

ADDENDUM No.2 TO THE FINANCING AGREEMENT

Support to the use of Biomass for Energy

ENPI/2010/21-781(and 2013/025-037)

Special Conditions

The European Commission, hereinafter referred to as "**the EU**", represented by the European Commission, hereinafter referred to as "**the Commission**",

of the one part, and

the Republic of Moldova, represented by the Government of the Republic of Moldova, hereinafter referred to as "**the Beneficiary**",

of the other part,

have agreed as follows:

The following provisions of the Financing Agreement No. ENPI/2010/021-781 signed on 26 November 2010 and amended on 12 June 2014 through Addendum 1 for the implementation of the programme "Energy and Biomass project" are modified as follows:

Article 1 – PERIOD OF EXECUTION

Article 4 of the Special Conditions is hereby replaced as follows:

- 4.1 The period of execution of the Financing Agreement as defined in Article 4 of the General Conditions shall commence on the entry into force of the Financing Agreement and end 120 months after this date.
- 4.2 The duration of the operational implementation phase is fixed at 96 months.
- 4.3 The duration of the closure phase is fixed at 24 months.

Article 2 – ADDRESSES

All communications concerning the implementation of this Financing Agreement shall be in writing, refer expressly to the programme and be sent to the following addresses:

- a) **for the Commission**

Mr Peter Michalko
Head of EU Delegation to the Republic of Moldova
Kogalniceanu street 12
MD 2011, Chisinau
Republic of Moldova

b) for the Beneficiary

Mr Pavel Filip
Prime Minister of the Government of the Republic of Moldova
1, Piata Marii Adunari Nationale
Chisinau
Republic of Moldova

Article 3 – PERIOD OF EXECUTION

The new version of Annex II 'Technical and Administrative Provisions' is attached to this addendum.

All other terms and conditions of the Financing Agreement and its previous addenda remain unchanged. This addendum shall form an integral part of the Financing Agreement and shall enter into force on the date on which it is signed by the last party.

Done in English in two original copies, one copy being handed to the Commission and one to the Beneficiary.

FOR THE COMMISSION

Mr Lawrence MEREDITH

Director Neighbourhood East
DG Neighbourhood and Enlargement
Negotiations
European Commission

Signature:



Date:

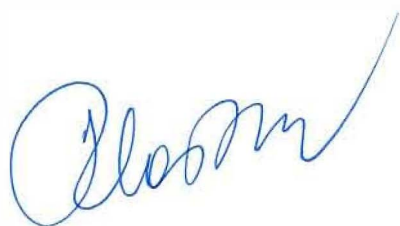
28 SEP. 2017

FOR THE BENEFICIARY

Mr Pavel Filip

Prime Minister of the Government of the
Republic of Moldova

Signature:



Date:

27 NOV. 2017

**ANNEX II TO FINANCING AGREEMENT N°ENPI/2010/021-781(AND
ENPI/2013/25-037)**

TECHNICAL AND ADMINISTRATIVE PROVISIONS

BENEFICIARY COUNTRY / REGION	REPUBLIC OF MOLDOVA (hereunder Moldova)		
REQUESTING AUTHORITY	GOVERNMENT OF THE REPUBLIC OF MOLDOVA		
BUDGET HEADING	ENPI – Financial cooperation with Eastern Europe Annual Action Programme Moldova 2010 + ENPI 2013 Special Measure "EaPIC"		
TITLE	Energy and biomass project		
TOTAL COST	EUR 23.46 million , of which: -EUR 14.000.000 from the ENPI 2010 Annual Action Programme in favour of the Republic of Moldova (ENPI/2010/21781) -EUR 9.460.000 from the ENPI 2013 Special Measure "EaPIC" (Eastern Partnership Integration and Cooperation) programme (ENPI/2013/025037).		
AID METHOD/ MANAGEMENT MODE	Project approach Joint management		
DAC-CODE	230	SECTOR	23070 Biomass

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1. RATIONALE

1.1 Economic and social situation

The Republic of Moldova is the poorest country in Europe, with a per capita GDP of circa EUR 1,000 in 2009. It has the lowest level of urbanization, as almost 60% of the population live in rural areas. Since independence, the countryside has been hit hard by phenomena of poverty, migration, ageing of the population and abandoning of social and economic infrastructure.

Economic growth in the Republic of Moldova in recent years (50% cumulatively 1999-2006) has been concentrated in urban areas and is now being partly reversed by the severe global and regional economic crisis that has hit the country since autumn 2008. For 2009, the new government foresees a GDP-decline of 9%, contributing to a budget deficit of several hundred million euro (EUR 160 million in Jan-Aug 2009), compared to a roughly EUR 1 billion national budget.

