

Standard Set Charging Plazas

The number of electric vehicles is growing, and with it the demand for charging. As a result, in addition to regular charging stations, charging plazas are starting to become more prevalent. The charging plaza is an innovative charging solution that is still rapidly evolving, and for which many technological developments are expected. In many respects, there are similarities between the two solutions, but in realising them there are also differences which must be taken into account.

Why this Standard Set?

This Standard Set provides an overview of the requirements and options that may be considered in making agreements in relation to a charging plaza.

The Standard Set serves as:

- a guideline for municipal governments and market parties for the construction of charging plazas;
- a starting point for entering into agreements and signing contracts;
- inspiration for the development of policy on charging plazas;
- a point of departure for future public tenders and permits.

For whom is this Standard Set intended?

Principally for municipal governments. In addition, the requirements may be applicable to private charging plazas.

Basic requirements and options

This Standard Set has been produced by municipal governments and market parties in cooperation with the Netherlands Knowledge Platform for Public Charging Infrastructure (NKL). There are a number of standard requirements which every charging plaza must meet. Depending on the situation, these requirements may be supplemented by options.

This document provides information on the general standard requirements which a charging plaza must meet. These are largely supplementary to the legal requirements that charging plazas are obliged to fulfil according to existing laws and regulations. In addition, the Standard Set includes options for which may or may not be applicable to the specific situation of the charging plaza to be constructed.

As well as this Standard Set, a set of guidelines for charging plazas has also been produced, providing information on considerations, options and necessary agreements in relation to the construction of a charging plaza. The guidelines are available online at www.nklnederland.com

Reader's guide

This Standard Set refers to ten key categories. Within these categories, various requirements and options are defined.

- **Functionality:** including control system and interface.
- **Design:** including appearance, materials and dimensions.
- **Engineering and safety:** including grounding and earth-leakage circuit breaker.
- **Smart charging:** including protocols and load balancing.
- **Environment and location:** including signage and free passage space.
- **Back office and interface:** including data and price.
- **Security:** including data and connection security.
- **Standards and requirements:** including protocols and standardization
- **Management and monitoring:** including repair service, cleaning, maintenance and uptime.
- **Application and construction:** including application portal and construction work.





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Functionality

Sub-category	ID	Subject	Description	Comments
Charging	EF1	Locking of plugs	The plug must be locked in the outlet from the moment that the user logs in until the moment that they log out.	
Authentication	EF2	Ending transaction when connection is unavailable	It must be possible to terminate the current charging transactions locally in the event that the online back office system is not available or cannot be connected to.	
Availability	EF3	Availability of new charging session	After the user has logged out, each charging point must be immediately available for a new charging session.	
Technology	EF4	Replacement/Upgrade	The charging infrastructure is always connected to the most current payment method and is able to accept an ad hoc payment method.	
Technology	EF5	Starting up charging point after loss of power	After a power failure, no voltage is applied to the sockets until a new charging transaction is started. The ongoing transaction is terminated and the cable is unlocked.	
Technology	EF6	Cancelling a transaction	The charging point cancels the transaction if a vehicle has not been connected within a certain amount of time after authentication. This is so that other users do not accidentally plug in during a transaction in progress.	
Providing charging services	EF7	Operation	The charging infrastructure delivers certified green energy generated from renewable sources such as solar, wind and biomass,	
Communication	EF8	User-friendliness	The infrastructure is user-friendly and can be operated without any instruction (other than the user instruction attached to the object). Each text is in first language of the country concerned.	
Communication	EF9	Changes to charging session	If (in the case of smart charging) it is possible for the EV driver to influence the charging session, for example by means of an app, this is explained on each charging point.	If desired by the municipal government in order to provide comprehensive information to the user.



Functionality

Sub-category	ID	Subject	Description	Comments
Charging	OF1	Indicating the capacity of the charging station	Maximum charging capacity must be indicated on the charging point. The current capacity (Smart Charging) may also be indicated e.g. via an app.	If desired by the municipal government in order to fully inform the user. This is not yet standard at the time of writing.



