Questions and answers charge management and vehicle monitoring

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#	Question	Answer
1	Betreft de vraag ook de levering en/of plaatsing van laadpalen in de stad en/of laadsystemen op voertuigen? Zo nee, betreft het dan interfacing met 1 of met meerdere bestaande laadpalen/-systemen? Zo ja, alleen de genoemde of ook anderen? *Is this RFI also about the delivery and the installation of charging stations in the city and/ or charging systems on vehicles? If not, is it about interfacing one or more existing charging systems? If yes, only the mentioned systems or also others?*	Is this RFI also about the delivery and the installation of charging stations in the city and/ or charging systems on vehicles? NO If not, is it about interfacing one or more existing charging systems? If yes, only the mentioned systems or also others? At this moment we have only one type of chargers, but this will likely increase in the near future.
2	Welke factoren bepalen voor u of voertuigmonitoring optioneel wordt of niet? *Which factors determine if vehicle monitoring will be optional or not?*	If live vehicle data is required from the bus to optimize the charge planning and GVB is not able to provide is not able to provide that data.
3	Moet het systeem ook met andere vervoerders en/of modaliteiten kunnen worden gedeeld? *Must the system also to be shared with other public transport companies and/ or modulities?*	No, that is not required yet.
4	Moet er een modaliteit- en/of locatie-overstijgend Energy Management Systeem (EMS) komen? *Is a Energy Management System (EMS) for multiple modulities and/ or locations needed?*	GVB expects Subcontractor to host one portal through which all charging sites can be monitored/managed individually. An ambition to perform dynamic charge management across several sites simultaneously (e.g. in order to combine the volume of each charging site for performing FCR/congestion management services) has not yet been determined. GVB is keen to receive further advice from Participants in that respect. In all cases, the scope Charge Management System shall be limited to electric busses.
5	Is er al een informatie-architectuur waar deze oplossing in moet passen, naast een koppeling met het planningspakket? *Is there already an information architecture where this solutions must fit in, besided an interface with the plan system?*	No, we are currently working on that. We would like to incorporate the information from the market consultation in the architecturial diagram.
6	Verwacht u van de markt een 'as a service' oplossing of maatwerk? *Do you aspect the market to deliver an as a service solution, or a customized solution* ?	A SaaS solution is not a problem. Customizations should be minimized, but might be required if the product does not provide all the solutions to GVB's challenges. Hopefully GVB's requirements could be added to the standard (SAAS) solution of the company.
7	Zoekt u een eindleverancier of een partij die u (ook) helpt keuzes te maken? *Are you seeking for a supplier or a party who (also) helps to make choices?*	Yes, that is one of the reasons for GVB to choice a tender procedure were it is allowed to discuss the solutions with tendering parties.
8	Welke tijdslijnen ziet u grofmazig voor u? *What global planning do you foresee?*	Selecting the supplier Q3 in 2022. Roll out Q4 2022

9	How many chargers are to be used by GVB? Is there a specific manufacturer that GVB expects to use?	At the depot every bus has it's own charger (so there will be at least 215 chargers over the upcoming years). For the oppertunity hubs the numbers are not final yet, as they are strongly in relation to the charge optimalisation we can achieve. At this moment we have only one type of chargers (Heliox), but this will likely increase in the near future.
10	Is there a specific manufacturer that GVB expects to use for the electric buses? Do these vehicles support ISO15118 VAS (VDV261)?	For the first, second and thrid generation the buses will need to be adjusted to support VDV216, for the first generation this implicates hardware as well as software, the second and third generation only software needs to be adjusted. For the fourth generation VDV261 is part of the tener for the buses as well als the chargers.
11	Is the Hastus system able to provide information about the tours that the electric buses need to make after charging? E.g., the number of kilometers.	Yes it is.
12	Is the Hastus system able to communicate with a charging management system via VDV463?	Currently we are desiging the information architecture, we take this standard into consideration.
13	In other projects we integrate our charging management system with the operations control systems. Is such a connection also planned in this project? If so, is the operational control system familiar with VDV463?	Based on the business needs we might require informations flows between systems. VDV463 is one of the communications standards we consider.
14	We have several options for installing our charge management and vehicle monitoring system, such as hosting on our servers, using GVB servers or an Azure Cloud. Is there a preference from the GVB side?	Both SAAS or installing on GVB servers is allowed. GVB policy: SAAS over PAAS over IAAS. To GVB the effective integration with the planning system is most important, so the choice for SAAS or not should at least support this goal.
15	To obtain the objective of fault analyzes based on vehicle data what vehicle data is available on the vehicle and therefore provided from the vehicle manufacture to GVB? FMS data? Diagnostic trouble codes over J1939/DM1 or CAN UDS? Other data, in particular parameters of the high voltage energy systems and the sub-systems like surveillance system, cash desk system, infotainment systems?	This is not known yet. This will be part of the requirements.
16	Regarding the proof of concept: What should be part of it?Is there an expectation that PoC shall be offered free of charge?	We probably select 5 parties to discuss their solutions in detail. From the 5 parties 3 are selected for the final stage. During the final stage the winning party will be selected from the 3 based on the proof of concept. GVB is open to financial compensate the parties for providing the POC. Therefore we are interesed in the cost you forecast for facilitating the POC.
17	Is there already an existing depot management system? Which system is supposed to plan the charging sessions?	Is there already an existing depot management system? Yes, Hastus. Which system is supposed to plan the charging sessions? Hastus provides the transport planning, and provides info when a vehicle is availble to charge. The CMS needs to timely charge and release the vehicle for operations again. During the tender we would like to explore multiple possibilities / options.

