



**Monitoring report form**  
**(Version 04.0)**

*Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.*

**MONITORING REPORT**

<b>Title of the project activity</b>	Moldova Energy conservation and greenhouse gases emissions reduction
<b>Reference number of the project activity</b>	0173
<b>Version number of the monitoring report</b>	01
<b>Completion date of the monitoring report</b>	18/07/2014
<b>Registration date of the project activity</b>	29/01/2006 <sup>1</sup>
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring period : 01 Duration : 29/01/2006 to 30/04/2012 (first and last days included)
<b>Project participant(s)</b>	<ul style="list-style-type: none"> <li>• Carbon Finance Unit (CFU), Moldova</li> <li>• International Bank for Reconstruction and Development (IBRD) as the Trustee of the Community Development Carbon Fund, The Netherlands</li> <li>• Aalborg Portland A/S, Denmark</li> <li>• Danish Ministry of Climate, Energy and Building/Danish Energy Agency, Denmark</li> <li>• DONG Naturgas A/S, Denmark</li> <li>• Maersk Olie og Gas AS, Denmark</li> <li>• Nordjysk Elhandel A/S, Denmark</li> <li>• Kommunalkredit Public Consulting GmbH, Austria</li> <li>• Brussels – Capital Region, Belgium</li> <li>• Kingdom of Belgium - Walloon Region Ministry of the Environment, Belgium</li> <li>• EDP – Energias de Portugal, S.A., The Netherlands</li> <li>• Netherlands' Ministry of Infrastructure and the Environment (IenM), The Netherlands</li> <li>• FUJIFILM Corporation, Japan</li> <li>• Idemitsu Kosan Co., Ltd., Japan</li> </ul>

<sup>1</sup> <http://cdm.unfccc.int/Projects/DB/DNV-CUK1134568842.81/view>

	<ul style="list-style-type: none"> <li>• JX Nippon Oil &amp; Energy Corporation, Japan</li> <li>• The Okinawa Electric Power Co., Inc., Japan</li> <li>• Daiwa Securities Capital Markets Co. Ltd. , Japan</li> <li>• Endesa Generacion, S.A., Spain</li> <li>• Gas Natural SDG, S.A, Spain</li> <li>• Kingdom of Spain - Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitiveness, Spain</li> <li>• Hidroelectrica del Cantabrico, S.A., Spain</li> <li>• Göteborg Energi AB, Sweden</li> <li>• Government of Italy - Ministry for the Environment, Land and Sea, Italy</li> <li>• Government of Luxembourg - Ministry of the Environment, Luxembourg</li> <li>• Ruukki Metals Oy, Finland</li> <li>• Schweizerische Rückversicherungsgesellschafts AG (Swiss RE), Switzerland</li> <li>• Statkraft Carbon Invest AS, Norway</li> <li>• Statoil ASA, Norway</li> <li>• KfW Bankengruppe, Germany</li> <li>• BASF SE, Germany</li> </ul>
<b>Host Party(ies)</b>	Republic of Moldova
<b>Sectoral scope and selected methodology(ies), and where applicable, applied standardized baseline(s)</b>	<p>Sectoral scope : 1 - Energy industries (renewable - / non-renewable sources)</p> <p>Selected methodology: AMS-II.E. Energy efficiency and fuel switching measures for buildings (version 6 dated 30/09/2005)</p> <p>Sectoral scope : 3 - Energy demand</p> <p>Selected methodology: AMS-III.B. Switching fossil fuels (version 6 dated 30/09/2005)</p>
<b>Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD</b>	35,529 tCO <sub>2</sub> e (for the period from 29/01/2006 to 30/04/2012) <sup>2</sup>
<b>Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period</b>	38,641 tCO <sub>2</sub> e
<b>Actual GHG emission reductions or net</b>	38,641 tCO <sub>2</sub> e

<sup>2</sup> For the period from 29/01/2006 to 28/01/2012, the estimated CER as per registered PDD is 32,701 tCO<sub>2</sub>e. Generally, the system operates for 7 months in a year. For the year 29/01/2012 to 28/01/2013, the CER estimated is 6,600 tCO<sub>2</sub>e as per the registered PDD. But, the period considered in this MR is only from 29/01/2012 to 30/04/2012 (3 months). Therefore, the CER is estimated at 2,828 tCO<sub>2</sub>e ( $\{6,600 \text{ tCO}_2\text{e} / 7 \text{ operating months per year}\} \times 3 \text{ months}$ ). Hence, the total estimated CERs = 32,701 + 2,828 = 35,529 tCO<sub>2</sub>e

<b>anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012(if applicable)</b>	
<b>Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).</b>	Not applicable

## SECTION A. Description of project activity

### A.1. Purpose and general description of project activity

This project aims at greenhouse gas (GHG) emission reduction as a result of energy efficiency improvements and fuel switching measures for a number of public buildings (kindergartens, schools, vocational schools, hospitals, polyclinics, etc.) located across Moldova. This project was completely based on the heat supply and efficiency improvements component of the World Bank Moldova Energy-II Project<sup>3</sup>, which was implemented in the Republic of Moldova.

The anthropogenic GHG emission reductions in this project were achieved as a result of:

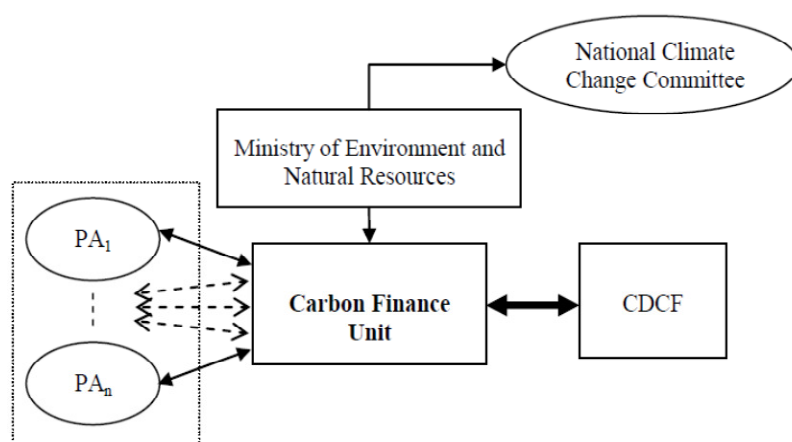
- Fuel switching from coal, electricity and mazut to natural gas
- Implementation of energy conservation measures in buildings (additional insulation of building envelopes and replacement of roofs, windows & doors)

Here, the supply side energy efficiency measures prevail over the demand side ones in terms of energy savings and emissions reduction contribution. Since the building's retrofit and energy conservation measures yield to insignificant Emission Reductions (ERs), the emission reduction effect produced by energy savings in the buildings was neglected. This is conservative.

The public buildings included in this project were previously supplied with heat from physically old, technologically outdated stoves/boilers through an extremely deteriorated heat distribution network having a high level of losses, with the overall average heating system efficiency ranging from 40 - 50%. These old stoves/boilers were replaced with efficient natural gas based modern boilers.

This project bundled 19 energy project activities (public buildings). Each out of 19 projects activities (PAs) is represented by an owner, which is either the central Ministry of Education (in case of schools and orphanages) or Ministry of Health (in case of hospitals), or the municipality/local authorities (in case of public buildings), all referred as PA-owners.

