CBAM Monitoring Plan

Cover information

Project name	Test CHP Electricity
Company name	CHP Energy Serbia d.o.o.
CBAM sector	Electricity
Country	Serbia
Monitoring Plan level	ADVANCED
Monitoring Plan version	1.0
Issue date	22.06.2026

1. Installation description

The installation **Pančevo CHP Plant** is located in **Pančevo**, **Serbia**.

The installation address is: **Industrial Zone North**.

The installation is a natural gas fired combined heat and power (CHP) plant located in Serbia. The CHP unit simultaneously generates electricity and useful heat from the combustion of natural gas.

Electricity is exported to the interconnected transmission system and may be supplied to customers in the European Union. Useful heat is supplied to industrial consumers through a dedicated heat distribution network.

Direct greenhouse gas emissions arise from the combustion of natural gas in the CHP unit. Fuel consumption, electricity generation and heat production are monitored using calibrated metering systems. Emissions are allocated between electricity and useful heat in accordance with the applicable CBAM methodology for CHP installations.

2. CBAM goods and CN codes

The following CBAM goods are covered by this Monitoring Plan. Product identification is based on CN classification and annual production data provided by the operator.

Commercial Product Name	CBAM Product	CN Code	Annual Production	Functional Unit
Electricity	Electrical energy	27160000	120000	MWh

3. Production processes and routes

The production routes covered by this Monitoring Plan are listed below. Each route is linked to the relevant CBAM goods and describes the main process steps within the installation boundaries.

Route Name	Route Type	Products Covered	Description
Natural gas CHP electricity generation	CHP electricity generation	Electrical energy / CN 27160000	Electricity is generated in a natural gas fired CHP unit. Fuel energy is converted into electricity and useful heat. Electricity is exported to the interconnected transmission system while useful heat is supplied to industrial consumers.

4. Source streams

The following source streams are included within the monitoring boundaries of the installation. Source streams are used to identify relevant inputs, fuels, electricity consumption and precursor materials for the determination of embedded emissions of CBAM goods.

Stream ID	Source Stream	Type	Linked Production Route	Unit
SS1	Natural gas for CHP unit	Fuel	Natural gas CHP electricity generation	Nm3

5. Measurement devices

Monitoring data are obtained using the measurement devices listed below. The operator maintains records of calibration, maintenance and performance checks where applicable.

Instrument ID	Type	Source Stream	Location	Measured Quantity	Unit	Range	Uncertainty ±%	Typical Use
MD-01	Gas flow meter	SS1	Natural gas inlet to CHP unit	Natural gas consumption	Nm³	0 – 10000	1.5	3000–7000
MD-02	Grid export meter	SS1	Grid connection point – 220 kV Pančevo Substation	Exported electricity	MWh	0 – 120000	0.2	60000-100000
MD-03	Heat meter / calorimeter	Not linked to a source stream	Useful heat export boundary to industrial consumers	Net useful heat delivered	GJ	0 – 250000	2	120000-200000

6. Electricity export evidence

The operator maintains documentary evidence supporting the use of actual emissions for electricity exported to the European Union. This evidence includes contractual, metering, hourly matching and transmission system documentation where applicable.

PPA available	No
PPA reference	
Physical delivery required	Yes
Hourly data available	Yes
Metering system	SCADA system integrated with TSO smart metering platform

Data retention period	10 years
Explicit capacity allocation	Yes
TSO nomination reference	EMS-TSO-CHP-2026
Evidence repository	CBAM Compliance SharePoint Repository
Responsible person	CBAM Coordinator
Evidence retention period	10 years

The operator shall retain evidence demonstrating the link between electricity production, contractual delivery, hourly metering data and export documentation. Where explicit capacity allocation is applicable, TSO nomination evidence shall be retained and made available for verification.

7. CHP allocation

The installation operates a Combined Heat and Power (CHP) unit. Total CHP emissions are allocated between electricity and measurable heat in accordance with the CBAM electricity methodology and Annex III allocation rules.

Main fuel type	Natural gas
Commissioning period	From 2016
Heat carrier type	Hot water
EmCHP used for allocation [tCO2]	36500
EmCHP source	Direct Emissions section
Total fuel energy input [GJ]	650000

Total fuel energy input [TJ]	650
Net electricity produced [MWh]	120000
Net useful heat [GJ]	180000
Net useful heat [TJ]	180
Reference heat efficiency ηref,heat	0.9
Reference electric efficiency ηref,el	0.53
Reference efficiency basis	single fuel reference efficiency
Actual heat efficiency ηheat	0.2769
Actual electric efficiency ηel	0.6646
Heat allocation factor FCHP,heat	0.197
Electricity allocation factor FCHP,el	0.803
Specific electricity emission factor [tCO2/MWh]	0.2442
Specific electricity emission factor [gCO2/kWh]	244.2 ☑ below 550 gCO2/kWh
Specific heat emission factor [tCO2/TJ]	39.952
Specific heat emission factor [tCO2/GJ]	0.039952

8. Calculation factors

The following calculation factors are applied for the determination of activity data, direct emissions, indirect emissions and embedded emissions where relevant. Calculation factors may be based on default values, supplier information, laboratory analysis or other documented sources.

