

ELL Polska Asset Sp. z o.o.  
Wladyslaw Andersa Square 7  
61 - 894 Poznań

Poznan, 10<sup>th</sup> December 2024

## DESCRIPTION OF THE OBJECT OF THE CONTRACT

Description of the Object of Order (OPZ) for the tender procedure announced by ELL Polska Asset Sp. z o.o. entitled "**Purchase of 4 zero-emission electric traction locomotives for intermodal transport**":

### I. Subject of the contract

1. The subject of the contract is the supply of new 4 (in words: four) electric traction locomotives for intermodal transport.
2. The locomotives which are the subject of the contract at the date of delivery must be authorised for operation in Poland and other European countries according to the configuration shown: Poland, Germany, the Netherlands, Austria, Hungary, Czech Republic, Slovakia, Romania.  
The following applies to the operation in Netherlands: The locomotive shall operate on lines with a maximum axle load of 22.5 tons only, while the maximum required speed is 140 km/h. On the Lelystad-Zwolle line the required maximum speed is up to 160 km/h. An operation on the HLS South line is not necessary.
3. Locomotives must be approved for operation in the countries indicated in pt. I.2 OPZ at the date of delivery.
4. A total of 4 traction locomotives are to be supplied.
5. The locomotives under investigation must be new, built from new modules, components and parts.
6. Locomotives supplied must have at least 24-month warranty, running from the date on which the Parties sign a protocol of acceptance of the individual vehicles, with the protocol confirming the absence of defects and faults in the vehicles supplied.
7. The locomotives will be delivered by the Contractor at his expense to the City of Poznań.
8. The subject matter of the contract is defined as: CPV 34611000-3 Locomotives

### II. Basic technical and operational data of locomotives required

L.p.	Parameters	Requirements
1	Purpose	Locomotive designed for intermodal transport
2	Interoperability	The design and performance of the locomotives must fully comply with the requirements of the relevant TSIs for rail interoperability

<b>3</b>	<b>National corridor configuration</b>	PL (Poland) DE (Germany) NL (Netherlands) AT (Austria) HU (Hungary) CZ (Czech Republic) SK (Slovakia) RO (Romania)
<b>4</b>	<b>Mains voltage</b>	AC 15kV
		AC 25kV
		DC3kV
		DC1,5kV
<b>5</b>	<b>Pantographs</b>	4 pcs. Panto 1 = AC5kV/25kV (DE/AT/HU/RO/NL/CZ/SK/BG) Panto 2 = DC 3kV (PL/CZ/SK) Panto 3 = DC 1,5kV (NL) Panto 4 = AC 15kV/25kV (DE/AT/HU/RO/NL/CZ/SK/BG) Panto
<b>6</b>	<b>Total maximum mass of locomotive fully equipped</b>	90,0 t - EN 15528:2015
<b>7</b>	<b>Maximum operating speed</b>	200 km/h
<b>8</b>	<b>Maximum braking force in electric mode</b>	150 kN 240 kN (increased electric braking force)
<b>9</b>	<b>Minimum passable curve radius</b>	Minimum travelled curve radius on track = 140 m Minimum travelled curve radius in depot = 80 m (at speed below 5 km/h, uncoupled single vehicle)
<b>10</b>	<b>Service life</b>	Expected 30 years
<b>11</b>	<b>External noise level</b>	The locomotive complies with the TSI Noise:2011 and the Austrian Ordinance on Noise Emission Licences for Railway Vehicles (SchLV)
<b>12</b>	<b>Maximum pulling force in electric mode</b>	320 kN 350 kN* *for AT
<b>13</b>	<b>Safety and driving control systems</b>	ETCS (3.4) Level 1 mit Euroloop ETCS (3.4) Level 2 PZB90 / LZB80 (CIR-ELKE I)  SHP LS & EVM (Mirel) ATB (EG vv)
<b>14</b>	<b>Outdoor temperature</b>	-25 to + 40 °C
<b>15</b>	<b>Working in difficult winter conditions</b>	8 Sandboxes/Blasting system with in total 480 litres of Sand (60 litres per sandbox)

16	<b>Maximum altitude.</b>	1400m above normal zero
17	<b>Track width</b>	1435 mm
18	<b>Number and arrangement of axles</b>	4 axles in Bo`Bo`
19	<b>Wheels</b>	Solid disc wheel (max. 1250 mm / min. 1160 mm)
20	<b>Castor pressure (max.)</b>	22.5 t - EN 15528:2015
21	<b>Wheel flange lubrication system</b>	Automatic wheel flange lubrication system
22	<b>Brake</b>	Air Brake (direct) Air Brake (indirect) electrical Brake (electrodynamic) spring-loaded brake (parking)
23	<b>Friction brake</b>	Disc brake with wheel brake disc on all axles
24	<b>Parking brake</b>	Spring-loaded brake on 1 wheel each wheelset
25	<b>Wheel slip protection</b>	Electric wheel slide protection device acting selectively on individual wheelsets
26	<b>Coupling</b>	Coupling system 1500 kN according to DIN EN 15566:2011: - Pulling device DIN EN 15566:2011 with towing hook with a breaking load of 1500 kN. - a screw coupling in accordance with DIN EN 15566:2011 with a breaking load of 1350 kN; the screw coupling exceeds the requirements of UIC 520:2003 and UIC 826:2004. - a tension spring mechanism with elastomer spring according to UIC 827-1:1990.

