



National Strategy ***for Clean Development Mechanism***

for the first commitment period of the Kyoto Protocol
2008 – 2012



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List of Acronyms

ACM.....	Approved Consolidated Methodology for CDM projects
A/R.....	Afforestation/Reforestation
CDM.....	Clean Development Mechanism
CER.....	Certified Emission Reduction
CIS.....	Commonwealth of Independent States
CO ₂	Carbon Dioxide
COP.....	Conference of the Parties to the UNFCCC
DOE.....	Designated Operational Entity for validating CDM projects
DNA.....	Designated National Authority
GEF.....	Global Environmental Facility
EIA.....	Environmental Impact Assessment
EU ETS.....	EU Emission Trading Scheme
GDP.....	Gross Domestic Product
GEF.....	Global Environment Facility
GHG.....	Greenhouse gas
ICEIM - MANU.....	Research Center for Energy, Informatics and Materials - Macedonian Academy of Sciences and Art
IET.....	International Emissions Trading
IPCC.....	Intergovernmental Panel on Climate Change
IRR.....	Internal Rate of Return
Jl.....	Joint Implementation
LFG.....	Landfill Gas
MoEPP.....	Ministry of Environment and Physical Planning of Macedonia
MOP.....	Meeting of the Parties to the Kyoto Protocol
MOU.....	Memorandum of Understanding
MtCO ₂ eq.....	million tons of CO ₂ equivalent
NEAP.....	National Environmental Action Plan
PDD.....	Project Design Document
PIN.....	Project Idea Note
REC.....	Regional Environment Center
UNDP.....	United Nations Development Programme
UNFCCC.....	United Nations Framework Convention on Climate Change

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1 Background

1.1 UNFCCC and Kyoto Protocol

Climate change has emerged as one of the most important issues facing the global community in the 21st century. The primary cause of climate change is increased concentrations of greenhouse gas (GHG) emissions due to human activities, such as combustion of fossil fuels, deforestation and increased methane emissions. In response to these emerging impacts, the international community negotiated the United Nations Framework Convention on Climate Change (UNFCCC), which was signed at the Rio Earth Summit in June 1992 and came into force in March 1994. To reinforce the goals of the Convention, the Kyoto Protocol was adopted in 1997, which calls for legally-binding GHG emissions limits by Annex I Parties (i.e. industrialized countries). The Kyoto Protocol entered into force and became legally binding on February 16, 2005 after the required number of Parties had ratified the agreement.

The Kyoto Protocol also introduced three 'flexibility mechanisms' to assist Annex I countries in meeting their emission reduction commitments in a flexible and cost effective manner. The three mechanisms are: International Emissions Trading (IET), Joint Implementation (JI) and the Clean Development Mechanism (CDM). It is the latter of these three market-based instruments that is the primary focus of this Strategy.

1.2 Clean Development Mechanism

The Clean Development Mechanism (CDM) is defined in Article 12 of the Kyoto Protocol. It allows Annex I Parties to invest in projects that reduce GHG emissions and contribute to sustainable development in non-Annex I countries. CDM is the only flexible mechanism that Macedonia can access under the Kyoto Protocol. The two primary goals of CDM are:

- to assist Annex I countries in reaching their emission reduction targets, and;
- to contribute to sustainable development in non-Annex I countries (developing countries and some transition economies in South-Eastern Europe and CIS).

The first goal allows developed countries to achieve part of their GHG reduction obligations through projects in developing countries or countries in transition that reduce GHG emissions through promotion of renewable energy, energy efficiency, improvement of waste management, reforestation/afforestation and other GHG mitigation/sequestration activities. The second CDM goal allows developing countries to attract additional investments for achievement of their sustainable development objectives through the sales of Certified Emission Reductions (CERs) resulting from implementation of CDM projects. Investor country can then count those CERs against its national GHG reduction target. Furthermore, with the establishment of the EU Emission Trading Scheme (EU ETS) in 2005, CERs can now be purchased and used (with some limitations) by EU companies for compliance with their obligations under EU ETS.

The main characteristics of the CDM are:

- ✓ Participation in a CDM project activity is **voluntary** and CDM investments will be market-driven. Public and private parties are eligible to participate.
- ✓ CDM activities must lead to **measurable reductions** in emissions, which will be transferable to the investor in the form of Certified Emission Reductions upon quantification and certification by independent verifiers (Designated Operational Entity, or DOE).
- ✓ The reduction in emissions must be **additional** to any that would occur in the absence of the approved project activity. "Additionality" of CDM projects also has to be certified by DOE.
- ✓ Contributions to **sustainable development** in the host country are a primary aim of CDM projects. The definition of sustainable development or how CDM projects should contribute to it is considered to be the host country's prerogative. It is the responsibility of the host country's Designated National Authority (DNA) to affirm CDM project's contribution to the sustainable development.