18	How can we understand the mentioned term „wake-up“ the charging stations, what problems are supposed to be solved with this functionality?	Currently, the charging sessions can only be initiated in person through the vehicle. Currently, the vehicle will turn to a standby mode when the vehicle is parked and a charging session is not initiated. In standby mode, the charging session cannot be initiated at a later stage.
19	What are the existing energy supplier contracts, are there already existing fare zones?	Currently GVB procures electricity through the ENDEX NL market (year ahead). As a result, throughout the year, fixed fees apply to charging in peak and offpeak hours. Shifting bus depots to a Epex spot contract (with varying pricing per hour per day) is currently being discussed with our power supplier Vattenfall.
20	Are there existing energy measuring instruments at the depot sites and are there other electric consumers that should be monitored beside the charging stations?	All depots will be equipped with measuring instruments that comply with the "meetcode" and are used for invoicing power consumption (comptabele meting i.c.w. secundair allocatiepunt). We have separate measurements on each depot for power consumption on the depot and the charging infrastructure, that measure consumption at 5 minute intervals.
21	Can we assume that the established VDV standards (452, 455, 261, 463, etc.) secure the interfaces of the landside systems?	GVB intents to use marketstandards as much as possible.
22	Rto what extend does the ITxPT standard play a role in your considerations?	This is important to GVB, GVB is currently using the ITxPT standard.
23	•Regarding Question 1 “Subject to this market consultation, a charge management system (CMS) has been integrated with a vehicle management system.” oWith “vehicle management system” I suppose that the mentioned vehicle-data-platform is meant?	Yes
24	•Regarding Question 7 “To what extent is the CMS able to communicate with undercharging stations?” oWhat exactly GVB defines as “undercharging stations”?	GVB wishes to rephrase this question to the following: GVB considers to use the CMS to perform congestion management and/or FCR. In case GVB performs such services, how does the CMS communicate the performance of services to: 1) Planning system of GVB (Hastus) in case of daily planning cycles 2) DSO? Is there a possibility for remote access for the TSO? 3) TSO? Please refer to chapter 4 of the Handbook FCR for BSPs (issued by Tennet) for more details on requirements.
25	•Regarding Question 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 depot location?” oDo you have a concrete use-case in mind, in which the wake-up-by-charger function would allow GVB to reduce the number of chargers?	At our depot sites we see that most overnight charging sessions are completed between 2 and 4 am. As a result, between 2 and 6 am (departure time of most bus services) GVB has unused charging capacity. Since the current "Flex Chargers" supplied by Heliox can be connected to several contact domes simultaneously, GVB suspects that there is potential for utilizing this excess capacity in case charging sessions can be delayed to a later stage. Utilizing this excess capacity effectively would result in the possibility to complete more charging sessions with one charger each night.

26	• Regarding Question 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)?” o Can you detail this use-case, its setup and expected benefits a little more – especially what exactly you define as “locations”? o Just for some context, as how we currently approach energy management at locations: We do dynamic load mgmt. currently on LV level and in the near future on MV level. Using your example in the slides we would measure - assumingly on MV level - how much power the Traction Metro and the Station utilize. Based on the remaining, available power given the grid constraints, we would allow the bus charging infrastructure only to use as much as “left” by the other “locations”. This setup is usually done for each location independently because it depends on the electrical infrastructure present at the site, e.g. size of MV/LV-transformers.	GVB is considering the potential for aggregating charge management across multipe charging sites for the purpose of congestion management and/or FCR. Whether or not, GVB decides to include such a requirement, shall depend on anticipated feasibility as well as the capabilities and experience of potential Tenderers. GVB kindly requests Participants to advise on this matter. For the purpose of Congestion Management we see potential for combining multiple charging sites with complementary load patterns: for example, where an opportunity charging sites has higher loads during the day, a depot charging site will experience higher loads during the night. While in some cases such sites are connected to the same substation of the distribution network operator, the available capacity can be utilized more effectively when performing load management across 2 sites. In the long term, we might see potential for performing FCR services by managing the load. However, for that purpose, GVB will need to aggregate several charge sites, to assemble a stable load over longer periods of time that can be used for the purpose of FCR.