PEP ecopassport® PROGRAMME

PSR

SPECIFIC RULES FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURES

PSR-0018-ed1.3-EN-2025 04 08

In accordance with PSR-modele-ed1-FR-2015 03 20

Contents

List of the modifications of the present document

Online version 31/01/2024

Modified section ed 1 to ed 1.1	Modification
§3.5.4.1 a. §3.5.4.1 b.	Corrected value from 28,174 kWh to 28,251 kWh

Online version 26/09/2024

Modified section ed 1.1 to ed 1.2	Modification
§3.1.1	Correction of unit kW by : kWh
§3.5.4.1 a.	Correction of formula $RI^2t*1000*X$ by : $RI^2TX/1000$ Correction of formula C (per FU) = $(RI^2t*1000*X)/28\ 251$ kWh by : C (per FU) = $(RI^2TX/1000)/28\ 251$ kWh
§3.5.4.1 b.	Correction of formula $RI^2t*1000*X$ by $RI^2T/1000*X$
§3.5.4.1 a. §3.5.4.1 b. §3.5.4.1 c.	Modification of the "NOTE - The application of the scenario presented above can be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1-FR-2021 09 13 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org" by : NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website rennwww.pep-ecopassport.org to make the xls calculation file mandatory In the tables "Definition of functional unit" correction of unit kW by : kWh
§4.3	Deletion of the words "reference" written twice

Online version 08/04/2025

Modified section ed 1.2 to ed 1.3	Modification
§3.5.4.1 c.	Correction "4 charges per week" by : "4 charges per day"

1. Introduction

This reference document completes and clarifies the Product Category Rules (PCRs) for Product Environmental Profiles (PEPs) defined in the PEP ecopassport® Programme (PEP-PCR-ed4-EN-2021-09 06), available at www.pep-ecopassport.org).

It sets out the additional requirements applicable to electric vehicle charging infrastructures. These requirements must be observed in order to:

- qualify the environmental performance of these products on an objective and consistent basis,
- publish PEPs that comply with the PEP ecopassport® Programme and with international reference standards.[1]

This reference document was drawn up in accordance with the PEP ecopassport® Programme's rules on openness and transparency and with the assistance of professionals from the electric vehicle charging infrastructure market and from stakeholders.

PEP eco PASSPORT®	www.pep-ecopassport.org
PSR username	PSR-0018-ed1-EN-2021 09 13
Critical review	The third-party critical review was carried out by Caroline Catalan – I Care and Consult. The declaration of conformity published on 27/07/21 is appended to this document.
Availability	The Critical Review Report is available on request from the PEP Association: contact@pep-ecopassport.org.
Field of application	The Critical Review Report and the declaration of conformity shall remain valid for five years or until the Writing Rules for PEPs or the reference regulatory texts to which they refer are amended.

[1] ISO 14025, ISO 14040 and ISO 14044 standards

2. Field of application

In accordance with the General Instructions for the PEP ecopassport® programme (PEP-General-Instructions - ed-4.1-EN-2017 10 17) and in conjunction with the PCR or "Product Category Rules" (PEP-PCR-ed4-EN-2021-09 06) for the PEP ecopassport® eco-declaration programme, this document sets out the specific rules for electric vehicle charging infrastructures and clarifies the product specifications to be adopted by manufacturers when compiling their PRODUCT ENVIRONMENTAL PROFILES (PEP), concerning:

- the technology and how it is applied,
- the reference service life taken into account for the products' Life Cycle Analysis (LCA),
- the conventional Reference use scenarios to take into account during the product's use phase.

The main purpose of these specific rules is to provide a common ground for manufacturers of electric vehicle charging infrastructures when drawing up their product life cycle analyses. It presents the different charging infrastructure technologies available, i.e.: sockets or charging stations for electric vehicles or rechargeable hybrid vehicles.

The field of application excludes:

- charging stations whose stations and sockets are merely an element of the infrastructure.

2.1. Description of the product families covered

The product family covered is referred to using the terminology of "electric vehicle charging infrastructure" and is a scheme designed to supply power to electric vehicles or rechargeable hybrid vehicles from the power grid, and to allow communication between these vehicles if necessary.

As at the date on which this PSR was written, this family comprises the five product categories set out below.

2.1.1. Domestic socket

This is a connection point in the form of a reinforced 16A 2P+E domestic electrical socket.

It is used for normal charging in mode 1 or 2.

It is composed of:

- One 16A 2P+E electrical socket adapted for charging electric vehicles.

Reference technical properties to be included in the PEP:

Product family	Station type	Installation type	Charging type	Number of charging points	Charging mode	Presence of connected sockets	Reference power	Current type	Reference service life
Passive product	electrical socket	wall installation	Normal	1 reinforced electrical socket	Mode 1 or 2	no	3.7 kW	AC	10 years

2.1.2. Private or semi-public station

2.1.2.1. AC wallbox

This is a charging station for a private or semi-public environment for one or more users and runs on alternating current. This is a charging wallbox installed (for example) in garages, roofed sheds, car parks and outside parking spaces associated with a residential or tertiary use building.

It runs in mode 3 for normal charging.

It is always composed of:

- 1 or 2 type 2S sockets connected to a rated current of 32 A

Or

- 1 type 2 or type 2S electrical socket of above 32 A;

Or

- 1 or 2 joined cables (T1 or T2) rated up to 32A

- 1 or 2 controllers
- 1 housing.

It may include:

- 1 electrical protection device
- 1 access control system (RFID or key)
- 1 modem
- 1 display screen
- 0 to 2 domestic 16A P+T electrical sockets
- 1 OCPP to CPO communication module
- 1 TIC remote data module
- …

The mandatory and optional elements must be declared in the accompanying report and in the PEP.

Reference technical properties to be included in the PEP:

Product family	Station type	Installation type	Charging type	Number of charging points	Charging mode	Presence of connected sockets	Reference power	Current type:	Reference service life
Active product	Wallbox running on alternating current (AC)	wall installation: garages, roofed sheds or exterior parking areas in collective residential buildings or buildings used as offices, car parks, or the public highway	Normal	1 or 2 type 2S or type 2 sockets	Mode 3	0-2 16A 2P+T domestic sockets	16 A - 230 V - 3.7 kW-single-phase	AC	10 years
							32 A - 230 V - 7 kW-single-phase		
							16 A - 230 V - 11 kW-three-phase		
							32 A - 230 V - 22 kW - three-phase		

2.1.2.2. Private or semi-public station on a base and running on alternating current (AC)

This is a charging station for a private or semi-public environment (such as the car park for a block of flats or for an office building, a public car park, etc.) for one or more users and runs on alternating current.

It runs for normal charging and in mode 3.

It must contain at least:

- 1 or 2 type 2 or type 2S sockets connected to a rated current of 32 A

Or

- 1 or 2 joined cables (T1 or T2) rated up to 32A

- 1 or 2 controllers
- 1 housing
- 1 base.

It may include:

- 1 electrical protection device
- 1 CPO communication module
- Connection facilities

- 0 to 2 domestic 16A 2P+E electrical sockets
- 1 modem
- 1 meter
- 1 display screen.

The mandatory and optional elements must be declared in the accompanying report and in the PEP.