Design

Sub-category	ID	Subject	Description	Comments
Communication	EV1	Labelling	Labelling on non-legal information must only take place in consultation with the relevant client.	This concerns information relating to advertising and charging information.
Communication	EV2	Charging station data	The following information must be clearly provided on the charging point: phone number for malfunctions and other services, a unique number for each charging station and a reference to terms of service.	The number for malfunctions must be free of charge and available 24/7 and may not be a 0900 number.
Control system	EV3	Location of control system	The power cord, the outlet and the description of how to use the charging station must be at a minimum of 600 mm and a maximum of 1,400 mm above ground level due to health and safety requirements.	
Control system	EV4	Type of plug connection	The charging station must be equipped with the most recent standard sockets.	
Space required	EV5	Dimensions	The dimensions of the space occupied by the charging infrastructure must comply with municipal policy.	
Appearance	EV6	Appearance and material	If a central connection in a separate unit is present, it must comply with the guidelines of the grid operator and municipal government.	
Appearance	EV7	Appearance and material	The charging infrastructure must be manufactured to a high quality, with no sharp edges, or pronounced cavities or curvatures.	
Appearance	EV8	Appearance and material	The charging infrastructure must have a sloping or curved top so that nothing can be placed on top of it.	



Design - continuation

Sub-category	ID	Subject	Description	Comments
Appearance	EV9	Appearance and material	The charging infrastructure and any foundation is suitable for low-maintenance installation outdoors for a period of at least ten years.	
Technology	EV10	Maximum depth of foundation	The maximum depth of the foundation is in accordance with national requirements.	
Status indication	EV11	Status indication	If the contractor uses status LED(s), the colours must be in line with the policy of the client.	
Numbering	EV12	Number	Each charging facility and each charging point within it must have a unique number in accordance with international standards.	



Design

Sub-category	ID	Subject	Description	Comments
Communication	OV1	Labelling	On each charging point, a QR code or website must be shown to provide information to international users.	According to municipal guidelines. Labelling takes place in consultation.
Communication	OV2	Changes to the power supply	If the power supply is limited, for example in the case of a pilot, this must be clearly indicated on the charging point, either on a screen, or by means of a reference to a website or app.	If desired by the municipal government in order to fully inform the user.
Information	OV3	Information on smart charging	The possibilities and effects of smart charging must be clear to the EV driver.	



Engineering and safety

Sub-category	ID	Subject	Description	Comments
Technology	ETV1	Modular construction	The construction of the charging station is modular. Open (hard and software) interface standards are used between components and systems, thus guaranteeing interchangeability between future components and systems.	
Technology	ETV2	Nominal current	The total current distributed to the vehicles via Mode 3 shall never exceed the nominal current permitted for the grid connection.	
Technology	ETV3	Nominal current	The wiring, earth-leakage circuit breaker, relay, socket and all other components are suitable for the nominal current supplied by the connection.	
Technology	ETV4	Disconnection from power supply	It must be possible to disconnect the system(s) from the power supply with a single action.	
Technology	ETV5	Protection	The connection between the outlet and the isolator switch is protected according to IPXXB.	
Technology	ETV6	Loss of communication connection	<p>If the communication connection between the charging facility and the back office system is lost for any reason, at minimum the following requirements must be met:</p> <ol style="list-style-type: none"> 1. An ongoing transaction may always be terminated by the user. The charging cable should be locked in place until the user logs out; 2. All transaction-related events should be saved locally and sent to the back office system when the connection is restored, with the time stamp of when the event took place. 3. The charging facility should keep track of the time and date for a minimum of seven days (in order that the transaction data of transactions made during offline periods arrives at the back office system with the correct time stamp). 4. Transactions that take place should be checked for legality as soon as the connection is restored. 	



Engineering and safety - continuation

Sub-category	ID	Subject	Description	Comments
Technology	ETV7	Start of the charging transaction	The charging transaction should start as swiftly as possible after the user has provided an identifier.	
Safety	ETV8	Earth-leakage circuit breaker for each charging point	There must be an earth-leakage circuit breaker for each charging point.	
Safety	ETV9	Grounding	The charging point and all accompanying components, including the door, must be visibly grounded. Sufficient length of wire must be used for the door to be moved out of the way in the event that it needs to be removed.	
Safety	ETV10	Short circuit current	The electrical system, including all components, must be suitable for the maximum expected short circuit current of 10kA.	
Safety	ETV11	Impulse voltage	The charging station must be able to withstand an impulse current of 4kV.	
Safety	ETV12	Insulation voltage	The charging station must be able to withstand an insulation voltage of 420V.	
Safety	ETV13	Pollution degree 3	The charging station must be suitable for installation in an environment with pollution degree 3.	
Safety	ETV14	Electromagnetic Compatibility	The charging station must comply with Electromagnetic Compatibility (EMC): A.	
Safety	ETV15	Condensation	Sufficient measures must be taken to prevent condensation from forming in the charging station. Condensation must not affect the safety or operation of the charging station, and/or cause any defects.	
Safety	ETV16	UV radiation	In addition to the requirement for UV radiation in NEN/EN/IEC 61439:2011, the casing of the charging station may not allow any UV radiation to pass through.	
Engineering and safety	ETV17	Standards	In consultation between the client and contractor, new standards will be discussed and implemented where necessary or desirable.	



