**APPLICATION AND EXPRESSION OF INTEREST IN MARKET RESEARCH**

*Supply of eighteen -meter three-axle low-floor trolleybuses*

1. **PARTICIPANT**

|  |  |
| --- | --- |
| **Company (full title)** |  |
| **Registration No.** |  |

1. **REPRESENTATIVE**

|  |  |
| --- | --- |
| **Name, Surname** |  |
| **Position in Company** |  |
| **Phone Number** |  |
| **E-mail** |  |

Representative in Latvia or a regional representative (if existent)

|  |  |
| --- | --- |
| **Representative company/entity** |  |
| **Address** |  |
| **Phone Number** |  |
| **E-mail** |  |

1. **RELEVANT COMPANY EXPRERIENCE**

3.1. Below please fill in the information required regarding supplied three-axle low-floor trolleybuses equipped with a traction battery system for autonomous driving during the last 7 (seven) years, indicating no more than 5 (five) contracts.

|  |  |  |  |
| --- | --- | --- | --- |
| **Nr.** | **Customer (Company title, country, URL)** | **Volume supplied, year/period of supply** | **Contract value in EUR, excl. VAT** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |

3.2. Approximate cost of trolleybuses (in EUR, excl. VAT):

|  |  |  |  |
| --- | --- | --- | --- |
| **Purchase amount** | **10 units** | **30 units** | **50 units** |
| Total purchase amount |  |  |  |

3.3. Proposed warranty period:

|  |  |
| --- | --- |
| **Product category:** | **Warranty period**  **(in months)** |
| Trolleybus |  |
| Traction battery |  |
| High voltage system |  |
| Electric motor |  |
| Additional parts that have their own separate  warranty (please describe) |  |

3.4. Manufacturing capacity and terms of delivery (time necessary for production and delivery of trolleybuses):

|  |  |  |  |
| --- | --- | --- | --- |
| **Purchase amount** | **10 units** | **30 units** | **50 units** |
| Delivery capacity (number of months from the conclusion of the contract) |  |  |  |

3.5. How many traction battery sets need to be replaced for the life cycle of a trolleybus - 15 years (indicative daily autonomous driving mode with traction battery ≈ 100 km)?

|  |
| --- |
| *Please describe here or enclose as annex.* |

1. **ADDITIONAL INFORMATION**

4.1. If any of the technical performance parameters cannot be met, please indicate each of the parameter and solution offered by the participant:

|  |
| --- |
| *Please describe here or enclose as annex.* |

4.2. Other conditions:

|  |
| --- |
| *Please indicate, if existent, other conditions and terms under which the financial and technical offer is valid.* |

4.3. Main location of production and assembly of offered trolleybuses:

|  |
| --- |
| *Please provide a detailed description here or enclose as annex.* |

4.4. Name and location (country) of the authorized representative of the trolleybus manufacturer of the closest proximity to Latvia:

|  |
| --- |
| *Please describe here or enclose as annex.* |

General Technical Description of the Subject of Delivery

***If any of the technical performance parameters is impossible to implement, please specify which and offer an alternative solution!***

Three-axle low-floor trolleybus (hereinafter referred to as – the Vehicle).