The crisis makes the current economic profile of the country – based on import, consumption and remittances – even more unsustainable. It leads to severe negative social effects and asks for urgent stabilisation and liberalisation efforts, supported by aid. Imports currently exceed exports by a factor of three (EUR 1.5 billion / EUR 600 million in 1-9/2009). Remittances are falling or stagnating. Contrary to popular belief, the Moldovan economy is much less dependent on agriculture - contribution of roughly EUR 300 million to a GDP of EUR 4 billion in 2008 - than on services with EUR 2.5 billion and industry with EUR 600 million.

The very low GDP leads to very low salaries and pensions, and high poverty. As of September/October 2009, the average (official) salary was 2,701 Moldovan Lei (MDL), or EUR 164, and the average pension 775 MDL or EUR 47. This hides an even more pronounced poverty in rural areas. Unemployment is officially still quite low at 6.1% in the second trimester of 2009, but this figure hides massive migration and underemployment.

The economic recovery was rapid from 2010, registering real GDP growth of 7.1%, and followed by 6.4% growth in 2011 and a 0.7% contraction in 2012. The GDP growth reached 8.9% in 2013 according to the data released by the National Bureau of statistics in March 2014. The Moldovan economy remains dominated by the service sector (61% of GDP) and the manufacturing sector (20.3% of GDP), although 27.5% of the active labour population continue to derive their living from primary agriculture.

In June 2013, the EU and Moldova completed the negotiations on an ambitious Deep and Comprehensive Free Trade Area (DCFTA). The DCFTA is part of the Association Agreement, which was initialled on 29 November 2013 in Vilnius.

1.2 Sector context

The Republic of Moldova, statistically the poorest country in Europe, is highly dependent on energy imports. Whereas petrol and coal sources have been slightly diversified in recent years (Russia, Ukraine, central Asia), natural gas, the main source for heating, is almost 100% imported from Russia. According to the National Bureau of Statistics, in 2007 the country has imported 922.000t carbon equivalents of natural gas, as compared to 122,000t own sources of

combustibles. Import prices are rising towards world levels, imposing a severe burden on the population and the economy.

The new Moldovan government that took office on 25.9.2009 has already announced its intention to diversify energy sources. The energy chapter of its government programme *European Integration: Liberty, Democracy, Prosperity 2009-2013* foresees i.a. support for the identification of alternative energy sources by promoting investments in renewable energy. It can partially build on the former government's Energy Strategy 2007-2020 which foresees gradual convergence with EU policies and rules, and the 2007 Law on Renewable Energy, which sets ambitious renewable targets of 6% of energy generation by 2010 and 20% by 2020. Implementation, however, has lagged behind.

There is consensus that wheat straw waste is the Republic of Moldova's renewable energy source with the biggest short- to medium-term potential. The country produces around 0.7 million tonnes of wheat grain per year, resulting in an equal amount of wheat straw. This mostly unused biomass represents an available, substantial and reliable source of renewable energy. Most of the population lives in rural areas where wood and coal are traditionally used for domestic heating. Natural gas is becoming prohibitively expensive. In the difficult winter conditions public buildings such as schools, kindergartens and community centres are usually maintained at uncomfortably low temperatures owing to energy inefficiency and a lack of funds available within local administration budgets for fossil fuels. This causes hardship and is cited as a reason for the drift of people, especially the young, into towns or migration.

Moldova remains a net energy importer, with only about 5% of demand for primary energy being met by domestic sources. Efforts on connection to the EU Energy network are ongoing in 2014. The construction of the Iasi-Ungheni gas pipeline started in August 2013 whereas other interconnection projects in the gas and electricity sectors are being considered.

A revised Energy Strategy until 2030 was approved in 2013. This Strategy has three main objectives which are Security of energy supply, Competition and availability of affordable energy, Environmental sustainability and combating climate change. The GoM also approved the National Action Plan in the field of production of energy from renewable sources for 2013-2020. The target for RES is that this sector should represent 20% of overall energy consumption by 2020. Use of biomass has been considered as one of the most promising sectors to achieve this goal as Moldova has important agricultural wastes, the country being predominantly an agricultural country with cultivated land making up half of the total geographical area. In general, the biomass market is evolving but it still requires important support to become fully competitive and sustainable.

1.3. Lessons learnt and complementarity

A recent project, completed under a USD 1 million grant from the Global Environment Facility (GEF), has resulted in the installation of 11 demonstration biomass fuelled heating systems (2.7MW capacity), based upon licensed local manufacture of Danish design, supplying heat to public buildings in rural communities. Thus there is a good operational basis to show that this technology works and is well received in the rural communities.