Taking into account, a need for a consolidated Emission Reduction Purchase Agreement (ERPA) due to prohibitive transaction costs (for 19 small PAs) and that there was no capacity in the country in any agency that is sustainable (for ERPA duration of 10 years), the Carbon Finance Unit (CFU) was created under the Ministry of Environment. CFU has the status of an independent legal entity and is empowered to enter into ERPA. The CFU signed the subsidiary agreement with all the 19 PAs that stipulates the CFU and PA rights and responsibilities under this project. The principle of project bundling is provided in figure 1.



**Figure 1: Principle of project bundling**

<sup>3</sup> <http://www.worldbank.org/projects/P040558/energy-2-project?lang=en>

Project activities' contribution to sustainable development

The project evidently showed the contribution to sustainable development in the following ways:

It was designed to address the rehabilitation and to upgrade the deteriorated heating systems of the public buildings. As the result of its implementation, the project provided a series of benefits that addressed the social issues.

The main benefits of the project included:

- (a) reduced fuel consumption through energy efficiency measures
- (b) decreased payment burden for consumed energy resources
- (c) increased heating service quality
- (d) reduced GHG emissions and other pollutants

Besides, the project increased the living and activity conditions within the considered public buildings such as:

- room heating temperature
- duration of heating period
- heated areas

The project also contributed to the availability and affordability of hot water in buildings like hospitals and polyclinics, schools, orphanages, etc.

The PDD was registered on 29/01/2006. As per the registered PDD, the estimated annual average emission reduction was 6,115 tCO<sub>2</sub>e. The relevant dates of the project activity are provided in table 3 of section B.1 of the MR. Detailed description of the installed technology and plant equipment are furnished in section B.1 "Description of implemented registered project activity" of this report.

This is the 1<sup>st</sup> monitoring report for the duration of 29/01/2006 and 30/04/2012 (first and last days included). Certified Emission Reductions (CERs) generated during this monitoring period is 38,641 tCO<sub>2</sub>e.

**A.2. Location of project activity**Host country

The PAs are implemented all over the country. Hence, the project boundary is the geographical boundaries of Republic of Moldova.

The geographical reference of Republic of Moldova is:

- Latitude : 45.4939 - 48.4830 °N
- Longitude : 26.5879 - 30.1365 °E

Region/State/Province

Rayons (First-tier Administrative Divisions) of Cantemir, Falesti, Floresti, Laloveni, Leova, Nisporeni, Straseni, Ungheni

City/Town/Community

8 municipalities - Cantemir, Falesti, Floresti, Laloveni, Leova, Nisporeni, Straseni, Ungheni



Figure 2: The Map of Moldova Republic: districts involved in the project

Table 1. The list of public buildings considered in the project PAs belonging to category II.E. Energy efficiency and fuel switching measures for buildings

PA No.	Beneficiary	Contact person	Complete address	Location of the boiler	District
8	Mayorality Florești	Eleonora Rijcov, Director of I.M. "Rețele termice Florești"	1 Speranței Str., Florești	Cultural Center + City Museum	Florești
9	Mayorality Florești	Eleonora Rijcov, Director of I.M. "Rețele termice Florești"	3 Libertății Str., Florești	Center of Arts	Florești
10	Mayorality Strășeni	Cecan Larisa, Mayorality's Accountant	37 Mihai Eminescu Str., Strășeni	Musical School	Strășeni
17	District Council Laloveni	Hanganu Lidia; Chief Doctor	7 Alexandru cel Bun Str., Ialoveni	District Hospital	Laloveni

PA No.	Beneficiary	Contact person	Complete address	Location of the boiler	District
23	Mayorality Drochia	Marcoci Iurie, Director of Municipal Company "Comgas Plus" SRL	27 Chisinau Str.	Professional School	Drochia
<b>Total 5 PAs</b>					

**Table 2. The list of facilities considered in the project PAs belonging to category III B. Switching fossil fuels**

PA No.	Beneficiary	Contact person	Complete address	Location of boiler	District
1	Mayorality Cantemir	Buzdugan Ion, Director of General Direction of Education Cantemir	10 Trandafirilor Str., Cantemir	Gymnasium "Mihai Eminescu" (former Romanian School)	Cantemir
			16 Basarabia Str., Cantemir	Kindergarten nr.3	
2	Mayorality Cantemir	Buzdugan Ion, Director of General Direction of Education Cantemir	2 Mihai Eminescu Str., Cantemir	Lyceum "Alexandr Puschin" (former Russian School)	Cantemir
			8 Gagarin Str., Cantemir	Kindergarten nr.1	
3	Mayorality Făleşti	Lungu Aliona, Director	79 Ștefan cel Mare Str., Făleşti	Lyceum "Ion Creangă" (former Gymnasium No.5)	Făleşti
4	Mayorality Făleşti	Liubomir Sacara, Deputy Mayor	23 Moldovei Str., Făleşti	Kindergarten nr.5	Făleşti
			7 Moldovei Str., Făleşti	Library	
			5 Moldovei Str., Făleşti	Center of Arts	
5	Mayorality Făleşti	Liubomir Sacara, Deputy Mayor	2 Bălțului Str., Făleşti	Kindergarten nr.10	Făleşti
6	District Council Făleşti	Osman V., Chief Physician	7 Ștefan cel Mare Str., Făleşti	District Hospital+CFD	Făleşti
11	Mayorality Strășeni	Ciobanu Svetlana, Director of Lyceum	187 Mihai Eminescu Str., Strășeni	Lyceum "Mihai Eminescu" (former School No. 1)	Strășeni
12	Mayorality Strășeni	Cecan Larisa, Mayorality's Accountant	1 Mihai Eminescu Str., Strășeni	Kindergarten nr.1	Strășeni
18	District Hospital Nisporeni	Costru Tudor, Chief Doctor	5 Toma Ciorbă Str., Nisporeni	District Hospital	Nisporeni
19	Mayorality	Nicolae Avram, Chief	54 Ștefan cel Mare Str.,	Lyceum "Lev	Leova

PA No.	Beneficiary	Contact person	Complete address	Location of boiler	District
	Leova	of The Department of Construction and Road	Leova	Tolstoi"	
20	Mayorality Leova	Nicolae Avram, Chief of The Department of Construction and Road	63 Ștefan cel Mare Str., Leova	District Hospital	Leova
24	Mayorality Ungheni	Marcoci Iurie, Director of Municipal Company "Comgas Plus" SRL	9A Bernardazzi Str., Ungheni	Kindergarten nr. 3+Residential	Ungheni
25	Mayorality Ungheni	Marcoci Iurie, Director of Municipal Company "Comgas Plus" SRL	15A Boico Str., Ungheni	Kindergarten nr.5+Residential	Ungheni
27	Mayorality Ungheni	Marcoci Iurie, Director of Municipal Company "Comgas Plus" SRL	161 Ștefan cel Mare Str., Ungheni	Kindergarten nr.2+School	Ungheni
<b>Total 14 PAs</b>					

PAs 7, 13, 14, 15, 16, 21, 22, 23 were initially included under the project for implementation. But these PAs were not implemented and subsequently removed from project during PRC (09/06/2014).

