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Commission notice

on the application of requirements for battery-related data sharing under the revised Renewable Energy Directive

(C/2025/4104)

Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amended Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652. This Commission notice refers to the latest version of the Renewable Energy Directive, as amended in 2023, as 'revised RED' or 'revised Directive'.

Article 20a of the revised Directive includes provisions to facilitate system integration of renewable electricity. More specifically, paragraph 3 second subparagraph of Article 20a includes requirements for vehicle manufacturers to make available, in real time and at no cost, data related to the battery state of health (SoH), the battery state of charge (SoC), the power set point, the battery capacity, and, where appropriate, the location of electric vehicles. This data must be made available to electric vehicle owners and users, as well as third parties acting on their behalf ([1]), under non-discriminatory terms. The transposition deadline for this provision is 21 May 2025.

A Commission Communication aiming to provide guidance to Member States in the transposition and implementation of Article 20a of the Directive ([2]) (hereinafter 'the guidance') was published on 2 September 2024. This guidance announced that 'the Commission will support Member States in implementing the Directive in line with this guidance and further specify the parameters and data that are not standardised yet, as necessary, via a dialogue, based on existing fora (such as the Working Group on Motor Vehicles, the Smart Energy Expert Group and the Sustainable Transport Forum), which will involve the Commission, Member States' representatives responsible for energy and transport, the industry and relevant stakeholders'. It further stated that 'this dialogue may provide recommendations in complementarity to the legislation and the guidance, on the implementation of this provision'.

On 8 October 2024, the Commission launched the announced dialogue in the framework of the Motor Vehicle Working Group (MVWG), followed by two ad hoc meetings on 25 October and 6 December of the same year. The MVWG advises the Commission in relation to policy initiatives and legislative proposals related to motor vehicles and is composed of Member States authorities, other public entities, EU umbrella associations and federations from the automotive sector, trade unions, civil society organisations and other associations. As indicated in the guidance, the dialogue focussed on the second subparagraph of the third paragraph of Article 20a, tackling in particular the definitions of the data points to be shared by vehicle manufacturers and their frequency of availability, as well as the exchange interface.

Complementing the guidance and based on the outcome of the dialogue, the Commission sets out a number of considerations that should be taken into account in the context of the implementation of the requirements of the Directive.

As specified on page 18 of the guidance, all new EV batteries used in both battery electric vehicles (BEVs) and Plug-in hybrid electric vehicles (PHEVs), of category L (if batteries do weigh more than 25 kg), or of categories M, N or O, fall under the scope of Article 20a(3) second subparagraph. However, in case there are technical limitations, the Commission mentioned in the guidance that the obligation in subparagraph 2 of Article 20a(3) applies for all new types of EVs approved under Regulation (EU) 2018/858 ([3]) as of 21 May 2025. It should be clarified that in this case of technical limitations, the obligation in subparagraph 2 of Article 20a(3) also applies for all new types of vehicles approved under Regulation (EU) No 168/2013 ([4]) as of 21 May 2025, if their batteries do weigh more than 25 kg.

([1]) Such as building energy system managers, mobility service providers and other electricity market participants.
([2]) Commission Communication 'Guidance on Article 20a on sector integration of renewable electricity of Directive (EU) 2018/2001 on the promotion of energy from renewable sources, as amended by Directive (EU) 2023/2413' (C(2024) 5041 final).
([3]) Regulation (EU) 2018/858 covers categories M, N, O.
([4]) Regulation (EU) No 168/2013 covers category L (notably motorcycles).

The guidance stated in page 26, under section 3.3.5 Exchange interface, that 'for forecasting purposes and planning of the next charging operation, data must be communicated over the air in order to enable real-time and remote communication with third parties'. Based on the dialogue with stakeholders, real-time access is deemed achievable if Over-the-Air (OTA) functionality ([5]) is enabled by vehicle manufacturers through existing integration points. Therefore, data should at least be exchanged via the back-end servers of the vehicle manufacturers, and in addition, when the vehicle is plugged into a recharging point, also via any communication interface between the recharging point and the electric vehicle ([6]) (e.g. via power line communication (PLC), Ethernet or WIFI for vehicles supporting ISO 15118 in the limits of the existing standard ISO 15118 series).

