



PROJECT IDENTIFICATION FORM (PIF)¹

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	Development and Commercialization of Bioenergy Technologies in the Municipal Sector in Ukraine		
Country(ies):	Ukraine	GEF Project ID:²	4377
GEF Agency(ies):	United Nations Development Programme (UNDP)	GEF Agency Project ID:	2921
Other Executing Partner(s):	Ministry of Agricultural Policy (Executing Agency), Ministry of Environmental Protection, Ministry of Housing and Communal Development, , State Forestry Committee of Ukraine, National Environment Investment Agency, Selected Municipalities, Bioenergy project developers, National Electricity Regulatory Commission of Ukraine	Submission Date:	September 2010
		Resubmission Date:	February 2011
		Resubmission Date:	12 September 2011
		Resubmission Date:	29 November 2011
		Resubmission Date:	20 December 2011
GEF Focal Area:	Climate Change	Project Duration:	48 months
Name of parent program:	NA	Agency Fee:	US\$ 470,000
For SFM/REDD+ <input checked="" type="checkbox"/>			

A. FOCAL AREA STRATEGY FRAMEWORK³:

Focal Area Objectives	FA Outcomes	FA Outputs	Indicative financing from relevant TF, (\$)	Indicative co-financing, (\$)
CCM-3	Favorable policy and regulatory environment created for renewable energy investments	Renewable energy policy and regulation in place	\$1,080,000	\$3,800,000
CCM-3	Investment in renewable energy technologies increased	Renewable energy capacity installed	\$3,000,000	\$19,000,000
CCM-3	GHG emissions avoided	Electricity and heat produced from renewable sources	\$400,000	\$4,000,000
Project management cost ⁴			220,000	1,000,000
Total project costs			4,700,000	27,800,000

B. PROJECT FRAMEWORK

Project Objective: Removal of barriers to the development and commercial utilization of bioenergy resources in municipalities in Ukraine					
Project Component	Grant type	Expected Outcomes	Expected Outputs	Financing from relevant TF, (\$)	Indicative co-financing, (\$)
1. Development of Municipal Programmes on Biomass	TA	1.1 Municipal Policies and Programmes for bioenergy established.	1. Developed and adopted Municipal Programmes to promote biomass energy in at first two (and then eight) municipalities in Ukraine which includes voluntary and if possible mandatory targets for the use of biomass energy (including approved financing in municipal budgets); 2. Developed and adopted stimulus package for cogeneration (using biomass) at the municipal	\$620,000	\$1,800,000

¹ It is very important to consult the PIF preparation guidelines when completing this template.

² Project ID number will be assigned by GEFSEC.

³ Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.

⁴ GEF will finance management cost that is solely linked to GEF financing of the project.

			<p>level by the National Electricity Regulatory Commission (NERC)</p> <p>3. Analysis and implementation of any additional stimulus measures to promote municipal biomass projects (as appropriate) based on an analysis of the existing situation at the time the project starts</p>		
2. National Programme on Biomass and Investment Grant Mechanism	TA	2.1 Increased possibilities to invest in biomass projects in Ukraine	<p>1. Established Biomass Unit within the Ministry of Agricultural Policy which has disbursed grants under the Investment Grant Mechanism for Biomass Projects in at first 2 and then 8 selected municipalities and eventually throughout Ukraine</p> <p>2. Website for the Biomass Support Unit and for the Project established and operational</p> <p>3. Completed business plans and feasibility studies for selected project working with selected financial partner(s)</p> <p>4. National Programme on Biomass to support development of Municipal Biomass projects developed and adopted by the Ministry of Agricultural Policy and by Government Decree with monitoring and reporting system and enforceable targets</p>	\$460,000	\$2,000,000
3. Investment Grant Mechanism for Biomass Projects in the Ivanofrankivsk Region	Inv	<p>3.1 Municipal biomass projects are financed and constructed and operational for the two GEF supported pilot regions</p> <p>3.2 3.1 Municipal biomass projects are financed and constructed and operational for six Government supported pilot regions</p>	<p>1. Six developed and prepared public-private partnership Municipal Biomass projects in the Ivanofrankivsk and Cherkasy Regions (3 per region) are supported to the point where they reach financial closure;</p> <p>2. Six secured and executed Investment Grants (\$500,000 ea.) for the selected Municipal Biomass projects in Ivanofrankivsk and Cherkasy Regions (3 per region)</p> <p>3. 6 installed and operational Municipal Biomass projects (for power and/or heat production) by the end of the project in the Ivanofrankivsk and Cherkasy Region</p> <p>4. Installed and Operational public-private partnership Municipal Biomass projects in at least 6 other regions of Ukraine (co-financing supported)</p>	\$3,000,000	\$19,000,000
4. Replication & Dissemination of Municipal Biomass Programmes throughout Ukraine	TA	4.1 At least 18 Oblasts in Ukraine have in place operational Municipal Programmes on Biomass	<p>1. National Programme for Supporting Municipal Biomass projects is in place in Ukraine and is replicated with investment projects being carried out in at least 75% of the 24 oblasts of Ukraine (i.e - 18 Oblasts)</p> <p>2. Produced and disseminated national guide to biomass projects (co-financing)</p> <p>3. Produced and disseminated short video outlining the successful biomass projects that are supported and successfully implemented by this project (co-financing)</p> <p>4. Annual Summit of the Regions Conference held (in a different Municipality each year and starting with Cherkasy and Ivanofrankivsk) showcasing biomass project opportunities in Ukraine (organized in conjunction with ongoing UNDP community based approach to local development project) (co-financing)</p>	\$400,000	\$4,000,000
Project management cost ⁵				\$220,000	\$1,000,000
Total project costs				4,700,000	27,800,000

⁵ Same as footnote #3.