Reference technical properties to be included in the PEP:

Product family	Station type	Installation type	Charging type	Number of charging points	Charging mode	Presence of connected sockets	Reference power	Current type	Reference service life
Active product	Private or semi-public stations on a base and running on alternating current (AC)	home, business or semi-public installation	Normal	1 or 2 type 2S or type 2 bases	Mode 3	0-2 16A 2P+E domestic sockets	16 A - 230 V - 3.7 kW-single-phase	AC	10 years
							32 A - 230 V - 7 kW-single-phase		
							16 A - 230 V - 11 kW-three-phase		
							32 A - 230 V - 22 kW - three-phase		

2.1.2.3. Private or semi-public stations on a base and running on direct current (DC)

This is a charging station for a private or semi-public environment (such as the car park for a block of flats or for an office building, a public car park, etc.) for one or more users and runs on direct current suitable for quick charging and bidirectional charging to make local use of the energy stored (Vehicle to Home usage - V2H and vehicule to building – V2B).

It runs for fast charging and in mode 4.

It must always contain at least:

- 1 or more attached cables with a mobile CCS and/or CHAdeMO plug
- 1 controller
- 1 protective device
- 1 housing
- 1 base
- 1 converter.

It may include:

- 1 electrical protection device
- 1 access control system (RFID or key)
- 1 modem
- 1 metering device
- 1 display screen
- 1 CPO communication module.

The mandatory and optional elements must be declared in the accompanying report and in the PEP.

Reference technical properties to be included in the PEP:

Product family	Station type	Installation type	Charging type	Number of charging points	Charging mode	Presence of connected sockets	Reference power	Current type	Reference service life
Active product	**Private or semi-public stations on a base and running on DC**	home, business or semi-public installation	Fast	1 or more attached cables with a mobile CCS or CHAdeMO plug	Mode 4	No	(>22kW) Or 43kW Or >=50kW To be precised in PEP	DC	10 years

2.1.3. Public station on a base

2.1.3.1. Public station on a base and running on alternating current (AC)

This is a charging station for a public environment for multiple users (supermarket car park, village square, public highway, etc.) and runs on alternating current.

It runs for normal charging and in mode 3.

It is always composed of:

- 1 or 2 type 2S sockets connected to a rated current of up to 32 A
- 1 or 2 controllers
- 1 electrical protection device per electrical socket
- 1 housing
- 1 base.

It may include:

- Connection facilities
- 1 access control system (RFID or key)

- 1 modem
- 1 metering device
- 1 display screen
- 1 CPO communication module
- 1 payment system
- …

The mandatory and optional elements must be declared in the accompanying report and in the PEP.

Reference technical properties to be included in the PEP:

Product family	Station type	Installation type	Charging type	Number of charging points	Charging mode	Presence of connected sockets	Reference power	Current type:	Reference service life
Active product	**Public stations on a base and running on AC**	Installed outside	Normal	2 type 2S or type 2 sockets	Mode 3	0-2 16A 2P+E domestic sockets	32 A - 230 V - 22 kW- three-phase	AC	10 years

2.1.3.2. Public station on a base and running on direct current (DC)

This is a multistandard charging station for a multi-user environment installed in a public area (company car park, petrol station, motorway services, etc.) that runs on direct current and potentially on alternating current. This station can be used for fast charging.

This type of station is connected and monitored.

It runs for fast charging, in mode 4.

It is always composed of:

- 1 cable with a COMBO mobile connection and/or 1 cable with a CHAdeMO mobile connection
- 1 or more controllers
- 1 or more electrical protection systems.

It may include:

- 1 type 2S electrical socket
- 1 attached 43 kW cable
- 1 or more 16A 2P+E domestic sockets
- 1 communication device (modem, to CPO, etc.)
- 1 monitoring device
- 1 payment device
- 1 or more metering devices
- 1 access control system (RFID or key)

- 1 display screen.

The mandatory and optional elements must be declared in the accompanying report and in the PEP.

Reference technical properties to be included in the PEP:

Product family	**Station type**	**Installation type**	**Charging type**	**Number of charging points**	**Charging mode**	**Presence of connected sockets**	**Reference power**	**Current type:**	**Reference service life**
Active product	**Public stations running on DC**	installed in public areas	Fast	1 COMBO cable with a mobile connection and/or 1 cable with a CHAdeMO mobile connection and/or 1 type 2S electrical socket	Mode 4 Mode 3	1 or more 16A 2P+E sockets	400 V - 125 A - 50 kW currently (can go up to 180 kW)	DC and potentially AC	10 years

2.1.4. Charging system with industrial sockets

This is a charging system that operates in an industrial environment. For all declarations pertaining to this type of system, the information given for the products set out above must be defined and set out in the PEP and in the accompanying report. Other relevant informations can be added.

This information should make it possible to establish the reference Reference use scenario. As we have less experience with this type of socket, it has not been possible to establish specific rules for them, but this PSR should serve as a complementary guide to the RCP.

2.1.5. Combination of charging points

This is a charging system that be used in a hybrid manner and includes both AC and DC charging points that can operate simultaneously. For these products, all characteristics must be declared for both types of charging point. The main charging point(s) must be identified.

For each station, the “main” charging point is the point used to determine the station’s dimensions. If several charging points can operate simultaneously and if the charging points have comparable usage rates, there are said to be multiple main charging points.

2.2. Taking account of developments in technology

The specific rules for electric vehicle charging infrastructures will take account of any and all technological advances where a request has been made to the P.E.P. Association to include those advances in these specific rules, and the Association will give its decision based on how the new technology is presented and the extent to which its claimed performance is substantiated.

3. Product Life Cycle Analysis

3.1. Functional unit and description of the reference flow

These specific rules supplement Paragraph 2.1 “Functional unit and description of the reference flow” of the currently applicable PCR (PEP-PCR-ed4-EN-2021-09 06).

As a reminder, there are 2 options for declaring the environmental impact indicators of a system declared in a PEP, each of them meeting different needs:

- The functional unit, to be used systematically when the comparison between systems (products, solutions...) is required (MANDATORY)

- The declared unit, which allows the direct integration of environmental impact indicators of products at the product or system level. (OPTIONAL)

3.1.1. Functional unit

The main purpose of this product family is to supply power to one or more vehicles in order to charge their batteries for their own use. Thus, the functional unit adopted is as follows:

- ✓ Supply 1 kWh to one vehicle in accordance with the reference use scenario at the charging point [2]

Given the type of product and its specific function, the functional unit chosen refers to the provision of a finite quantity of energy to a vehicle and does not directly integrate a temporal dimension. Indeed, the temporal dimension is integrated through the reference scenario in order to guarantee the adequacy between product and function. In order to facilitate the understanding and the integration of the results in larger systems (building, parking, ...), the results can be declared in a declared unit.

The declared unit can be: "To ensure the recharging of electric vehicles or rechargeable hybrids through one or several recharging points during a reference lifetime of XX years". XX being defined in the reference scenarios below.

3.1.2. Reference product and description of the reference flow

The study shall be carried out:

[2] The baseline scenario includes the baseline lifespan as defined in the PEP ecopassport® program PCR.