Engineering and safety

Sub-category	ID	Subject	Description	Comments
Technology	OTV1	The charging station communicates active status changes.	Each charging point must communicate active status changes of errors that occur in at minimum the following components (more components are allowed): - RCD (earth leakage protection); - Excess current protection; - Relay; - kWh-meter; - Plug lock; - RFID Reader.	
Technology	OTV2	Loss of communication connection	If the communication connection is lost, the charging station will actively try to restore it, e.g. by resetting the modem. As long as there is no connection, the charging station will continue to repeat these recovery attempts.	No standard at the time of writing; future guideline.
Technology	OTV3	Communication history	In the event of a data connection failure between the charging point and the back office system, for whatever reason this may occur, all transaction-related events should be saved locally and sent to the back office system when the connection is restored, with the time stamp of when the event took place.	No standard at the time of writing; future guideline.
Technology	OTV4	Offline history	Transactions that take place when there is no data connection between the charging point and the back office system must be checked for legality as soon as the connection is restored. Should it appear that an illegal transaction is taking place (such as with a blocked debit or credit card), charging will terminate as soon as the data communication is restored. (The transaction may remain open and the cable should be locked in place until the user logs out; after this, the transaction will be closed.)	No standard at the time of writing; future guideline.
Technology	OTV5	Date and time	In the event of a power failure or loss of communication, the charging point must keep a record of the time and date for a minimum of seven days.	No standard at the time of writing; future guideline.
Safety	OTV6	PWM coordination	The charging point will never give a PWM duty cycle that implies a higher charge current than the maximum charge current permitted by general safety, the grid connection and the charge cable being used.	No standard at the time of writing; future guideline.



Smart charging

Sub-category	ID	Subject	Description	Comments
Smart Charging	ESC1	Local load balancing	The charging station must divide the available energy on the basis of the connected load between the two charging points. The minimum capacity allotted to a vehicle is 3.7 kW (1-phase, 16A), unless the user has given permission for a lower capacity (e.g. via an app). The charge profile of the car must be taken into account.	
Smart Charging	ESC2	Initiating charging regardless of charge profile	If Smart Charging is active through OCPP profiles, charging will always begin within a short amount of time (e.g. 30 seconds). The charge profile, if any, will then be executed. This allows the user to know that their vehicle has been correctly connected.	
Charging session	ESC3	The EV driver must be able to control the charging session.	The EV driver is able to reject a reduced charging capacity in connection with smart charging. Information on this and on influencing the charging capacity is always available via an app and/or telephone number.	



Smart charging

Sub-category	ID	Subject	Description	Comments
Smart charging	OSC1	Collaboration on smart charging	The contractor should actively participate in smart charging initiatives.	If the municipal government wishes to conduct innovative pilots regarding smart charging.
Smart charging	OSC2	Computing power of the controller	The controller must be able to receive and send messages at the same time (full duplex/multi- threading). There must not be any processes in the controller that permanently or temporarily prevent communication with the back office system.	If the municipal government wishes to conduct innovative pilots regarding smart charging.
Smart charging	OSC3	Stacking charge profiles	The charging infrastructure must offer support for prioritizing ('stacking') at least 6 charge profiles of the same type using Chargepoint MaxProfile and TxDefaultProfile.	If the municipal government wishes to conduct innovative pilots regarding smart charging.
Smart charging	OSC4	Periods	The charging infrastructure must offer support for at least 20 periods per charge profile.	If the municipal government wishes to conduct innovative pilots regarding smart charging.
Smart charging	OSC5	Charge profiles	The charging point must offer support for at least 20 periods per charge profile.	If the municipal government wishes to conduct innovative pilots regarding smart charging.
Smart charging	OSC6	New technologies	The client and contractor will enter into consultation on the release of specifications for new technologies, for example (but not limited to) ISO 15118 and V2G, to determine if 1) the content of the specifications falls within the aims of the agreement and 2) a payment deemed reasonable by both parties is agreed if it is decided to implement the specifications.	If the municipal government wishes to conduct innovative pilots regarding smart charging and V2G.