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	Ministry of Agricultural Policy	In-Kind and Cash	4,500,000
National Government	Ministry of Environmental Protection of Ukraine	In-Kind	400,000
National Government	National Agency of Ukraine for Effective Energy Use (NAER)	tbd	2,000,000
National Government	State Budget of Ukraine (for Energy Strategy of Ukraine)	In-Kind	600,000
National Government	National Electricity Regulatory Committee (NERC)	In-Kind	400,000
GEF Agency	UNDP	Grant	200,000
GEF Agency	UNDP	In-Kind	700,000
Private Sector	Private Sector	Grant	15,000,000
Municipal Projects	Municipality of Ivanofrankivsk	Grant	2,000,000
Municipal Projects	Municipality of Cherkasy	Grant	2,000,000
Total Co-financing			27,800,000

D. GEF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY(IES): N.A.**PART II: PROJECT JUSTIFICATION****A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:****A.1. THE GEF FOCAL AREA STRATEGIES:**

This project⁶ is consistent with GEF Strategic Program 5, Objective 3: "Promote Investment in Renewable Energy Technologies". The promotion of biomass energy is an area where UNDP has already successfully assisted other countries, including in the region. In addition, UNDP has considerable experience working with projects in the municipal sector both related to energy-efficiency and renewable energy. The project is therefore fully consistent with GEF strategies and programs and fits within an area where UNDP has a comparative advantage through provision of technical assistance, awareness raising, and market creation activities. UNDP has been developing similar initiatives related to the promotion of biomass energy in Belarus, Serbia, Croatia, Montenegro, and Bosnia and Herzegovina, and has published a lessons learned publication on the lessons learned from the development of biomass projects in the region.

A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS:

The need for energy independence has recently become a cornerstone of Ukrainian domestic and foreign policy. The Ukrainian Government does not want to remain dependent on imports of Russian oil and gas and energy policy is being developed in such a manner as to help support energy independence. Strong support for renewable energy is an integral part of the Ukrainian energy strategy. This proposed project will directly contribute to achieving this strategic priority with its support for at least 7 municipal biomass projects, thus contributing to enabling Ukraine to diversify and secure its energy supply, which is currently nearly 80% dependent on imported fossil fuels.

In particular, the Energy Strategy of Ukraine to 2030, pays special attention to renewable energy development and aims to quadruple the use of renewable energy, primarily through the increased use of biomass and other renewable energy sources, such as solar energy, coal bed methane, etc., and \$600,000 is directed towards supporting activities related to the development of municipal biomass programmes in Ukraine. All types of biomass projects can be considered (electricity, heat, and cogeneration.) Additionally, the Ukrainian Law on Alternative Energy Sources (2003) declares, that increased energy production from renewable energy sources should be one of the main principles of the state policy in Ukraine. One of the main priorities for the UNDAF for Ukraine is "Addressing Addressing climate change and sustainable use of the

⁶ This project is part of the Ukrainian Government's GEF Biomass Programme (approx \$15m) and represents the second of three complementary biomass projects which have been planned designed in such a way as to complement one another and to avoid duplication. The first project (approved under GEF-4) is the UNIDO project to promote renewable energy in the agro-food and other small and medium sized enterprises (SMEs) in Ukraine. The second is this proposed project by UNDP to remove barriers to the development and commercial applications of biomass resources in Ukraine under GEF 5. The third is another UNIDO project aimed at promoting the development of biofuels markets in Ukraine, also under GEF 5.

natural resources of Ukraine in line with national priorities and multilateral environment agreements”. This project is fully consistent with this objective and consistent with UNDP’s strategy in the environment and energy area in the Europe and CIS which is to focus on energy-efficiency initiatives and renewable and energy interventions (in particular biomass).

Two new important laws in the area of bioenergy were accepted in Ukraine in 2009. The first law concerns the promotion of the production and use of biofuels providing for certain incentives and the second law concerns the green tariffs for renewable energy. The second law concerns almost all electrical energy produced from alternative energy sources which will be guaranteed a minimum feed-in tariff (a so called green tariff) which is defined in secondary regulations. The minimum tariff helps to make renewable energy much more attractive. As of today, Ukraine’s wholesale electricity market is committed to purchasing “green” energy at green tariffs; direct contracts between sellers and buyers of renewable energy can now be concluded using the green tariff. As of November 2011, Green tariffs have already been approved for 44 Ukrainian companies. Most of these projects have not reached financial closure despite the fact that they have now received the green tariff. However, there remain some issues with the green tariff which need to be resolved. The tariff does not yet apply to biogas projects with the amendment to the new law being vetoed on 8th November 2011 as further work is required to consider the issue. In addition, electrical utilities may well be able to find ways to avoid purchasing electricity at the higher green tariffs, the green tariffs do not apply to all forms of renewable energy and to achieve a green tariff you are supposed to have achieved financial closure on your project with a financing institution – the financing institution on the other hand would like to see the green tariff first before they provide the project developer with a loan.