- On the charging system together with its packaging and the installation accessories supplied with the product. The sub-assemblies included must be described in the accompanying report and in the PEP in order to ensure that the declaration is transparent.
- For all products that do not come with a cable attached, the connection cable between the vehicle and the station can optionally be included in the PEP, and the PEP must explicitly state that the cable has been included where this is the case.
- Considering the reference service life described in Paragraph 2.1.

The effects are then scaled down to the functional unit using the method described in Paragraph 3.10.

For declarations concerning a product range or for collective declarations, the reference product's characteristics must be those set out in Paragraph 2.1.

3.2. System boundaries

These specific rules supplement the Paragraph on "System boundaries" in the currently applicable PCR (PEP-PCR-ed4-EN-2021-09 06).

3.2.1. Manufacturing stage

The rules defined in the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) shall apply to this stage.

All components supplied with the product to enable it to function correctly must be included within the study.

The elements that must be included for charging systems are:

- for passive products: the charging socket and its packaging,
- for active products: the station, the mounting base and its primary packaging.

The charging cable must be included if it cannot be separated from the station; otherwise, including it is optional but if it is included, this must be indicated in the PEP.

The elements that fall outside the scope of the study are the connection to the mains grid, the monitoring infrastructure and the communication network.

3.2.2. Distribution stage

The rules defined in the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) shall apply to this stage.

3.2.3. Installation stage

The rules defined in the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) shall apply to this stage. Typically, installing a charging system involves:

- Manufacturing and processing the components of the equipment required for the installation, which will not be incorporated until the station is installed.
- The processes and energy applied during the installation.

- The workflows involved with the installation process, where necessary to ensure the proper operation of the equipment in its usage location, may be:
    - transport to the site via hoist,
    - the energy consumed during a testing phase on the usage site.
- Processing the packaging waste. It is assumed that the packaging waste generated during the installation stage will be disposed of by the installer once the equipment has been installed.

The following, on the other hand, are not taken into consideration:

- Equipment used to connect the system to other elements of the main grid, such as cables. These elements may be covered by a separate declaration.
- The energy flows associated with the use of portable hand tools to install the system.
- Any modification to the frame and/or addition of any elements not stipulated by the manufacturer. The actual impact of these operations should be calculated by the declaration user, if desired, using the installation elements used during the site works phase.

3.2.4. Usage stage

The usage stage of the charging station, once the element has been installed, includes the following:

- Electrical energy consumption by the charging system associated with heat dissipation when recharging the vehicle, which should be calculated as follows:

  For AC products:

  Station consumption associated with losses = R*I²*T*X

  For DC products:

  Station consumption associated with losses = (1-E)*Qd

  Where:

  R = Resistance of the connections that transmit the current to the vehicle
  I = Intensity = 100% in single-phase AC
  = 100% (3*In) in three-phase AC
  In = Normal Intensity
  T = Unit charge time
  X = Number of charges over the reference service life
  E = Converter yield
  Qd = Average quantity of energy supplied for a given charging point on the station's RL.

  The associated values (R, I, T and X) must be substantiated and depend on the reference usage scenario defined in Paragraph 3.5.4.

- Electrical energy consumption by the charging system associated with its operation (known as intrinsic consumption) and applicable solely to active systems, which must be measured, substantiated and dependent on the reference usage scenario.

For AC or DC stations:

Intrinsic consumption of the charging system =
(Pactive*%Tactive+Pva*%Tva+%Pvp*%Tvp+Poff*%Toff)*RL

Where:

Pactive = Operating power (socket connected and charging)

%Tactive = % of time in active mode (socket connected and charging)

Pva = Power on active standby (socket connected and charging complete)

%Pva = % of time on active standby (socket connected and charging complete)

Pvp = Socket power on passive standby (socket not connected)

%Tvp = % of time on passive standby (socket not connected)

Poff = Power off (socket not connected and with no current passing through it)

%Toff = % of time in off mode (socket not connected and with no current passing through it)

%Tvp+%Toff = Remainder of the time.

For products with several charging points, the main and ancillary charging points must be defined. Only the consumption associated with the main charging points will be taken into consideration, as the consumption from ancillary charging points is deemed to be negligible. The procedure for calculating these consumption levels is set out in Paragraph 3.5.4.

- Regular maintenance operations depending on the system in question.

The consumption of the energy transmitted to the vehicle will be taken into account for the purposes of the vehicle's impact and not the charging system's impact.

3.2.5. End-of-life stage

The rules defined in the applicable PCR shall apply to this stage.

3.3. Cut-off rules

The rules set out in the "Cut-off rules" paragraph of the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) shall apply.

3.4. Specific allocation rules

These specific rules supplement the "Rules for allocation between co-products" paragraph of the applicable PCR (PEP-PCR-ed4-EN-2021-09 06).

Where primary data is shared with other products (particularly during the assembly stage) than the products covered by these specific rules, the impact must be calculated pro rata with the mass of the devices manufactured.

3.5. Creating a scenario (default scenario)

3.5.1. Manufacturing stage

A charging system comprises components supplied by the manufacturer:

- directly built by the manufacturer,
- or ready for assembly.

3.5.1.1. Waste generated during the manufacturing stage

Manufacturing and waste processing are included in the manufacturing stage. Manufacturers may eliminate manufacturing waste themselves or under their responsibility. The accompanying report must stipulate how the manufacturer or any person working for or on behalf of them meets the requirements of these stages, separating hazardous manufacturing waste from non-hazardous manufacturing waste and providing evidence to substantiate this differentiation.

Where the treatment processes are known (reuse, recycling, energy recovery, landfill, incineration without energy recovery), they must be detailed and substantiated in the accompanying report, and the associated environmental impact must be taken into account, as stated in the “Processing scenarios for products reaching their end of life” paragraph of the applicable PCR.

The substantiation of the treatment processes must be accompanied in the accompanying report by the substantiation of the treatment channels and the recovery rate obtained per type of waste (e.g. via an annual waste processing report issued by a waste management and recovery body).

If the producer cannot substantiate the procedures used to dispose of the waste generated during the manufacturing stage for the device, the treatment to be considered by default is calculated as follows:

Wastage rates considered	Waste processing for consideration	Transport distance
30% of the mass of the raw product	Waste collection, pre-treatment, landfill	1000 km by lorry

Where applicable, since this value is by default detrimental, no energy recovery is taken into account.

By industry agreement, the transport stage for this waste must be taken into account based on a hypothetical journey of 1000 km by lorry.

3.5.2. Distribution stage

The distribution stage must be analysed in accordance with the “System boundaries/Distribution stage” paragraph of the applicable PCR.

3.5.3. Installation stage

The installation stage must be analysed in accordance with the “System boundaries/Installation stage” paragraph of the applicable PCR.

3.5.3.1. Installation type

“Installation type” is defined as any process, component, energy or other consumption and/or emission necessary for the installation of a charging system. These conditions for installation may involve the use of consumables and/or specific products, which must be listed if they are necessary and not taken into account during the manufacturing stage.

These latter elements must be described and inventoried in the ACV during the installation stage.

3.5.3.1. Processing the packaging waste

The processing of the packaging waste is included. It is assumed that the product packaging waste generated during the installation stage will be disposed of by the installer once the equipment has been installed. The charging system packaging waste generated during the installation stage falls under the non-hazardous waste category and, as a matter of principle, is eliminated by the installer once the charging system has been installed.