### A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Moldova (host country)	Carbon Finance Unit	No
The Netherlands	International Bank for Reconstruction and Development (IBRD) as the Trustee of the Community Development Carbon Fund	Yes
Denmark	Aalborg Portland A/S	Yes
Denmark	Danish Ministry of Climate, Energy and Building/Danish Energy Agency	Yes
Denmark	DONG Naturgas A/S	Yes
Denmark	Maersk Olie og Gas	Yes
Denmark	AS Nordjysk Elhandel A/S	Yes



Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Austria	Kommunalkredit Public Consulting GmbH	Yes
Belgium	Brussels – Capital Region	Yes
Belgium	Kingdom of Belgium - Walloon Region Ministry of the Environment	Yes
The Netherlands	Netherlands' Ministry of Infrastructure and the Environment (IenM)	Yes
The Netherlands	EDP – Energias de Portugal, S.A.	Yes
Japan	FUJIFILM Corporation	No
Japan	Idemitsu Kosan Co., Ltd.	No
Japan	JX Nippon Oil & Energy Corporation	No
Japan	The Okinawa Electric Power Co., Inc.	No
Japan	Daiwa Securities Capital Markets Co. Ltd.	No
Spain	Endesa Generacion, S.A.	Yes
Spain	Gas Natural SDG, S.A.	Yes
Spain	Hidroelectrica del Cantabrico, S.A.	Yes
Spain	Kingdom of Spain - Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitiveness	Yes
Sweden	Göteborg Energi AB	No
Luxembourg	Government of Luxembourg - Ministry of the Environment	Yes
Finland	Ruukki Metals Oy	No
Norway	Statkraft Carbon Invest AS	No

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Norway	Statoil ASA	No
Switzerland	Schweizerische Rückversicherungsgesellschafts AG (Swiss RE)	No
Italy	Government of Italy - Ministry for the Environment, Land and Sea	Yes
Germany	KfW Bankengruppe	No
Germany	BASF SE	No

#### A.4. Reference of applied methodology and standardized baseline

##### Type of the project activity:

Type II – Energy efficiency improvement projects

Type III – Other project activities

##### Selected Methodologies:

- AMS-II.E "Energy efficiency and fuel switching measures for buildings" (Version 6 dated 30/09/2005)<sup>4</sup>
- AMS-III.B "Switching fossil fuels"(Version 6 dated 30/09/2005)<sup>5</sup>

#### A.5. Crediting period of project activity

Crediting period: 10 years and fixed

Crediting period start date as per registered PDD is 29/01/2006.

The duration of this monitoring period is between 29/01/2006 to 30/04/2012 (first and last days included).

#### A.6. Contact information of responsible persons/ entities

Mrs. Stela Drucioc  
Administrator  
Carbon Finance Unit  
9 Cosmonautilor Str, Office 535  
Chisinau

<sup>4</sup> [http://cdm.unfccc.int/filestorage/C/D/M/CDMWF\\_AM\\_7T2D2036BNUABJY0YXJYVAVSCUY7QL/SSC\\_II.E.pdf?t=MVZ8bjgybHRvfDAhu5jJ4OjYExNzCSNkuyO4](http://cdm.unfccc.int/filestorage/C/D/M/CDMWF_AM_7T2D2036BNUABJY0YXJYVAVSCUY7QL/SSC_II.E.pdf?t=MVZ8bjgybHRvfDAhu5jJ4OjYExNzCSNkuyO4)

<sup>5</sup> [http://cdm.unfccc.int/filestorage/C/D/M/CDMWF\\_AM\\_FBPOT7ZSPMU6JDHRQ5MSV9ZR69IZ5V/SSC\\_III.B.pdf?t=MUZ8bjgybHUwfDBPUqiTnQBfv8aVu\\_vbzSf8](http://cdm.unfccc.int/filestorage/C/D/M/CDMWF_AM_FBPOT7ZSPMU6JDHRQ5MSV9ZR69IZ5V/SSC_III.B.pdf?t=MUZ8bjgybHUwfDBPUqiTnQBfv8aVu_vbzSf8)

[stela.drucioc@cfu.md](mailto:stela.drucioc@cfu.md)

The above mentioned responsible person/entity is also a project participant as listed in Appendix 1 of this MR.

## **SECTION B. Implementation of project activity**

### **B.1. Description of implemented registered project activity**

This report is prepared as a single monitoring report for the duration from 29/01/2006 and 30/04/2012 (first and last days included). Major milestones in the project implementation of the PDD are shown below:

**Table 3. Timeline of the project implementation**

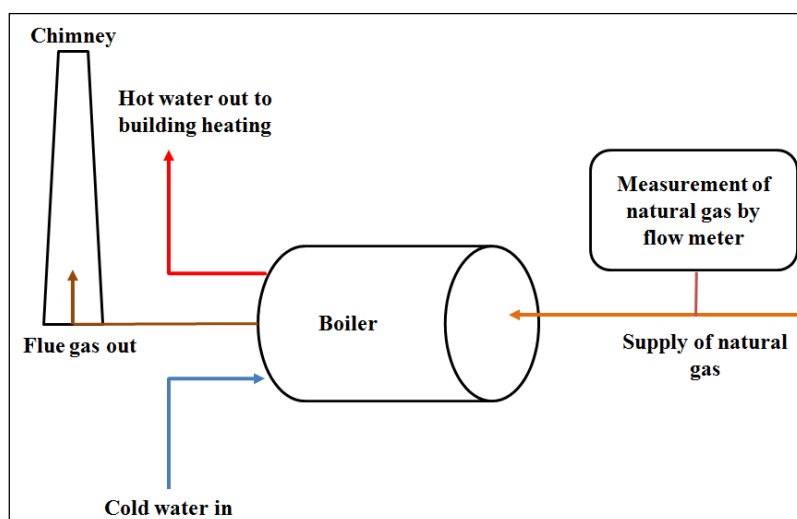
<b>Activity</b>	<b>Date</b>
Signing of first subsidiary agreement with PA	04/08/2005
Signing of last subsidiary agreement with PA	13/09/2005
Completion of final works of first project boiler	20.01.2005
Completion of final works of last project boiler	01/12/2006
Start date of monitoring period	29/01/2006
End date of monitoring period	30/04/2012

The energy efficiency measures and boiler replacements were carried out for the heating systems of public buildings such as schools, kindergartens, orphanages, community halls, health centres, etc. The new technologies employed by the PAs increased the overall efficiency of the heating systems up to 70-90%, resulting in energy savings and consequent reduction in GHG emissions.

The heating plants were operated only during the winter seasons that is from January to April and October to December, every year. All the other months (May to September), the heating system was shut down and the regular maintenance works were carried out. Other than these shutdown periods, there were no serious issues/continuous shutdown of heating systems during the monitoring period.

The schematic diagram of typical boiler system installed under the project is provided in figure 3. The boilers installed were of different models (with external or internal burner unit), as selected by the beneficiaries, as per their building heat requirements. The heating system included one or two boilers in each PA. The cumulative installed capacity of heating system per PA with natural gas boiler ranged from 60 to 4,000 kW.