1.3 Status of CDM market

The valid generation of CERs began in 2000 and since the Kyoto Protocol entry into force in early 2005, the CDM market has observed an exponential growth. In 2005, 374 MtCO₂eq (mainly CERs) were transacted at a value of US\$2.7 billion with an average price climbing over US\$7.23. These numbers reflected an increase of more than three times above the previous year's volumes of project-based transactions and over five times above the previous year's value. In the first three months of 2006, prices for project-based emission reductions soared with an average reported price of US\$11.45 per tCO₂eq (one ton of CO₂ equivalent) for the 79 million tons transacted in the first three months of 2006 alone, corresponding to a value of nearly US\$0.9 billion. Prices for CERs in primary market transactions appreciated considerably from an average of US\$5.15 in 2004 to US\$7.04 in 2005 and US\$11.56 in the first three months of 2006. After first significant drop of prices in EU ETS market development substantially slowed down and average CER prices decreased to its 2005 level.

Up to date, more than 100 projects capable of generating around 240 million CERs by 2012 have been registered with the CDM Executive Board, and more than 700 additional projects are in the pipeline. All together they could potentially generate above one billion CERs by the end of 2012. Most of these projects are located in Latin America and Asia/Pacific countries. Countries in transition in South-Eastern Europe and the Commonwealth of Independent State (CIS) also belonging to non-Annex I group are much less advanced in accessing CDM financing. There are only five projects from this region that has passed CDM registration (as of November 2006). Participation in carbon market in this group of countries is hindered by a number of barriers such as underdeveloped institutional framework for CDM, low level of in-country awareness and capacities to identify and develop viable CDM projects, and relatively poor investment climate. Furthermore, due to the structure of their economies and often low level of per capita energy consumption, small and medium countries in South-Eastern Europe and CIS find themselves in less advantageous market position vis-à-vis large and more carbon intensive CDM hosts in South-Eastern Asia and Latin America.

Despite of this, some countries in transition, even those with relatively low GHG reduction potential are progressing fast forwards participation in CDM. For example, **Armenia** is one of the most advanced CDM hosts among non-Annex I countries in CIS and Eastern Europe: it has two registered CDM project, and four projects at validation (See Table 1-1). Also, **Moldova** was successful in securing additional CDM financing for projects on energy efficiency, use of biomass and landfill gas use, which all together will be able to deliver about 800,000 CERs by 2012. Success of these two countries, as well as the progress made by Annex I countries in Eastern Europe in leveraging carbon financing through Joint Implementation (JI) scheme of the Kyoto Protocol, shows that opportunities do exist for Macedonia to join the club of CDM hosts already in the first commitment period of the Kyoto Protocol (2008-2012). This would enable Macedonia to leverage much needed investments and clean technologies for the achievement of its national sustainable development objectives.

Table 1-1 CDM Pipe-line in Armenia

Project	Number of Projects	CERs, tCO ₂ eq/year	Investments, mln USD	Annex I country – CER Buyer
Landfill Gas Recovery and Use for Electricity Generation	3	205,000	11,2	Japan
Poultry Biogas Plant	1	63,000	2,5	Denmark
Optimization of technological process in cement production	1	145,000	4	Denmark
Small-scale hydro and wind power stations	7	52,620	51,4	Denmark, Japan, Germany

Source: Diana Harutunyan, Armenia's DNA, June 2006

1.4 Status of UNFCCC and Kyoto Protocol implementation in Macedonia

Acknowledging the significance of the climate change problem and the necessity to take effective actions for its mitigation, *Macedonia ratified the UN Framework Convention on Climate Change (UNFCCC)* on December 4, 1997 (Official Gazette of RM – 61/97), and became a party to the Convention on April 28, 1998. The *Ministry of Environment and Physical Planning (MoEPP)* has been designated as the National Focal Point to the UNFCCC, the key governmental body responsible for policy making with regard to the provisions of the UNFCCC (“Official Gazette of RM” No 61/97).

In January 2000, the *Climate Change Project Office* was set up within the Ministry of Environment and Physical Planning to support the development of the First National Communication on Climate Change. This office was established with the financial support from the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP) to assist with the coordination and strengthening of Macedonia’s reporting obligations under the UNFCCC.