Factor ID	Source Stream	Parameter	Value	Unit	Source	Evidence
CF-01	SS1	NCV	0.034	GJ/Nm3	National gas supplier specification	Gas supplier specification sheet 2026
CF-02	SS1	Emission Factor	56.1	tCO2/TJ	EU ETS standard factor	EU ETS Annex VI standard emission factor
CF-03	SS1	Oxidation Factor	1	dimensionless	EU ETS methodology	EU ETS standard oxidation factor

9. Laboratories and analysis methods

The following laboratories and analysis methods are used for determining calculation factors and other relevant monitoring parameters. The operator retains evidence of accreditation, analysis reports, internal methods or validation records where applicable.

Lab ID	Laboratory Type	Laboratory Name	Parameter	Analysis Method	ISO/IEC 17025	Evidence
LAB-01	External laboratory	Accredited Gas Analysis Laboratory Ltd	NCV	ISO 6976 – calculation of calorific values from gas composition	Yes	Accreditation certificate ACC-17025-2026 and laboratory report LAB-NG-2026-01

Additional laboratory and analysis method notes

- **LAB-01:** The laboratory performs periodic verification of natural gas composition and net calorific value. Laboratory results are used to confirm supplier gas quality data applied in the calculation of direct emissions from the CHP unit.

10. Electricity and indirect emissions

[No electricity monitoring information has been defined.]

11. Direct emissions

Direct emissions covered by this Monitoring Plan arise from combustion and/or process-related emission sources linked to the production of CBAM goods. The monitoring approaches, activity data sources and calculation factor methodologies applied by the operator are summarized below.

Source Stream	Emission Source	Monitoring Method	Activity Data Method	Calculation Factor Method	Estimated Annual Emissions
SS1	Natural gas combustion in CHP unit	Calculation-based methodology	Metered consumption	Supplier data	36500 tCO2/year

12. Monitoring methodology

The monitoring methodology defines how activity data, calculation factors, precursor information, electricity data and direct emissions are collected, assessed and attributed to CBAM goods.

Methodology name	CBAM CHP Electricity Monitoring Methodology
Version	
Prepared by	CBAM Coordinator
Attribution method	Physical relationship
Review frequency	Annually
Uncertainty assessment	Yes
Data sources	ERP, Invoices, Metering systems, Laboratory results

Methodology description

Electricity exported to the interconnected transmission system is monitored using dedicated export metering. Natural gas consumption is measured continuously through calibrated flow

meters. Direct emissions are calculated using metered fuel consumption, supplier-specific NCV values and standard emission factors. Total CHP emissions are allocated between electricity and useful heat using the CBAM CHP allocation methodology and applicable reference efficiencies for natural gas CHP units.

13. QA/QC and control activities

The operator applies the following QA/QC controls to ensure completeness, consistency, accuracy and reliability of CBAM monitoring data. Controls cover measurement devices, calculation factors, laboratory analyses, supplier data, ERP records, electricity data and internal review of monitoring results where applicable.

Control ID	Control Area	Control Activity	Frequency	Responsible Role	Evidence / Record
QC-01	Measurement devices	Verification of meter readings against SCADA records and supplier invoices.	Annually	Energy Manager	Monthly metering review checklist
QC-02	Calculation factors	Verification of NCV values, emission factors and oxidation factors used in emission calculations.	Annually	CBAM Coordinator	Annual factor review record
QC-03	Electricity data	Reconciliation of exported electricity data with TSO settlement reports.	Monthly	Energy Manager	TSO export reconciliation report

14. Data flow activities

The data flow activities described below define how monitoring information is collected, processed, reviewed and transferred into the final CBAM calculations and reports.

DFA ID	Data Item	Data Source	Collection Method	Processing System	Responsible Role
DFA-01	Natural gas consumption	Gas flow meter and	Automatic SCADA acquisition	SCADA / Energy Management System	Energy Manager

DFA ID	Data Item	Data Source	Collection Method	Processing System	Responsible Role
		supplier invoices			
DFA-02	Exported electricity	MD-02 Grid Export Meter	Automatic meter reading	TSO metering platform	Energy Manager

Additional Data Flow Information

DFA ID	Final Record	Evidence	Control Activity
DFA-01	CBAM Monitoring Workbook	SCADA export and monthly gas consumption report	Comparison of metered values with supplier invoices.
DFA-02	CBAM Electricity Monitoring File	TSO settlement reports	Monthly reconciliation with SCADA records.

15. Roles and responsibilities

Roles and responsibilities relevant to the implementation, maintenance and review of this Monitoring Plan are listed below.

Role	Department	Responsibility	Backup Role	Evidence
CBAM Coordinator	Management	Maintains the Monitoring Plan, performs annual reviews, validates emission calculations and prepares CBAM reporting documentation.	Environmental Manager	
Energy Manager	Operations	Responsible for fuel metering, electricity export monitoring, CHP allocation data collection and maintenance of supporting evidence.	Plant Manager	

16. Review and update procedure

This Monitoring Plan shall be reviewed whenever significant changes occur that may affect the monitoring methodology, system boundaries, production routes, CBAM goods, precursor inputs, electricity consumption data, calculation factors, measurement systems or organizational responsibilities.

The operator shall assess the impact of any such changes on the monitoring methodology and, where necessary, update the Monitoring Plan and the associated monitoring procedures.

All revisions of the Monitoring Plan shall be documented and retained as part of the CBAM monitoring records. The current version of the Monitoring Plan shall be made available to personnel responsible for CBAM monitoring and reporting activities.