



INFORMATION NOTICE

Subject:

Market consultation under Art. 44 of Public Procurement Act

Dear Ladies and Gentlemen,

Herewith you are kindly notified that TPP Maritsa East 2 EAD is conducting a market consultation under Art. 44 of Public Procurement Act through collecting quotations on “Upgrading the desulphurization rate of the Flue-gas desulphurization plants 1/2 and 3/4 to not less than 97% at the inlet of $SO_2 = 20000mg/Nm^3$ and maximal load of the power units, keeping the same main equipment already existing in the plants without interruption of the regular mode of operation.”

The terms of reference, requirements and scope are described in Appendix 1, Appendix 2, Appendix 3, Appendix 4 and Appendix 5.

The quotation shall contain:

1. Single and total price of the whole scope listed in Attachment 4.
2. The price quoted shall be DDP (INCOTERMS 2010) – “TPP Maritsa East 2” EAD, Kovachevo village, Stara Zagora District, VAT excluded;
3. Deadline of implementation – 36 months from the date of contract signing /after 2 annual overhauls of absorber/, or up to exhaustion of its value, whichever comes first.
4. Warranty period of the order – 24 months from the date of completed service or supply, which shall be certified by a Hand-over record or Minutes of technical meeting, or Record of successful 72-hour tests/.
5. Precise address, contact person, telephone, fax, e-mail, Internet address, etc. shall be indicated.

6. The quotation shall be either prepared in Bulgarian language or accompanied with translation into Bulgarian, and shall comply with the following condition:

The deadline for assembly/disassembly activities, subject of this public procurement shall be 30 days for each one of FGD 1/2 and FGD 3/4 during medium repair or overhaul according to the repair programs of the company per year. The deadline shall start running from the date of signing a hand-over record for the site, which shall be issued after the Employer has completed the following activities: drainage and washing of the absorber, assembly of scaffolding and constructing a temporary wooden floor above nozzles. The activities of scaffolding disassembly and removal of the wooden floor are beyond the scope of the procurement subject and respectively shall not be included in the a.m. deadline.

Assembly and disassembly of scaffolding, constructing and removal of the temporary floor shall be obligation of the Employer.

Simultaneously with the execution of this procurement the Employer has also planned replacement of the anti-corrosive and anti-abrasive lining in the absorbers from level $\nabla 25.4$ to $\nabla 33.4$, by the activities will be coordinated during the repairs.

The designers shall obligatorily comply with these deadlines by providing sufficient time for completion and realization of their projects.

Implementation of services and deliveries shall be coordinated by telephone, fax or e-mail with the Employer, in order to ensure access to the equipment.

The quotation shall be submitted not later than 16:00h (UTC+3, EEST) on 26.06.2019 year to the following e-mail address: delovodstvo@tpp2.com, or by fax: +359 42 662507, with copy to: s.dinev@tpp2.com.

For any detailed information contact: eng. Sv. Dinev
tel.: +359 42 662933.

Terms of reference, scope and requirements for the design

I. Terms of reference

Upgrading the desulphurization rate of FGD plants 1/2 and 3/4 to not less than 97% at the inlet of $\text{SO}_2 = 20000\text{mg/Nm}^3$ and maximal load of the power units, keeping the same main equipment already existing in the plants without interruption of the regular mode of operation.

II. Scope to be fulfilled – turnkey project – design, manufacturing, delivery, dismantling of obsolete facilities, assembly of new equipment and commissioning /measuring; testing/ of:

1. New modern axial nozzles for the nozzle levels.
2. Reflecting rings.
3. Sulfite analyzers.
4. Measurements of the desulphurization rate of FGD 1/2 and FGD 3/4 by an accredited laboratory.

III. Design and requirements for the project

1. Technical requirements for the design of new nozzles

- To keep the existing pattern of the nozzle levels by height – 6 levels from ▼25.4 metres ÷ ▼33.4 metres at every 1.6 metres.
- To preserve the number of the recirculation pumps, which feed the levels with suspension and which ensure the smooth run of the desulphurizing processes in the absorbers.
- To keep the existing structure for every level – location of collectors, pipe branches, sleeves and fluid flows.
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- The production material of the new nozzles shall be the same as that of the already installed ones – SiSiC.

