*Attachment no. 2*

*to the Announcement of Preliminary Market Consultations*

**Description of the subject of the order**

The subject of the order is the delivery and replacement of a generator at the Municipal Waste Thermal Processing Plant (ZTPOK) in Bydgoszcz at 22 Ernst Peterson Street.

The contractor is to deliver a new generator to replace the one currently installed:   
type: GSCR 900 Z4, serial no. 10255417 produced by Nidec ASI S.p.A**.).**

The current generator is powered by a condensing bleed steam turbine  
type: DKEAX 630/525 serial no. 2591 produced by De Pretto Industrie S.r.l. via a reduction gear.

Nominal parameters of the supplied generator:

Power: 16235 KVA

Voltage : 11 000 V

Current: 852,1 A

Rotation speed: 1500 1/min

Frequency: 50 Hz

Cosinus phi: 0,85

SHAFT/CLUTCH/SUGAL

Brushes and shoe for rotor ground fault protection with continuous contact without monitoring device.

COOLING SYSTEM

Cooler design 2x100% (or 4x50%) for n-1 at 100% load, standard materials.

Currently, the intermediary cooling medium is water with an inlet temperature of 400C and a flow rate of 60 m3/h

BEARINGS

DE-NDE

Stainless steel bearing oil inlet flanges

Manifold bearing oil outlet pipe, standard material

Manifold bearing oil inlet pipe, standard material

Oil connection for lifting the shaft (with pump if necessary)

stainless steel piping, for lifting system only.

CURRENT/VOLTAGE TRANSFORMER

3pcs 1-phase voltage transformers on the line side and 3pcs current transformers

(1-phase, 1 per phase) neutral side

CONTROL AND MONITORING DEVICES

Oil flow sight glass for each bearing at the oil outlet

Flow indicator for each bearing (1 piece/bearing), analogue

Measurement of shaft vibrations is required, e.g.: Bently Nevada 3300XL, 4x proximity probes,

4x proximity sensor, with connection to auxiliary terminal box..

ADDITIONAL EQUIPMENT

Foundation equipment in accordance with technical specifications (foundation slabs, levelling materials, anchor bolts, centring pins, etc.).

Tool/tools for extracting the rotor on site at ZTPOK.

REPLACEMENT PARTS

Spare parts that must be supplied with the generator:

1 set of rotating diodes,

1 set of bearing shells with seals

1pcs Pt100 for each version

2 sets of brushes for rotor grounding

1 set of brushes to protect the rotor from ground faults

QUALITY TESTS

Conducting verification tests after each stage of the generator construction and a final test at the manufacturer of the loaded generator.

The Contractor:

Will deliver to the ZTPOK site the following: the generator, replaced instrumentation, cabinets, power connections, installations or parts thereof that need to be replaced (including, among others: lubricating oil, shaft lifting oil, generator cooling).

Will dismantle the existing generator, instrumentation, installations, cabinets, power connections, etc., which will not be used for the new generator.

Will install a new generator, necessary equipment, installations, cabinets, power and signalling connections, etc.

When replacing cabinets with rails, space should be provided on the rails for connecting sensors for monitoring partial discharges.

Will perform alignment of the generator with the gearbox, as well as all cold and hot measurements and tests.

Will start up a new generator with a load and transmit energy to the external network.

Will connect and introduce the necessary corrections of signalling parameters and interlocks into the DCS system in ZTPOK.

Will ensure proper cooperation of the new generator with the existing steam turbine control system.

Will provide technical and operational documentation for the new generator and the changed installations (oil, cooling, signalling, etc.), changes in power connections (including new cabinets), operating instructions, and the use of the replaced devices, including the generator in Polish.

Will provide a report on the generator tests performed at the manufacturer's site and a report on start-up and load tests performed at ZTPOK site. For this purpose, The Contractor will conduct a heat test and verify performance by measuring and recording short-circuit characteristics and load characteristics.

Will inspect and evaluate new electrical control cabinets and intersystem connections (AVR and protection).

Will inspect and evaluate existing wiring diagrams in relation to new generator junction boxes.

Purchaser:

Will dismantle and assemble the roof and provide a crane appropriate to the weight of the generator being delivered.

Will transport the dismantled generator to the storage location and secure it for storage.

The Purchasing Party will provide a social room for the Contractor's employees and, if necessary, additional staff to help with the work.