Taking into account the requirements for European Energy Community accession Ukraine has a defined transition period for implementing the European Acquis Communautaire in the area of the electricity and gas market. Thus, Ukraine is obliged to harmonize its legislation on the use of energy from renewable sources, including biofuels by the end of 2011, on the rules for liberalization of energy market, measures to safeguard security of electricity supply and infrastructure investment and reduction in the sulphur content of certain liquid fuels until 2012, on the assessment of the effects of certain public and private projects on the environment until 2013, and on the limitation of emissions of certain pollutants into the air from large combustion plants until 2018.

B. PROJECT OVERVIEW

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

Bioenergy is one of the most promising renewable energy sources in Ukraine. However, its productive use, notwithstanding country’s reputation as the “breadbasket” of the Eastern Europe, remains very limited and of all the current ongoing and new initiatives in the area of biomass in Ukraine none of them specifically targets biomass in the municipal sector and none of them are aimed at developing municipal programmes on biomass. As of mid-2011, there is no national programme led by a single Government Agency aimed at developing municipal biomass energy projects. The project preparation grant for this project aims to rectify this situation by appointing the Ministry of Agricultural Policy as the lead agency for biomass energy projects in Ukraine. As of mid-2011, some 44 projects have been approved for the green tariff in Ukraine and yet there are no regional administrations in Ukraine with large scale municipal programmes to promote biomass energy for heating and/or power. The absence of a regional demand means that most biomass pellets are exported to Western Europe and the lack of local authorities or regional administrations promoting biomass energy projects means that the energy production from biomass is much lower than it could be. At present, energy production from bioenergy sources is about 38 PJ/yr (or 10.6 TWh, heat only) that corresponds to 0.65% (0.76 mill toe, or 1.1 mill tce – “coal equivalent”) of the total primary energy supply - mainly firewood for domestic purposes as well as for fuel in forestry and wood processing enterprises. In contrast, thermal generation provides 67%, nuclear energy 24%, and hydro energy almost 9% of Ukraine’s 54.6 GW of production capacity.

By contrast, studies have suggested that biomass energy could provide at least six times more and potentially ten times more energy to Ukraine’s energy mix which would bring the share of biomass in the supply up to as much as 6% of the overall energy supply. The Institute of Engineering Thermodynamics of the National Academy of Sciences of Ukraine in Kyiv has, for example, suggested that biomass in Ukraine could satisfy as much as nine percent of the country’s primary energy use.

Table 1: Energy Potential of Biomass in Ukraine

Type of biomass	Potential, mln ton of coal equivalent
Straw of cereal crops	5.6
Energy crops (willow, poplar)	5.1
Stems and ears of maize for grain	2.4
Stems, husk of sunflower	2.3
Biogas from manure	1.6
Sewage gas	0.2
Landfill gas	0.3
Wood waste	2.0
Fuel from municipal solid waste	1.9
Liquid fuels from biomass	2.2
Peat	0.6
TOTAL	24.2

Source: Geletukha et al 2001

much as 80 thousand tonnes is piled up in the landfills annually. Wood is also available for energy purposes in Ukraine, but its supply is limited - forests cover some 16% of the Ukrainian territory.

Ukraine has also good opportunities for production of biogas from agricultural and animal manure. Ukraine's potential of biogas production from silo corn may, under certain conditions; reach 4.19 billion m³ that is equal to 6. This represents 3-7% of the current Ukrainian production electricity. Based on the number of heads and age of animals in 2008, Ukrainian potential of annual production of biogas from manure of cattle, pig and chicken manure is 926 million m³. This could be transferred to about 1.39.0-2.78 billion kWh electricity, representing about 1% of current electricity production in Ukraine. Ukraine's vast agricultural lands (71% of the country territory) and favorable climate makes it also ideal destination for production of energy crops, such as willow, poplar, and miscanthus. There are good opportunities for combining the production of energy crops with other environmental actions, such as the reduction of nitrate losses from agriculture to ground or surface waters or restoration of degraded lands in the areas suffering from land degradation and water-logging (estimated at 1760 km² or 11% in Lugansk oblast). None of these types of biomass are currently exploited on a commercial basis.