Smart charging - vervolg

Sub-category	ID	Subject	Description	Comments
Smart charging	OSC7	Bidirectional charging	The client and contractor will enter into consultation on the release of specifications for new technologies, for example (but not limited to) ISO 15118 and V2G, to determine if 1) the content of the specifications falls within the aims of the agreement and 2) a payment deemed reasonable by both parties is necessary if it is decided to implement the specifications.	
Free choice of energy provider	OSC8	Free choice of energy provider	At the client's request, within 5 days, the contractor will demonstrate the source of the energy provided. At the client's request (or if required by European or national law), the contractor will facilitate a free choice of energy provider (or if desired, conduct a pilot), whereby other permit-holding providers will be allowed to supply energy to the charging stations. This must be implemented within 6 months of the first request by the client. In implementing this measure, the contractor must take into account factors including but not limited to the necessary data and invoicing services. Where applicable, additional agreements will be made in consultation.	If the municipal government wishes to conduct innovative pilots regarding smart charging / free choice of energy provider.



Environment and location

Sub-category	ID	Subject	Description	Comments
Location	EOL1	Free passage space	The distance around the charging infrastructure must be suitable for users with disabilities in accordance with the guidelines of the municipal government.	
Charging station and signage	EOL2	Standard sign	If signage is used, it must make use of the EV sign standards as recognized in national regulations.	
Charging station and signage	EOL3	Sign height	The sign height must be in accordance with municipal guidelines.	
Municipal policy	EOL4	Additional location requirements	The client always has the final say regarding the charging location by means of permits or approval for construction.	



Environment and location

Sub-category	ID	Subject	Description	Comments
Location	OOL1	Distance to the main cable	The charging station should preferably be placed within 25 meters of the main cable.	Dependent on the situation. Additional charges for locations further than 25 metres from the main cable may be passed on to the municipality by the grid operator. These costs are often passed on to the collective private commissioning party (CPO) because it is often the CPO that makes the application to the grid operator for the connection. The municipal government may determine whether the CPO may pass on these charges to the municipality.
Location	OOL2	Location of low-voltage cable: preferred side of the road	The charging station should be placed on the side of the road where the grid operator's low-voltage cable is located.	Dependent on the situation.
Location	OOL3	Clean soil	The charging station should be placed in a location for which it is known that there is a clean soil statement (schonegrondverklaring) (generally available through the soil map).	In accordance with municipal guidelines.
Location	OOL4	Not near other street furniture	The charging station should not be placed within X meters of other street furniture.	X may be filled in according to municipal guidelines
Location	OOL5	Location requirements	The contractor must make a location proposal in accordance with the municipal location criteria.	If desired by the municipal government, the contractor may make a first location proposal.



Backoffice and interface

Sub-category	ID	Subject	Description	Comments
Authentication	EBI1	Back office	It must be possible to initiate and end charging transactions from the back office system.	
Authentication	EBI2	Authentication of user	The authentication of the user must take place as swiftly as possible.	
Data	EBI3	Availability of third parties	The contractor must provide a solution to offer third parties simple access to information on the current availability of all individual charging points.	
Data	EBI4	Access to data	The contractor must offer an open interface solution (such as OCPI) whereby customers of other charge service providers are able to access the functionality of the charging station, e.g. by using an app.	
Data	EBI5	Delivery of data	Data can be transferred or exported to the client, including all historic application and user information.	The requirements to be met by the tables for static charging station data and dynamic data per charging transaction can be requested from info@elaad.nl . These data will be made available via OCPI (or a similar protocol).
Payment	EBI6	Offering access through a universal card for all public charging station	The charging station must accept valid charge cards/authentication methods (app) from various providers.	
Protocols	EBI7	Update protocols	In the event that one of the required protocols is updated, the contractor is responsible for implementing the update, and must do so without charge.	
Metering	EBI8	Metering and data exchange	The kWh usage is transported to the back office system by means of the MID certified meter which is installed in each charging point, by OCPP via the internal intelligence of the charging facility. Every quarter of an hour (clock synchronized) the meter reading is sent to the back office system (irrespective of whether a transaction is in progress). It must be possible to change or move this frequency and/or unit of time.	



