

MARKET CONSULTATION DOCUMENT

Charging Management and Vehicle Monitoring

Version 1.0

date 13/12/2021

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Guide

This is the market consultation document for Charging management and Vehicle Monitoring.

This document contains the following chapters:

Chapter 1: This chapter contains general information about GVB, about this market consultation and about the schedule.

Chapter 2: This chapter contains the administrative terms and conditions that apply to this market consultation.

Chapter 3: This chapter contains a brief description of the current situation and a vision of the future.

Chapter 4: This chapter contains the questions that GVB has for the market in the context of the market consultation.

Definitions

- Interested party: the participant in the market consultation

Abbreviations

CMS: Charge management system

VDP: Vehicle data platform

SOC: State of charge

SOH: State of health

RFI: request for information

ZEB: Zero emission bus

Introduction

GVB plans to purchase a smart charging system for its electric bus fleet. The smart system should help GVB to operate its timetable in a fully electric manner.

The charge management system (CMS) must be used efficiently on the basis of planning data, vehicle data and the grid operator's energy supply.

The buses must be charged as efficiently as possible, and only charged to the extent that they are able to complete the timetable. This requires planning information from our planning system (Hastus), and GVB also expects that vehicle data (SOC and SOH) will be required to establish this need.

Due to the need for vehicle data, GVB is considering combining the purchase of the CMS with the purchase of a VDP. The VDP isn't just used to link with the CMS and the planning module in Hastus, but also contributes to the increasingly preventative maintenance of vehicles. GVB may remove the purchase of the VDP from this project if linking vehicle data to the CMS doesn't appear to be necessary.

The grid operator is facing congestion problems (temporary energy production shortages) in the Amsterdam region. The CMS that GVB is purchasing must be able to respond to these congestion problems. The solution must at least possess the possibility of "peak shaving" and "load shifting" based on fixed parameters (e.g. maximum power for the charging hub). At various locations (e.g. sheds), the CMS must also be able to respond to the power demand of other facilities supplied by the same power supply (e.g. workshop and office). This functionality enables GVB to supply a larger number of charging points and reduce installation costs with a smaller connection power. GVB is also investigating the possibility of supplying the charging sessions of several buses from a single charger. GVB expects a "wake up by charger" facility to be necessary for this.

GVB is also considering buying a CMS that can be used for grid balancing/congestion management.

Before this happens, GVB wishes to conduct a round of consultations with market participants. This document has been drawn up for this round of consultations.

1.1 Publication

This market consultation was published via TenderNed, the Dutch tendering platform, as well as being published automatically on Tenders Electronic Daily (TED). All the provisions set out in this publication remain in full force and can be requested at <http://ted.europa.eu> or www.tenderned.nl.

If you wish to be kept informed of further publications with respect to this market consultation, such as any Information Memoranda, you must register on TenderNed and

add this market consultation to 'my tenders'. See also the entrepreneurs' guide on Tendered.nl. or "then you must send an e-mail to the contact person for this market consultation".

1.2 Definition of market consultation

A market consultation is being used to improve, test and/or further realise the quality of the specifications or programme of requirements and the purchasing process.

By using the knowledge and expertise of the parties, a public organisation is able to test the correctness, completeness and feasibility of a proposed project and the corresponding secondary conditions. As a result, the feasibility of the project can be better determined and the secondary conditions – under which the project must be carried out – determined.

The market consultation is a separate process that is conducted prior to a formal tendering process. The market consultation is not a call to participation and does not form part of a pre-qualification procedure. The information obtained from the market consultation can be used to ensure an effective tendering process. By undergoing an effective tendering process, the chance of a suitable tender for GVB increases.

1.3 Client

This market consultation will be conducted by GVB.

GVB runs public transport using trams, buses, underground trains (metro) and ferries in and around Amsterdam. The organisation has around 3,750 employees. GVB transports passengers using 56 bus lines (12 of which are night-time lines), 16 tram lines, 4 metro lines and 8 ferry connections.

On average, GVB provides around 740,000 passenger journeys per day. Passengers want to reach their destination on time, to be informed and to feel safe. The passengers are the most important aspect of GVB's operations.

In addition to operations, GVB is also responsible for the management and maintenance of the equipment and of the rail infrastructure in the city. GVB's own Railmaterieel and Rail Services divisions are responsible for the implementation.

GVB likes to see its passengers and employees feel at home: in the vehicles, but also before and after the journey. This is why social safety and up-to-date travel information are important, especially in a busy metropolis such as Amsterdam. In addition to the vehicles, it is also important that the environment is clean and safe and encourages the use of public transport.