- The flanges connecting the new nozzles to the existing pipe branches and the way of connection shall be preserved – Connection ASME 150 LB 100A (4B).
- All nozzles located along the periphery of the nozzle levels /which are closest to the absorber walls/, shall make dispersion jet of the type *full cone* with angle of dispersion consistent with their distance from the absorbers' walls.
- The size of the biggest droplets in the pulverizing jet after nozzles shall be minimum 30% less than 2 mm /max 1.4 mm/.
- The new nozzles shall not disturb the normal operational process of the absorbers and ID fans.

2. Technical requirements for the design of the reflecting rings

- To be consistent with the existing construction of the absorbers and the possibility to be assembled to it.
- To make an aero-dynamic model of the fluids in the absorbers, proving that the construction and location of the reflecting rings will not disturb the normal operation of the absorbers and will not cause intensive wearing-out of the anti-abrasive and anti-corrosive lining along the absorbers' walls in the zones of reflecting rings.

3. Technical requirements for the design for installing sulfite analyzers

- To ensure measuring in real time without interruption or modification of the desulphurization process.
- To provide control of the sulfite concentration in the fluid.

Deliveries and services requirements

1. The performance of the service and the delivery shall be preliminarily agreed by telephone, fax or e-mail with the Employer.
2. Delivery of all elements, materials and parts shall be in accordance with the specifications of the Detailed Design and the Bill of Quantities.
3. All input materials described in the Quantitative Specification shall be accompanied by Quality Certificates and Declarations Of Origin
4. The installation shall be performed, the new elements shall be connected to the control system and additional measurements shall be done if necessary.
5. 72-hours testing shall be performed after starting up the absorber in operation mode.
6. A supervisor shall witness the whole assembly and 72-hour testing.
7. The necessary materials, technical equipment, machines, lifting equipment and/or specialized equipment shall be the Contractor's obligation, as well as the disassembly and installation.
8. The Contractor shall be available 24 hours a day from the date of supplying the facility for project implementation to its completion.
9. The Contractor shall designate a technical person responsible for the performance of the contract.
10. The scaffolding, if necessary, shall be provided by the Employer.
11. The requirements for the use of access techniques shall be observed - Ordinance 7/2016 - "Minimum requirements for health and safety at work and when using working equipment".
12. The requirements of Ordinance 3/2008 "Minimum requirements for safety and health protection of workers when using personal protective equipment at work" shall be observed.
13. The requirements of Ordinance 2/2004 on the minimum requirements for health and safety at work when carrying out construction works shall be observed.
14. The requirements of Ordinance 9/2008 for the technical operation of power plants and grids shall be observed.
15. The requirements of the Regulations for safety and health at work in non-electric and district heating plants and in heat transmission networks and hydrotechnical facilities shall be observed.

Technical data and characteristics of the main equipment

1. Technical characteristics at the inlet and outlet of the absorbers

Parameter	Description
Maximum load of power units per absorber	350MW
Flue gas flow of absorber inlet at maximum load	2 400 000 m ³ /h per absorber
Crude gas temperature	160 – 180 ° C
SO ₂ content at the absorber inlet	20 000 mg/m ³ N
Dust content at the absorber inlet	80 mg/m ³ N
Dust content at the absorber outlet	25 mg/m ³ N
Clean gas temperature after the absorber	60-69 ° C

2. Technical data of the main equipment

Equipment, parameter	Description
Recirculation pump, flow rate, number of absorber pumps	11 639 m ³ /h 6 pcs
Oxidizing air compressor/blower, flow rate, number of absorber compressors	from 12 000 m ³ /h to 32 000 m ³ /h 3 pcs
Quantity of limestone slurry supplied to one absorber at maximum load of the units	90÷110 m ³ /h