Backoffice and interface

Sub-category	ID	Subject	Description	Comments
Technology	OBI1	Mobile Communication	Communication must take place through a closed communication network (APN). The contractor shall select its own telecom provider. The contractor is responsible for the establishment of a correct data communication link.	No standard at the time of writing; future guideline.
Technology	OBI2	Agreements regarding the interface with regard to real-time data sharing	The client and the contractor shall agree on the interface to be used with regard to real-time data sharing. An interface may be developed jointly, with active investment on the part of the contractor.	<p>If the municipal government wishes to have access to the data, the contractor shall make at least the following information available in real time:</p> <ul style="list-style-type: none"> • Unique transaction code; • The amount of kWh charged per socket, per transaction, during the transaction; • The connection and disconnection times per transaction; • The start and end time of the transaction (time of connection and disconnection, and the start time and end time of charging, including a note if there are particularities such as smart charging, deferred charging, temporary charging at a lower power, etc.); • Which charge profile was active and what the input was for the charge profile; • Which charging station and socket applies to the charging data.
Technology	OBI3	Diagnostics	The contractor shall provide the client with the possibility of retrieving diagnostics of the charging station or a selection of stations itself (via the back office system).	If desired by the municipal government, it is able to access information on the status of the charging infrastructure.
Technology	OBI4	Charging point as access point for configuration	The contractor makes it possible for the municipality itself to operate all relevant functions and configurations of the charging point.	If desired by the municipal government, it is able to make changes to the charging infrastructure.



Backoffice and interface - continuation

Sub-category	ID	Subject	Description	Comments
Data	OBI5	Usage data available	The contractor shall make all usage data available to a general and independent monitoring tool for monitoring the use of the charging stations. The contractor shall make the usage data available to the client at least once a month.	<p>If the municipal government wishes to have access to information on the usage and status of the charging infrastructure, the contractor shall make at least the following information available:</p> <ul style="list-style-type: none"> • Unique transaction code; • The number of transactions per socket; • The number of unique transactions per socket and per charging card; • The amount of kWh charged per socket, per transaction; • The connection and disconnection times per transaction; • The start and end time of the transaction (time of connection and disconnection, and the start time and end time of charging, including a note if there are particularities such as smart charging, deferred charging, temporary charging at a lower power, etc.); • Which charge profile was active and what the input was for the charge profile; • The uptime; • The number of malfunctions per charging station (possibly per socket) and the times of these malfunctions.
Data	OBI6	Ownership of data	The client is the owner of all available data.	In accordance with municipal guidelines.
Providing charging services	OBI7	Price	The contractor shall settle charging transactions with charging service providers and card holders for a maximum price to be determined.	
Payment	OBI8	Alternative payment method: smartphone	To allow one-time use (for example, in the case of tourists), an alternative payment option without subscription must be possible, preferably through NFC.	If desired by the municipality. This is not yet standard at the time of writing.



Security

Sub-category	ID	Subject	Description	Comments
Security	ES1	ISO 27001	For information security, the charging infrastructure and back office must comply with ISO27001.	
Security	ES2	Security	Cyber Security must comply with the EV Charging Systems Security Requirements. Available via www.elaad.nl/projects/cybersecurity . If these requirements are updated, the concession holder must meet the updated requirements within 12 months. The contractor may not charge the client for implementing the update.	



Standards and requirements

Sub-category	ID	Subject	Description	Comments
Standards	ESN1	Grid operator requirements	Connection must take place according to the requirements of the grid operator. The charging stations (with grid connection) must be connected to a requested grid connection by the contractor of the grid operator. During the realisation of the grid connection, the charging station must be fitted with a cable clamp (strain relief), connection box (secured), standard meter board and regular smart kWh meter. The contractor must cooperate with any request on the part of the client and/or grid operators to have the above components installed in the charging station at the factory. Agreements regarding costs/charges, labour and handling shall be made between the contractor and the grid operator. This comprises at minimum but is not limited to the making, organization and execution of orders, distribution, storage, payments, assembly and registration.	
Standards	ESN2	Grid operator requirements	For the connection of the charging station to a standardized grid connection in a charging facility, the most recent version of the document 'Connection specifications for charging stations 3x25A – 3x80A' (Aansluitpecificaties laadobjecten 3x25A – 3x80A) is applicable.	Document is in Dutch, information can be requested at info@elaad.nl ; www.elaad.nl/aansluitpecificaties
Technology	ESN3	Communication protocol	The data connection between the back office system and the charging infrastructure must communicate according to the most current Open Charge Point Protocol.	The OCPP specification and tools can be downloaded from www.openchargealliance.org Future guideline.
Smart Charging	ESN4	OCPI	To support the services of third parties, the latest version of OCPI on the market must be implemented in the management system (back office system) of the charging infrastructure.	
Standards	ESN5	IEC62196	IEC 62196-2 indicates the requirements for plugs, sockets, vehicle plugs and vehicle sockets for charging electric vehicles using a cable with alternating current to 250 A and direct current to 400 A.	