As mentioned in the guidance under section 3.3.2. Battery data format, when implementing Union law, Member States are encouraged to harmonise data sharing across Europe. The Commission recalls the importance of making use of relevant existing or of future standards developed by international or European standardisation development organisations (SDOs) when they become available, as this will ensure the proper fulfilment of the requirements.

The dialogue concluded that some standards were necessary to fulfil the purpose of Article 20a(3), second subparagraph ([7]). In that regard, the Commission may consider the possibility of launching a standardisation request for the communication protocol between the back-end servers of the vehicle manufacturers and third parties. This could potentially be achieved by using the standard IEC 62746 ([8]) currently under development. Making use of the relevant applicable parts of this standard when those become available could ensure the proper fulfilment of the requirements of Article 20a(3) second subparagraph.

Before the abovementioned standard is ready and applicable for the remote access interface to the back-end server of the vehicle manufacturers, the Commission invites vehicle manufacturers to make the documentation on how to retrieve the values of data points available to users, owners, and third parties acting on their behalf, under non-discriminatory terms and at no cost. For any other communication interface between the recharging point and the electric vehicle (e.g., PLC, ethernet or WIFI for vehicles supporting ISO 15118 in the limits of the existing standard ISO 15118 series), if the documentation on how to retrieve the data through these communication interfaces is not standardized, the Commission invites vehicle manufacturers to also make it available to users, owners, and third parties acting on their behalf, under non-discriminatory terms and at no cost, to retrieve the values of data points when the vehicle is plugged into a recharging point.

The guidance, under section 3.3.4. Ensuring access to battery data in 'real time', under 'non-discriminatory terms' and 'at no cost', set out different use cases for EVs. On this basis, the dialogue identified three possible use cases. The Commission invites Member States to take into account the following recommendations related to the definition, units and frequency of availability of the data points to be shared:

First, when the vehicle is moving (namely Propulsion System Active, whether the vehicle speed is above zero or not), data should be shared OTA, with explicit consent and easy revocation of consent of the user/owner of the vehicle ([9]), corresponding to the last known state of the vehicle at the following predefined time steps ([10]):

— The rated capacity and the rated battery system voltage shared as static points;

— The data types linked to the state of health, reflecting their values recorded during the most recent charging session;

([5]) Defined as any wireless connection to access vehicle data, for example using 4G-5G or Bluetooth from the user's smartphone.

([6]) When the vehicle is plugged in, in addition to data exchange via the back-end servers, sharing data via the communication interface between the EV and the charging point is also necessary, as remote connection may be unavailable or weak in some underground areas, which could prevent real-time data exchange.

([7]) Stakeholders also called for an alignment of the requirements of Article 20a with the Type Approval legislation.

([8]) IEC 62746 is a standard series developed by the International Electrotechnical Commission (IEC) to facilitate interoperability between customer energy management systems and power management systems. The series aims to standardise interfaces and communication protocols to support demand response and distributed energy resource integration.

([9]) Section '*3.3.3. Data access to owners, users and third parties "acting, with explicit consent, on the owners' and users' behalf*' [pages 23-24] of the guidance.

([10]) Due to practical considerations like data volume and transmission costs, there is a need to limit the update frequency when data is shared via the back-end server of the vehicle manufacturers.

— The state of charge shared whenever the percentage changes by one unit (and if not possible, every minute);

— The GPS location of the vehicle shared every minute, where appropriate;

— The three last data types linked to the power set point, as described below, shared as fast as technically feasible.

Regarding the communication of data, similarly to what is mentioned in the Communication for stationary batteries ([11]), Member States are encouraged to use the existing rules and standards (such as standard IEC 62746-4), and promote best practices, in order for vehicle manufacturers to ensure that the data, and particularly location-related data, is communicated in a secure way. In particular, personal data are not needed in all cases when communicating battery-related data.

Second, when the vehicle is parked and plugged into a recharging point, data should be shared OTA with explicit consent and easy revocation of consent by the owner/user of the vehicle ([12]), and via any communication interface between the EV and the recharging point (e.g., PLC when communication session is active, ethernet or wifi, for vehicles supporting ISO 15118 in the limits of the existing standard ISO 15118 series), corresponding to the last known state of the vehicle at the following predefined time steps ([13]):

— The rated capacity and the battery voltage shared as static points

— The data types linked to the state of health shared whenever the percentage of the capacity fade changes by one unit (and if not possible, everyday)

— The state of charge shared whenever the percentage changes by one unit (and if not possible, every minute)

— The GPS location of the vehicle shared at the point of connection, where appropriate

— All the data types linked to the power set point shared as fast as technically feasible.