Its disposal is calculated by default[3] using the following method:

Mass of the packaging	**Cardboard, wood, corn starch, cellulose**	**Plastic and other products deemed non-hazardous waste**
Percentage of packaging recycled at end of life	89%	21%
Percentage of packaging converted to energy at end of life	8%	32%
Percentage of packaging incinerated (50%) and buried in landfills (50%) without being converted to energy at end of life	3%	47%

Any strapping, packing coupons or labels present in or on the charging system packaging are considered to be negligible and may be excluded from the life cycle analysis of packaging waste.

The transport stage for this waste must be taken into account based on a hypothetical journey of 1000 km by lorry.

3.5.4. Usage stage

3.5.4.1. Reference usage scenario and calculating electricity consumption

a. Passive products - Domestic socket

The energy consumption associated with domestic socket products is associated with the energy dissipated during the usage stage. This energy is calculated based on the scenario and on the formula set out below.

[3]Excerpt from the ADEME reports on “industrial, commercial and household packaging”, 2008 and “recycling report 1999-2009: materials and recycling broken down by sector”, 2010, particularly pages 102 & 113.

	Passive products - Domestic wall socket Type of power supply: AC	Sources/Notes
Reference use scenario	Reference service life (RL) of the domestic socket: **10 years** Number of simultaneous charging points (N) = 1 Average daily travel: 43 km per day, of which 90% is charged at private stations, so **38.7 km per day*** Number of charges: **2 charges per week, or 1040 charges during the RL** Charge time: **7.3 hours on a 3.7 kW socket** Average quantity of electricity supplied for a given charging point over the station's RL considering an electricity requirement for the vehicle of 20 kWh per 100 km**, i.e. **28,251 kWh supplied per charging point over the RL**	*Behavioural study carried out on the owners of electric vehicles: driving and charging habits – Enedis/BVA - April 2020 - https://www.enedis.fr/sites/default/files/Enedis_Enquete_BVA_DEF.pdf **Industrial data N.B. This scenario reflects the situation at the time at which the PCR was written and does not take account of any changes in practices forecast in coming years and associated with the option of charging a vehicle at the workplace, in petrol stations or in shopping centres, for example.
Calculating station consumption associated with losses (power dissipated in kWh over the Reference service life)	**Heat dissipation (kWh) = $RI^2TX/1000$** R = resistance of the connections that transmit the current to the vehicle (Ohms) I = 100% In (amperes) In = standard power (amperes) T = Unit charge time (hours) = **7.3 h** X = Number of charges over the RL = **1,040**	
Calculating total consumption with regard to the Functional Unit (kWh/kWh)	**Consumption associated with dissipation reduced to functional units for a single charging point:** C (per FU) = $(RI^2TX/1000)/28{,}251$ kWh	**Definition of functional unit:** Supply 1 kWh to one vehicle in accordance with the Reference use scenario for a private or semi-public wall-mounted domestic socket at the charging point

The Reference use scenario and all the technical data used to calculate the charging system's consumption must be included in the accompanying report and in the PEP.

NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org

b. Active products running on alternating current (AC)

⇨ **Products for private or semi-public use and running on AC:**

The energy consumption associated with products such as wallboxes or base-mounted stations intended for private or semi-public use and running on alternating current is associated with:

- the energy dissipated during the usage phase,
- the intrinsic consumption of the station.

This energy is calculated based on the scenario and on the formulae set out below.

<table>
<tr><th></th><th>Type of usage: <u>Private/Semi-public</u>
Type of power supply: AC</th><th>Sources & Hypotheses</th></tr>
<tr><td>Reference use scenario</td><td>Reference service life (RL) of the station: 10 years
Average daily travel: 43 km per day, of which 90% is charged at private stations, so 38.7 km per day*
Number of charges: 2 charges per week
Effective charge time (depending on the power supplied) - Dr:
- 7.32 hours at 3.7 kW
- 3.87 hours at 7 kW
- 2.46 hours at 11 kW
- 1.24 hours at 22 kW
Average time plugged in = 12 h
Average quantity of electricity supplied for a given charging point over the station’s RL considering an electricity requirement for the vehicle of 20 kWh per 100 km**, i.e. 28,251 kWh supplied per charging point over the RL</td><td rowspan="2">*Behavioural study carried out on the owners of electric vehicles: driving and charging habits – Enedis/BVA - April 2020 - https://www.enedis.fr/sites/default/files/Enedis_Enquete_BVA_DEF.pdf
**Industrial data
N.B. – The work group behind the PSR decided to adopt the private scenario as the reference for the private/semi-public use case, deeming that it was a unique, median scenario that would ensure PEPs would be compatible with each other.
N.B. This scenario reflects the situation at the time at which the PCR was written and does not take account of any changes in practices forecast and does not include consumption associated with V2H-V2G.</td></tr>
<tr><td>Calculating intrinsic consumption</td><td>Intrinsic consumption of the charging system = (Pactive*%Tactive+Pva*%Tva+%Pvp*%Tvp+Poff*%Toff)*RL
Where:
Pactive = Operating power (socket connected and charging)
%Tactive = % of time in active mode (socket connected and charging)
Pva = Power on active standby (socket connected and charging complete)
%Pva = % of time on active standby (socket connected and charging complete)
Pvp = Socket power on passive standby (socket not connected)
Poff = Power off (socket not connected and</td></tr>
</table>

	Type of usage: <u>Private/Semi-public</u> Type of power supply: AC	Sources & Hypotheses
	with no current passing through it) %Tvp+%Toff = Remainder of the time	
Calculating station consumption associated with losses (power dissipated in kWh over the Reference service life)	**Heat dissipation (kWh) = $RI^2TX/1000$** R = resistance of the connections that transmit the current to the vehicle (Ohms) I = 100% In (amperes) In = standard power (amperes) n = phase number - 1 for single-phase - 3 for three-phase T = Unit charge time (hours) = **7.3 h** X = Number of charges over the RL = **1,040**	
Electricity consumption per functional unit	**Total electricity consumption of the station per functional unit:** (Intrinsic consumption + Consumption associated with heat dissipation)(28,251 kWh)	**Definition of functional unit:** Supply 1 kWh to one vehicle in accordance with the Reference use scenario for a private or semi-public AC station at the charging point

The Reference use scenario and all the technical data used to calculate the charging system's consumption must be included in the accompanying report and in the PEP.

NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org

⇨ **Products for <u>public use and running on AC:</u>**

The energy consumption associated with base-mounted stations intended for public use and running on alternating current is associated with:

- the energy dissipated during the usage phase,
- the intrinsic consumption of the station.

This energy is calculated based on the scenario and on the formulae set out below.