Standards and requirements - continuation

Sub-category	ID	Subject	Description	Toelichting
Standards	ESN6	NEN 1010	NEN 1010 indicates the minimum safety requirements which low voltage installations must meet.	
Measurement and registration	ESN7	Metrology Act	Measurement and registration of energy should take place in accordance with the Metrology Act.	
Work safety	ESN8	NEN 3140:2011/EN 50110-1:2005	NEN 3140:2011 constitutes the Dutch implementation of the European standard EN 50110-1:2005 for low voltage devices, supplemented and adapted to the Dutch situation as prescribed by Occupational Health and Safety legislation.	
Protocols	ESN9	OSCP	To work with cable forecasts from the grid operator, the back office system must support OSCP 1.0.	
Protocols	ESN10	Standardized charge protocol	Charging of electric vehicles must take place according to the Mode 3 protocol, in accordance with IEC61851.	
Forecasting	ESN11	Cable forecasting	To work with cable forecasts from the grid operator, the contractor is expected to have implemented OSCP 1.0, or a comparable protocol, in its back office system within six months of being awarded the contract.	
Vehicle to Grid	ESN12	Vehicle to grid	The charging plaza supports ISO 15118 to facilitate V2G scaling.	
Standards	ESN13	NEN/EN/IEC 61439	The charging infrastructure must comply with the standards for low-voltage switchgear and controlgear assemblies NEN/EN/IEC 61439-1 and IEC/TS 61439-7.	
Construction work	ESN14	Laws and regulations	All work must be executed in accordance with the most recent laws, regulations and safety standards.	Incl. NEN1010



Management and monitoring

Sub-category	ID	Subject	Description	Comments
Service, Maintenance & Management	EBM1	Maintenance	The contractor is responsible for maintaining the charging infrastructure and must actively monitor its status (e.g. via the back office) in accordance with the Alternative Fuels Infrastructure Directive (AFID)	
Service, Maintenance & Management	EBM2	Reliability of charging availability	The contractor must ensure that every vehicle is able to charge in accordance with the latest standards.	
Service, Maintenance & Management	EBM3	Repair service	The contractor shall provide a first-line breakdown service enabling malfunctions to be remedied remotely via a free telephone number. This is available X hours a day and X days a week. Assistance is provided immediately via remote management. If it is not possible to remedy the malfunction remotely, the report will immediately be transferred to the second-line repair service.	X is in accordance with municipal guidelines. Depending on the contractor's own specific situation, please take into account the need for additional languages.
Service, Maintenance & Management	EBM4	Malfunctions	The contractor will provide a second-line repair service to remedy malfunctions on location, which will receive malfunction reports and will remedy the malfunction within the period of time specified in this schedule of requirements.	
Service, Maintenance & Management	EBM5	Malfunctions	In the event that it is not possible to provide a timely remedy for a malfunction report by an EV driver who is unable to disconnect their charging cable from the charging point, the contractor will ensure that the charging cable is returned to the EV driver within X hours at any desired address in the Netherlands.	X in accordance with municipal guidelines. The recommended period is 8 hours.
Service, Maintenance & Management	EBM6	Urgent malfunctions	Malfunctions which result in a charging facility or charging point failing to operate, or which prevent the disconnection of the charging cable, and/ or which result in an unsafe situation, will be remedied within X hours, 24 hours a day and 7 days a week. In the event of an unsafe situation, a safety investigation will be conducted, and the results will be reported to the client.	X may be replaced with the appropriate value according to municipal policy. The proposed value is 2 hours.