|  |  |  |  |
| --- | --- | --- | --- |
| **Customer’s requirements, technical parameters, and description** | | | **Comments and proposals** |
| Vehicle category, class | | M3, Class I. |  |
| Vehicle type and application | | The Vehicle – a three-axle articulated low-floor (without steps at the entrances and in the main gangways) trolleybus intended for the carriage of passengers in an urban agglomeration. The Vehicle must be accessible to passengers with reduced mobility, including wheelchair users and passengers with prams.  The Vehicle must be designed and intended for operation within the traction catenary system of the Riga city with a rated supply voltage of 600 V DC (operating range 420-780V DC). |  |
| Autonomous electricity source | | The Vehicle must have a built-in Rechargeable Energy Storage System (traction battery) with a power of at least 100 kW and sufficient energy capacity to ensure the power supply of the Vehicle for the specified driving range reserve, as well as operation of the Vehicle outside the coverage area of the catenary system. |  |
| Traction battery charging system | | The possibility to charge the traction battery must be provided in the Vehicle when it is connected to the catenary system (including charging via the catenary system when the Vehicle is in motion; also, the possibility of charging using the “Combo2” Combined Charging System plug (CCS2) must be provided. |  |
| Driving range reserve in autonomous driving mode | | A fully charged traction battery must provide the power supply of the Vehicle and ensure a driving range reserve of at least 25 km in the active autonomous driving mode of the Vehicle before a recharge is required. |  |
| Climatic conditions | | The Vehicle, its systems and subsystems must safely function at an ambient temperature from -30 0C to +40 0C (relative air humidity 98% at a temperature of up to +25 0C). |  |
| Vehicle structure and conformity | | The general structure of the trolleybus must comply with the laws and regulations of the Republic of Latvia, the requirements of Regulation (EU) 2018/858 and the requirements of UN Regulation No. 107 which apply to specific provision for vehicles of Category M3 used for the carriage of passengers. |  |
| DIMENSIONS | | |  |
| Length, including bumpers (mm) | 17 900 – 18 750 | |  |
| Width, excluding rear-view mirrors (mm) | Not less than 2 530, not more than 2 550 | |  |
| Height, including roof-mounted equipment (mm) | ≤ 3 600,  When the tyres are inflated to the specified pressure, the pneumatic suspension system is adjusted to the operating mode, and the body lowering system is switched off, and the current collectors are fixed (by hooks) | |  |
| PASSENGER CAPACITY | | |  |
| Total number of passengers | ≥ 150,  (Including seats and standing areas, calculated as 8 people per each square meter of the area available for standing passengers) | |  |
| Number of seats | ≥ 35  (Folding seats are not taken into account) | |  |
| Wheelchair positions | 1 | |  |
| Pram spaces | 1 | |  |
| PASSENGER DOORS | | |  |
| Number of passenger doors | double-leaf doors, 4 | |  |
| Floor height at passenger doors (mm) | ≤ 360,  When the tyres are inflated to the specified pressure, the pneumatic suspension system is adjusted to the operating mode, and the body lowering system is switched off | |  |
| Boarding/un-boarding auxiliary equipment | Telescopic (electromechanically driven) or folding (manual) ramp at the 2nd door to facilitate boarding into the Vehicle for passengers with reduced mobility. | |  |
| AXLES | | |  |
| Number of axles | 3 | |  |
| 1. axle | Steering axle, with an independent wheel suspension | |  |
| 1. axle | Support axle, with a lowered frame and double wheels | |  |
| 1. axle | Driving axle, with a lowered frame and double wheels | |  |
| Tyre size | 275/70 R22.5, permissible size for the front axle: 315/60 R22.5 | |  |
| Clearance | ≥ 135 mm,  At rated tyre pressure and maximum Vehicle load | |  |
| TRACTION DRIVE | | |  |
| Traction motor | Alternating current (synchronous or asynchronous) motor(-s) | |  |
| Traction converter | The traction converter must be stepless, microprocessor-controlled, with low power losses and it must provide the traction motor with appropriate alternating current drive. The converter must use power electronics based on IGBT or SiC technology. | |  |
| CURRENT COLLECTORS | | |  |
| Current collector rods | The current collector rods must be made from durable plastic or appropriately insulated light-weight metal. The length of the rods must be such that the Vehicle is able to deviate from the axis of the catenary system contact wire by at least 4.5 m. The current collectors must ensure normal operation at a rated catenary system height of 5.8 m (range of 4 – 6 m), and at a rated distance between wires of 520 mm. The negative polarity wire of the catenary system (the wire on the right side in the driving direction) must be grounded. | |  |
| Control of current collectors | The control of current collectors must be automatic, with the possibility controlling them manually. | |  |
| DYNAMIC CHARACTERISTICS | | |  |
| Maximum road uphill gradient | 12%  A fully laden Vehicle must overcome the maximum road uphill gradient when starting to drive from any location on the given road. | |  |
| Maximum operation speed (with a speed limiter) | ≥ 70 km/h | |  |
| *Vehicle acceleration (fully laden):* | | |  |
| Average acceleration 0-25 km/h | 1.2 m/s2 | |  |