In case of the PAs under methodology AMS-II.E, the energy efficiency improvements of local heating systems such as low-efficiency boiler replacements by modern ones, strengthening the insulation of external and internal heat and hot water distribution pipelines, as well as implementation of energy conservation measures in buildings (additional insulation of building envelopes and replacement of roofs, windows & doors) were carried out. Since the building's retrofit and energy conservation measures yield to insignificant ERs, the emission reduction effect produced by energy savings in buildings was neglected. This is conservative.



**Figure 3: Typical boiler system installation**

In case of the PAs under methodology AMS-III.B, the fuel switch from coal, electricity and mazut to natural gas was carried out.

The details of fuel switching, boiler replacements and their capacities are provided in table 4 and table 5.

**Table 4: Details of fuel switch and boiler replacements under AMS-II.E**

PA No.	Category of the PAs	Fuel Switch		Boiler type	Total boiler capacity, kW
		Baseline	Project		
8	II E	Electricity	Natural gas	Ziosab-125	250
9	II E	Electricity	Natural gas	Ziosab-125	250
10	II E	Electricity	Natural gas	Ziosab-175	350
17	II E	Electricity	Natural gas	Ziosab-350; Ziosab-250;	600
26	II E	Electricity	Natural gas	KCB-1,0 "BK-22"	2,000

**Table 5: Details of fuel switch and boiler replacements under AMS-III.B**

PA No.	Category of the PAs	Fuel Switch		Boiler type	Total boiler capacity, kW
		Baseline	Project		
1	III B	Coal	Natural gas	Ziosab-350	700
2	III B	Coal	Natural gas	Ziosab-175	350
3	III B	Coal	Natural gas	Ziosab-125	250
4	III B	Coal	Natural gas	Ziosab-175	350
5	III B	Coal	Natural gas	Ziosab-175	350
6	III B	Coal	Natural gas	Ziosab-750	1,500

PA No.	Category of the PAs	Fuel Switch		Boiler type	Total boiler capacity, kW
		Baseline	Project		
11	III B	Coal	Natural gas	Ziosab-350	700
12	III B	Coal	Natural gas	Ziosab -30	60
18	III B	Mazut	Natural gas	Vitoplex 100	1,295
19	III B	Coal	Natural gas	Vitoplex 100	1,150
20	III B	Coal	Natural gas	Vitoplex 100	1,440
24	III B	Mazut	Natural gas	KCB-2,0 "BK-21"-M2	4,000
25	III B	Electricity	Natural gas	KCB-2,0 "BK-21"-M2	4,000
27	III B	Mazut	Natural gas	KCB-1,0 "BK-22"	2,000

## B.2. Post registration changes

### B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

Not applicable

### B.2.2. Corrections

Not applicable

### B.2.3. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

Not applicable

### B.2.4. Changes to project design of registered project activity

There were two post registration changes (PRC) carried out after the initial project registration.

First PRC was accepted on 16/03/2011<sup>6</sup>. The main changes made to the registered project during the first PRC were as follows:

- Removal of proposed PAs under category AMS-I.C. Thermal energy for the user
- All references for fuel switch from coal to biomass and natural gas to biomass were removed
- In addition to coal and natural gas, mazut was added as a fuel in the baseline
- Short description of PAs under AMS II.E and AMS III.B were added
- Annual emission reduction was also revised based on the above changes

Second PRC was accepted on 09/06/2014<sup>7</sup>. The main changes made to the registered project were as follows:

<sup>6</sup> <http://cdm.unfccc.int/Projects/DB/DNV-CUK1134568842.81/history>

<sup>7</sup> <http://cdm.unfccc.int/PRCContainer/DB/prcp662541773/view>

- Revision of the monitoring plan to check and confirm the boiler heat output  $Q_{\text{boiler,PR}}$  through measurement of boiler efficiency through one ex-post sampling survey
- Listing of ex-ante parameters
- Revision of PDD from VVM to VVS track

#### B.2.5. Changes to start date of crediting period

Not applicable

#### B.2.6. Types of changes specific to afforestation or reforestation project activity

Not applicable

### SECTION C. Description of monitoring system

PA-owners in conformity with the signed subsidiary agreements with CFU, installed, operated and maintained the facilities and equipment (data measurement and collection systems) and employed the staff necessary for gathering all such data as required by the monitoring plan.

#### Procedures for monitoring, measurements and reporting

For most of the PAs activities with natural gas consumption, the monitoring frequency was in line with fuel flow meter readings. Usually, the natural gas meter readings were recorded monthly by the PA operator and the local gas supplier. The reporting documents for this meter were the monthly invoices, which consisted of the metering period, initial and final meter readings and the respective monthly consumptions.

At the beginning of every succeeding reporting year, the annual project emission report was worked out. The annual emission reduction report was printed and signed by the Project-monitor and finally, the Project-manager. The annual report included: the overall project performance, emissions reduction and comparison with baseline estimations, comments concerning monitoring plan indicators, information on monitoring plan main assumptions, calculation methods and changes in the monitoring plan.

The data flow procedure from various PAs to CFU unit is provided in figure 4.

#### Description of the authority and responsibility of project management

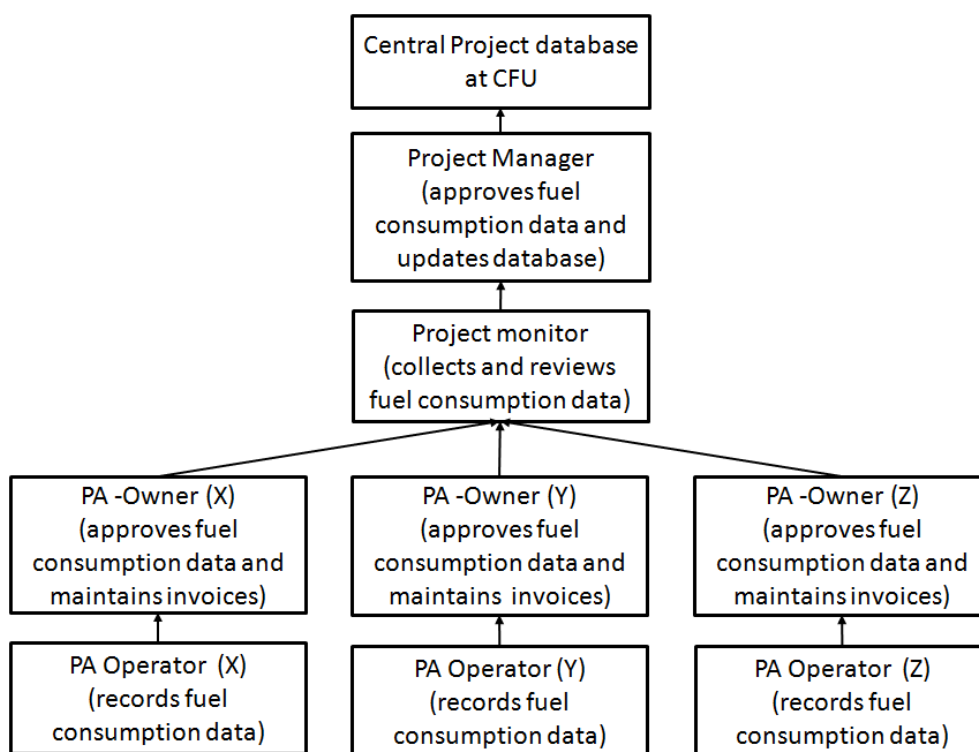
The CFU is responsible for data collection, archiving and reporting. Its specific responsibilities are to:

- a) Contact the PA entity and collect metered data as required by the monitoring methodology (the data collection was done through e-mail, fax, phone or on site visit)
- b) Verify the collected data quality and integrity, including, through regular on-site inspections, and enter the collected data in the emission calculation workbook
- c) Check that calculation of emission reductions to be in line with the monitoring methodology requirements and assumptions and keep a separate emissions calculation workbook for each year of the crediting period

The PA-owner is the beneficiary of the SIF II Project. The specific responsibilities of the PA-owner are to:

- Appoint the PA-operator
- Arrange for calibration of the natural gas meter and retain the evidence of calibration
- Keep the bills for fuel consumption and/or invoices for fuel purchase
- Annually provide copies of fuel bills or invoices for fuel purchase to the project-monitor

- Monitor the project performances



**Figure 4: Project data flow diagram**

The PA-operator is the person, legally designated by the PA-owner, responsible for PA local heating system operation and maintenance. The specific responsibilities of the PA-operator are to maintain records of the monthly fuel consumption, calibration of meters, etc. and submit the documents and/or invoices to PA-owner.

The Project manager is the head of the CFU. The specific responsibilities of project manager are to:

- Represent the PA-owners for the CDM purposes of this project
- Appoint the project-monitor
- Ensure that the project monitor is duly trained
- Submit monitoring report to the DOE
- Take decisions on the distribution of CERs to the PAs

The Project-monitor is the person, designated by the Carbon Finance Unit, responsible for collecting the data from the PAs, archiving and reporting. The specific responsibilities of the project-monitor are to:

- Contact the PA-owners monthly and collect the metered fuel consumption and other documented data as required by the monitoring methodology (the data collection would be through e-mail, fax, phone or on site visit)
- Verify the collected data quality and integrity and enter the collected data in the emissions calculation workbook
- Check if the calculation of emission reductions are in line with the monitoring methodology requirements and assumptions
- Assure that the data are stored and relevant measures are taken to avoid loss of information
- Inform the PA-owners about their emission reduction performances
- Prepare and submit the annual monitoring report to the Project-manager

- Keep the collected data and elaborated reports make them available for the external audit and verification purposes
- Keep a separate emissions calculation workbook for each year of the crediting period
- Store the saved files with annual emissions workbooks and annual reports on a local computer and CD
- Keep e-mails and faxes concerning the monitored data on printed paper
- Keep good records of all the mentioned files, reports and the original reporting information

#### Calibration of the monitoring equipment

The fuel flow meter to measure the natural gas consumption is the only meter involved in the project. The volume of natural gas consumption was registered by the fuel flow meter installed in all the PAs. This monitoring equipment was periodically verified and tested according to the Moldovan regulations. After the verification and testing, for each meter, the authorized laboratory submitted a certificate of: (a) acceptance for operation, or (b) refusal for operation. In case of any failure in the meter operation, the meter was repaired and a certificate of reparation and calibration was issued by an authorized entity. If the meter could not be repaired, a new meter was purchased; the receipt and technical passport for that meter was submitted. The frequency of calibration of meters varies from 2 to 5 years based on type of meters installed in the respective PAs<sup>8</sup>.

Also, in the Law nr.123-XVIII from 23.12.2009 on natural gases, article 51, line 1, it is stipulated that the gas provider and distributor entity is responsible for meters calibrations. Without the regular calibration of gas meters, gas cannot be delivered.

#### Procedures for possible monitoring data adjustments and uncertainties

The key parameter laid down to the project emission calculation was the metered/documentated fuel consumption. In practise, sufficient proof for fuel consumption such as meter readings or invoices was available and there were no data adjustments or uncertainties in ER calculation.

#### Emergency preparedness

All reasonable measures towards emergency preparedness were foreseen under the responsibilities of the project-monitor and the project-manager.

## **SECTION D. Data and parameters**

### **D.1. Data and parameters fixed ex ante or at renewal of crediting period**

*(Copy this table for each piece of data and parameter.)*

<b>Data / Parameter:</b>	$LHV_{PR}$
<b>Unit:</b>	MJ/Nm <sup>3</sup>
<b>Description:</b>	Natural gas net calorific value
<b>Source of data:</b>	National Statistics Bureau; Energy Balance Annual Report, Form 1-BE, approved by order nr. 123, 24.10.2007, Chisinau, MOLDOVA, <a href="http://www.statistica.md/public/files/Formulare_statistice_2008/Industria_si_ener_gia_electrica/1_BE_anual.pdf">http://www.statistica.md/public/files/Formulare_statistice_2008/Industria_si_ener_gia_electrica/1_BE_anual.pdf</a>
<b>Value(s) applied:</b>	33.5
<b>Purpose of data:</b>	Calculation of project emissions
<b>Additional comment:</b>	Not applicable

<sup>8</sup> State register of measurement meters for utilisation in Moldova, dated 04/07/2012



<b>Data / Parameter:</b>	$EF_{PR}$
Unit:	tCO <sub>2</sub> /TJ
Description:	Natural gas emission factor
Source of data:	Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied:	56.1
Purpose of data:	Calculation of project emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$EF_{BSL, coal}$
Unit:	tCO <sub>2</sub> /TJ
Description:	Coal emission factor
Source of data:	Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied:	94.6
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$EF_{BSL, mazut}$
Unit:	tCO <sub>2</sub> /TJ
Description:	Mazut emission factor
Source of data:	Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied:	77.3
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{boiler,BSL,coal}$
Unit:	%
Description:	Efficiency of existing coal boiler
Source of data:	Expert judgement (Value as determined by Prof. Dr. Valentin Arion, Technical University of Moldova)
Value(s) applied:	60
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{boiler,BSL,mazut}$
Unit:	%
Description:	Efficiency of existing mazut boiler
Source of data:	Expert judgement (Value as determined by Prof. Dr. Valentin Arion, Technical University of Moldova)

Value(s) applied):	76
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{net,BSL}$
Unit:	%
Description:	Efficiency of existing external heat network
Source of data:	Expert judgement (Value as determined by Prof. Dr. Valentin Arion, Technical University of Moldova)
Value(s) applied):	90
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{stove,BSL,coal}$
Unit:	%
Description:	Efficiency of existing coal stove
Source of data:	Expert judgement (Value as determined by Prof. Dr. Valentin Arion, Technical University of Moldova)
Value(s) applied):	40
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{PP,BSL}$
Unit:	%
Description:	Weighted average efficiency of the local power plants
Source of data:	State Enterprise Moldelectrica - the National Electricity Transmission Operator
Value(s) applied):	33
Purpose of data:	Calculation of baseline emissions
Additional comment:	All Moldovan power plants are natural gas fired

