new market mechanisms. Although some reputable protocols are still mentioned, the protocol aspect has not been examined in detail and would require further development on performance and security. This could be considered in a second phase.

Standards Numbers	More information	Comment
EN IEC 62325	The CIM Market model has been developed to ensure data exchange consistency between market interfaces.	
EN IEC 62325-451-10	Framework for energy market communications - Part 451-10: Profiles for Energy Consumption Data ("My Energy Data")	EN-IEC standard Last version : 2021
EN IEC 62325-351	IEC 62325-351 specifies a UML package which provides a logical view of the functional aspects of European style market management within an electricity market. This package is based on the common information model (CIM).	EN-IEC standard Last version : 2016
EN IEC 62746	IEC 62746 standard family Systems specifies the interface between customer energy management system and the power management system.	
EN IEC 62746-4	Systems interface between customer energy management system and the power management system - Part 4: Demand Side Resource Interface	EN-IEC standard Creation: 2024
EN IEC 62746-10 (OpenADR)	The Open Automated Demand Response standard has been developed to standardize data exchanges and seamlessly integrate DERs that are directly installed by consumers on their sites into the most relevant and rewarding flexibility revenue schemes from Service providers	No EN version Last version: 2018
EN IEC 61968-9	Enterprise business function interfaces for utility operations – Part 9: Interfaces for meter reading and control The purpose of EN IEC 61968-9 is to define a standard for the integration of metering systems (MS), which includes traditional manual systems, and (one or two-way) automated meter reading (AMR) systems, and meter data management (MDM) systems with other enterprise systems and business functions within the scope of IEC 61968.	EN-IEC standard Last version : 2024
EN IEC 62056 Suite	DLMS/COSEM Data Model and Data Format used in the AMI but also to exchange real-time data at the edge between logical and physical devices	EN-IEC standards
EN IEC 62056-7-5	Electricity metering data exchange - The DLMS/COSEM suite - Part 7-5: Local data transmission profiles for Local Networks (LN), which details how to send data to local appliances – those data could be used for Demand Response	EN-IEC standards Last version : 2016
EN IEC 61850-7-420	Communication networks and systems for power utility automation - Part 7-420: basic communication structure - Distributed energy resources and distribution automation logical nodes	EN-IEC standard Last version : 2021
IEC 61850-90-8	This report shows how IEC 61850-7-420 can be used to model the essential parts of the E-Mobility standards related to Electric Vehicles and Electric Vehicle Supply	No EN version Last version: 2016

	Equipments and the Power system (IEC 61850-7-420), in order to secure a high level of safety and interoperability.	
IEC 63584:2024 (OCPP)	The Open Charge Point Protocol (OCPP) has developed an open standard that connects EV charging equipment to EV Charging Point Operators, preventing any vendor lock-in from charge point vendors. The Open Charge Point Protocol (OCPP) provides the communication between a Charging Station and a Charging Station Management System.	No EN version Last version: 2024
EN IEC 63110 (part 1)	Protocol for management of electric vehicles charging and discharging infrastructures - Part 1: Basic definitions, use cases and architectures	EN-IEC standard Creation: 2022
EN IEC 63382-1 ED1	Management of Distributed Energy Storage Systems based on Electrically Chargeable Vehicles (ECV-DESS) - Part 1: Definitions, Requirements and Use Cases.	EN- IEC Creation: 2024
IEC 63380 series (TC69)	This standard specifies the interface for connecting charging stations to local energy management systems. It details the communication between charging stations and energy management systems. Part 1 has been approved and is in publication, while Parts 2 and 3 are expected to be published in July 2025, with both CDVs already approved.	EN-IEC standard Creation: 2024
EN IEC 62054 series	Tariff and load control - in particular EN IEC 62054-11: Electricity metering (a.c.) - Tariff and load control - Part 11: Particular requirements for electronic ripple control receivers.	EN-IEC standard
EN IEC 62872-2	Industrial-process measurement, control and automation Part 1 (TS): System interface between industrial facilities and the smart grid Part 2: Internet of Things (IoT) – Application framework for industrial facility demand response energy management	EN-IEC standard Creation: 2022
EN IEC 63044 series	Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part -1, 2, 3, 4, 5-1, 5-2, 5-3, 6	EN-IEC standard
EN IEC 63402-2 ED1	Energy Efficiency Systems - Smart Grid - Customer Energy Management Systems – - Part 1 Interface between the Energy Management Gateway and BEM / CEM - Data model and messaging - Part 2 Interface between the home/building CEM and resource manager(s) - Data model and messaging Provides use case for limitation of Active Power Consumption by a DSO.	EN-IEC standard Creation: 2024 Creation: 2025
EN 50491-12-2 EN IEC 63402 series	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 12-2: Smart grid - Application specification - Interface and framework for customer - Interface between the Home / Building CEM and Resource manager(s) - Data model and messaging EN 50491-12-2, or “S2” standard, has been developed for seamless communication between devices ranging from HVAC and EV chargers to white goods and an Energy Management System, either installed locally or in the cloud. The standard is device-agnostic and provides interoperable communication by means of five control types that can cover all current and future use cases for all relevant devices.	EN standard Last version : 2022
EN 50631-x (TC59X)	This standard addresses network and grid connectivity for household appliances. It outlines the communication protocols between heat pumps and energy management systems. The EU Commission has already acknowledged this standard in the Code of Conduct V1, with 10 HVAC manufacturers having signed the CoC. https://ses.jrc.ec.europa.eu/development-of-policy-proposals-for-energy-smart-appliances	EN standard

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