Management and monitoring -continuation

Sub-category	ID	Subject	Description	Comments
Service, Maintenance & Management	EBM7	Cleaning	The charging station must be free of graffiti and clean.	
Service, Maintenance & Management	EBM8	Cleaning	The charging infrastructure shall be cleaned within X working days of the detection or notification of graffiti or other contamination on or at the charging station.	X may be replaced with the appropriate values according to municipal policy. The proposed value is 5 working days.
Transfer	EBM9	Availability of parts	Parts that are essential to the functioning of the charging infrastructure must be available for at least X years after the end of the contract period.	X in accordance with municipal guidelines. The recommended period is 3 years.
Transfer	EBM10	Transfer	In the event of a transfer, the contractor is required to work at no charge starting one year before the end of the contract period on everything that is required for a potential transfer of charging locations and charge data.	
End of Service, Maintenance and Management	EBM11	Helping with the transfer	In the event of a transfer, the contractor shall cooperate fully with the transfer and shall make agreements with the client/new manager at the end of the maintenance contract regarding the takeover of the charging infrastructure (including management and maintenance).	
End of Service, Maintenance and Management	EBM12	Making the charging stations available	In the event of a transfer, the contractor shall make its charging stations available to the client/new manager for any tests before the final takeover takes place.	
End of Service, Maintenance and Management	EBM13	Relevant documents	In the event of a transfer, the contractor will provide the new manager with all relevant documents necessary for carrying out the transfer and the management and maintenance of the charging infrastructure.	Documents such as photographs; handover documents; drawings (digital or otherwise); quality, inspection or guarantee certificates; CE certificates; manuals; instruction books and any other document.



Management and monitoring

Sub-category	ID	Subject	Description	Comments
Reporting	OBM1	Management reporting	A periodic (preferably monthly) management report will be delivered in accordance with the client's format preferences.	<p>If the municipal government wishes to have access to information on the monthly usage of the charging infrastructure, the management report shall include a cumulative overview, and an overview relating to the relevant period, detailing:</p> <ul style="list-style-type: none"> • number of installed charging stations; • number of applications received; • applications in progress; • completion dates of the applications; • total number of transactions; • total number of kWh charged; • uptime; • malfunctions; • duration of malfunctions; • description and analysis of class and type of malfunctions; • a plan or measures to reduce the number of malfunctions and/or to reduce the downtime; • number of malfunctions above the set standard; • recurring malfunctions.
Service, Maintenance & Management	OBM2	Availability percentage	The charging infrastructure must be available for charging EVs at least X% of the time. This does not include downtime in the event of circumstances beyond control.	X is to be determined by the municipal government.
Service, Maintenance & Management	OBM3	Management	The contractor shall manage the charging location in consultation with the municipality (road markings and signage). In case of irregularities, it must return the charging location to its original state within 3 business days of detection or notification.	If the municipal government wishes to outsource the management and maintenance to the market party.



Management and monitoring - continuation

Sub-category	ID	Subject	Description	Comments
End of Service, Maintenance and Management	OBM4	Knowledge transfer	After the operating period, the contractor will provide training to the client/new manager with regard to installation and maintenance.	If desired by the municipal government to facilitate the transfer to the new manager.
End of Service, Maintenance and Management	OBM5	Making data available	The contractor shall make all data relating to usage, consumption, malfunction/damage history, uptime etc. available to the client/new manager.	If desired by the municipal government to facilitate the transfer to the new manager.



Application and construction

Sub-category	ID	Subject	Description	Comments
Construction	EAR1	Permits	As far as construction work for the charging station is concerned (and any relocation or removal that may be required), the contractor must be in possession of the required permits and adhere to all implementation rules and guidelines that are in effect in the relevant municipality. The term and costs associated with this must be taken into account. These costs shall be borne by the contractor.	
Construction	EAR2	Report to the KLIC cable and pipeline information centre	The concession holder must correctly register the maintenance data regarding installation in accordance with the Aboveground and Underground Network Information Exchange Act (Wet Informatie-uitwisseling boven- en ondergrondse netwerken, WIBON).	Please note that in some municipalities, a KLIC report must already have been requested prior to the permit application or notification.
Construction	EAR3	Accessible components	The service hatch for the charging infrastructure must be open at all times.	
Construction	EAR4	SAT (Site Acceptance Test)	On completion, the contractor is responsible for ensuring that the charging infrastructure is functioning correctly.	
Construction	EAR5	Clearance and repair work	The contractor is responsible for clearing and repairing the surrounding area after installing the charging infrastructure.	
Removal/ Relocation	EAR6	Conditions	The same conditions and requirements apply to the relocation of charging infrastructure as to the installation/construction of new infrastructure.	
Removal/ Relocation	EAR7	Connection service in case of disconnection and/or relocation	The switching off and/or relocation of the grid connection is requested by the contractor from the grid operator concerned, either directly or via mijnaansluiting.nl (as desired by the grid operator).	
Removal/ Relocation	EAR8	Damage in case of removal or relocation	The contractor is also responsible for any loss or damage resulting from removal or relocation.	



