



ENERGY AND BIOMASS



We produce energy from domestic sources

Moldova Energy and Biomass Project



Empowered lives.
Resilient nations.

WE PRODUCE ENERGY FROM DOMESTIC SOURCES

The Republic of Moldova is dependent on energy imports and more than 95% of its energy needs are covered by imports. The dependency on external energy sources has contributed to a constant increase in energy prices and the accumulation of large debts to foreign suppliers.

The energy sector is vital to Moldova's economic development. The Government of the Republic of Moldova committed itself to reform the energy sector by increasing energy security, diversifying the energy sources, and attracting investments in the sector. Authorities wish to achieve a renewable target of 20% energy generation in the country by 2020 – a target set in the National Energy Strategy.

The Republic of Moldova has great potential to produce energy from renewable sources, which at the present time has not yet been harnessed.

Studies show that one of the most secure and easily accessible alternative sources of energy is straw and other agricultural waste products. Annually, the Republic of Moldova produces, on average 700,000 tons of straw, which are equivalent to 250 million m³ of natural gas or approximately 25% of the country's annual consumption. This amount of straw would be sufficient to heat approximately 9 million sq.m. of space or approximately 100 thousand private houses of 90 sq.m. each, on average.

Energy produced from domestic resources has multiple benefits. It reduces the dependency on energy imports, increases the country's energy security, is cheaper, leads to the development of new businesses, and creates new employment opportunities. In addition, producing energy from renewable sources contributes to reducing the greenhouse gas emissions and environmental pollution.

The Moldova Energy and Biomass Project

aims to contribute to a more secure, competitive, and sustainable energy production in the Republic of Moldova through targeted support to renewable energy in form of biomass from agricultural wastes. The project will increase the use of renewable energy sources, mainly for heating public institutions and individual households in rural communities. It lays the basis for the creation of functional markets for biomass technologies which will ensure

the sustainability of the project interventions beyond its lifetime. New jobs will be created and new income sources will be ensured due to the establishment of value added chains at local and regional levels through the supply of biomass fuel and technologies.

Implementation period: 2011-2014

Budget: The total budget of the project is 14.56 million Euro, provided by the European Union (14 million Euro), and UNDP Moldova (0.56 million Euro).

What are renewable energy sources and biomass?

"Renewable energy sources are continually replenished by nature - the sun, the wind, water, biomass and the Earth's heat. Biomass is the common name for organic materials used as renewable energy source, including wood and other plants, residues from agriculture, forestry, and related industries, as well as the biodegradable part of industrial and urban wastes."

Source: http://www.energyunion.eu/intelligent_energy/renewable_energies

The Moldova Energy and Biomass Project will achieve these objectives as a result of the implementation of four large and closely interrelated components:

1. MUNICIPAL BIOMASS HEATING AND FUEL SUPPLY MARKETS ESTABLISHED

Within the respective component, at least 130 rural public institutions – kindergartens, schools, health centres, community centres, and others – will be connected to straw-fired heating systems. Affordable, predictable and reliable supply channels for biomass fuel (straw bales) are an important element. The project will facilitate mutually beneficial contractual arrangements, based on market conditions, between fuel suppliers and mayoralities of each selected locality.

Additionally, in support of the development of a functional fuel cycle a mechanism will be established to provide interested agricultural entrepreneurs via beneficial leasing conditions with the necessary equipment and know-how for the production and handling of straw bales .

To motivate and promote business development around biomass production from agricultural wastes, the project will also contribute to the improvement of the legislative and regulatory framework in the area.

How will communities be selected?

The communities and project sites that will be supported in switching to renewable energy will be selected based on pre-established criteria and via a competitive and transparent process. Public meetings will be organized in every district to present the project, and rural communities will be encouraged to take advantage of their chance to install efficient straw-fired heating systems in their public institutions.

During the selection process, the communities shall prove the following:

- evidence of a reliable source for the supply of straw bales, and financial means for fuel procurement
- existence of adequate public buildings to be connected to the straw-fired heating systems
- ensure premises to store straw bales
- commitment and motivation to access alternative sources of thermal energy

The largest share of the costs related to the installation of the heating systems will be covered by the project; the community will contribute a minimum of 15% of the total costs.

Benefits of using renewable energy for heating at the local level

- Decreased heating costs of the beneficiary institution
- Use of savings for other priorities
- Increase in thermal comfort
- Additional income sources for local entrepreneurs
- Creation of new jobs
- Increased energy security of the community
- Additional revenues to the local budget
- Environmental protection
- Obtaining organic fertilizers as a result of straw burning
- Sustainable community development

2. FOUNDATIONS LAID FOR THE ESTABLISHMENT OF EFFICIENT HOUSEHOLD HEATING, INDUSTRIAL COGENERATION, AND BIOMASS BRIQUETTING MARKETS

Currently, the share of the energy consumed by the residential sector in the Republic of Moldova is 38% of total consumption. There remains a large potential for efficiency gains and cost saving for individual households.