Social and economic benefits were very favourable, with evident and considerable reductions in energy costs (up to 50% less as compared to coal and gas) and CO₂e emissions. Heat plants were run at normative levels (maintaining temperature for a full heating system) which led to an increase of comfort levels in schools and participating buildings. The average prime cost of

heat for biomass was approximately EUR 5 per GJ (compared to EUR 8.5 per GJ for natural gas) for the generation of approximately 2000GJ per heating season per installation.

The GEF-pilot project pointed to the following key lessons: (i) Well structured contractual arrangements between the contracting parties, the local administration and a local biomass supplier, are critical to ensure a timely and predictable biomass based fuel supply; (ii) Process and technical specification require greater attention to ensure efficient and integrated operations. A detailed review of all the GEF funded demonstration sites carried out in October 2009 by the Framework-consultants who have helped in elaboration of this project has shown that all but one GEF-financed installation (related to the heat distribution network, not the heat plant) are functioning, albeit with various issues that need to be taken into consideration for refining the technical and operational specifications and conditions.

The renewable energy from biomass development process in the Republic of Moldova commenced in 2002 with the study *Potential Use of Renewable Energy (Biomass)*. This was followed by interaction with the CEI Renewable Energy Working Group 2002-2005, from which the Moldovan renewable energy (biomass) specification was developed – thermal energy in public buildings. The specification took into account developments, especially in the Ukraine and Balkan countries. The GEF-funded demonstration project *Renewable Energy from Agricultural Wastes* 2005-2008, (REAW) established demonstration sites based upon the CEI system specification.

Relevant on-going actions include the EBRD *Sustainable Energy Financing Facility* that can provide funding for biomass projects of the private sector. The Japanese government has recently funded two biomass heating projects through its 2KR programme, and may be extending the programme (indicative budget USD 6 million). The World Bank Energy II-Project, co-financed by Sida, (USD 45 million) is primarily focused on electricity transmission and energy efficiency in buildings. USAID and the Greek government are also seeking to support the energy sector generally and biomass in particular. DfID/Sida are supporting the operations of the Regional Development Authority, which includes regional development strategies, a process linked to state budget provisions and investment portfolios funded through the regional development fund. All the donor organizations are very supportive of this proposed new EU-project and their good cooperation can be assumed as very likely.

The choice of a project approach results from a need to focus on a specific energy topic which is regarded by the majority of energy related agencies and donors as a topic of considerable long-term potential.

In 2011-2013, the EU supported Biomass development through a grant of 1.5 M Euros to the Moldova Social Investment Fund (MSIF). The project came to an end in December 2013 and had installed solar panel systems in 39 different public facilities and biomass-fuelled heating systems in 39 different public facilities.

The Japan International Cooperation Agency (JICA) recently provided a grant for the procurement and installation of biomass boilers fuelled with the pellets made from agricultural residue at public facilities (mainly schools and kindergartens) in 25 rural settlements in the Central Region of Moldova and one set of Pellet Production Plant in Chisinau.

There is consensus that agricultural residues are the Republic of Moldova's renewable energy source with the biggest short- to medium-term potential. Based on the development of the

sector these last years, several lessons must be taken into consideration for further development of the biomass sector:

- quality assurance based on standards regulating quality requirements for different types of biofuels is fundamental
- effort must be put on the development of proper logistics in order to ensure supply of biofuel at reasonable prices in a timely manner.
- emphasis needs be placed on integrated solutions such as development of combined technology solar/biomass. Installation of RES systems has to be further combined with Efficiency measures in buildings.
- educational initiatives focused on Renewable Energy and Energy Efficiency are very important as they permit beneficiaries to become promoters of sustainable energy and new technologies in the Communities where they are living
- trainings to boiler operators and technical staff of beneficiary institutions need to be further institutionalized in order to ensure sustainable development of the sector.
- PPPs can be effective solutions to ensure sustainable biomass-based heating services and efficient operation and maintenance of the systems installed.

1.4 Donor coordination

The new Government has formed a unit under the State Chancellery which will be responsible for donor coordination. Sector working groups are to be formed at ministry level and chaired by the relevant minister. Energy will be under the Ministry of Economy, but the formal group has yet to be formed.

All donors, including the European Commission, UN, World Bank, Sida, DfiD and EBRD, meet at a monthly coordination meeting as there is a recognised need for a common approach from the donors as well as commitment and political will from the government. During the formulation stage, major donors and stakeholders have been interviewed and fully briefed on this project and there is general enthusiasm and a declared wish to be involved.