3. Technical data of induced draft fan (IDF) model TA-ICD#18.5, Tong Yang Magic Co_Ltd.

Capacity	17300 m ³ /min
Static pressure	6.92 κPa
Total pressure	7.58 κPa
Power	2850 κW
Impeller diameter	2835 mm
Number of blades	14 pcs
Revolutions	985 rpm
Critical revolutions	1420 rpm
Design gas temperature at the inlet	185°C
Efficiency	82.0 %
Motor power	2666.2 κW at 185°C
Noise level (with insulation) at 1m	82 dB

4. Technical data of the existing nozzles for the nozzle levels

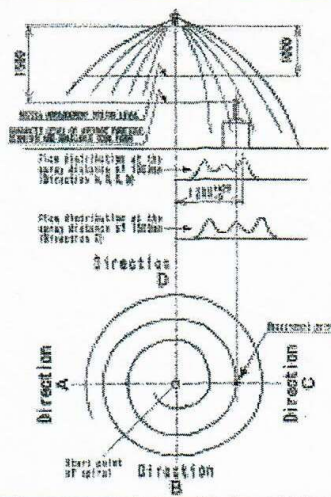
The existing nozzles for the nozzle levels in the absorbers are axial nozzles, type "pig tail", one of the oldest developments of such nozzles. They consist of two parts: a SiSiC nozzle and a SUS316 stainless steel flange.

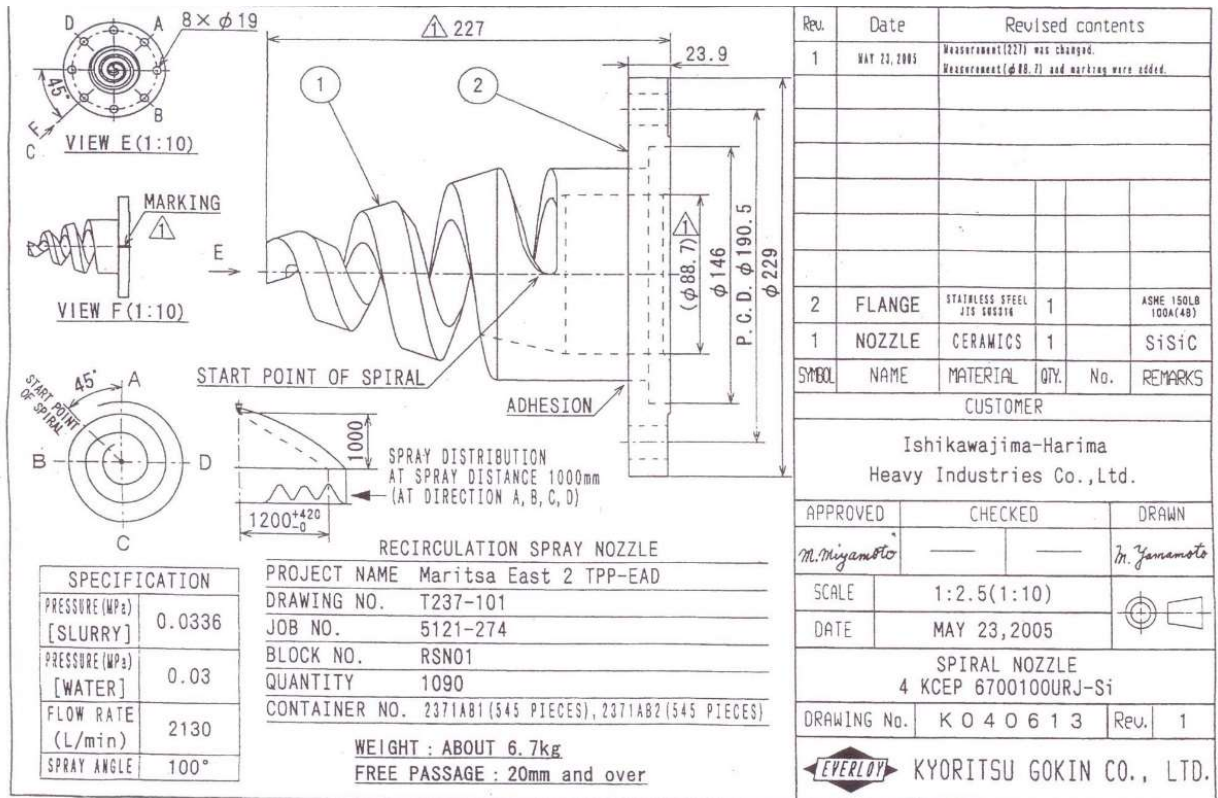
The main data for the nozzles are:

- total number of nozzles in an absorber	545 pcs
- flow rate	2130 l/min
- pressure	0,0336 MPa
- spray angle	100°
- suspension slurry	from 1060 to 1100 g/l
- nozzle weight	6,7 kg

Detailed specifications

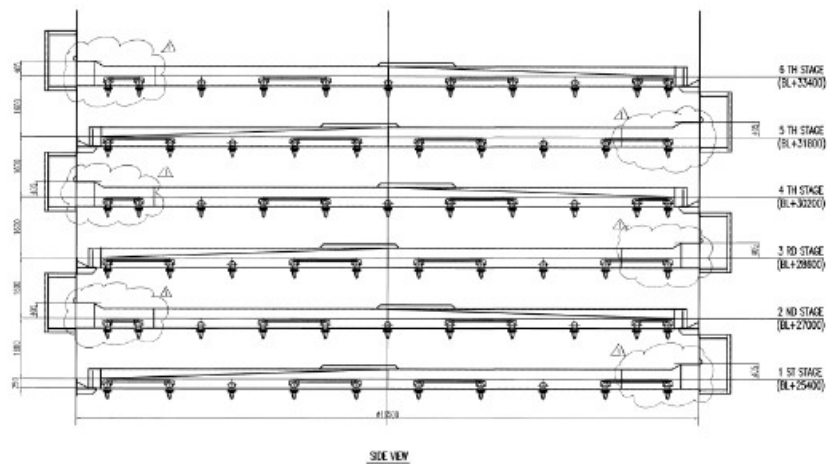
Service	Recirculation Spray Nozzle	
Block No.	RSN01	
Spray pressure	0.0336MPa (Slurry) , 0.03MPa (Water)	
Flow rate	2,130L/min (± 10%)	
Spray angle	100°	
Handling direction	—	
Spray pattern	Spiral type (three-coil winding)	
Material	SiSiC (Nozzle) , STAINLESS STEEL JIS SUS316 (Flange)	
Joint	Flange joining : ASME 150LB 100A(4B)	
Quantity	545 + 545 = 1090 pcs	
Model number	4KCEP 6700100URJ-Si	
Drawing number	K040613 Rev.1	
Fluid	Name : Recirculation liquid Specific gravity : 1,120kg/m ³ Viscosity : 1.0 C.P (at 59°C) CaSO ₄ ·2H ₂ O : 19.1wt% CaCO ₃ : 0.6wt% Chloride as Cl ⁻ : 3,000ppm Fluorine as F ⁻ : 150ppm Fly ash : 0.2wt% IMPURITIES : 0.3wt% Slurry Concentration : 20wt% pH : 4.0~5.0	
Circumference condition	Flue gas + Above fluid	
Temperature	Fluid : 80°C (Design) , 66°C (Operation) Flue Gas : 80°C (Design) , 66°C (Operation)	
Note	Spray pattern	Spray spread should be under 4,000mm at 1,000mm below discharge opening.
	Mean particle diameter	Sauter mean particle diameter should be 2,000 μm or less.
	Measurement point of particle size	Particle size is measured by Image-processing equipment (SpeedView 700). Particle size is measured at the middle spray ring of the direction C.