The baseline project would therefore see the following activities take place:

- ✓ Research concerning biomass and energy use will continue to take place in Ukraine albeit not on a wide scale;
- ✓ Theoretical papers on the potential of biomass in Ukraine and its economic attractiveness will continue to be produced but the reality on the ground will by a long stretch not match the theoretical potential;
- ✓ The legal framework for the biomass sector would continue to improve (EBRD , UNIDO projects) and in particular improvements to the Green Tariff law will continue;
- ✓ Some renewable energy power projects including biomass projects will be financed and prove to be successful but many projects will continue to suffer from a 'financing gap' and lack of equity necessary to reach financial closure
- ✓ Local demand for biomass in the Ukrainian market will remain weak
- ✓ UNDP will continue to finance its Community Based Approaches to Local Development Project which includes a component to promote energy-efficiency and renewable energy (\$700,000)
- ✓ NERC will look at how the green tariff can be applied to a stimulus package for cogeneration using biomass (us\$400,000)
- ✓ Ministry of Environmental Protection will continue to publish awareness material concerning biomass (us\$400,000)
- ✓ National Agency of Ukraine for Effective Energy Use will continue its general programmes to promote renewable energy and energy-efficiency (us\$2,000,000)
- ✓ There will be no local standards in Ukraine developed for biomass pellets (given that the majority of production is for export where prices are higher);
- ✓ A nation-wide Municipal Biomass Programme will not be developed

The energy potential of biomass in Ukraine is presented in Table 1. The major constituent of the potential is agricultural residues of different types – up to 10.3 mill tce/year, of which straw of cereal crops makes up over 50% (5.6 mill tce/year). The figure reflects rather conservative estimation: while assessing biomass energy potential it was assumed that only 30% of the total amount of straw could be used for energy purposes. In practice this percentage may be much higher of up to as much as 60% (as it is currently in Denmark).

Ukraine, as a leader in oil production, produces about 675 thousand tonnes of sunflower husk annually that equals to 369 tons of conditional fuel (0.18% of total primary energy consumption). Whereas half of sunflower husk production is used for heat generation, 22% for pellets production, as

- ✓ Municipal sector demand for biomass and biomass pellets will remain extremely weak and the number of biomass burning boilers in Ukraine will remain low (due to coal and gas being lower cost) despite the fact that the potential market for different types of biomass boilers is estimated to be in the range of 9GW_{th}.

In other words, under a business-as-usual scenario, Municipal Biomass Programmes will not be put in place and the development of biomass projects in Ukraine will continue to largely bypass the municipal sector. In addition, there will continue to be a focus on wood biomass projects as opposed to agricultural biomass projects.

Table 2: Priority (most economically feasible) bioenergy technologies, which may be installed in Ukraine up to 2015

Type of technology	Potential market, units	Potential installed capacity, MWth	CO ₂ , Mt/yr	NG saving, Bln m ³ /yr	CAPEX, mln UAH ⁷
Wood-fired DH plants, 1-10 MWth	500	500	0.51	0.26	100
Industrial wood-fired boilers, 0.1-5 MWth	360	360	0.46	0.24	72
Domestic wood-fired boilers, 10-50 kWth	53,000	1,590	1.65	0.84	318
Farm straw-fired boilers, 0.1-1 MWth	15,900	3,180	3.27	1.67	954
Straw-fired DH plants, 1-10 MWth	1,400	2,800	2.88	1.47	840
Peat-fired DH boilers, 0.5-1 MWth	1,000	750	1.03	0.52	150
Small-scale LFG power plants	90	20	3.26	0.2	240
TOTAL	72,250	9,200	13.06	5.2	2,674

The demand for bioenergy in Ukraine comes mainly from cottage villages and private farms with own sources of biomass. There is very little commercial demand for biomass pellets and the demand for biomass in the municipal sector for pellets is also very low. However these days Ukrainian large business groups, involved into agriculture, start to show their own interest in biomass energy due to the introduction of the green tariff. Stimulation of the national agroholdings to produce bioenergy based on its agricultural waste would make it possible to increase supply of energy to villages and households nearby (instead of production agropellets for export). Thus, agricultural enterprises, owners of buildings which are not connected to central heat and gas supply as well as central heating enterprises might become potential consumers of bioenergy. These are new opportunities for the Municipal Sector in Ukraine.

Moreover Ukraine has about 40 manufacturers of pellets from biomass and 90 manufacturers of briquettes from biomass (mainly sunflower husk and chips). Basically, these are small companies with small production volume (1-2 tons of granules per month, up to 0.5-1 thousand tons of briquettes per month). There is also the only oil extraction plant operating mini CHP which uses sunflower husk as a fuel. Most of these manufacturers are exporting their pellets.

B. 2. INCREMENTAL/ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

GEF assistance is required to accelerate development and commercialization of bioenergy technologies in Ukraine by focusing on the incremental activities which would not take place in a business as usual. In summary, the incremental activities include support for institutional reform to promote biomass energy in a more coherent manner by defining a lead agency to support implementation of biomass projects in Ukraine (critically identified in the Biomass Action Plan and scheduled to take place during the PPG activities), additional support for awareness and information activities, and support to remove investment barriers through an investment grant mechanism which will provide support to selected biomass project both during and beyond the lifetime of the project.

⁷ Estimates are based on 2008 prices and exchange rate. Need to be revised to account for recent depreciation of Ukrainian currency

Institutional Barriers

There is currently no one Government Agency in Ukraine fully responsible for bio-energy issues and this is an issue because it means that the development of overall policy is fragmented and lacks overall cohesion. This was identified in the Biomass Action Plan of Ukraine as a major barrier which this project hopes to help overcome by ensuring there is a Governmental Decree adopted to declare the Ministry of Agricultural Policy to be the lead government agency on biomass policy in Ukraine and establishing a Biomass Unit within the Ministry of Agricultural Policy which aims to help to develop municipal programmes on biomass in the selected regional administrations and eventually throughout the Country and to ensure that there is additional funding available for financing biomass projects in Ukraine. This will help ensure that one Agency, the Ministry of Agricultural Policy, plays a central role in the implementation of municipal biomass energy projects and this helps to overcome the current institutional barrier that there is currently no one agency playing a lead role in promoting specifically biomass energy. This activity is scheduled to take place during the PPG.