For further information about GVB, please refer to the website www.gvb.nl.

1.4 Aim of the market consultation

The aim of this market consultation is:

- A. to involve interested parties early on in the organisation of the above-mentioned tendering procedure and the agreement to be concluded;
- B. to consult the market in order to investigate the possibilities for contracting out a CMS (with link to a planning module) and a VDP;
- C. besides answering the questions asked, interested parties will also be given the opportunity to make suggestions and put forward ideas.

This way, GVB hopes to organise a potential tender and to be able to enter into an agreement that is tailored to the market as closely as possible.

1.5 Phasing

The market consultation has been divided into three parts:

- A. An initial presentation by GVB for interested parties;
- B. A written response to the questions asked by GVB;
- C. A verbal explanation of the questions asked with the corresponding answers; this takes place on the basis of individual conversations. See also article 1.7; this phase is optional and is entirely dependent on the result or conclusion based on the answers given to the questions asked.

1.6 Conditions

GVB lays down the following terms and conditions which are accepted automatically by the interested party when taking part in this consultation:

- A. GVB is in no way responsible for covering the costs associated with this market consultation;
- B. GVB reserves the right not to follow up on this market consultation;
- C. GVB reserves the right to choose an appropriate and suitable purchasing strategy for the company, depending on this consultation.
- D. The information provided may be freely used by GVB.

1.7 Market consultation process

The announcement of this "Charging Management and Vehicle Monitoring for the Electric Bus" market consultation, along with the corresponding documents, has been published via TenderNed in accordance with the schedule from paragraph 1.8, as well as being published automatically on Tenders Electronic Daily (TED). This way, all interested parties are given the opportunity to participate in this market consultation.

GVB has chosen to clarify its intentions with the intended commission and the formulated questions by means of a presentation. An online meeting is being organised for this purpose. You are free to take part in this, but GVB would like to draw your attention to the fact that for the questions to be answered properly, it is highly desirable that you attend this online meeting.

Afterwards, until the moment stated in the schedule, there is an opportunity to ask questions in writing in order to clarify the market consultation, for which an Information Memorandum will be drawn up.

After that, GVB will be happy to receive a written response to the questions asked, as can be found in the chapter "Market consultation questions". The answers to the questions can be submitted until the moment stipulated in the schedule. They must be submitted via the messaging service in TenderNed to the contact person named in paragraph 2.1.

In response to these written questions and/or comments, GVB may decide to request further information. This may occur through written questions or consist of further consultations, but is not bound by this.

Consultation with the parties will be focused on the mutual sharing of information. The parties involved may contribute their ideas concerning the subject of the market consultation.

A confidential report is drawn up of each meeting which is submitted to the party in question for approval. GVB is not obliged to give detailed feedback to the participating parties.

The following officers will attend on behalf of GVB:

- Project Manager
- Process Improvement Advisor
- ICT Advisor
- Senior Buyer
- Energy and Environmental Manager
- Information Manager

Following the market consultation, GVB will draft an anonymised report describing the main findings. This report will also be published on TenderNed.nl. The findings ensue from the answers to asked questions and from the consultations held.

1.8 Market consultation schedule

Please find the schedule for the market consultation procedure below. GVB has placed an announcement for this market consultation on TenderNed, thereby formally starting the market consultation.

GVB reserves the right to make changes to the schedule or to deviate from the schedule. In such cases, communication towards all interested parties takes place via TenderNed.

	Milestone	Date
1	Publication of announcement	20/12/2021
2	Latest date for questions to clarify market consultation document	13/01/2022
3	Online meeting	17/01/2022
4	Drafting and sending of answers to clarification questions (Information Memorandum)	24/01/2022
5	Submission of answers, ideas and comments	31/01/2022
6	Consultation rounds	Weeks 7 and 8
7	Drafting, sending and publishing of final report.	Week 9

2 Administrative terms and conditions

2.1 Correspondence

The communication concerning this market consultation must be sent to the contact person in writing at all times using TenderNed's messaging service, stating **charging management and vehicle monitoring for the electric bus**.

The following contact person from GVB has been appointed for this tendering process:
Purchasing Department

Attn.: Gert Jan van der Kamp, Senior Buyer
Postal address: Postbus 2131, 1000 CC Amsterdam
Visitors' address: Arlandaweg 106, 1043 HP Amsterdam
E-mail address: gertjan.vanderkamp@gvb.nl
Mobile phone number: +31 (0)6 281 45 866

2.2 Information Memorandum

Any questions for the clarification of this document may be submitted up to the deadline stated in the schedule. To submit questions, you must use the document provided in annex 1, Standard form for the submission of questions.