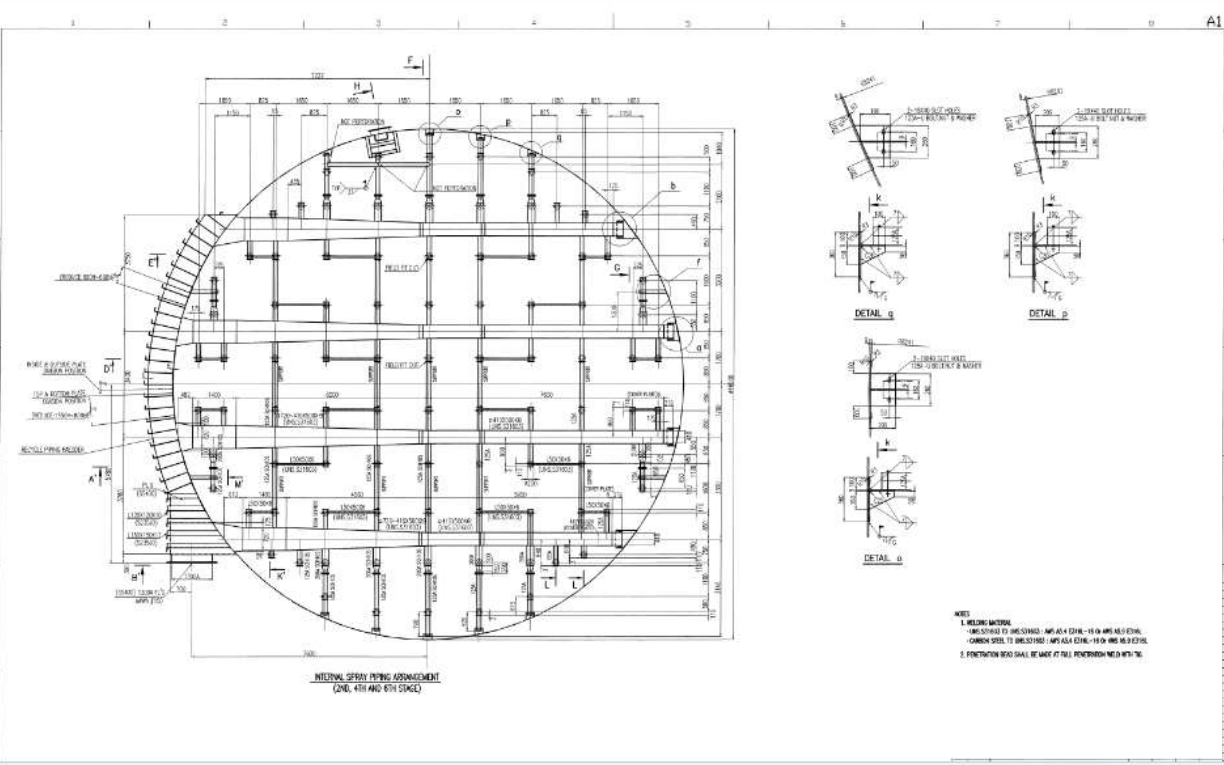
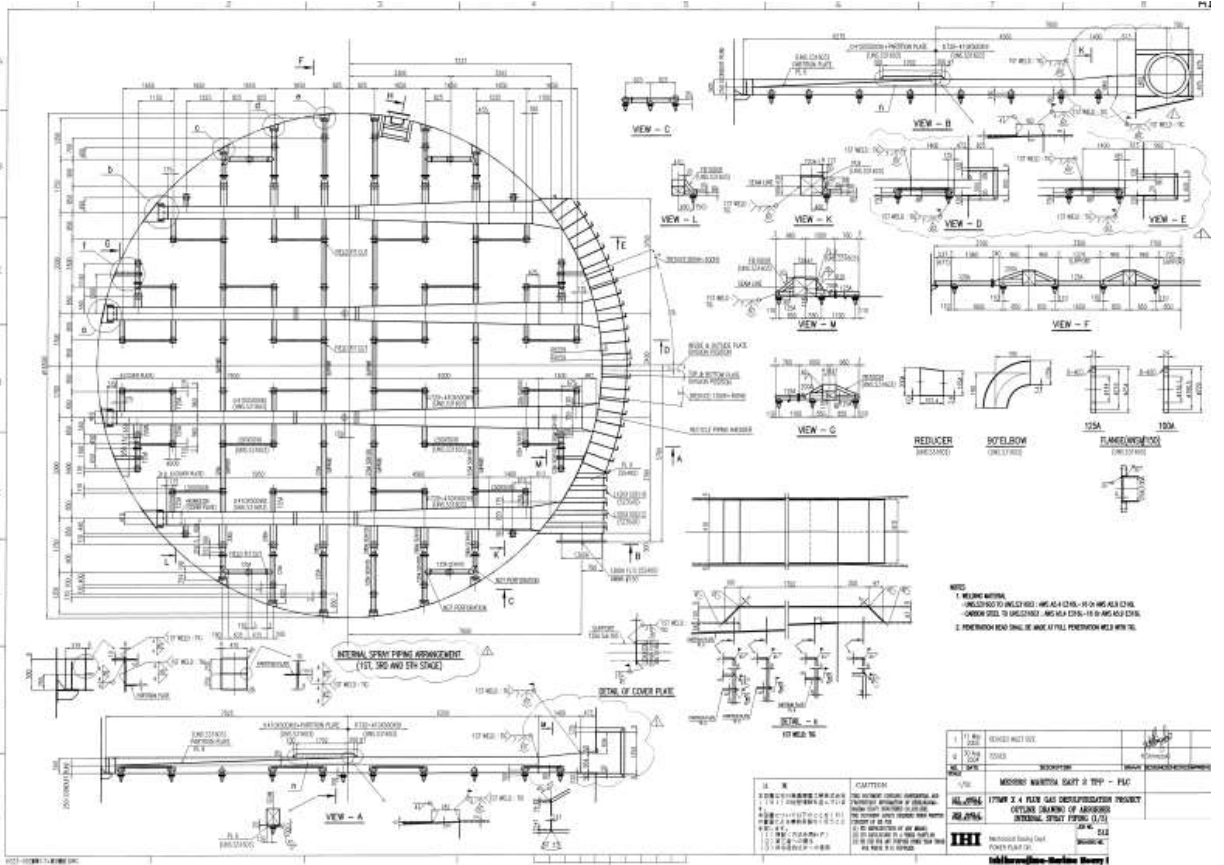




