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NOT FOR PUBLICATION

MODERNISATION FUND
 Accelerating the transition to climate neutrality



MODERNISATION FUND

the EIB DUE DILIGENCE REPORT OF NON-PRIORITY INVESTMENT PROPOSAL

As per Article 7 of Commission Implementing Regulation (EU) 2020/1001¹

Reference: MF 2023-2 RO 1-001

Due Diligence Date: 06/10/2023

[...]

Investment Proposal Details	
Title of the investment	Gas Transmission Pipeline to supply Mintia Plant (covering other industrial and casnic consumers)
Type of Investment	<input checked="" type="checkbox"/> project <input type="checkbox"/> scheme
Beneficiary Member State (BMS)	Romania
Project proponent / Managing authority	Ministry of Energy
Date of Receipt of Proposal	10/08/2023
Total investment cost / Total volume of the scheme (in EUR)	[...]
Total support from the Modernisation Fund (EUR)	29 027 965
Requested amount of the first disbursement from the Modernisation Fund in case of the project (EUR)	29 027 965
Co-financing rate of the Modernisation Fund (% of the total cost)	[...]

¹ Implementing Regulation (EU) 2020/1001 – 9th July 2020

Pursuant to Article 4(1) of the Commission Implementing Regulation (EU) 2020/1001, the BMS submitted a non-priority investment proposal relating to the “Gas Transmission Pipeline to supply Mintia Plant (covering other industrial and casnic consumers)”.

[...]

Pursuant to its obligations under Article 7 of the Commission Implementing Regulation, the EIB has undertaken a due diligence of the above referenced Investment Proposal. The results of this due diligence are set out as follows:

1. Description of the investment

Objectives

The Investment Proposal Submission Form (IPSF) lists the following investment objectives:

- To contribute to reduction of GHG emissions by supplying gas to the future CCGT to be constructed in Mintia.
- Upgrade the National Transmission System by creating the conditions to transport natural gas – hydrogen mixtures to reduce greenhouse gas emissions.
- Provide possibility of securing natural gas flows to facilitate the processing of enriched earth deposits in Romania under conditions of increased efficiency.

EIB Comment:

All the above objectives and their relevance to the proposed investment are discussed later in this report. Based on the information provided in the IPSF, the justification supporting the investment's contribution to objectives 2 and 3 seems limited.

Scope

The project foresees the construction of a 56.5 km long gas transmission pipeline with a nominal diameter of DN 700.

The maximum technical capacity of the pipeline will be 2.7 bcm/year.

Response to the request for clarification states that the investment aims to ensure capacity availability for other future consumers. [...].

EIB Comment:

The due diligence considers the legal basis under which the Modernisation Fund operates.

The EIB, as per the Implementing Regulation, among other tasks is required to undertake an assessment of expected emission (GHG) reductions.

Considering the purpose of the Modernisation Fund is ultimately to reduce GHGs and meet 2030 climate objectives, it can only support the part of the project that directly contributes to the greenhouse gas emission reductions as set out in Article 10d(1).

The above sets the boundaries within which the GHG reductions and the funding thresholds are assessed.

The investment proposal is prepared on the assumption that Transgaz needs to enable natural gas supply to new CCGT.

The investment proposal assumes the new Mintia CCGT will operate at full capacity. The electricity generated from natural gas is expected to replace electricity generated in coal fired assets that are also assumed to be operating at close to 100% of its capacity.

The EIB understands that in practice a number of coal-fired power plants have not been in operation for some years or are operating at much lower capacities than it is currently presented in the investment proposal.

According to national data provided in the proposal, the electricity generated from coal in 2022 constituted 10.01 TWh.

The capacity of the Mintia CCGT resulting in the need of the investment in question:

Source description	Capacity	Unit
Mintia CCGT	1 700	MW
TOTAL	1 700	MW

The following electricity generation is foreseen in the new Mintia CCGT, as listed in the investment proposals:

Source description	Quantity	Unit
Gas-fired power generated in Mintia CCGT	11 016 000	MWh
TOTAL	11 016 000	MWh

From the perspective of determining the GHG reduction, the EIB recognizes that electricity generated in the Işalnița and Turceni CCGTs will replace 8.586 TWh/y from 10.01 TWh/y of electricity generated in coal fired plants, based on the information provided in the respective proposal.