The project will provide incentives to introduce efficient biomass-based thermal energy equipment on the Moldova market, as well as to the acceptance and uptake of improved equipment by households. These incentives will include providing subsidies to the production and/or installation of up to 500 energy efficient stoves to make them available on the market at affordable prices for household consumers and to stimulate commercial market creation.

The project will also support the establishment of commercial briquetting enterprises, which will lay the basis for a diversification of the local biomass fuel market.

The type of raw material and location of the briquetting business will be determined based on an analysis of production potential and consumer preferences. The expected production capacity of these enterprises is around 1000 tons per year. This activity also aims to foster the collaboration between the entrepreneurs and Local Public Administrations by facilitating the establishment of public-private partnerships.

Further activities encompassed in this component will support the development and implementation of at least one biomass-based industrial cogeneration plant (CHP: combined production of thermal and electrical energy), using the biomass generated as by-product of the industrial process. The project aims to collaborate with an agri-industrial enterprise which will transform its own waste products into energy generated in the CHP to (partially) cover the process energy demand.

Electrical energy will potentially be fed into the distribution network. In parallel the project will support the removal of remaining institutional and legislative barriers and raise awareness by technology demonstration.

What is a briquette?

Briquettes are solid fuels obtained in the process of compacting agricultural and industrial wastes. Due to their density and uniform combustion, briquettes have a high burning efficiency. Also, there is much lower ash content in them (2-10% as compared to 20-40% in coal).

3. THE CAPACITY FOR GROWTH OF BIOMASS MARKETS AT REGIONAL AND LOCAL LEVELS IS BUILT IN MOLDOVA

The sustainability of the intervention beyond this lifetime, fostering wide replication of its results in view of creating a sustainable market is one of the main goals of the project. To achieve this, the project focuses on developing knowledge, capacities and skills at all relevant levels. Comprehensive training programmes will be developed to respond to the needs and responsibilities of beneficiaries. Local public authorities, and building managers will have improved knowledge about biomass usage, performance evaluation and maintenance of the new equipment, sound management of the fuel cycle, conversion technologies, and will have the capacities to replicate the positive experiences.

Future boiler operators will be trained how to operate the equipment on a daily basis. Special attention will be given to building capacities of future commercial straw fuel suppliers.

The targeted training will involve information on business opportunities and risks, required equipment, fuel quality control. A generic business plan will illustrate the market and the investments and processes needed to enter it.

Long-term sustainable changes can be effectively achieved by involving the youngest members of our society. A educational initiative dedicated to renewable energy will familiarize school children in an accessible manner about new technologies and how they work and how alternative energy sources can benefit the community and the country they live in. The project will be a collaboration involving teachers and NGOs and will enable children to share their knowledge with families, relatives, and friends, thus, inspiring new ideas and actions to support the promotion of alternative energy sources.

4. THE OPPORTUNITIES AND BENEFITS OF BIOMASS ENERGY FOR MOLDOVA ARE WELL KNOWN, AND THE VISIBILITY OF THE PROJECT RESULTS IS PROMOTED

Switching to modern biomass energy implies a change in attitude and behaviour. In order to be successful in replacing fossil fuels with renewable sources, the project will raise awareness on the economic, social and environmental benefits of renewable energy.

We will conduct communication campaigns at national and local levels, communicating directly with people to promote the advantages of using energy from domestic sources, and will share success stories about the use of renewable energy.

An annually organized national award gala will give visibility to and reward the most active and valuable promoters and beneficiaries of the energy produced from renewable sources and encourage new initiatives on renewable energy and energy efficiency.

Public personalities, local and national authorities, journalists, academicians, businessmen, pupils, and students – all those who have arguments to present for increasing the use of renewable energy sources – will be the messengers of the project's integrated communication and awareness raising actions.

Communication, education and demonstration will inspire change, motivate people and will act as a catalyst in promoting and developing new technologies for renewable energy production and consumption, and establishing renewable fuel supply markets.

WHAT RESULTS WILL BE ACHIEVED BY 2014?

- 130 straw-fired heating systems, with a total capacity of approx. 35 MW, will be installed in public institutions in rural communities, including schools, kindergartens, community centers, health centres, and others.
- Local agricultural enterprises will be actively involved in the production, storage, and supply of biomass-based fuel to beneficiaries.
- New businesses will be launched and new jobs will be created at the local level.
- A total of 500 households will be equipped with energy efficient stoves, which will provide heating and hot water.
- Briquette production and supply activities will be piloted.
- One cogeneration station will be built to produce heat energy and electricity from agricultural wastes to cover its own energy demand.
- Local public authorities, managers of public institutions, and local agricultural entrepreneurs will acquire knowledge and new skills in the area of biomass energy production and usage.
- The population, local public authorities, the private sector, and civil society will be well informed about the opportunities and benefits implied by the use of renewable energy sources.
- The role of renewable energy in increasing energy security and contributing to economic growth in rural areas of the country will have increased.



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