2. DESCRIPTION

2.1. Objectives

The overall objective is to contribute to a more secure, competitive and sustainable energy production in the Republic of Moldova through a targeted support to the most viable and readily available local source of renewable energy, namely biomass from agricultural wastes.

The project purpose is to significantly increase the use of renewable energy technology through fuel switching and energy efficiency. This will primarily focus on improving heating comfort levels in rural public sector buildings including schools and community centres by using readily available waste straw supplied from local agricultural enterprises.

In line with the principle of "more for more", this Programme benefits from additional funding under the Eastern Partnership Integration and Cooperation (EaPIC) programme, with the aim of fostering sustainable and inclusive growth and economic development.

2.2. Expected results

The strategy is to install a sufficient number of straw-fired heating systems so as to establish a market for the heating technology and for baled straw as a reliable and sustainable fuel. Therefore the economic activity in rural areas will be strengthened and local production of biomass stoves raised. Besides the main result of drastically up-scaling the use of low-tech biomass burners for the use of waste straw, innovative sub-projects for the development and demonstration of technology for higher efficiency domestic stoves and briquette production, and possibly the use of biomass for communal heating and co-generation will also be results of the project.

The project extension funded from the EaPIC programme allocation will aim to extend biomass systems installation to more regions of the Republic of Moldova. It will also strive to consolidate the emerging biomass industry and market to make it fully competitive and sustainable once the project is over.

2.3 Activities and implementation timetable

The foreseen project activities include:

- Installation of up to 130 biomass heating systems, up to 35MW installed capacity, for district heating in rural communities primarily supplying public buildings and residential apartment blocks if appropriate (incl.reserve);
- Installation of additional 80 biomass heating systems + 20 Solar Hot Water Systems in public buildings around the country (geographical extension);
- Support of local biomass boiler assembly/production through lease/hire purchase mechanism and lease-hire financing system for briquetting and pelleting equipment. A revolving fund mechanism is set up by the energy efficiency agency. The fund allows producers to procure equipment and instalments by for 20% advance payment and 3 years reimbursable loan;
- Supply of equipment for laboratory for evaluation of the quality of Biofuels;
- Research, development and intervention: domestic heating sector, cogeneration and briquette manufacture;
- Capacity building at regional and local levels;
- Promotion campaign;
- Technical assistance;
- Market solutions for developing biomass-based heat supply service in public buildings (PPP). The new boilers will be installed by a private company and managed by a private partner selling heat energy instead of fuel. At the end of the lease term, the local boilers will be commissioned to local administration;
- Independent final evaluation of project.

There is sufficient flexibility in the project funding to allow for the development of a private sector market for contractors wishing to act as fuel suppliers to the heating plants. Straw handling equipment such as balers, trailers and bale handling tractors could be provided under financial models which have been already well developed by 2KR. This organisation also offers assessment, advice and review of requirements; equipment supply; training; insurance; maintenance and repair; of the fuel cycle inventory. The 2KR model including a revolving fund, provides contractors with access to structured financing for the agricultural sector. Financing is on the basis of hire purchase / lease financing over a 4-year period, with the first instalment up-front. A study of the fuel cycle mechanism would need to be carried out to

determine the services arrangement, including financing. The UNDP would be responsible for defining and managing any financial involvement of a partner such as 2KR.

3. LOCATION AND DURATION

3.1. Location

Moldova

3.2. Duration

The execution period of the Agreement will be 120 months. This execution period will comprise 2 phases under the conditions provided for in article 4.1 of the General Conditions (Annex I of the present Agreement):

1. Operational implementation phase that starts from the entry into force of the financing agreement and will have duration of 96 months.
2. Closure phase of a duration of 24 months that starts from the expiry date of the operational implementation phase.

Pursuant to article 6 of the General Conditions (Annex I of the present Agreement), the contracts implementing the financing agreement shall be signed at the latest within three years of the entry into force of the financing agreement (except audit and evaluation contracts)¹. That deadline may not be extended ('sunset clause').

The duration of activities would indicatively be 88 months, commencing from the signature of the contribution agreement with UNDP.

4. IMPLEMENTATION

4.1 Organisational set-up and responsibilities

Implementation shall be by Joint management with UNDP. This organization has been chosen as it has a broad range of experience in the implementation of community infrastructure development projects in rural areas in the Republic of Moldova.