27	<b>Buffers</b>	<p>Two side buffers (centre flange buffers) of category C (70 kJ/buffer) in accordance with EN 15551:2009 and UIC 527-1:2005 with elastomer spring in accordance with UIC 827-1:1990, hydraulic element and energy absorption element connected behind it. The side buffers also should fulfil the requirements of UIC 526-1:2008, which do not contradict EN 15551:2009.</p> <p>The tractive and braking forces of a double traction (traction: 600 kN, pressure: 300 kN) can be permanently applied to the underframe via the traction and push devices.</p>
28	<b>Cabin</b>	Double-cabin locomotive - two identical cabs at both ends of the locomotive
		Access doors on both sides of each Cab
		Ladder with anti-slip metal pattern
		Heated windscreens, equipped with windscreen washers, variable speed wipers and manually adjustable blinds
		Driver's console on the right-hand side - UIC 612-0:2009
		2 seats in each cab: driver's seat (pneumatic, sprung, with armrests and headrest, adjustable vertically and horizontally and backrest inclination) and driver's assistant seat with at least vertical adjustment
		Air conditioning with heating, cooling and ventilation
		The main lighting in the driver's cab is provided by two lights on the ceiling. The driver's desk is illuminated with at least 75 lux in accordance with EN 13272:2012.
		Cab light not adjustable (can be separated driver side -> assistant side)
		Book timetable lamp is adjustable
		Thermal Container for Cooling or Heating (drinks & food)
		Small waste container
		First-Aid kit
		1 fire extinguisher/cabin
		2 fire masks/cabin
		2 electrical sockets (230 V), two USB sockets

		EBuLa on-board display unit in each driver's cab of the locomotive, installed in the console of the driver's desk
<b>29</b>	<b>On-board communication system</b>	GSM-R (MTSE Module) 450 MHz analogue 160 MHz for Poland (PKP Radio System with Radiostop function) 160 MHz for Hungary, Romania and Slovakia Radiostop-Function (CZ/SK)
		Central control units (CCU) Drive control units (ASG) LCD colour displays (CCD, TDD, ETCS) in the driver's desks Brake control unit (BSG) Anti-slip protection for the pneumatic brake Peripheral connection via decentralised input/output modules (I/O) Train bus connection for multiple traction control Remote data transmission device (RDT)
		GPS and communication via mobile communication standard
		On-board communication systems - MVB, CAN, Ethernet, Profibus
		Ep brake according to UIC 541-5:2005 NBÜ according to UIC 541-5: 2005 Simplified ep brake according to UIC 541-5:2005 ep brake according to DB system NBÜ according to DB system ep brake according to UIC 541-6:2010 NBA according to UIC 541-6:2010 NBÜ 2004 of the DB
		Door control (TB0 , ÖBB) according to UIC 612-0:2009
<b>30</b>	<b>Reversing camera</b>	Video cameras on both cabs and both sides of the locomotive
<b>31</b>	<b>Data logger</b>	ATLAS Multi-Standard TRU
<b>32</b>	<b>Outdoor lighting</b>	LED lighting system with heating system
<b>33</b>	<b>Fire protection</b>	The locomotive fulfils the fire protection requirements for vehicle category B from the TSI HS RST:2008 and TSI SRT:2008.
<b>34</b>	<b>Paint coatings</b>	According to a design agreed with the Contractor, as far as the Contractor's technological process allows.
<b>35</b>	<b>Employer's logo</b>	Design chosen by ELL

### III. Required documentation

The Contractor must provide the Employer with the documents listed below together with the locomotives:

1. Release for operation in the countries specified in para. I.2 of this OPD.
2. Construction documentation necessary for maintenance with technical conditions for implementation. Including service records, maintenance records, locomotive history book.
3. List of consumables.
4. Spare parts catalogue. The spare parts catalog contains parts lists and drawing set of the vehicle, pneumatic documents (compressed air plan, parts list brake system, brake table), as well as circuit technology documents (circuit diagram, device wiring table, equipment list).

Documentation must be provided in electronic format.

The documentation must be submitted in Polish or in English. For documents submitted in languages other than those mentioned above, the Contractor must submit a translation into one of the 2 indicated languages, certified as a true to the original.