Application and construction -continuation

Sub-category	ID	Subject	Description	Comments
Removal and relocation	EAR9	Removal and relocation	If the client makes a request for the removal or relocation of charging facilities, the contractor will cooperate without exception. Removal refers to the complete removal of the charging facilities and/or location. This includes the entire charging infrastructure and any collision protection, fingerpost and signage.	Fingerpost and signage if installed by the contractor.
Change	EAR10	Change in connected load	The contractor shall request the relevant grid operator to change a connected load, either directly or via mijnaansluiting.nl (as desired by the grid operator).	
Construction	EAR11	Report to the KLIC cable and pipeline information centre	The contractor is responsible for recording the position of underground cables for the charging infrastructure in the KLIC.	
Construction	EAR12	Construction period	The charging plaza will be constructed within construction period X.	X is dependent on the size of the charging plaza and is to be agreed between the client and the contractor.
Construction	EAR13	Work and execution	The construction work must meet the requirements of the guidelines for work and execution 96 A/B.	
Construction	EAR14	Responsibilities	The contractor is responsible for the construction, management and maintenance of the charging facility. This includes (but is not limited to) the grounding of the charging facility, the application for grid connection, the energy supply, the parking space set-up, and any legally required registration of the charging facility, including associated charging points, equipment and components such as (but not limited to) a distribution box and wiring.	
Construction	EAR14	Responsibilities	The contractor is responsible for the construction, management and maintenance of the charging facility. This includes (but is not limited to) the grounding of the charging facility, the application for grid connection, the energy supply, the parking space set-up, and any legally required registration of the charging facility, including associated charging points, equipment and components such as (but not limited to) a distribution box and wiring.	



Application and construction

Sub-category	ID	Subject	Description	Comments
Construction	OAR1	Collision protection	Depending on the location and parking situation at the charging station, collision protection must be installed. This should take place in consultation between the client and contractor.	Dependent on the situation.
Construction	OAR2	Collision protection parking behind the curb	If the distance between the charging infrastructure and the curb is less than 30 cm, measures such as collision protection must be taken.	Dependent on the situation.
Application	OAR3	Application portal	The contractor shall provide a secure application portal for applying for a charging station that is suitable for both EV driver and municipality.	If desired, the municipal government may outsource the application portal to the contractor. Parties concerned, including the municipal government and EV driver, can then log in to the digital interface to obtain information on the status/progress (incl. planning and completion date) of the applications.
Application	OAR4	Planning	No later than 10 working days before the execution date, the work schedule must be visible to all relevant parties via the digital interface (application portal). Once the schedule has been established, it may no longer be altered.	
Application	OAR5	Unforeseen circumstances and planning	If, due to unforeseen circumstances, it is necessary to alter the schedule, this must be communicated to all relevant parties in good time (no later than 3 working days before execution) with a well-founded and alternative schedule via the digital interface.	Dependent on the municipality's desired lead time.
Construction	OAR6	Construction period for charging station	The contractor may take a maximum of X weeks to submit an application (from receipt of the application to commissioning of the charging station).	Dependent on the municipality's desired lead time. Municipal governments indicate the maximum term X according to municipal policy.



Application and construction - continuation

Sub-category	ID	Subject	Description	Comments
Construction	OAR7	Parking space set-up	The contractor must set up the parking space in accordance with municipal requirements.	Dependent on whether the municipality or the market party set up the parking space.
Construction	OAR8	Perpendicular parking	In the case of perpendicular parking behind the curb, the distance between the charging station and the curb must be at least 60 cm.	Dependent on municipal guidelines.
Construction	OAR9	Parking behind the curb	In the case of parallel parking behind the curb, the distance between the charging station and the curb must be at least 30 cm.	Dependent on municipal guidelines.
Construction	OAR10	Unpaved ground	If the charging infrastructure is installed on unpaved ground (for example grass or sand), the surrounding ground must be reinforced or paved.	Dependent on municipal guidelines.
Removal/ Relocation	OAR11	Information via the application portal	All relevant parties must be informed (via the digital interface) about any removals and/or relocations (reason, planning, possible new location and progress).	Dependent on the wishes of the municipal government.
Removal/ Relocation	OAR12	Storage	If the charging infrastructure is removed and/or relocated, the contractor is responsible for any necessary storage and management, unless otherwise agreed with the client.	Dependent on the wishes of the municipal government.
Removal/ Relocation	OAR13	Compensation	If the charging infrastructure is removed, the contractor is not entitled to any compensation for loss of revenue.	Dependent on the wishes of the municipal government.
Removal/ Relocation	OAR13	Compensation	If the charging infrastructure is removed, the contractor is not entitled to any compensation for loss of revenue.	Dependent on the wishes of the municipal government.