These questions will be anonymised in the form of an Information Memorandum and answered. GVB will place the Information Memorandum on TenderNed, send it to interested parties and it will form an integral part of the final report.

2.3 Online meeting/Consultation rounds

The online meeting, as well as any consultation rounds, will take place via Microsoft Teams. For the online meeting, all interested parties are notified in one go. You will be asked to notify the contact person in a timely manner whether and if so, with whom you will be attending the online meeting, using the messaging service in TenderNed.

2.4 Identical information

All parties have access to the same information. The publication of this market consultation and the corresponding documents – market consultation document, Information Memorandum and the final report – will be placed on TenderNed. In the event of a potential tender, the aforementioned documents are shared with all candidates.

2.5 Language

The language to be used in this market consultation is Dutch. We are happy to receive responses in Dutch or English.

2.6 Rights

No rights may be derived from the information provided in the context of this market consultation. All verbal and written communication must be regarded as general possibilities for the purchasing process and the approach taken by GVB.

2.7 Confidentiality

The information provided by GVB in the context of this market consultation must be handled confidentially by you. The duty to maintain confidentiality also applies to your employees and the third parties to be brought in by you. GVB will, of course, handle the information it obtains confidentially too.

2.8 Supplied data

As stated, GVB may use the information obtained from this market consultation to market the tender for charging management and vehicle monitoring for the electric bus. As a result, all answers submitted by market participants will be or are the property of GVB in the context of this market consultation. GVB therefore has free use of this information. GVB would greatly appreciate it if all questions were answered.

2.9 Status of information

The status of the information is **indicative**.

2.10 Notification of discrepancies

If a participating market participant believes that information and/or a provision in this market consultation document and/or other documents is inaccurate, unlawful or in any other way discrepant, the participating market participant must draw GVB's attention to such alleged inaccuracy, unlawfulness or discrepancy in writing within fifteen days of receiving the market consultation document in question.

If a participating market participant has not drawn GVB's attention to this in good time in the prescribed manner, that participating market participant thereby incorporates every right towards GVB insofar as related to the alleged inaccuracy, unlawfulness or discrepancy.

2.11 Priority of the documents

In the event of a conflict between the announcement of the market consultation and this market consultation document, this market consultation document shall prevail.

3 Market Consultation for Charging Management and Vehicle Monitoring for the Electric Bus

3.1 Current situation

GVB is expanding its new electric bus fleet significantly and this is also posing new challenges, namely:

- Efficiently planning the necessary charging times within the timetable.
- Purchasing power in a cost-efficient manner at cheap times.
- The delivery of a reliable charging system with the available power (from the grid operator) for electrification of the bus transport.
- Gathering data for fault analyses and fleet management to prevent operating outage.

3.2 Scope of provision

Setting up the organisation efficiently with the help of a Charge Management System (CMS) and a Vehicle Data Platform (VDP) should result in lower operating costs by:

1. Efficiently planning the necessary charging times within the timetable.
2. Purchasing power in a cost-efficient manner at cheap times.
3. Gathering data for fault analyses and fleet management to prevent operating outage.
4. Being able to match the necessary power to the available power for electrification of the bus transport.

The Electric Bus (EB) charging and vehicle monitoring project consists of different parts:

- Charge monitoring by means of a charge management system (CMS)
- Vehicle monitoring by unlocking vehicle data to an environment that has been made available to GVB
- Linking charge management to the schedule/GIRO's planning module: Hastus.

To date, GVB's electric fleet consists of VDL Citea SLFA vehicles which are charged using Heliox Flex 360 KW, Heliox Flex 180 KW, Ultra Fast 450 KW & 50KW DC chargers. These chargers are compatible with OCPP 1.6J/2.0 and ISO 15118.

4 Market consultation questions

The request is to answer the following questions. These relate to several matters. Firstly, GVB likes to receive information about your company and the market, consisting of contact information and general information. GVB also likes to receive answers to the specific questions asked by us. Finally, you will be given the opportunity to make any comments and/or suggestions. It is not necessary to answer all questions, but we would greatly appreciate it if questions are answered in full. If questions are answered in full, GVB believes it will help them to formulate the correct mandate and programme of requirements for a potential tender. We hereby stress once again that the answering of the below questions will not be used for the selection of suppliers. The aim of the structured questionnaire is to select similar answers by different suppliers. We encourage you to make comments next to the questions and for which you think you need to propose alternatives.

