

**DOCUMENT OF TECHNICAL REQUIREMENTS FOR THE VERIFICATION AND INTEGRATION
PROCEDURE FOR ACCESSING THE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE
MANAGED BY BARCELONA DE SERVEIS MUNICIPALS, S.A.**

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1. Purpose

1.1. The purpose of this Document of Technical Requirements is to define the necessary requirements as well as the technical procedure that will enable various Electro-Mobility Service Providers (EMSPs) to operate through the electric vehicle charging network managed by Barcelona de Serveis Municipals. Compliance with the requirements will lead to the process that will allow the parties concerned to operate with the aim of enabling their users to charge their electric vehicle batteries in the electric charging point network managed by BSM.

1.2. The EMSPs will have to connect to the BSM platform managing the charging points under the OCPI (Open Charge Point Interface) protocol so that, once connected, their users will be able to charge at Barcelona connection points managed by BSM under the conditions agreed to.

1.3. With regard to the economic conditions arising from the integration and use of the charging points, BSM will invoice the EMSPs for charging operations by EMSP users, in accordance with the terms and conditions set out in the Terms and Conditions governing this integration process. Users must pay their EMSP for charging their vehicle in accordance with the conditions of the service they have contracted.

2. Connection to the app for managing charging points

2.1. The OCPI protocol will be used as the communication protocol for the provision of the Charging Services. The first step therefore will be to communicate the BSM charging point management system with the EMSP systems using the OCPI protocol.

2.2. The EMSPs must connect to the BSM system through a secure HTTPS connection and through the corresponding authentication procedures. BSM will provide the technical requirements at the start of the integration and the EMSPs must make the connection through the channel established by BSM. VPN or point-to-point connections may be enabled, depending on the state of the B:SM system. In any case, EMSP connectivity and connection costs will be borne by the EMSP.

2.3. The EMSP must dedicate the necessary resources for proving and validating the proper functioning of the methods required for enabling the system to operate. EMSP users must be able to charge their vehicles at the points, and the EMSP and BSM must be able to exchange the necessary information for managing the service's invoicing.

2.4. Should there be any differences in the protocol's tender, it will be the EMSP that has to make the necessary adaptations for establishing communications. Should BSM have to make any change to the charging-point management app, the costs for making such a change will be borne by the EMSP.

2.5. In addition, the EMSP agrees to implement the new versions of the Protocol and its functions relating to BSM's requests and to cooperate with BSM over the new implementations. The details of connection through the OCPI protocol are described in annexes 1, 2 and 3.

3. Integration process

3.1. Following the verification process for prior requirements, BSM will set the implementation terms for the successful EMSPs in accordance with the number of companies the agreement is finally signed with. The deadline envisaged for the integration is one month and may not be extended by more than three months.

3.2. BSM will establish a common timetable for all the EMSPs setting out the various targets to be achieved and the start of the operations.

3.3. Any of the EMSPs requiring more time to integrate with BSM may postpone the start date for their operations.

4. Operating the charging points

4.1. Charging operation

BSM will enable EMSPs to access and use the public-access Charging Stations that BSM operates in Barcelona, both on-street and in the car parks it manages, so that their customers can use them.

EMSP users may charge their vehicles at the charging stations by identifying themselves through the means of authorisation issued by their EMSP and agreed to with BSM. Such means will be validated through the OCPI protocol and, if authorised, users will be able to start charging.

By following the charging station's rules of use, users will finish charging their electric vehicle by ending the charging session which BSM will subsequently invoice their EMSP for.

BSM will provide the EMSP with the statistical and dynamic data that the EMSP requires for showing the Charging Stations in digital terminals (for example, the apps). The dynamic data will show the current availability of individual charging stations. BSM will communicate the availability status (dynamic information) to the EMSP as soon as there is a change in the Charging Station's availability status.

BSM will send a Charging Detail Record (CDR) with the data for each authorised charging session following OCPI protocol requirements, so that both parties share the charging session information required for information purposes and invoicing.

A charging session will last two or more minutes or use 0.2 kWh or more, during which an electric vehicle will be charged at one of the charging stations, through the identified means of authorisation. These values may be changed by BSM, with prior notice given to the EMSPs.

Any change relating to the tender of the protocol or the CDR or other data will be communicated in advance by BSM.

4.2. Charging stations

BSM may expand or reduce the network of Charging Stations at the disposal of EMSPs.