<b>Data / Parameter:</b>	$\eta_{net,BSL}$
Unit:	%
Description:	Overall efficiency of the local electrical distribution and transmission networks
Source of data:	National Agency for Energy Regulation and UNDP Moldova
Value(s) applied):	80
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{net,PR}$
Unit:	%
Description:	Efficiency of project external heat network

Source of data:	Expert judgement (Value as determined by Prof. Dr. Valentin Arion, Technical University of Moldova)
Value(s) applied:	98
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

Data / Parameter:	$p_f$																																																																																																								
Unit:	-																																																																																																								
Description:	Proportion of annual heat embedded in the f-type of fuel burnt to meet the heat demand of the PA																																																																																																								
Source of data:	PA records																																																																																																								
Value(s) applied:	<table><tr><th>PA</th><th><math>p_{coal}</math></th><th><math>p_{mazut}</math></th><th><math>p_{natural-gas}</math></th><th><math>p_{wood}</math></th></tr><tr><td>PA1</td><td>0.54</td><td>0</td><td>0</td><td>0.46</td></tr><tr><td>PA2</td><td>0.76</td><td>0</td><td>0</td><td>0.24</td></tr><tr><td>PA3</td><td>0.96</td><td>0</td><td>0</td><td>0.04</td></tr><tr><td>PA4</td><td>0.69</td><td>0</td><td>0</td><td>0.31</td></tr><tr><td>PA5</td><td>0.72</td><td>0</td><td>0</td><td>0.28</td></tr><tr><td>PA6</td><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>PA8</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA9</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA10</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA11</td><td>0.32</td><td>0</td><td>0.66</td><td>0.02</td></tr><tr><td>PA12</td><td>0.93</td><td>0</td><td>0</td><td>0.07</td></tr><tr><td>PA17</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA18</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>PA19</td><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>PA20</td><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>PA24</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>PA25</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA26</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>PA27</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table>					PA	$p_{coal}$	$p_{mazut}$	$p_{natural-gas}$	$p_{wood}$	PA1	0.54	0	0	0.46	PA2	0.76	0	0	0.24	PA3	0.96	0	0	0.04	PA4	0.69	0	0	0.31	PA5	0.72	0	0	0.28	PA6	1	0	0	0	PA8	0	0	1	0	PA9	0	0	1	0	PA10	0	0	1	0	PA11	0.32	0	0.66	0.02	PA12	0.93	0	0	0.07	PA17	0	0	1	0	PA18	0	1	0	0	PA19	1	0	0	0	PA20	1	0	0	0	PA24	0	1	0	0	PA25	0	0	1	0	PA26	0	0	1	0	PA27	0	1	0	0
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PA26	0	0	1	0																																																																																																					
PA27	0	1	0	0																																																																																																					
Purpose of data:	Calculation of baseline emissions																																																																																																								
Additional comment:	Not applicable																																																																																																								

## D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

<b>Data / Parameter:</b>	$V_{fuel,PR}$
Unit:	Nm <sup>3</sup>
Description:	Natural gas consumption
Measured/ Calculated / Default:	Recorded from fuel flow meters
Source of data:	Measured (fuel consumption records and invoices)

Value(s) of monitored parameter:	As shown in the ER calculation sheet
Monitoring equipment:	Fuel flow meter
Measuring/ Reading/ Recording frequency:	Monthly
Calculation method (if applicable):	<p>In practise, sufficient proof for fuel consumption such as meter readings or invoices was available and there were no data adjustments or uncertainties in ER calculation.</p> <p>If calibration was delayed or a calibration certificate was not available, to adjust the project emissions, the following conservative approach was adopted in the calculation of emission reductions :</p> <p>(a) Applying the maximum permissible error of the instrument to the measured values, if the results of a later calibration do not show any errors in the measuring equipment, or if the error was smaller than the maximum permissible error; or</p> <p>(b) Applying the error identified in the later calibration test, if the error was beyond the maximum permissible error of the measuring equipment.</p>
QA/QC procedures:	Fuel meters were calibrated in line with the national regulation. The meter readings were checked against fuel purchasing invoices, wherever possible
Purpose of data:	Calculation of project emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$Q_{boiler,PR}$
Unit:	MWh
Description:	Boiler heat output
Measured/ Calculated / Default:	Calculated
Source of data:	Calculation sheet
Value(s) of monitored parameter:	As shown in the ER calculation sheet
Monitoring equipment:	Not applicable
Measuring/ Reading/ Recording frequency:	Monthly
Calculation method (if applicable):	<p>Calculated from <math>V_{fuel,PR}</math>, <math>LHV_{PR}</math> and <math>\eta_{boiler,PR}</math> as follows:</p> $Q_{boiler,PR} = ( V_{fuel,PR} \times LHV_{PR} \times \eta_{boiler,PR} ) / 1000$
QA/QC procedures:	Not applicable
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

<b>Data / Parameter:</b>	$\eta_{boiler,PR}$
Unit:	%
Description:	Boiler efficiency
Measured/ Calculated / Default:	Measured
Source of data:	Monitoring sample survey results

Value(s) of monitored parameter:	90
Monitoring equipment:	Flue gas analyzer
Measuring/ Reading/ Recording frequency:	Once ex-post
Calculation method (if applicable):	One ex-post sampling campaign of efficiency measurements was done to define the boiler efficiency. The heat losses was deducted from the boiler campaign results, and therefore, gained a mean value of 91.32%, for which the precision at the 90% confidence level is 0.96%, less than 10%. Hence it is considered reasonable and conservative to apply the efficiency value at the lower limit of the 90% confidence interval of the mean value determined by sampling, 90.44%, which is 90% when applied as a rounded number.
QA/QC procedures:	Results must conform to a 90 / 10 accuracy / precision standard
Purpose of data:	Calculation of baseline emissions
Additional comment:	Not applicable

### D.3. Implementation of sampling plan

#### Procedures for one-time ex-post measurement campaign of boiler efficiency [Sampling Plan]

The project boiler efficiency was measured and fixed, ex-post based on one measurement campaign in a sample of project boilers. The measurement campaign took place once ex-post during April 2012 and November 2012 – January 2013.

#### Objectives and Reliability

The objective of the sampling effort was to calculate the average project boiler efficiency for boilers of each fuel type used by the project, parameter  $\eta_{\text{boiler,PR}}$ . In the present project case, the relevant fuel type is natural gas. The measurement campaign took place once ex-post and was finished within the space of two heating seasons. The boiler efficiency sampling survey aimed to meet the reliability requirements of 90/10 confidence/precision.

#### Target population

The target population was the project boilers, grouped by the fuel type. Each group of project boilers utilizing the same fuel represented a target population. In this project, the total number of natural gas boilers involved in this project activity was 38.

#### Sampling method

Simple random sampling method was used to identify the sample boilers. The sampling tool referred was “Best practice examples focusing on sample size and reliability calculations” version 01, EB 67<sup>9</sup>.

