

Environmental Protection at EPS



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**



TPP NT-B1, ESPs Upgrade

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)

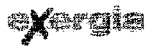


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**B. Data Collection****1. ESPs design operation data**

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 |



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**2. ESPs current operation data**

Fill up the column "value" in the here below 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 | 175 |
| 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 | |



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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 | |