	Type of usage: <u>Public</u> **Type of power supply: <u>AC</u>**	**Sources & Hypotheses**
Reference use scenario	Type of use: charging in a village square, a supermarket car park, etc. Reference service life (RL) of the station: **10 years** Number of charges: **2 charges per day per simultaneous charging point, or** 7300 charges during the RL Charge time: **3 hours** Station power: **22 kW** Average quantity of electricity supplied by the station over the RL = 22 kW *3 hours *7300* number of simultaneous charging points. I.e. 481,800 kWh for 1 charging point	N.B.: In the absence of institutional data, the Reference use scenario was defined using an estimated average usage calculated based on feedback from manufacturers.
Calculating intrinsic consumptio n	**Intrinsic consumption of the charging system = (Pactive*%Tactive+Pva*%Tva+%Pvp*%Tvp+Pof f*%Toff)*RL** Where: Pactive = Operating power (socket connected and charging) %Tactive = % of time in active mode (socket connected and charging) Pva = Power on active standby (socket connected and charging complete) %Pva = % of time on active standby (socket connected and charging complete) Pvp = Socket power on passive standby (socket not connected) Poff = Power off (socket not connected and with no current passing through it) %Tvp+%Toff = Remainder of the time	
Calculating station consumptio n associated with losses (power dissipated in kWh over the Reference	**Heat dissipation (kWh) = $RI^2TX/1000$** R = resistance of the connections that transmit the current to the vehicle (Ohms) I = 100% In (amperes) In = standard power (amperes) n = phase number - 1 for single-phase	

	Type of usage: Public Type of power supply: AC	Sources & Hypotheses
service life)	- 3 for three-phase T = Unit charge time (hours) = **3 h** X = Number of charges over the RL = **7,300**	
Electricity consumption per functional unit	**Total electricity consumption of the station per functional unit:** (Intrinsic consumption kWh + Consumption associated with heat dissipation kWh)/(Average quantity of electricity supplied by the station over the RL in kWh) For one charging point, the formula is : (Intrinsic consumption kWh + Consumption associated with heat dissipation kWh)/(481,800 kWh)	**Definition of functional unit:** Supply 1 kWh to one vehicle in accordance with the Reference use scenario for a public AC station at the charging point

The Reference use scenario and all the technical data used to calculate the charging system's consumption must be included in the accompanying report and in the PEP.

NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org

c. Active products running on direct current (DC)

⇨ **Products for private or semi-public use and running on DC:**

The energy consumption associated with base-mounted stations intended for private or semi-public use and running on direct current is associated with:

- the energy dissipated during the usage phase,
- the intrinsic consumption of the station.

This energy is calculated based on the scenario and on the formulae set out below.

	Type of use: Private/Semi-public Type of power supply: DC	Sources & Hypotheses
Reference use scenario	Type of use: charging in a car dealership or in a company for commercial profiles. Reference service life (RL) of the station: **10 years** Number of charges: **4 charges per day, or** 14,600 charges during the RL Charge time: **1 hour** Station power: **22 kW** Average quantity of electricity supplied by the	N.B.: In the absence of institutional data, the Reference use scenario was defined using an estimated average usage calculated based on feedback from manufacturers.

	Type of use: Private/Semi-public Type of power supply: DC	Sources & Hypotheses
	station over the RL = 22 kW *1 hour *14,600* number of simultaneous charging points. I.e. 321,200 kWh for 1 charging point	
Calculating intrinsic consumption	**Intrinsic consumption of the charging system = (Pactive*%Tactive+Pva*%Tva+%Pvp*%Tvp+Poff*%Toff)*RL** Where: Pactive = Operating power (socket connected and charging) %Tactive = % of time in active mode (socket connected and charging) Pva = Power on active standby (socket connected and charging complete) %Pva = % of time on active standby (socket connected and charging complete) Pvp = Socket power on passive standby (socket not connected) Poff = Power off (socket not connected and with no current passing through it) %Tvp+%Toff = Remainder of the time	
Calculating station consumption associated with losses (power dissipated in kWh over the Reference service life)	**Heat dissipation (kWh)** **= (1-E)*Qd** Where: E = Converter yield Qd = Average quantity of energy supplied for all charging points that can operate simultaneously over the station's RL	
Electricity consumption per functional unit	**Total electricity consumption of the station per functional unit:** (Intrinsic consumption + Consumption associated with heat dissipation)/(321,200 kWh)	**Definition of functional unit:** Supply 1 kWh to one vehicle in accordance with the Reference use scenario for a private or semi-public DC station at the charging point

The Reference use scenario and all the technical data used to calculate the charging system's consumption must be included in the accompanying report and in the PEP.

NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org

⇨ **Products for <u>public use and running on DC:</u>**

The energy consumption associated with base-mounted stations intended for public use and running on alternating current is associated with:

- the energy dissipated during the usage phase,
- the intrinsic consumption of the station.

This energy is calculated based on the scenario and on the formulae set out below.

	Type of use: <u>Public</u> **Type of power supply: <u>DC</u>**	**Sources & Hypotheses**
Reference use scenario	Type of use: charging in a motorway service station. Reference service life (RL) of the socket: **10 years** Number of charges: **10 charges per day per simultaneous charging point, or** 36,500 charges during the RL of one charging point Charge time: **1 hour** Station power: **50kW** Average quantity of electricity supplied by the station over the RL = 50 kW *1 hour *36,500* number of simultaneous charging points. I.e. 1,825,000 kWh for 1 charging point	N.B.: In the absence of institutional data, the Reference use scenario was defined using an estimated average usage calculated based on feedback from manufacturers.
Calculating intrinsic consumption	**Intrinsic consumption of the charging system = (Pactive*%Tactive+Pva*%Tva+%Pvp*%Tvp+P off*%Toff)*RL** Where: Pactive = Operating power (socket connected and charging) %Tactive = % of time in active mode (socket connected and charging) Pva = Power on active standby (socket connected and charging complete) %Pva = % of time on active standby (socket connected and charging complete) Pvp = Socket power on passive standby	

	Type of use: <u>Public</u> **Type of power supply: <u>DC</u>**	**Sources & Hypotheses**
	(socket not connected) Poff = Power off (socket not connected and with no current passing through it) %Tvp+%Toff = Remainder of the time	
Calculating station consumption associated with losses (power dissipated in kWh over the Reference service life)	**Heat dissipation (kWh) = (1-E)*Qd** Where: E = Converter yield Qd = Average quantity of energy supplied for all charging points that can operate simultaneously over the station's RL	
Electricity consumption per functional unit	**Total electricity consumption of the station per functional unit:** (Intrinsic consumption + Consumption associated with heat dissipation)/(1,825,000 kWh)	**Definition of functional unit:** Supply 1 kWh to one vehicle in accordance with the Reference use scenario for a public AC station at the charging point

The Reference use scenario and all the technical data used to calculate the charging system's consumption must be included in the accompanying report and in the PEP.

NOTE - The application of the scenario presented above shall be carried out via the excel table: ANNEXE_PEP-PSR-0018-ed1.2-FR-2024 09 26 - Calculation of impacts in use phase.xls available on the website www.pep-ecopassport.org

3.5.4.2. Consideration of connectivity-related impacts (OPTIONAL)

For connected devices, the environmental impacts associated with connectivity can be included in the use stage, and may include energy consumption, hardware impacts, associated with the transmission, management and storage of data on the telecommunication network and in data centers.

In the case of the inclusion of such data, the associated assumptions and scope of consideration should be documented in the accompanying report and their inclusion should be mentioned in the PEP.