Awareness and Information Barriers in the Municipal Sector

Awareness of the opportunities for biomass energy at the municipal level is very low with it be for power, heat, or for cogeneration. Awareness barriers include lack of awareness about the commercial risks and returns of biomass projects, about funding sources for projects, and about the various technological options available. This project will aim to raise awareness at the municipal level (focused on the two pilot regional administrations) through developing a national programme on biomass energy which outlines the benefits of working with biomass energy.

Investment Barriers

Discussions with financial institutions in Ukraine such as the EBRD and the World Bank and with commercial banks have revealed that there is a 'financing gap' which is preventing many biomass energy projects from being implemented due to insufficient equity available with which to secure the debt finance which is required in order to successfully implement biomass energy projects, despite the existence of the green tariff which makes projects look economically attractive on paper. This project help to overcome this barrier by providing investment grants of up to 25% of the total capital cost to selected biomass energy projects which will enable these projects to reach financial closure and be successfully implemented

Legislative barriers and national policy barriers related to biomass energy are not targeted by this project given that their support is considered to be part of the baseline activities. Other projects (EBRD, World Bank, UNIDO) are working in this space and in order to avoid duplication it is not envisaged that this project would target legislative or national policy barriers beyond through the development of a national programme on biomass by the Ministry of Agricultural Policy which can then be further developed at a regional and municipal level. Therefore the baseline project includes activities to support the green tariff legislative development, debt financing support through EBRD and other financial institutions, and support to SMEs in agricultural sector but it does not include support for municipal programmes on biomass energy.

The objective of the proposed GEF project is the removal of barriers to the accelerated development, deployment and commercialization of bio-energy technologies in Ukraine. The focus is primarily on agricultural biomass energy applications in municipalities and developing a national programme for biomass energy for the municipal sector. Such bioenergy resource has received very little attention to date and which, under a business as usual scenario, will most likely continue to receive limited attention.

Component1: Development of Municipal Programmes on Biomass Energy

As acknowledged by every study on biomass in Ukraine , including the National Biomass Action Plan, there has been very little attempt to promote the use of biomass energy successfully within the municipal sector in Ukraine. Under a business as usual scenario a major additional source of demand for biomass energy in the domestic market will go unsatisfied. The municipal sector, faced with low costs of oil and gas and high cost of converting boilers and power generation facilities to biomass energy is unlikely to proceed with the implementation of large number of biomass projects. In the absence of municipal programmes on biomass, biomass projects in the municipal sector will not proceed. Given the approximate market capacity of Ukraine in the range of 17,300 units of different types of straw and wood waste fired technologies GHG emission reduction could reach around 6 million tCO₂ annually.

This component will address the regulatory barriers to the development and commercial applications of biomass energy resources in Ukraine focused at the municipal level. The indicative activities that will deliver the expected outputs

enumerated in the Results Framework include: (a) Development, promotion, lobbying for securing the approval of municipal Decrees and Programmes to Promote Biomass Energy in at least two selected municipalities; (b) Development of Ukrainian standards for biomass (targeted at municipal sector); (c) Drafting, promotion, and securing of agreements for mandatory targets for bioenergy use for municipalities; (d) Development of, and securing agreements for, a stimulus package for technology developers (tax and import regimes targeted at municipal level); (e) Development of fully detailed regional programmes on biomass for two selected municipalities; (f) Organization and conduct of a series of seminars on Biomass energy organized at municipalities across Ukraine; and, (g) Creation of a project website which is updated on a regular basis.

Component 2: National Programme on Biomass and Investment Grant Mechanism for first 2 and then 8 selected Oblasts

This component will be designed to address the financial barriers to the development and commercial applications of biomass resources in Ukraine starting with two municipalities. It will focus on the establishment within the Ministry of Agricultural Policy a biomass investment grant mechanism window which will develop the basis for Municipal Programmes on biomass which can then be adopted at a municipal level, starting with the regional administrations of Ivanofrankivsk and Cherkasy and then extended right across Ukraine to all regional administrations interested in developing and implementing municipal biomass programmes. This represents a most cost-effective use of GEF resources because it is expected that while GEF funding is being used to support municipal biomass programmes in two regions, government funding will be used in future to support the municipal biomass programmes in 6 other regions of Ukraine as part of the National Programme on Biomass. By the end of the project 75% of all regions of Ukraine should have in place Municipal Programmes on Biomass.

