EUROPEAN UNION

DELEGATION OF THE EUROPEAN COMMISSION IN THE REPUBLIC OF SERBIA

Environmental Protection at the Electric Power of Serbia (EPS) Company.

Preparation of Technical Specification and Tender Dossier for Components 1 & 2.

Framework Contract No: 08SER01/17/11

TPP NT-B1, ESPs Upgrade

Data Collection Questionnaire

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Data Collection Questionnaire

A. Documents to be collected / provided

1. ESPs performance

i. Copies of available performance test reports, especially those of the ESPs acceptance after their installation and some of the recently performed (i.e., last year)

ii. The document of the Environmental Department "The overview of the results from unity probe of ESPs – Unit B1", including among others also the parameters of "moisture content in the flue gas (%)" and "flue gas pressure (-KPa)"

2. Lignite Analysis

i. The document of the Environmental Department "Tecnicka I elementara analiza uglja za TENT B"

3. Fly Ash Characteristics

i. The document of the Environmental Department "Granulometrijska analiza elektrofiltarskog pepela blokova TENT B"

ii. The document of the Environmental Department "Silikatna analiza elektrofiltarskog pepela blokova TENT B"

4. Block B1 performance report

i. Copies of the Block performance test reports, especially those of the Block B1 acceptance after its installation and some of the recently performed (i.e., last year)

B. Data Collection

1. ESPs design operation data

Fill up the column "value" in the here bellow table with the ESPs design data (what available).

Parameter		Unit	Value
Load		MW	620
Lignite Low Calorific Value		KJ/Kg	6700
Lignite quantity		tn/h	
Moisture content in coal		%	47.79
Ash content in the coal		%	19.00
Flue gas Flow (as measured, actual) per 1 ESP		m^3/h	2 563 200
Flue gas Flow (0 °C, 1013 mbar, wet) 2 ESP		Nm^3/h, wet	3 122 244
Flue gas Flow (0 °C, 1013 mbar, dry)		Nm^3/h, dry	
Flue gas moisture		%	
Flue gas temperature		°C	170 - 175
Flue gas Under Pressure		-KPa	4 905
O_2 content in the flue gas mixture.		%	5.46
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and wet).		g/Nm^3, wet	54.8
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and dry).		g/Nm^3, dry	100
Dust concentration on flue gas at the ESPs outlet (0 °C, 1013 mbar, and dry).		mg/Nm^3, dry	
ESP efficiency - load 80% 100% 120%		%	 99.87 99.82 99.15
Field (secondary) voltage		KV	55
Field (secondary) current		mA	2000

2. ESPs current operation data

Fill up the column "value" in the here bellow table with the ESPs currently operational data as recorded by the operators or recorders (what available)

3.

Parameter	Unit	Value
Load	MW	620
Lignite Low Calorific Value	KJ/Kg	6700
Lignite quantity	tn/h	900
Moisture content in coal	%	48
Ash content in the coal	%	19
Flue gas Flow (as measured, actual) 2 ESP	m^3/h	5700000
Flue gas Flow (0 °C, 1013 mbar, wet) 2 ESP	Nm^3/h, wet	3500000
Flue gas Flow (0 °C, 1013 mbar, dry)	Nm^3/h, dry	
Flue gas moisture	%	
Flue gas temperature	°C	195
Flue gas Under Pressure	-KPa	
O_2 content in the flue gas mixture.	%	6
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and wet).	g/Nm^3, wet	53
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and dry).	g/Nm^3, dry	86
Dust concentration on flue gas at the ESPs outlet(0 °C, 1013 mbar, and dry).	mg/Nm^3, dry	
ESP efficiency	%	
Field (secondary) voltage	KV	
Field (secondary) current	mA	

4. ESPs operation data after steam turbine upgrade

Fill up the column "value" in the here bellow table with the ESPs anticipated operational data after steam turbine upgrade (what available)

Parameter	Unit	Value
Load	MW	670
Lignite Low Calorific Value	KJ/Kg	6700
Lignite quantity	tn/h	970
Moisture content in coal	%	48
Ash content in the coal	%	19
Flue gas Flow (as measured, actual) 2 ESP	m^3/h	6100000
Flue gas Flow (0 °C, 1013 mbar, wet) 2 ESP	Nm^3/h, wet	3700000
Flue gas Flow (0 °C, 1013 mbar, dry)	Nm^3/h, dry	
Flue gas moisture	%	
Flue gas temperature	°C	170
Flue gas Under Pressure	-KPa	
O_2 content in the flue gas mixture.	%	6
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and wet).	g/Nm^3, wet	53
Dust concentration on flue gas upstream the ESPs (0 °C, 1013 mbar, and dry).	g/Nm^3, dry	
Dust concentration on flue gas at the ESPs outlet(0 °C, 1013 mbar, and dry).	mg/Nm^3, dry	
ESP efficiency	%	
Field (secondary) voltage	KV	
Field (secondary) current	mA	