#### Sample size

The sample size was calculated to meet the 90% confidence level with 10% error margin. The determination of the sample size (n) was based on the following formula:

$$n \geq \frac{1.645^2 \times N \times V}{(N - 1) \times 0.1^2 + 1.645^2 V}$$

<sup>9</sup> [http://cdm.unfccc.int/filestorage/N/G/P/NGPMF4O672J3CBDVAYRTS8IXQZ5WKL/eb67\\_repan06.pdf?t=SWR8bjgycjV1fDBdyTIT5kbjQVxyMtVwhKN](http://cdm.unfccc.int/filestorage/N/G/P/NGPMF4O672J3CBDVAYRTS8IXQZ5WKL/eb67_repan06.pdf?t=SWR8bjgycjV1fDBdyTIT5kbjQVxyMtVwhKN)

Where,

$n$  = Sample size

$V$  = Variance

$N$  = Target population (38)

1.645 = Represents the 90% confidence required

0.1 = Represents the 10% precision

Variance is given by

$V = (SD/mean)^2$

Where,

mean = Expected mean value of boiler efficiency (92%)

SD = Expected standard deviation of boiler efficiency (10%)

Substituting values in the equation,

$$V = (0.1/0.92)^2 = 0.0118$$

$$n \geq \frac{1.645^2 \times 38 \times 0.0118}{(38 - 1) \times 0.1^2 + 1.645^2 \times 0.0118}$$

$$n = 3.02$$

According to the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities (Version 03.0), "If the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 must be chosen." Hence a sample size of at least 30 was selected.

#### Field measurements

Boiler efficiency was measured using a flue gas composition test at full load as per the local standard. As required by the local regulation, the testing was conducted using a measurement device (flue gas analyzer) and method certified and approved by the relevant national authority.

#### Quality Assurance/Quality Control

The measurements were undertaken using the duly calibrated and certified flue gas analyzer(s) by qualified technical personnel. The measurements of boiler efficiency were done according to a methodology recommended and approved by the supplier of the equipment following relevant national standards. Identification of outliers followed the three-sigma rule. Identified outliers were excluded from the calculation of the mean boiler efficiency.

#### Analysis

The collected measurements were used to calculate an average (mean) boiler efficiency to check the *ex-ante* value to be applied in the emission reduction calculations. The average was calculated at full load and/or at other representative load regimes.

Implementation

The sampling plan was implemented after registration of the project activity and after the project activity boilers have begun operation. Local technical experts were engaged to undertake the boiler efficiency measurements.

Assumptions and justifications

There were two important assumptions inherent in this sampling approach.

1. The efficiency of the boilers selected for sampling was similar to that of the population of boilers.
2. The efficiency measured in a single campaign provided a reasonable and conservative result for the efficiency during the whole crediting period.

Assumption 1 was justified because the boiler population was quite homogenous. The boilers were all installed during more or less the start of the project activity and hence, were of almost similar age. They were divided into two groups- namely, natural gas and coal and the efficiency was determined separately for each group/fuel type. They are all of similar sizes, possessing installed capacities less than or equal to 2,000 kW with an average of 568 kW.

With respect to assumption 2, the sampling campaign is carried out in year 7 (2012) of the 10 year crediting period, when the boilers had undergone years of efficiency loss due to aging. Hence the efficiency measured by the campaign was lower than what would have been measured during the first 6 years of the crediting period, providing an overall conservative result.

In case of the natural gas boilers, the upper limit of boiler efficiency calculated was 92.20% and the lower limit was 90.44%. The lower limit of 90.446.61 % is selected and rounded down to 90% for CER calculations. The precision achieved was 0.43%, which is higher than the 10% as required by CDM.

The details of data collected and samples analysed are provided in the sampling survey data excel sheet.

**SECTION E. Calculation of emission reductions or GHG removals by sinks****E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

The procedure for the overall emission calculation during the project and the baseline activity is shown in figure 5. The annual emissions for each PA included in this project, can be determined by applying the formula:

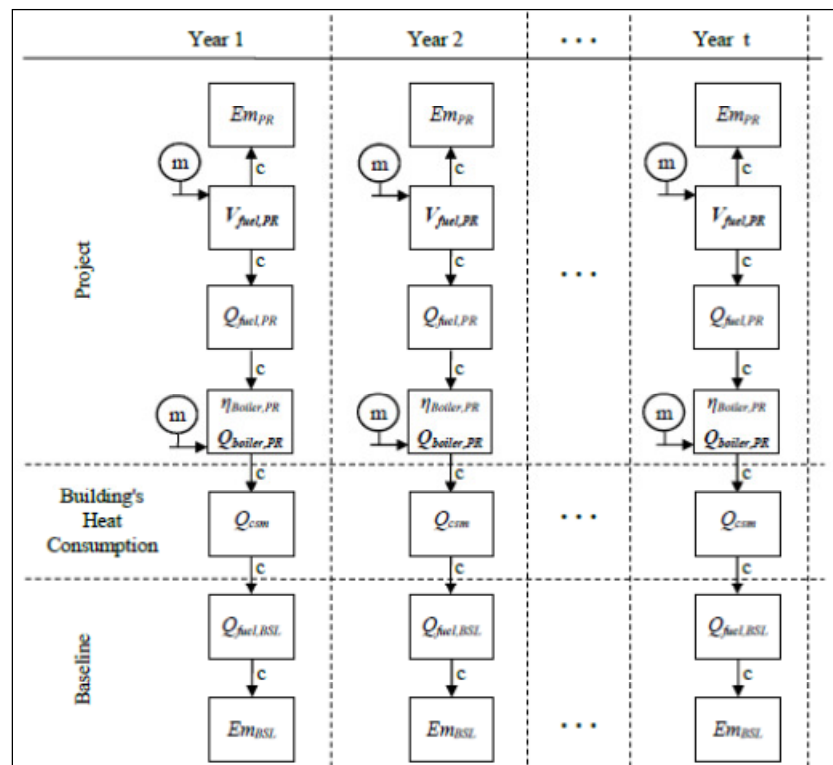
$$Em_{BSL} = Q_{fuel,BSL} \times EF_{BSL}$$

Where,

$Em_{BSL}$  = annual baseline emissions, in tCO<sub>2e</sub>

$Q_{fuel,BSL}$  = fuel embedded heat of the fuel used in baseline scenario

$EF_{BSL}$  = emission factor corresponding to the fuel burned in baseline scenario, in tCO<sub>2e</sub>/TJ



**Figure 5: Procedure of calculation of project and baseline emissions**

$$Q_{\text{fuel,BSL}} = Q_{\text{csm}} / \eta_{\text{boiler,BSL}} \times \eta_{\text{net,BSL}}$$

Where,

$Q_{\text{csm}}$  = building heat consumption, in TJ

$\eta_{\text{boiler,BSL}}$  = efficiency of existing boiler (%)

$\eta_{\text{net,BSL}}$  = efficiency of existing external network, including the building's energy losses, caused by its deterioration

$$Q_{\text{csm}} = V_{\text{fuel,PR}} \times \text{LHV}_{\text{PR}} \times \eta_{\text{boiler,PR}} \times \eta_{\text{net,PR}} / 1000$$

Where,

$V_{\text{fuel,PR}}$  = annual fuel volume burned at a given project activity site, in 1000 Nm<sup>3</sup>

$\text{LHV}_{\text{PR}}$  = low heat value of the fuel burned at a given project activity site, in MJ per Nm<sup>3</sup>

$\eta_{\text{boiler,PR}}$  = efficiency of project boiler (%)