3.5.4.3. Taking account of combinations of charging points

Some products feature combinations of charging points that can operate simultaneously. The energy consumption for these products can be calculated as proposed in the decision tree below:

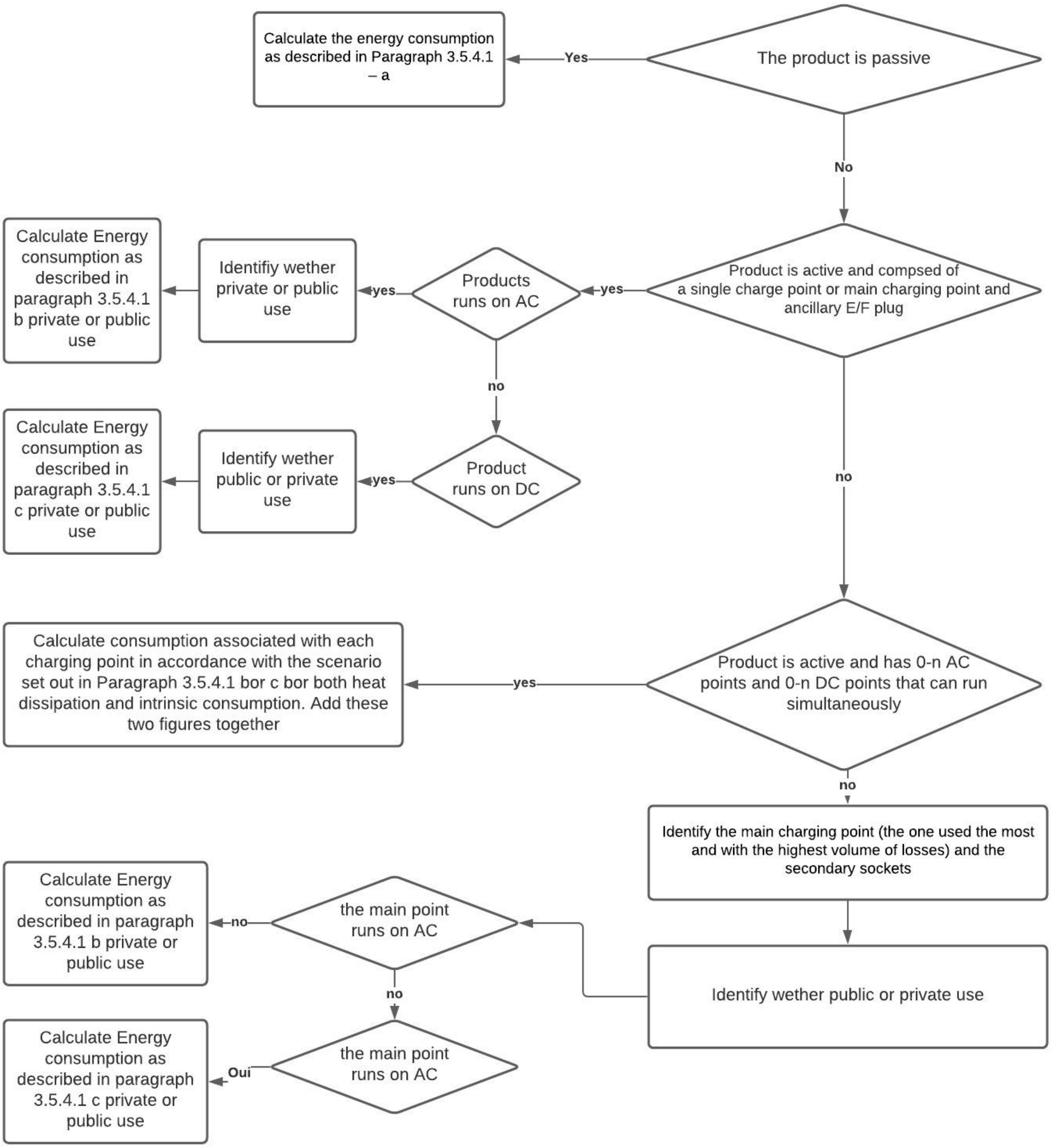

Figure 1 - Decision tree - Calculating energy consumption during the usage stage

3.5.4.4. Taking account of energy management functions

Energy management functions are not taken into consideration in a scenario of direct usage. They may be discussed and the potential savings thereby obtained should be mentioned in the additional information.

All information presented must be verified in the accompanying report.

3.5.4.5. Maintenance scenario

There is no mandatory/regulatory maintenance scheme for electric vehicle charging infrastructures. However, preventive maintenance programmes are carried out for some products. In most cases, these programmes involve visual checks, which involve a site visit and travel by an engineer.

The specific rules set out in the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) will therefore apply.

3.5.4.6. Decomposition of the use phase (optional)

The elements associated with the use phase can be decomposed according to the modules B1 to B7 as defined in the French regulation and in the standard EN 15 804-A2.

The scope of each module is as follows:

- B1: Use of the installed product in terms of environmental emissions (not covered by B2-B7)

- B2: Maintenance (impacts associated with data as defined in paragraph 3.5.4.5)

- B3: Repair

- B4: Replacement

- B5: Rehabilitation

- B6: Energy consumption during the use phase (impacts associated with data as defined in paragraph 3.5.4.1)

- B7: Water consumption in the use phase

3.5.5. End-of-life stage

The rules defined in the applicable PCR shall apply to this stage.

3.5.5.1. Decomposition of the end-of-life phase (optional)

The elements associated with the use phase can be decomposed according to the C1-C3 modules as defined in the French regulation and in the EN 15 804-A2 standard.

The scope of each module is as follows:

— C1, deconstruction, demolition ;

— C2, transport to waste treatment;

— C3, waste treatment for reuse, recovery and/or recycling;

— C4, élimination

3.5.6. Benefits and burdens beyond system boundaries (optional)

For this step, the rules defined in the current PCR apply.

No specific values for the factors R1, R2 and R3 are defined in this PSR. Thus, without further documentation from registrants, the default values presented in Appendix D of the PCR should apply.

REMINDER - the environmental impact of the production of the recycled material of the product are not taken into account during the manufacturing stage.

3.6. Rules for extrapolating to a homogeneous family

The rules defined in the applicable PCR (PEP-PCR-ed4-EN- 2021 09 06) shall apply. It is accepted that the PEP covers products other than those constituting the reference product.

These products different from the reference product may be mentioned (under their trade names) in the PEP or in the accompanying report, provided that they fall within the same homogeneous environmental family as the reference product.

These products different from the reference product may be mentioned (under their trade references) in the PEP or in the accompanying report, provided that they are part of the same homogeneous environmental family as the reference product and that an appropriate extrapolation rule is defined in the PEP and in the accompanying report.

No default extrapolation rule has been defined in the context of the development of this PSR. Therefore, the following procedure applies:

- Validation of the products belonging to the same homogeneous family
- Carrying out LCAs on different representative products
- Identification and quantification of the parameters of variation within the homogeneous family
- Realization of sensitivity analysis
- Elaboration of the extrapolation rule
- Documentation of the process in the accompanying report and presentation of the rule in the PEP.

3.7. Rules for drafting collective declarations

The rules set out in the “Rules for drafting collective environmental declarations” paragraph of the applicable PCR (PEP-PCR-ed4-EN- 2021 09 06) shall apply.

3.8. Requirements for primary and secondary data gathering

The rules set out in the “Rules for primary data gathering” and “Rules for secondary data gathering” paragraph of the applicable PCR (PEP-PCR-ed4-EN- 2021 09 06) shall apply.