The Municipal Programmes on Biomass will involve designating the Ministry of Agricultural Policy as the lead agency for supporting biomass projects in Ukraine (during the Project Preparation Grant phase). In addition, the National and Regional Programmes will be linked closely to the investment grant mechanism and will involve the approval of state resources to support the development of Municipal Biomass Programmes in Ukraine for all regional administrations interested in developing and implementing municipal biomass programmes. The focus will be on agricultural biomass as this is a sector where there have to date been very few successfully implemented projects. The Investment Grant Mechanism, run by the Ministry of Agricultural Policy will run the management of the investment grants for the projects to be selected under component 3 and component 4 of this project. The Investment Grants will be supported by the GEF for 2 pilot regions and with Government funding for the additional 6 pilot regions and by the end of the project in at least 18 regions of Ukraine.

The expected outcome from component one is that there will be developed and adopted municipal programmes on biomass in at first Ivenofrankivsk and Cherkasy and subsequently in six other oblasts. The targets will be as follows:

- 2 Municipal Biomass Programmes with projects underway in 2 Oblasts by end of year 1 of the project;
- 8 Municipal Biomass Programmes with projects underway in 8 Oblasts by the half way point of the project;
- 18 Municipal Biomass Programmes with projects underway in 18 Oblasts by the end o the project;

Components 3: Investment Grant Mechanism for Biomass in the Ivanofrankivsk and Cherkasy Regions of Ukraine

In order to prove and demonstrate to municipalities in Ukraine the technical, economic and environmental feasibility of selected bioenergy technologies (focused on agricultural biomass), the project will support a number of cost-effective demonstration projects which will involve the use of selected biomass technologies by municipalities. An investment grant mechanism, run by the Biomass Support Unit in the Ministry of Agricultural Policy will provide support for the specific projects. Each project shall have a private sector entity involved in the project development. Each demonstration project will involve municipal and/or private sector co-financing at a ratio of at least 3:1 meaning that GEF funds will involve significant leveraging of additional resources. It is envisaged that the investment grant for each project will be \$500,000 (although this may be revisited during PPG phase) and it is envisaged that there will be initially 6 projects supported, 3 in the Ivanofrankivsk region and 3 in the Cherkasy region. At the same time, additional regions (6 additional regions) will be selected for the roll-out of the National Municipal Programmes on Biomass so that 8 regions are being targeted by the time that the project starts. The GEF and co-financing investment grants will only be disbursed in accordance with agreed milestones and the actual disbursement of funds will only happen after each project has reached financial closure. The minimum project size for consideration by the Investment Grant Mechanisms will be us\$2 million

dollars. All project types will be considered including power generation and cogeneration projects with a focus on working with independent power producers (IPPs). An important consideration will be the reliability and the track record of the project proponents. Selected projects must be developed by private sector companies and have some connection to the municipal sector meaning they provide heat and / or power to the local community. Projects will focus on agricultural biomass. This means that not all project types would qualify. For example, biomass pellet projects where pellets are exported to Western Europe would not be considered. In addition, biofuels projects and projects in the transport sector will not be considered as these are the subject of another project. Where possible, the projects selected will involve private sector project developers with experience in developing renewable energy projects. A Biomass Projects Ideas Competition (BPIC) will be held during the PPG stage and six projects will be initially selected. These projects may be replaced later in the event that they do not reach financial closure. Each demonstration project must at a very minimum contain \$1,500,000 of non-GEF funding as its capital cost meaning the total project cost must be \$2,000,000 or more once the investment grant is included.

Component 4: Replication & Dissemination of Municipal Biomass Programmes throughout Ukraine

The expected outcome from Component 4 is additional regions and additional investment in municipal biomass projects. This means that the National Programme for Supporting Municipal Biomass projects is in place in Ukraine and is replicated with biomass investment projects being carried out in at least 75% of the 24 oblasts of Ukraine. This means that it is expected that there will be Municipal Biomass programmes in place and projects being carried out in at least 18 oblasts. (including first Ivanofrankivsk and Cherkasy, then six additional oblasts, and then more oblasts). In order to encourage additional investment in biomass in the municipal sector, funding for the publication of a guide on opportunities for biomass in the municipal sector in Ukraine will be provided and a video will be prepared on the demonstration projects. In addition, Project owners and biomass developers will be invited to participate in awareness raising seminars explaining the Municipal Biomass programmes and how companies can receive support. Co-financing support will be used to carry out the majority of all non-investment related investment activities.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS. AS BACKGROUND INFORMATION, READ [MAINSTREAMING GENDER AT THE GEF.](#)"

The benefits that Ukraine could get from the development and utilization of its bioenergy resources are a combination of the following:

- Possibility for improvement of the reliability of energy supplies.
- Additional opportunities for the local economy to create work for local communities related to supply of biomass to biomass projects
- Ability for the creation of new jobs for women involved in the collection of biomass.
- Reduction of GHG emissions.

“The project will bring about benefits at both local and global levels through reduced environmental and human health threats due too less burning of coal and gas which have negative local environmental impacts. In general the project will facilitate the creation of a new domestic demand for bioenergy in the municipal sector in Ukraine. Additional job opportunities for local economy, especially in the municipal sector, will be created.

Civil society will be involved in project activities through the involvement of NGOs in project activities such as stakeholder consultation meetings and meetings related to individual projects development..

Given the potential market for different types of biomass-fired boilers, the estimated annual savings would be around GWth, more than 5 bln m³ of natural gas savings and, as a result, the technical GHG emission reduction potential is around 13 mln tCO₂. The economically viable potential is of course much lower.