Contact information		
1.	Official name of your organisation	
2.	Visitors' address for your organisation	
3.	Postal address for your organisation	
4.	Name of contact person for this RFI	
5.	E-mail address of contact person	
6.	Telephone number of contact person	
7.	Registration number at the Chamber of Commerce	

General company and market information		
1.	Parent company Is your company part of a bigger umbrella organisation? If so, what organisation? (possibly include address details)	
2.	Date of incorporation What is your company's date of incorporation?	
3.	Number of employees How many employees does your company have, divided between direct and indirect personnel?	
4.	Products, services	

	What products and services does your company provide?	
5.	Quality assurance management system Does the company have a quality assurance management system? If so, in accordance with what standard?	
6.	Certification of quality assurance management system Is the quality assurance management system certified? If so, by whom and for how long is the certification valid?	
7.	Turnover What is your company's turnover over the past 5 years for these types of systems?	
8.	R&D What percentage of the turnover has your company invested in research and development over the past 3 years?	
9.	Development system By means of what system does product and/or application development take place?	
10	Market analysis 1 What other market participants (besides your company) do you believe offer such systems?	
11	Market analysis 2 What do you believe is your market share in these types of applications?	
12	Experience 1 How many of these types of systems have you now delivered operational? Can you make a distinction here between back office environments and vehicle equipment?	
13	Experience 2 In how many cases have you had the role of integrator here?	
14	References What references do you have that are relevant to the needs of GVB and which we are allowed to approach if necessary?	
15	Differentiation Can you state in what areas your company sets itself apart compared to competitors in	

	the market? Please state both your company's strong points and weaker points.	
16	Customer Support How is customer support organised within your company and are you able to offer Dutch or English language support?	

Specific market consultation questions	
No.	Question
1.	Subject to this market consultation, a charge management system (CMS) has been integrated with a vehicle management system. How do you, a market participant, see it? Is it handy to market both parts as a single commission? If so, or if not, why is that?
2.	GVB is aware that parameters such as weather conditions, driving behaviour, the use of air conditioning etc. affect the state of charge. This effect is dynamic. Are you able to link this dynamic information with our planning system, Hastus? Is this done on the basis of a standard method based on best practices, or should this knowledge/information come from GVB?
3.	GVB's basic principle is that, based on the schedule, vehicles are not charged more than is necessary. To what extent is a CMS able to affect the charging sessions, so that the buses are charged sufficiently, but not excessively?
4.	To what extent is a CMS able to deal with changes on the day itself, whereby consumption is higher than was previously intended?
5.	To what extent does your system enable GVB to provide our charging points with peak shaving and load shifting? To what extent can this be integrated in the planning system, Hastus? How do you think you will be doing this?
6.	What variables do you need from GVB's systems to achieve the requested scope?
7.	Is the CMS intelligent enough to carry out charge management independently based on the planning system's input? To what extent is the CMS able to communicate with undercharging stations?
8.	If you look at the requested scope, what expenses do you expect GVB to incur (approximately), both one-off investments and recurring costs? Please split the costs into: One-off investments: 1. Standard 2. Customised Recurring costs: 1. Standard 2. Customised
9.	To what extent are you able to provide drivers with information about their driving style via the vehicle data platform? Can this happen in real time, or only afterwards? How do you think you will be able to achieve this?

10.	Are you able to realise the total requested scope entirely yourself, or do you require the help of third parties to achieve this?
11.	Have you already previously implemented such systems with similar transport companies?
12.	Have you already linked your system to a planning system, such as Hastus?
13.	What do you believe are good criteria for selecting the right market parties for this commission?
14.	GVB currently intends to use the competition-oriented dialogue as the tendering procedure. How do you see it? To what extent are you able to show an operating system during a tendering procedure? In the context of a potential cost reimbursement: what expenses would you have to incur for this? Do you have any ideas about how we can use a demo to test the operation with the CMS and Hastus?
15.	What is your experience with grid balancing? How can the CMS be programmed to give a dynamic response based on external signals?
16.	To what extent are you able to initiate the charging session from the charger (wake up by charger)? If so, can you give practical examples where this has been used by the provider to 1) purchase power at cheaper times (load shifting), or 2) to reduce the number of chargers at a shed location?
17.	Do you possess a module where the available charging power responds in a flexible manner to the power of alternative facilities (e.g. workshop and offices)?
18.	What hardware is being installed for data communication? What support is necessary from Original Equipment Manufacturers (charging infrastructure & buses) in this regard to achieve the solution?
19.	Can you develop the possibility to aggregate peak shaving across several locations (e.g. Locations A & B together never use more than 3000 KW)?
Any comments and/or suggestions	
No.	
1.	
2.	
3.	