Lastly, when the vehicle is parked and not plugged into a recharging point, no update needs to be made until the vehicle ignition is turned on: the data available is the last known state of the vehicle before the vehicle ignition was turned off.

For the sake of harmonisation of data sharing across Europe, the Commission invites Member States to specify in their legislation the data types as reported in the following table. This table further clarifies the information provided in section 3.3.2. Battery data format of the Commission Communication, based on the dialogue. The fourth column of the table below provides examples of standards.

Data point	Related data types	Static/ dynamic	Related standard if relevant	Unit
Battery capacity	**Rated Capacity** at beginning of life, which is the nominal value specified by the manufacturer under controlled conditions (e.g., 25 °C, constant current). It corresponds to the total number of Ah that can be withdrawn from a fully charged battery under specified conditions of main battery. It is the reference capacity intended to be used to monitor the progression of ageing and the associated capacity fade during the entire lifecycle of the battery.	Static	ISO 18300:2016(E)	Ah+Wh

([11]) Section '*3.3.5. Exchange interface*' [pages 26-27] of the Guidance.
([12]) Section '*3.3.3. Data access to owners, users and third parties "acting, with explicit consent, on the owners' and users' behalf*' [pages 23-24] of the guidance.
([13]) Due to practical considerations like data volume and transmission costs, there is a need to limit the update frequency when data is shared via the back-end server of the vehicle manufacturers.

Data point	Related data types	Static/ dynamic	Related standard if relevant	Unit
	Current Capacity ([14]), or usable battery capacity, decreasing over time.	Dynamic	Ongoing prEN 18060 CEN/CENELEC Timeline: around May 2025	Ah+Wh
	Rated battery system voltage	Static		V
SoH	**Capacity fade:** it expresses the decrease over time and upon usage in the amount of charge that a battery can deliver at the rated current, with respect to the original rated capacity. It can be deduced from the rated and the current capacity.	Dynamic	Ongoing prEN 18060 CEN/CENELEC Timeline: around May 2025	%
	SOCE (State of certified energy) as communicated through GTR 22/Euro 7, the measured or on-board UBE performance at a specific point in its lifetime, expressed as a percentage of the certified usable battery energy.	Dynamic	GTR No. 22 (United Nations Global Technical Regulation on In-vehicle Battery Durability for Electrified Vehicles)	%
	SOCR (State of certified range) as communicated through GTR 22/Euro 7, the measured or on-board electric range at a specific point in its lifetime, expressed as a percentage of the certified range.	Dynamic	GTR No. 22 (United Nations Global Technical Regulation on In-vehicle Battery Durability for Electrified Vehicles)	%
	Additional parameters ([15]) for a complete view of the battery's health (as defined in Regulation (EU) 2023/1542): — **Internal resistance** (Ohm), defined as the opposition to the flow of current within a cell or a battery under reference conditions, that is, the sum of electronic resistance and ionic resistance to the contribution to total effective resistance including inductive/ capacitive properties — **Internal resistance increase** (in %) defined as the increase over time and upon usage of the internal resistance of a battery, with respect to the original internal resistance	Static/ Dynamic	Ongoing prEN 18060 CEN/CENELEC: Timeline: around May 2025	Various units

([14]) Stakeholders highlighted that the current capacity, as developed under the ongoing standard prEN 18060 CEN/CENELEC, should be used on top of the rated capacity.

([15]) Stakeholders highlighted that, on top of the SoH measured in %, additional parameters were also necessary in order to have a complete view of the battery's SoH, which is defined in the RED as the measure of the general condition of a rechargeable battery and its ability to deliver the specified performance compared with its initial condition.