B.4. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS AND MEASURES THAT ADDRESS THESE RISKS:

The following key risks have been identified and will be addressed by this project.

Risks	Rating	Mitigation approach
Lack of political will to adopt necessary legal and institutional framework	M	This risk will be mitigated by creating a coalition of interested parties including the association of Municipalities for Biomass Energy in Ukraine (Component 4), government, private project developers, and NGOs. The coalition will work together to encourage and support investment in bioenergy projects in the municipal sector.
Unclear legislation on RES and EE policies	M	While the current legislation contains such incentives as lower import duty and VAT relief on energy efficient equipment, profit tax benefits for manufacturers of alternative fuels or energy saving techniques, there is a lack of tools and capacity for introducing biomass energy programmes and a municipal level. Component 1 of the project will aim to mitigate this risk.
Cheap energy resources	M	Years of subsidized low energy prices have led to little motivation for consumers to reduce energy consumption and invest in modernization. However since 2006 the price of natural gas imports has since then quadrupled and in August 2010 domestic household gas prices were raised by 50%. Thus, on the demand side, there is now considerably greater interest in renewable energy.
Bio-energy technology failure	L	Bioenergy technologies are generally well known and are widely used in the rest of the world, including neighboring EU countries. The project will be designed and implemented to identify, transfer and adopt best available bioenergy technologies and practices in Ukraine. There are also several companies in Ukraine which started licensed boiler manufacturing. Since Ukrainian boilers are not that powerful compared to foreign manufacture Ukraine might start the production of necessary equipment with a share of foreign components of 25-40%.
Biomass supply chain disruptions	L	Economic efficiency of energy use of biomass is extremely dependent on the logistics of the full chain of biomass harvesting/collection, processing and supply. The project envisages full-cycle bioenergy production, conversion and use.
Problems with sale of bioenergy-generated electricity to the grid	L	The recently approved law on green tariff stipulates that energy suppliers have no right to refuse to producers of energy from alternative energy sources for access to their network. Issues to improve the green tariff are being addressed by other initiatives.
Low domestic demand for bioenergy in municipalities	L	Although more than 90% of produced pellets in Ukraine are exported to the European Union, the increase in domestic household gas prices would facilitate domestic demand for bioenergy. Moreover, this project will promote and encourage demand in the municipal sector for bioenergy.
Limited land for food production (i.e., food vs. energy problem)	L	There are multiple environmental risks which are potentially associated with development and deployment of bioenergy technologies. On the resource supply, the risk will be mitigated by focusing on ready available straw and wood waste (thus minimizing existing negative environmental impact from their uncontrolled combustion/storage). In addition, environmental risk management will be carefully integrated and studied in the course of technology development for biomass combustion in order to avoid any potential negative impact.
High cost of debt capital	M	Due to the financial crisis and high interest rates, Ukrainian companies, including those interested in bioenergy development, operate under severe capital and resources constraints which might jeopardize their investment and development plans. It is very hard for many of them to borrow money at acceptable interest rates. In the course of PPG, stakeholder analysis will be undertaken, focusing, inter alia, on identifying a list of potential partners/technology developers and financiers in Ukraine and abroad, including assessment of their financial and economic standing. Investment Grants have the potential to help mitigate financial risks.
Informational and Awareness barriers	L	Biomass is often perceived as waste with zero cost and insufficient information on bioenergy technologies is typical for Ukraine. However, since 2002 international Ukrainian conferences on biomass have become regular events in the country. Ukraine has also sufficient scientific, technological and engineering base for production of certain RES technologies.
OVERALL		

B.5. IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:

The executing agency for this project will be the Ministry of Agricultural Policy who will be responsible for development of the National Biomass Programme and its implementation. Ministry of Environmental Protection, the Ministry of housing and Communal Development, the Regional Administrations of Ivanofrankivsk and Cherkasy and the private sector will all be important stakeholders in this project.

Potential municipalities for replication activities under component 5 of the project include:

Vinnitsya oblast: Nemirov, Gaysin, Ladyzhin, Kryzhopol.

Kirovograd oblast: Aleksandrovka, Znamenka, Novomirgorod, Mala Vista.

City of Lviv.

Potential companies located in Ukraine that might be involved into project activities are: Kontango-Trade, Tend Ukr, Service Centre Ritrama-Ukraine, Sintal Agriculture. Moreover, the interest comes from foreign companies, such as Firma Handlowo-Uslugowe Adam Kloc (Poland), Interprodukt (Germany), EBES Polska Sp.z.o.o. (Poland). Other companies will be identified as part of the PPG activities. The complete list of project stakeholders and their designated roles and responsibilities under the proposed project will be identified and confirmed during the PPG exercise.

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The project is the only planned initiative in Ukraine focusing on the utilization of biomass and the appropriate bioenergy technologies in municipalities. Another unique feature of this project is that it is developing a capacity and support mechanism within the Ministry of Agricultural Policy for biomass projects. In particular, the project will coordinate with other initiatives as follows. In particular, the project will coordinate with other initiatives as follows.