3.9. Evaluating data quality

The rules set out in the “Evaluating data quality” paragraph of the applicable PCR (PEP-PCR-ed4-EN- 2021 09 06) shall apply.

3.10. Calculating the environmental impact

3.10.1. Calculating the environmental impact at a functional unit (FU) level

To ensure consistent results for environmental impact between the functional unit and the reference product, the environmental impact declared in the PEP for the manufacturing, distribution, installation, usage (including maintenance) and end of life stages will be calculated as follows: **Environmental impact of the PEP (for 1 kWh) = Environmental impact of the reference product / Quantity of energy supplied to one or more vehicles by the EVCI over its RL**

The decision tree below can be used to define the quantity of energy supplied by the station over its lifespan, including for products featuring several charging points.

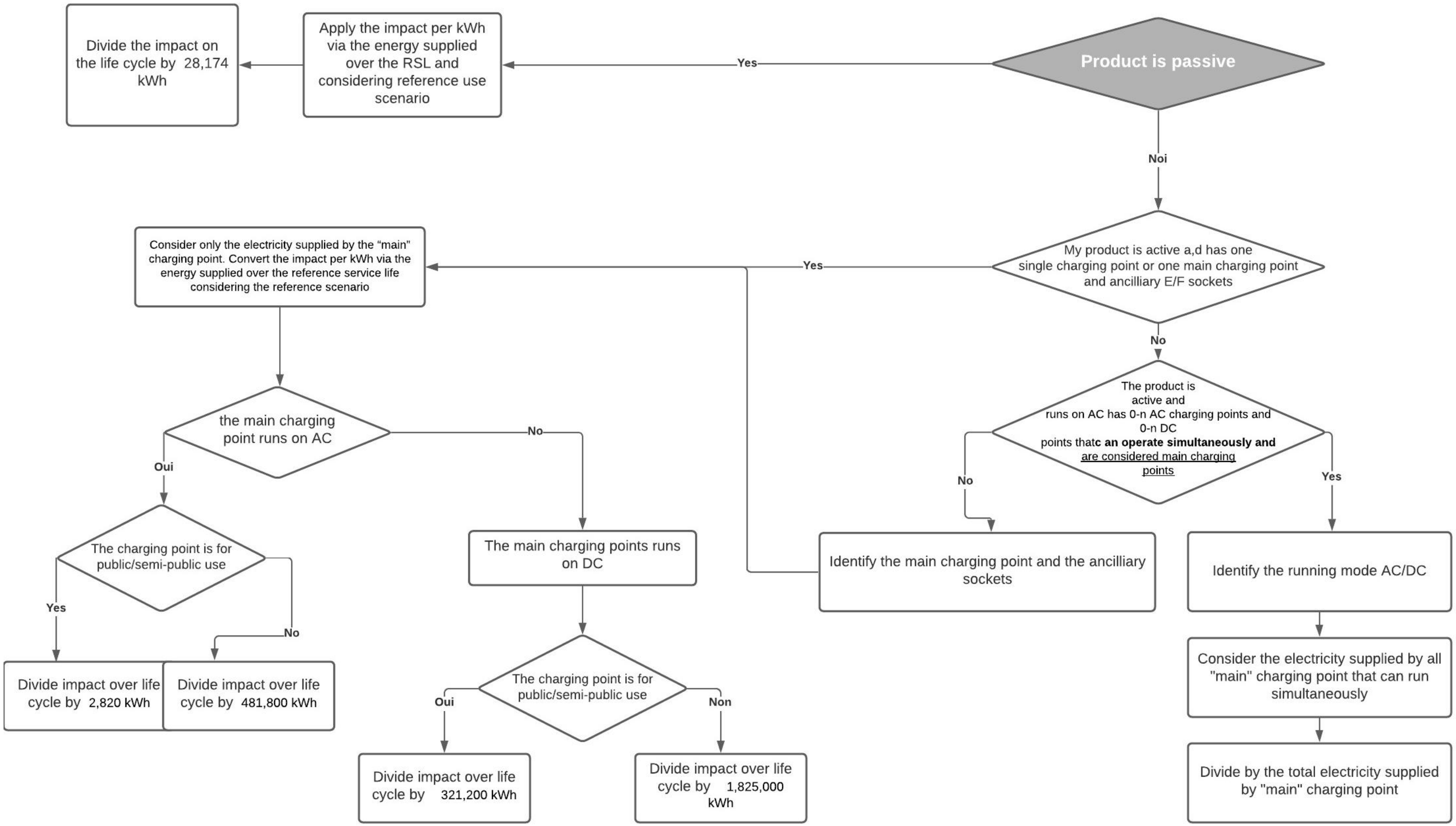

Figure 2 - Decision tree - Calculating the impact per functional unit

3.10.2. Calculating the environmental impact at DU (product) level

The results for the environmental impact generated by the reference product life cycle at the declared unit (product) level may be declared in the PEP sheet as additional environmental information. The format for declared units and the calculation method to be applied are set out in Paragraph 4.3.

4. Drafting the Product Environmental Profile

4.1. General information

These rules supplement the “General information” paragraph of the applicable PCR (PEP-PCR-ed4-EN-2021-09 06).

In addition to the information required by the PCR, the PEP must include:

- the family and type of charging system, as per Paragraph 2.1,
- the component elements of the system. The following statement must be included: “The elements used for connecting the station to the mains grid and to the monitoring and communication network are excluded.”
- the reference power in kW,
- the type of installation referred to,
- the reference usage scenario,
- the reference type(s) of use envisaged by the manufacturer for the meter
- the relation between UF and UD if necessary

4.2. Constituent materials

The rules set out in the “Constituent materials” paragraph of the applicable PCR (PEP-PCR-ed4-EN-2021-09 06) shall apply.

4.3. Additional environmental information

These specific rules supplement the “Additional environmental information” paragraph of the PCR (PEP-PCR-ed4-EN-2021-09 06).

Where a Life Cycle Analysis is carried out at a building level, the environmental impact of the equipment must be considered at the product level and the impact associated with energy consumption during the usage stage must be extracted. Thus, to make it easier to use the PEP to realise a building LCA, the PEP may include:

- A table of the environmental impact of the reference product, expressed at the declared unit level (with the declared unit in this case being the charging station) in addition to a table at the functional unit level. The values must be expressed as numerical values, expressed in the appropriate units and to three significant figures (and, optionally, as a percentage) for each stage in the life cycle, as well as the totals for each indicator in the complete life cycle analysis. The information below should therefore be included in the PEP, in order to guarantee clarity and transparency for users:

- For environmental impact expressed per functional unit, the following statement must be included: “per kWh corresponding to the functional unit”. To make it easier to read, it may be abbreviated to “per kWh” or “per FU”.
- For environmental impact expressed per declared unit, the following must be included: “per product”. The declared unit here corresponds to: “1 charging system operating in accordance with the reference usage scenario over a period equal to the reference service life”. The quantity of electricity supplied during the RL must be specifically stated in the PEP.

- Calculating the environmental impact at a product (declared unit) level is done as follows:

Environmental impact of the reference product = Environmental impact of the FU * Quantity of energy supplied to one or more vehicles by the station over its RL

- The results for the environmental impact during the usage stage based on a breakdown of the B module (B1 to B7) and C (C1 to C3) consistent with the EN 15978 and EN 15804+A2 standards.