BSM is responsible for the maintenance of those charging stations and for repairing any breakdowns. Should there be any problem with EMSP apps, the EMSP concerned must resolve it.

The EMSP is under an obligation to inform its customers how to use the Charging Stations that BSM allows them access to correctly. BSM will provide the EMSP with the information required for this purpose or put that information at the disposal of the end user at the Charging Station. BSM reserves the right to change this information from time to time, and the EMSP will be under an obligation to convey its most recent information to its customers.

This information must not be shared with third parties or used for commercial purposes.

4.3. Customer care

The EMSP will manage all customer queries regarding the Charging Stations, including queries relating to Charging Session prices and invoicing. If the EMSP requires BSM to provide the responses, the EMSP will contact BSM and BSM will reply within five working days.

If end users inform the EMSP of technical and/or operational problems with the charging infrastructure, the EMSP must inform BSM of those problems as soon as possible.

The EMSP must have a customer care service available 24 hours a day, 365 days a year.

4.4. Visibility of Charging Point Operator (CPO) charging stations in the Electric Mobility Provider (EMSP) service

The EMSP will include the CPO's charging stations in the service forming the subject matter of this agreement.

In addition to the information received from the CPO, the EMSP will be free to show EMSP customers additional information relating to the charging stations (for example, restaurants or local places of interest, as well as customer comments and ratings on the charging stations or the CPO in general).

The EMSP is entitled to take a charging station out of service for the purposes of maintaining the functionality, quality and/or attractiveness of the EMSP's services on offer, provided it gives BSM prior notice of this. In particular, the EMSP may remove any charging station if it lacks the data necessary for providing the proper service.

5. Certification and technical requirements

The EMSP must guarantee that it has a platform capable of connecting to our charging point management app through the OCPI protocol. It must also guarantee that it has a technical team capable of integrating both platforms and carrying out the necessary adaptations.

At the start of the integration, the EMSP must carry out a process for validating the communication protocol's compatibility with BSM. That process will result in a report stating any elements that the EMSP is not adapting to the functionalities of the OCPI protocol implemented by BSM and the necessary instructions for adapting its system.

The EMSP must adapt its system according to the timetable established by BSM and undergo the BSM certification process once again. If it needs more time to carry out changes, it may request it from BSM.

In any event, the connection process between the EMSP and BSM may not last longer than three months. Should the EMSP be unable to connect to the BSM within that period, the contract will be cancelled.

6. Financial obligations

The EMSP will pay BSM for the charging service that BSM provides its customers with according to the prices set out in the Terms and Conditions or their future updates.

If there is any difference between the respective systems of BSM and the EMSP, the latter will pay according to the BSM system and may send a request for a review and justification of the difference. If BSM considers the difference is justified, it will then pay it to the EMSP in full within 30 days.

7. BSM's connection to the EMSP's points

If the EMSP has its own network of points, it undertakes to perform the connection agreement with BSM for the purposes of enabling users of the “smou” app to use those points.

The financial conditions that are offered under the agreement will be equivalent to the ones that BSM is offering the EMSP.

Barcelona

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The protocol for connecting BSM to EMSPs will be the OCPI. BSM agrees to provide the EMSP with access to such information through the following delivery processes:

Type of	Memorandum of association	Delivery procedure
Locations	Yes	BSM
Rates	Yes	BSM
Start Stop Authorisation	Yes	BSM
Reservations	No	
Session Information	Yes	BSM
CDR Information	Yes	BSM

The EMSP agrees to provide BSM with access to such information through the following delivery processes:

Type of	Memorandum of association	Delivery procedure
Authorisation Means	Yes	BSM

Annex 2: Charging stations

BSM provides the EMSP with the rights of access to and use of the public-access Charging Stations in Barcelona that it operates so that the EMSP can provide its customers with Charging Sessions through these Charging Stations.

The number of charging stations may vary. Information from BSM's operational charging stations will be accessible through the OCPI protocol.

The charging stations forming the subject matter of this agreement are those shown at the following link:

<https://www.endolla.barcelona/ca/mapa>

Annex 3: Charging session information

Every charging session will generate a Charging Detail Record (CDR) which will include the information on each charging operation, such as the date and start/end times, energy consumed, amount to be paid and so on.

The amount to be paid will be calculated according to the electric consumption used (ENERGY), provided that this consumption is higher than the electric consumption for the fixed rate (FLAT). If not, then the amount to be paid is the fixed rate (FLAT).