The difference of 1.424 TWh/year will be covered by the future Mintia CCGT, based on the information available in the NECP, where the assumption is made that the existing coal-based electricity demand could be covered by the installed capacity of Işalnița, Turceni and Mintia (400 MW) CCGTs.

In this due diligence, the EIB did not analyse, and does not provide opinion, on the overall required gas fired electricity generation capacity in Romania.

From the clarifications received, the investment is not solely dedicated to natural gas supply to new Mintia CCGT, but also aims to provide additional gas volumes to individual and industrial users. Please see the relevant comment in section 3.1 of this report.

[...]

2. Justification for the MF support, including the confirmation of the compliance of an investment with Article 10d(1) of the ETS Directive.

The IPSF states that the investment represents modernisation of energy networks and is in line with Romanian legislation that the Modernisation Fund will be used for modernisation and construction of new sections of energy infrastructure and support is granted for the modernisation and construction of new sections of electricity and natural gas transmission and distribution networks capable of taking green hydrogen and for the construction and modernisation of natural gas storage facilities and for increasing the level of interconnectivity of the electricity transmission network.

EIB Opinion:

Compliance with Article 10d(1) of the ETS Directive requires for the MF supported investment to modernise energy systems and improve energy efficiency. The investments supported shall be consistent with the aims of the ETS Directive, as well as the objectives of the Union's 2030 climate and energy policy framework and the long-term objectives as expressed in the Paris Agreement.

The proposed investment would create possibilities to supply required gas volumes to the new Mintia CCGT plant mentioned in the National Energy and Climate Plan 2021-2030 (NECP), which will contribute to replacing electricity generated in coal-based units.

Taking into consideration the objectives listed in the IPSF, the scope of the investment, and that it is a part of gas supply chain to one of the CCGTs that replace coal-fired plants, the investment would seem to facilitate the transition from more carbon intensive fossil fuels and hence GHG emission reductions. However, a certain gas volume transmitted via the new pipeline (total technical capacity of pipelines is 2.7 bcm/y, booked capacity is 2.21 bcm/y and only the capacity corresponding to 400 MW at the new Mintia CCGT is recognized as replacing electricity generated in coal-fired power plants) may not contribute to GHG reductions but would address other objectives such as security of supply and diversification of gas supply routes.

[...]

3.2 GHG assessment

The investment proposal indicates that implementation of the investment contribute to CO₂ reductions of 119 217.34 t/year (122 793.86 t/y if the pipeline will transmit 10% of green hydrogen and 126 370 t/y in case green hydrogen constitutes 20%). Replacement of coal electricity generation with natural gas generation is the main source of GHG reduction by the proposed investment.

The above values in the project documentation are based on the following assumptions:

- a) The extension of gas transmission network is necessary to ensure supply of the natural gas to the following CCGTs in Romania:

New power plant	Capacity installed (MW)	Operating hours (h/y)	Load factor	Electricity production (MWh/y)
CCGT Isalnita	850	8 100	80%	5 508 000
CCGT Turceni	475	8 100	80%	3 078 000
CCGT Mintia	1 700	8 100	80%	11 016 000
CCGT Halanga	181	8 100	80%	1 172 880
				18 085 680

- b) The production of electricity from natural gas will replace generation of electricity from lignite from the below coal power plants.

Existing Coal power plants	Capacity installed (MW)	Operating hours (h/y)	Load factor	Electricity production (MWh/y)
Isalnita	850	8 100	80%	5 508 000
Turceni	475	8 100	80%	3 078 000
Mintia	1 285	8 100	80%	8 326 800
Halanga	181	8 100	80%	1 172 880
Total				20 774 880

c) The emissions of CO₂ per MWh of electricity are as follows:

Natural gas specific emissions (tCO ₂ /MWh)	0.38419	ton/MWh
Lignite-specific emissions (tCO ₂ /MWh)	0.82318	ton/MWh

d) The GHG emission reductions resulting from replacement coal with natural gas are:

Coal				Natural gas			
Coal PP	MWh/y	tCO ₂ /MWh	tCO ₂ /y	CCGT	MWh/y	tCO ₂ /MWh	tCO ₂ /y
Isalnita	5 508 000	0.82318	4 534 075	Isalnita	5 508 000	0.38419	2 116 119
Turceni	3 078 000	0.82318	2 533 748	Turceni	3 078 000	0.38419	1 182 537
Mintia	8 326 800	0.82318	6 854 455	Mintia	11 016 000	0.38419	4 232 237
Halanga	1 172 880	0.82318	965 491	Halanga	1 172 880	0.38419	450 608
			14 887 770				8 064 517

e) In addition to CO₂ emissions from CCGTs there are also emissions related to methane leakage from the transmission network. They were calculated under assumption that methane leakage emissions from pipes are at the level of 2.235 tons CH₄/km/year (applied CO₂ equivalence factor is 28).

f) The total investments cost claimed as necessary to achieve the reductions of 6 823 252 t/y of GHG reduction achieved by the overall investments specified in the investment proposal is the following:

No.	Plant	Total estimated cost (EUR)	share of total cost
1.	CCGT Işalnița	[...]	
2.	CCGT Turceni	[...]	
3.	CCGT Mintia	[...]	
4.	CCGT Halanga	[...]	
5.	Black Sea - Podișor	[...]	16.99%
6.	Isalnita & Turceni connection pipelines	[...]	0.83%

7.	Ghercesti - Jitaru	[...]	2.16%
8.	Jupa - Prunisor	[...]	3.97%
9.	Mintia connection pipeline	[...]	1.75%
	TOTAL	[...]	

The reduction in GHG emission related to each investment were allocated proportionally to share of the cost.

- g) The CO₂ reduction allocated to the investment concerning this report is 119 217 tCO₂/year.

EIB Opinion:

The calculation of greenhouse gas emissions was based on a methodology that includes emissions with and without the project.

The values related to the emission factors, per each fuel, used in the calculation methodology are the values taken from the Annual Report of the National Energy Regulatory Authority of Romania for 2021, page 73. The EIB has had the indicators checked and they appear reasonable.

In the calculation of total GHG emissions, the total installed power generation capacities at the four CCGTs (Işalniţa, Turceni, Mintia and Halânga) were considered, which are about 415 MW higher than the replaced total coal generation capacities. There is no clear explanation for the increase in power plant capacity. It should be noted that Mintia and Halanga coal-based power plants are not operational anymore at the time of the submission.

The distribution of GHG emission reductions was done in the IPSF by referring to the share of CAPEX related to each project in relation to the total investment value (power plants + pipelines). The proposed approach is found to be acceptable in general terms by the EIB.

In the IPSF methodology, an efficiency of 63% was considered for Işalniţa, Mintia and Halânga CCGT and an efficiency of 59.7% for Turceni CCGT. An operating time of 8 100 hours/year was considered at an average load of the electricity-generating turbines of 80% for the baseline and a new generation was applied. Compared to the current level of electricity production, the proposed operating hours appear overestimated.

Electricity production from coal in 2022 was 10.01 TWh, in 2021 according to ARNE report was 10.21 TWh, or average of 12.7 TWh/y (2017-2021). The baseline calculated in GHG equals to 18.08 TWh and is higher than actual electricity production from coal. New electricity production is calculated at the level of 20.77 TWh and doesn't correspond to the Gross electricity production forecast according to Romania's draft Energy Strategy for 2020-2030 with the 2050 outlook.

The production of electricity from gas will be reduced from 13.3 TWh in 2020 to 11.2 TWh in 2030. Therefore, the proposed new electricity generation provided in the GHG emissions does not appear to align with Romania's draft Energy Strategy for 2020-2030 figures referred in the IPSF.

Given that this specific pipeline project will be one element of an extensive gas piping network, it is difficult to attribute GHG emission reductions, with a sufficient degree of certainty, to the gas flowing in the pipeline. Considering this, one approach is to account for a like-for-like

replacement of electricity generated by coal power plants with electricity generated by gas-fired power plants. However, such approach would also result in an overestimated GHG reduction as it foresees that all coal-based electricity would be replaced by gas and doesn't give a possibility for the replacement of coal-generated electricity by renewables.