PEP ecopassport®	Manufacturing stage (§ 3.5.1)			Distribution stage (§ 3.5.2)	Installation stage (§ 3.5.3)	Usage stage (§§ 3.2.4 and 3.2.5)							End-of-life stage (§3.5.6)				Benefits
EN 15978 / 15804	Production stage			Construction stage		Usage stage							End-of-life stage				Benefits
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D

	Raw materials supply	Transport	Manufacturing	Transport	Construction/Installation process	Usage	Maintenance	Repair	Replacement	Refurbishment	Energy use during usage of building	Water use during usage of building	Demolition/Disassembly	Transport	Waste transport	Disposal	Benefits beyond the system boundaries

- The rules for extrapolation at the declared unit level.

4.4. Environmental impact

In order to meet the requirements of the applicable PCR (PEP-PCR-ed4-EN-2021-09 06), the results set out in the environmental impact table relate to the use of the functional unit, i.e. 1 kWh of energy supplied to a vehicle.

To determine the impact of the product over its life cycle, the user of the PEP must multiply the results obtained for the functional unit by the number of kWh supplied over the RL, as defined in Paragraph 3.10.1.

The information below should therefore be filled out and presented in the PEP, in order to guarantee clarity and transparency for users. For the purposes of drafting the PEP, impact was scaled down to the supply of 1 kWh of energy. The user can calculate the impact of the stages in the installed product's life cycle by multiplying the impact considered by the quantity of electricity supplied by the product over its lifespan.

For building LCAs, the system maintenance operations should be considered separately (module B2 as per EN 15978).

For a PEP covering a family of products, the rules for extrapolation must be indicated and the following statement must appear in the PEP sheet: "The coefficients for extrapolation are given for the environmental impact of the functional unit, i.e. for the supply of 1 kWh".

5. Appendices

5.1. Informative annex - Calculation of consumption in use phase

An excel calculator is at your disposal to facilitate the implementation of calculations in use phase. It is available on the website www.pep-ecopassport.org: ANNEX_PSR-0018-ed1.2-EN-2024 09 26.xls.

5.2. Glossary

EVCI	Electric vehicle charging infrastructure
EV	Electric vehicle or rechargeable hybrid vehicle
V2H	Vehicle To Home
V2G	Vehicle To Grid

5.3. Definitions

Charging mode 1 - Connecting the electric vehicle or the rechargeable hybrid vehicle to the electricity network (grid) via a domestic power socket conforming to NF C 61-314 and Appendix LL thereto, suitable for charging the vehicle normally using alternating current. Charging mode 1 does not involve any communication with the vehicle and is restricted to charging small vehicles and two-wheeled vehicles that consume a current of 8 A or less.

Charging mode 2 - Connecting the electric vehicle or the rechargeable hybrid vehicle to the electricity network via a domestic power socket conforming to NF C 61-314 and Appendix LL thereto, suitable for charging the vehicle normally using alternating current. Charging mode 2 involves fitting a control box (IC-CPD - in-cable control and protection device) to the power cable supplied by the vehicle's manufacturer. This control box limits the vehicle's charging current to a value defined by the manufacturer, via a dedicated communication channel (a pilot function incorporated into the box).

Charging mode 3 - Connecting the electric vehicle to the electricity network via a power socket or a type 2S mobile socket (with flap) conforming to NF EN 62196-2, suitable for charging the vehicle normally or rapidly using alternating current. This mode allows the vehicle to limit the power on which it draws when charging to a maximum value communicated by the charging infrastructure via a dedicated communication channel (a pilot function incorporated into the station).

Charging mode 4 - Connecting the electric vehicle to the electricity network via a type Combo 2 or CHAdeMo mobile socket conforming to NF EN 62196-3, suitable for charging the vehicle normally or rapidly using direct current. This mode includes a communication channel (a pilot function incorporated into the station) between the vehicle and the charging station.

References :

UTE C 15-722 – UTE C17-222 :2012 - Low-voltage electrical installations - Practical guide - Installations for charging electric vehicles or rechargeable hybrid vehicles via electrical sockets

5.4. Declaration of conformity (FR)

PROGRAMME PEP ecopassport®

Attestation de revue critique des règles spécifiques relatives aux Infrastructures de recharges pour véhicules électriques

Chargée de revue critique : Caroline Catalan

Document revu : PSR – Règles spécifiques aux Infrastructures de recharges pour véhicules électriques

Version et date : PSR-0018-ed1-FR-2021 09 08

Période de revue : avril – septembre 2021

Etabli par : DDemain pour le compte de l'IGNES

Référentiels de revue

L'objectif de la revue est de vérifier la conformité du document avec les référentiels suivants :

- Programme PEP ecopassport® : document intitulé « Règles de définition des catégories de produits relatives aux équipements électriques, électroniques et de génie climatique (référence : PEP-PCR-ed4-FR-2021 09 06, disponible sur le site http://www.pep-ecopassport.org/)
- Norme NF EN ISO 14025 – 2010
- Normes NF EN ISO 14040 & 14044 - 2006

La revue critique a été conduite selon les principes de la norme ISO/TS 14071 : 2014 et a suivi la procédure de développement et adoption des PSR (document PEP AP0017-ed2-FR-2015-02-13).

Conclusion

Le document revu ne présente pas de non-conformité par rapport aux référentiels. Par conséquent, le document PSR relatifs aux Infrastructures de recharges pour véhicules électriques (PSR-0018-ed1-FR-2021 09 08) est conforme aux exigences des référentiels.

Caroline Catalan

13 septembre 2021

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ATTESTATION DE REVUE CRITIQUE COMPLEMENTAIRE

PROGRAMME PEP ECOPASSPORT©

PSR 18 – REGLES SPECIFIQUES AUX INFRASTRUCTURES DE RECHARGE POUR VEHICULES ELECTRIQUES

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Document revu

Règles spécifiques aux infrastructures de recharge pour véhicules électriques, PSR-0018-ed1.2-FR-2024 09 26

Calcul des impacts en phase d'usage_PSR IRVE_23072024_v9

Période de revue

Juillet et août 2024

Praticien de revue

Etienne LEES-PERASSO, TIDE

Référentiel de revue

Le PCR PEP-PCR ed.4-FR-2021 09 06 du programme PEP ecopassport©

Les normes NF EN ISO 14020:2002 et NF EN ISO 14025:2010

Les normes NF EN ISO 14040 et NF EN ISO 14044:2006

Périmètre de la revue complémentaire

Cette revue critique vient compléter la revue critique effectuée par Caroline Catalan de la société I Care, en date du 13 septembre 2021, et porte uniquement sur les éléments modifiés dans la version 1.2 par rapport à la version 1.1, à savoir :

- PSR : remplacement de "peut" par "doit" en référence à l'usage du fichier Excel qui devient obligatoire et non plus optionnel
- Excel : B41, correction de la formule en erreur
- Excel : F14, correction du nombre de phases pour les bornes AC - Wallbox
- Excel : A44, clarification de la cellule
- Excel : B39, F39, J39, reprise des formules pour harmonisation avec le PSR

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