The European Commission reserves its right to change the delegated body indicated above or the scope of the delegation, without this necessarily requiring an amendment to the financing agreement. In that case, it shall notify the name of the new delegated body and/or the scope of the task(s) delegated to it.

4.2 Reporting

¹ For cases in which the correspondent financing decisions approved by the College before 1 May 2007, the conclusion of contracts implementing a financing agreement should be signed within three years from the date of the financing decision (sunset clause of the previous Financial Regulation).

Reporting will be done by the financed projects to the EU Delegation in Chisinau according to standard procedures.

4.3 Project/Programme Budget (indicative)

Original project

EUR 14 million funded from the ENPI 2010 Annual Action programme in favour of the Republic of Moldova – ENPI/2010/021-781

FINANCIAL TABLE (Original Project)		
	Category	EUR
1	Installation of up to 130 biomass heating systems, up to 35MW installed capacity, for district heating in rural communities primarily supplying public buildings and residential apartment blocks if appropriate (incl. reserve)	9,580,000
2	Research, development and intervention: domestic heating sector, cogeneration and briquette manufacture	1,500,000
3	Capacity building at regional and local levels	300,000
4	Promotion campaign	200,000
5	Technical assistance	2,000,000
6	Management fee UNDP 3% (see below)	420,000
	TOTAL BUDGET	14,000,000

Project extension

EUR 9.46 million funded from the EaPIC programme allocation – ENPI/2013/025-037

FINANCIAL TABLE (Project extension following EaPIC 2013)		
	Category	EUR
1	Installation of additional 80 biomass heating systems + 20 Solar Hot Water Systems in public buildings around the country (geographical extension)	5,200,000
2	Lease-Hire financing system for briquetting and pelleting equipment	600,000
3	Market solutions for developing biomass-based heat supply service in public buildings (PPP)	700,000
4	Support of local biomass boiler assembly/production through lease/hire-purchase mechanism	200,000
5	Laboratory for evaluation of the quality of Biofuels	100,000
6	Capacity building at regional and local levels	500,000
7	Promotion campaign	200,000

8	Technical assistance	1,310,000
9	Independent final evaluation of project	31,122
10	Management fee UNDP 7% (see below)	618,878
	TOTAL BUDGET	9,460,000

UNDP is well placed to implement this project given their array of expertise gained especially in its Integrated Local Development Programme. The organization seems to have effective results-based management and extensive experience with implementing local development, self-government and participatory projects. The UNDP Integrated Local Development Programme team includes experienced management and professional community mobilization experts and engineers with extensive knowledge, including biomass pilot projects in the Republic of Moldova. The UNDP country office, including its operations unit, is highly experienced with large scale procurement, recruitment and inter-relations at national and international level. To support implementation UNDP plans to contribute up to 2.5 % of the total budget.

4.4 Mobilisation of the Project/Programme Budget

All contracts implementing the action must be awarded and implemented in accordance with the procedures and standard documents laid down and published by the International Organisation concerned.

5. MONITORING AND EVALUATION

5.1 Monitoring

The EU Delegation in Chisinau will monitor and supervise the project. The Delegation will monitor the implementation of the assistance on the basis of project visits, meetings with all stakeholders, and regular reports provided by the Contractor. The regional ROM-project with office in Kiev and a branch in Chisinau assists the EC in monitoring and assessing projects in terms of the quality of services provided, results delivered and the achievement of project activities. Applicable Commission standard indicators include: fuel switching (mainly coal and natural gas to biomass); annual emission reductions; heat generation; number of participating businesses; impact on local economy. Verification of specific project performance indicators will result from examining the records of municipalities and educational authorities.

In order to facilitate the management of the project and its monitoring and evaluation, the Contractor, in collaboration with the Commission services and the beneficiaries, will define a detailed set of indicators of achievement of the project activities during the inception phase. Specific performance measures should be chosen because they provide valid, useful, practical and comparable measures of progress towards achieving expected results. They can be quantitative (i.e. measures of quantity, including statistical statements) or qualitative (judgements and perception derived from subjective analysis).

5.2 Evaluation

The project will be subject to annual review, which will assess compliance with conditions and make recommendations on the appropriate level of disbursements. Prior to the completion of the project, the EU Delegation will mandate consultants to carry out an independent final evaluation of the project. Independent reviews that will assess compliance with the conditions/indicators of the Financing Agreement.

6. COMMUNICATION AND VISIBILITY

The project will endeavour to further enhance the positive image of the EU in the context of its work in the Republic of Moldova. At appropriate milestones during the project duration and after appropriate events, press releases will be issued, in co-operation with the EU Delegation in Chisinau. The Commission visibility guidelines will be applied.