There is a concern that investments in natural gas network may have a lock in effect for fossil fuels in the Romanian energy mix for a longer period.

Given that there is no visibility on the timeline for the availability of green hydrogen and the questionable economic viability of its use in CCGTs, there is currently no basis to quantify GHG emission reduction resulting from the potential to blend hydrogen with natural gas and transport it by transmission pipes.

Based on the above comments, in the opinion of the EIB, the claimed CO₂ reductions of the overall investment programme of 6 823 252 t/year appear overestimated.

The EIB is also not in position to confirm that the attribution of 1.75% (119 217 tCO₂/y) of potential GHG emissions reduction can be substantiated based on the information provided.

At a generic level it can be assumed that:

- Power generated in Mintia CCGT (in up to 400 MW capacity) would contribute to enabling the replacement of the power generated in coal-fired power plants and therefore would potentially enable GHG emission reductions.
- Power generated with remaining capacities would be expected to replace existing gas fired power sources and therefore would not contribute to the objective to reduce GHG emissions.
- Actual GHG emission reductions resulting from the proposed pipeline itself would however be lower than it is claimed in the project documentation.

[...]

8. Modernisation Fund contribution

The IPSF requests for the Modernisation Fund support at following levels:

Category	MF funding percentage	Financed cost
Design	[...]	[...]
Land acquisition	[...]	[...]
Construction and assembly	[...]	[...]
Plant and machinery or equipment	[...]	[...]
Contingency expenses	[...]	[...]
Technical assistance	[...]	[...]
Project management	[...]	[...]
Other costs (commissions, taxes, etc.)	[...]	[...]
Total investment cost	[...]	[...]

EIB Comment

For the Modernisation Fund contribution, it is important to determine if all investment costs lead to GHG emission reduction. As already indicated above, given the specific pipeline project will be one element of an extensive gas piping network, it is difficult to attribute GHG emission reductions, with a sufficient degree of certainty. One approach is to consider a like-for-like replacement of electricity generated by coal with electricity generated by gas. As such, Isalnita, Turceni and part of the future Mintia CCGTs could be considered, with some level of certainty, as contributing to GHG emission reductions for the reasons below.

The capacities of Isalnita, Turceni and Mintia (400 MW as opposed to 1 700 MW stated in the IPSF) could be assumed to be relevant for the contribution of the MF objectives.

Considering the above, only gas volumes enabling operation of the above CCGTs could be considered as contributing GHG emission reductions. In the case of Mintia, this would represent approximately 23.5% of the total capacity of the pipeline of 2.7 bcm/year, 0.635 bcm/year, corresponding to the volume of gas required for powering 400 MW of the total 1 700 MW of the Mintia CCGT that is relevant for the replacement of coal generated electricity with gas generated electricity.

Assuming that the pipeline to be constructed under the investment is dedicated to, and will be the only route for natural gas supply for, the future Mintia CCGT the funding from the MF would be:

- EUR 6 826 947 - 23.5% of the total requested MF funding.

[...]

13. The EIB conclusion

Pursuant to Article 7.2 of the Implementing Regulation, the EIB has carried out a technical and financial due diligence of the proposal, including an assessment of the expected emission reductions. The assessment was carried out based on the information submitted pursuant to Article 4 and Annex 1 of the Implementing Regulation.

Without challenging the project's role in the overall security of supply and diversification of energy sources in Romania's energy context, the due diligence was carried out considering the legal basis under which the Modernisation Fund operates, assessing the project's contribution to reducing GHG emissions and meeting 2030 climate objectives.

Considering the due diligence findings set out above, and as required by Article 7.6 of the Implementing Regulation, EIB endorses a partial financing of the Investment Proposal "Gas Transmission Pipeline to supply Mintia Plant (covering other industrial and casnic consumers)" in respect of the gas transmission capacity that corresponds to the amount of gas that can be reasonably estimated to replace coal-fired electricity generation as explained above. Thus, the derived maximum funding threshold, based on the above assessment and best possible assumptions, is EUR 6 826 947. The final decision on financing the investment proposal rests with the Investment Committee.