5. Location of nozzles at the nozzle levels

As the drawings below show, each nozzle level consists of four main headers feeding spraying sleeves. The material of the headers and spraying sleeves is UNS S31603 steel.





Appendix 4

SCOPE

Turnkey project – design, fabrication, delivery, dismantling, installation and testing

№	Name of activity	Measurement unit	Q-ty	Unit price BGN VAT excl.	Total BGN VAT excl.
1.	Designing				
1.1	New modern axial nozzles for nozzle levels	pcs	1		
1.2	Reflecting rings				
1.3	Sulfite analyzers				
2.	Delivery				
2.1	New modern axial nozzles for nozzle levels				
	End nozzles	pcs	400		
	Inside nozzles	pcs	800		
2.2	Reflecting rings	set	2		
2.3	Sulfite analyzers	set	2		
3.	Dismantling of existing elements and installation of new elements				
3.1	Nozzles				
3.2	Reflecting rings				
3.3	Sulfite analyzers				
4.	Adjustment and testing				

Total:BGN, VAT excl.

Minimum required technical equipment for service performance

№	Name of equipment	Minimum quantity (pcs/m)
1	Laser tape measures	2
2	Laser distance measurer – min. 50 m	1
3	Portable lamps with power supply 36V	10
4	Portable lamps with power supply 12V	10
5	LED spotlights	10
6	Extension cords	10
7	Portable power supply boards	5
8	Electric wrench up to 1000 Nm	5
9	Rechargeable wrench up to 680 Nm	5
10	Angle grinder – 2 kW	5
11	Ratchet wrenches – 1.5 t	3
12	Ratchet wrenches – 3 t	3
13	Ratchet wrenches – 5 t	2