$\eta_{\text{net,PR}}$  = efficiency of project external network, including the building's energy losses, caused by its deterioration (%)

The calculated baseline emission reductions from all the 19 project activities as per the above equation are provided in the ER calculation sheet. The total baseline emissions calculated is:

$$\text{Em}_{\text{BSL}} = 60,121 \text{ tCO}_{2\text{e}}$$



**E.2. Calculation of project emissions or actual net GHG removals by sinks**

Since only one type of fuel at each heating source is used, the annual project CO<sub>2</sub> emissions for each considered PA, at the monitoring stage, is easily determined by applying the following formula:

$$Em_{PR} = V_{fuel,PR} \times LHV_{PR} \times EF_{PR}$$

Where,

$Em_{PR}$  = annual project emissions, in tCO<sub>2e</sub>

$V_{fuel,PR}$  = annual fuel volume burned at a given project activity site, in 1000 Nm<sup>3</sup>

$LHV_{PR}$  = low heat value of the fuel burned at a given project activity site, in MJ per Nm<sup>3</sup>

$EF_{PR}$  = emission factor corresponding to the fuel burned in project scenario, in tCO<sub>2e</sub>/TJ

The calculated project emission reductions from all the 19 project activities as per the above equation are provided in the ER calculation sheet. The total project emissions calculated is:

$$Em_{PR} = 21,480 \text{ tCO}_{2e}$$

**E.3. Calculation of leakage**

There are no leakage effects foreseen under this project.

**E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks**

Item	Baseline emissions or baseline net GHG removals by sinks (tCO <sub>2e</sub> )	Project emissions or actual net GHG removals by sinks (tCO <sub>2e</sub> )	Leakage (tCO <sub>2e</sub> )	Emission reductions or net anthropogenic GHG removals by sinks (tCO <sub>2e</sub> )
Total	60,121	21,480	0	38,641

**E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD**

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (tCO <sub>2e</sub> )	35,529 <sup>10</sup>	38,641

<sup>10</sup> for the period of 29/01/2006 to 30/04/2012

**E.6. Remarks on difference from estimated value in registered PDD**

The CER generated during the monitoring period was 8.75% higher than the estimated value. The reason for this increased CER generation was due to increased building heating load at all the PAs. The building heating load was higher than that estimated in ex-ante, because of the improved living and activity conditions within the considered public buildings such as:

- Room heating temperature
- Duration of heating period
- Heated areas

**E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards**

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (tCO <sub>2</sub> e)	38,641	0

-----

## Appendix 1. Contact information of project participants and responsible persons/ entities

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input checked="" type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Carbon Finance Unit Moldova
<b>Street/P.O. Box</b>	9 Cosmonautilor Str.
<b>Building</b>	Office 535
<b>City</b>	Chisinau
<b>State/Region</b>	
<b>Postcode</b>	2012
<b>Country</b>	Republic of Moldova
<b>Telephone</b>	+373 22 22 68 60
<b>Fax</b>	
<b>E-mail</b>	
<b>Website</b>	
<b>Contact person</b>	
<b>Title</b>	Administrator
<b>Salutation</b>	Mrs.
<b>Last name</b>	Drucioc
<b>Middle name</b>	
<b>First name</b>	Stela
<b>Department</b>	
<b>Mobile</b>	
<b>Direct fax</b>	
<b>Direct tel.</b>	
<b>Personal e-mail</b>	<a href="mailto:stela.drucioc@cfu.md">stela.drucioc@cfu.md</a>

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	International Bank for Reconstruction and Development as the Trustee of the Community Development Carbon Fund (CDCF)
<b>Street/P.O. Box</b>	1818 H Street, NW
<b>Building</b>	MC Building
<b>City</b>	Washington
<b>State/Region</b>	DC
<b>Postcode</b>	20433
<b>Country</b>	United States of America
<b>Telephone</b>	+1 202 473 9189
<b>Fax</b>	+1 202 522 7432
<b>E-mail</b>	<a href="mailto:IBRD-carbonfinance@worldbank.org">IBRD-carbonfinance@worldbank.org</a>
<b>Website</b>	<a href="http://www.worldbank.org/climatefinance">www.worldbank.org/climatefinance</a>
<b>Contact person</b>	

<b>Title</b>	Manager, Carbon Finance Unit
<b>Salutation</b>	Ms.
<b>Last name</b>	Chassard
<b>Middle name</b>	
<b>First name</b>	Joelle
<b>Department</b>	CPFCF, The World Bank
<b>Mobile</b>	
<b>Direct fax</b>	
<b>Direct tel.</b>	
<b>Personal e-mail</b>	

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Aalborg Portland A/S
<b>Street/P.O. Box</b>	Rordalsvej 44, P.O. 165
<b>Building</b>	
<b>City</b>	Aalborg
<b>State/Region</b>	
<b>Postcode</b>	DK-9100 Aalborg
<b>Country</b>	Denmark
<b>Telephone</b>	+45 98 16 77 77
<b>Fax</b>	+45 98 10 11 86
<b>E-mail</b>	<a href="mailto:cement@aalborgportland.com">cement@aalborgportland.com</a>
<b>Website</b>	
<b>Contact person</b>	Frands I. Grex
<b>Title</b>	Senior Vice President, General Manager
<b>Salutation</b>	Mr.
<b>Last name</b>	Grex
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Danish Ministry of Climate, Energy and Building/Danish Energy Agency
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<b>City</b>	Kobenhavn K
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<b>Middle name</b>	
<b>First name</b>	Frederik
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<b>Direct tel.</b>	
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	DONG Naturgas A/S
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<b>Building</b>	6
<b>City</b>	Horsholm
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<b>Website</b>	<a href="http://www.dongenergy.dk">www.dongenergy.dk</a>
<b>Contact person</b>	
<b>Title</b>	Vice President
<b>Salutation</b>	Mr.
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>City</b>	Copenhagen K
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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City	Brussels
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Postcode	1200
Country	Belgium
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>Personal e-mail</b>	

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>Telephone</b>	
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>City</b>	Minato-ku
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<b>Country</b>	Japan
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<b>Fax</b>	N/A
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Idemitsu Kosan Co., Ltd
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<b>City</b>	Chiyoda-ku
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
Organization name	The Okinawa Electric Power Company, Incorporated
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City	Urasoe City
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Daiwa Securities Capital markets Co.Ltd.
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Endesa Generacion, S.A
<b>Street/P.O. Box</b>	Ribera del Loira, 60
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Gas Natural SDG, S.A
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Hidroelectrica del Cantabrico, S.A
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Kingdom of Spain – Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitiveness
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Website	
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Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Goteborg Energi AB
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City	Goteborg
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Postcode	40120
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
<b>Organization name</b>	Government of Luxembourg – Ministry of the Environment
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<b>Telephone</b>	+352 247-86824
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<b>Salutation</b>	
<b>Last name</b>	Haine
<b>Middle name</b>	
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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## Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	25 June 2014	<p>Revisions to:</p> <ul style="list-style-type: none"> <li>• Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0));</li> <li>• Include provisions related to standardized baselines;</li> <li>• Add contact information on a responsible person(s)/entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1;</li> <li>• Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>;</li> <li>• Editorial improvement.</li> </ul>
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
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