Data point	Related data types	Static/ dynamic	Related standard if relevant	Unit
	— **Power** (W), defined as the amount of energy that a battery is capable to provide over a given period under reference conditions — **Power fade** (%) defined as the decrease over time and upon usage in the amount of power that a battery can deliver at the rated current under reference conditions — **Energy round trip efficiency and its fade** (%), defined as the ratio of the net energy delivered by a battery during a discharge test to the total energy required to restore the initial state of charge by a standard charge.			
SoC	For the sake of harmonization, it is recommended to share the percentage from 0 to 100 of the current capacity ([16]), as defined under ISO 15118-20 (where the current capacity is the dynamic point mentioned above).	Dynamic	Ongoing standard for the usable capacity: prEN 18060. Timeline: around May 2025	% + Wh
Location	GPS location (GDPR compliant meter resolution)	Dynamic	ISO 6709	
Power set point	**Maximum charging/discharging power/ current supported by the vehicle** when connected to the charging point.	Dynamic	For example described in ISO 15118-20 as: — EVMaximumChargePower — EVMaximumDischargePower	W+A
	Present charging/discharging power/ current, namely the present active power measured by the vehicle	Dynamic	For example described in ISO 15118-20 as: — EVPresentActivePower	W+A
	Amount of power/current that the vehicle is instructed to draw from or deliver to a charging station at any given moment ([17]).	Dynamic	For example described in ISO 15118-20 AC-DynamicMode as: — EVSETargetActivePower	W+A

([16]) Stakeholders highlighted that the SoC related to the current (variable) capacity is more useful than the SoC related to the rated capacity. Moreover, this would correspond to the data type standardized under ISO 15118-20 (ongoing standard prEN 18060).

([17]) It is based on: (i) Battery Constraints, such as the vehicle's maximum power acceptance rate, SoC, and thermal limits (e.g., reduced power near full charge or at high/low temperatures); (ii) Charging Station Limits, which define the maximum output the station can deliver; (iii) Grid and Environmental Factors, including real-time load management, grid stability requirements, and local regulations.

Data point	Related data types	Static/ dynamic	Related standard if relevant	Unit
	Upper and lower limit of the power envelop which is presently active and will be enforced by the Battery Management System (BMS), or other control units, to protect the battery. The general terms of upper and lower limits are recommended to be defined according to EN 50491-12. This defines the power range that is technically possible for the BMS. Under the given conditions, forward or reverse energy transfer outside this envelope (range) will not be allowed by the safety measures which protect the battery.	Dynamic		W
	Upper and lower limit of the power envelop which is presently active and will be respected by the Vehicle Charging Control Unit (VCCU) of the vehicle when calculating the present power set point for the On-board charging unit (OBCU). This envelope defines the acceptable range for the power set point from the perspective of an optimization or flexibility goal ([18]). It is usually provided by the internal VCCU charge planning algorithm, and it is commonly shaped by external constraints provided to the vehicle by the vehicle manufacturers on behalf of third parties (mobility service providers and other electricity market participants). In the cases of integration with building EMS, the envelope will represent the flexibility goals of the building, which the VCCU of the vehicle should take into account.	Dynamic (write, push – provided when needed, also to be shared when the vehicle is moving).	For example described in ISO 15118-20 energy transfer control loop messages as: — EVMaximumChargePower — EVMaximumDischargePower	W
	Data linked to the available/chargeable energy till customer-defined minimum SoC. It is notably reflecting the energy difference between the present energy level of the vehicle battery and the minimum energy level required by the end user to be maintained within the battery.	Dynamic (also to be shared when the vehicle is moving)	For example described in ISO 15118-20 DynamicMode as: — EVTargetEnergyRequest	Wh

([18]) As stated in recital 52 of Directive (EU) 2023/2413, sharing these data would help facilitate the integration-related operations of electric vehicle and develop flexibility and balancing services from the aggregation of distributed storage assets in a competitive manner. Sharing this data point would support the integration of a vehicle into a local energy management system (Energy Management System or Customer Energy Manager). A violation of this envelope would result in a failure to meet the needs of flexibility or balancing services, such as those initiated by an aggregator of distributed storage assets or a building energy management system.

Data point	Related data types	Static/ dynamic	Related standard if relevant	Unit
	Data linked to the available/chargeable energy till customer-defined maximum SoC. It is notably reflecting the energy difference between the present energy level of the vehicle battery and the maximum energy level allowed by the end user. The logic of the related data definitions of ISO 15118-20 should be used (maximum, target, soft upper and lower V2X limits, …).	Dynamic (also to be shared when the vehicle is moving)	For example described in ISO 15118-20 DynamicMode as: — EVMaximumEnergyRequest — EVMaximumV2XEnergyRequest — EVMinimumV2XEnergyRequest	Wh