Name of Initiative	Description of Activities	Cooperation with this Initiative
Biomass Action Plan – Dutch/Ukrainian Initiative	Preparation of a National Biomass Action Plan for Ukraine	This project builds upon the findings of the biomass action plan and in particular the recommendation that there needs to be a development of regional programs to modernize municipal heat-power sector of Ukraine. Implementation of such regional programmes on biomass energy is a key component of the Biomass Action Plan.
UNIDO-GEF - Improving Energy Efficiency and Promoting Renewable Energy in the Agro-Food and other Small and Medium Enterprises (SMEs) in Ukraine	This project will supposedly assist small and medium sized enterprises in the agricultural sector with investments in biomass energy. The project also will work on the policy and legislative aspects of bioenergy in Ukraine.	This project is complementary to this initiative in that it focuses mainly on the demand side of the market and on the municipal sector which is not a focus at all of the UNIDO project. The UNDP project does not focus on the policy and legislative aspects of bioenergy in Ukraine.
EBRD-GEF Creating Markets for Renewable Energy Power in Ukraine	This project works on the policy and legislative aspects related to bioenergy in Ukraine. In addition, it will provide a loan facility whereby project developers can access loan financing for renewable energy projects in Ukraine.	The EBRD project will not be used as one possible source of financing for the demonstration projects under the UNDP project to avoid problems of possible duplication.
Ukrainian-Dutch Cooperation on “Granules for Energy Generation”	This ongoing project is designed to study the development of unused lands and a system of biomass supply in Ukraine in order to create business models for production of granules from certified ecologically sustainable biomass for export and domestic consumption.	UNDP project will be additional to this initiative as it would target demand side and municipal sector. Cooperation might be created on the methods for collecting of unused biomass in sustainable ecological manner.

UNDP Community Based Approach to Local Development	This project aims to develop community based approaches to local development on a range of different development issues.	UNDP will use resources from this project as co-financing for this project in order to help raise awareness related to the importance of biomass as an energy source at the local level.
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C. DESCRIBE THE GEF AGENCY’S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

UNDP has a comparative advantage in implementing technical assistance projects related to climate change and for projects where in-country support can make a significant difference. In addition, UNDP has a successful track record of implementing biomass projects in the Europe and CIS region including in Belarus, Latvia, Poland, Slovakia, and Slovenia. UNDP has a wealth of experience in implementing climate and energy projects in the region, including in particular with biomass projects. In particular, UNDP has implemented successful biomass projects (with support from GEF) in the following countries in the region: Belarus, Latvia, Poland, Slovenia, and Slovakia. The success of these projects gives confidence to UNDP that further successful technical assistance projects related to biomass can be developed and successfully implemented. During the course of implementation of these projects, important lessons have been learned concerning the barriers which prevent biomass markets from fully developing. These barriers include uncompetitive market prices, price distortions and the need for attractive green feed-in tariffs, lack of information and awareness, high transaction costs, higher levels of perceived buyers risk, inefficient market organization related to new technologies and in particular biomass, technology specific barriers. Prior experience of success in undertaking activities to help remove these types of barriers gives UNDP a comparative advantage to implement this proposed project.

C.1. INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:

UNDP will support the project with a US\$ 200,000 (grant) from core resources which will work out to \$50,000 per annum over four years related to raising awareness on biomass issues as part of the ongoing support UNDP is providing in Ukraine to various municipalities. In addition, an in-kind contribution equivalent to \$700,000 will be provided to the project through the contribution from the UNDP Community Based Approach to Local Development project which is aimed at promoting development at a municipal level. Resources from this project can and will be allocated towards promoting biomass energy. The total UNDP contribution is for this project is estimated therefore as US\$900,000.

C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY’S PROGRAM (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

One of the main priorities stated in the UNDAF in Ukraine is “Addressing climate change and sustainable use of the natural resources of Ukraine in line with national priorities and multilateral environment agreements”. This project is fully consistent with this objective and consistent with UNDP’s strategy in the environment and energy area in the Europe and CIS which is to focus on energy-efficiency initiatives and renewable and energy interventions (in particular biomass). Staff capacity in the UNDP office in Ukraine is strong and is further being strengthened. The Environment and Energy Group in Ukraine currently has 3 staff members (with 1 more currently being recruited) who are currently implementing ongoing projects related to municipal energy-efficiency, methane recovery from landfills (through the joint implementation “JI” mechanism), and sustainable transport. In addition, UNDP Ukraine has strong support from the UNDP Bratislava Regional Centre and UNDP New York, meaning that UNDP has in place a strong system for implementing its GEF project portfolio, backstopped by competent technical staff and by consultants, as required.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)


A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template).

NAME	POSITION	MINISTRY	DATE (MM/DD/YYYY)
Mr Vadim Pajarsky	GEF Operational Focal Point	Ministry of Ecology and Natural Resources of Ukraine	07/09/2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.

Agency Coordinator	Signature	Date	Project Contact Person	Telephone	Email Address
Yannick Glemarec UNDP/GEF Executive Coordinator		December 20, 2011	John O'Brien, Regional Technical Advisor - Climate Change Mitigation, Europe and CIS	+ (421-2) 59337 413	john.obrien@undp.org