Furthermore, a *National Climate Change Committee* was established as an advisory body for policy-making related to climate change issues in Macedonia (“Official Gazette of RM” Nos. 44/00, 79/03, and 4/04). All components of the National Communication are reviewed and approved by the National Climate Change Committee, which is composed of representatives of thirteen representatives of key governmental agencies, non-governmental organizations, private entities and academia. The Committee is chaired by a representative of the Macedonian Academy of Science and Arts.

The *First National Communication on Climate Change* was adopted by the Government of Macedonia and submitted to the UNFCCC Secretariat in March 2003. In December 2003, it was presented to the Conference of Parties (COP) to the UNFCCC. This document comprises the Action Plan with recommended measures for GHG mitigation and adaptation to the impact of climate change in the most vulnerable sectors. In 2005, preparation of Macedonia’s Second National Communication on Climate Change was initiated with financial support from UNDP/GEF.

Macedonia ratified the Kyoto Protocol in July 2004 (“Official Gazette of RM” No. 49/04). The Ministry of Environment and Physical Planning coordinated all activities related to ratification of the Protocol and raising public awareness. Climate change issues are incorporated in the Law on Environment, including details on preparation of inventories of GHG emissions and removals by sinks as well as action plan on measures and activities to abate increase of GHG emissions and to mitigate adverse impacts of climate change. In the changes and amendments of the Law on Environment it is planned to introduce articles on CDM. Its adoption is planned by the end of the year.

According to the previous activities, and taking into consideration technical capacities of the MoEPP, the Ministry of Environment and Physical Planning was nominated as the country’s Designated National Authority (DNA) for CDM in accordance with the Decision of the Government taken on its 103rd Session held on 1 June 2006.

In addition, in August 2005, the MoEPP received approval from the government to sign a Memorandum of Understanding (MOU) with the government of Italy to collaborate in the area of environment and sustainable development as it relates to the CDM of the Kyoto Protocol. Articles in the MOU include legal and technical support to MoEPP in identification and design of database of potential CDM projects, as well as support for preparation of needed legal framework.

Designated bodies from other states have also approached MoEPP for signing MOUs.

The *Ministry of Economy*, i.e. its Department of Energy and Mineral Resources, is in charge of national energy sector policies, including energy efficiency, power sector reform, renewable energy development and is therefore well-positioned to facilitate identification of CDM projects in Macedonia’s energy sector.

The Research Center for Energy, Informatics and Materials (ICEIM) within the *Macedonian Academy of Sciences and Art* (MANU) has developed significant expertise on GHG emissions accounting and GHG project evaluation, and can also play an important role in national CDM process. ICEIM experts were instrumental in preparation of Macedonia's GHG emissions inventory and the First National Communication to UNFCCC.

All in all, following the ratification of the Kyoto Protocol in 2004 and designation of the Designated National Authority in 2006, Macedonia is now eligible to participate in the Clean Development Mechanism of the Protocol.

2 Goal and objectives of National CDM Strategy

The Goal of National CDM Strategy is to facilitate transfer of investment and technologies through CDM for implementation of projects that reduce GHG emissions and contribute to Macedonia's national sustainable development priorities. This Strategy outlines a course of actions that the Government of Macedonia together with its national and international partners will pursue during the first commitment period of the Kyoto Protocol (2008-2012) to achieve this goal.

The strategy is based on the premises that the window of opportunities to initiate CDM projects that could produce sufficient amount of CERs in 2008-2012 is already very close. Furthermore, the buyers appear to have a preference for bigger projects and their demand is mainly focused on proven technologies with short lead-time projects. In this context, landfill and other methane reduction projects seems to be very attractive since they are not capital intensive, have short lead times and apply approved methodologies. Small-scale projects, such as hydro-power development and some energy efficiency projects, may also offer promising carbon potential as well as contribution to sustainable development of Macedonia.

There are three key objectives that Macedonia aims to attain under the Strategy:

- 1) Identify priority areas for implementation of CDM projects in 2008-2012
- 2) Operationalize its Designated National Authority for CDM
- 3) Build capacity of national private and public sector to participate in CDM

3 Priority areas for CDM

3.1 Overview of Macedonia's GHG reduction potential

Despite of the significant downfall in economic activities in the 1990s, total annual GHG emissions in Macedonia remained almost constant throughout this period at the level of 15 MtCO₂eq/yr. Macedonia's economy is characterized by relatively high level of energy consumption and GHG emissions per unit of GDP (one of the highest among Central and Eastern European countries – see Table 3-1). High ratio of GHG emissions to economic output (GHG or carbon intensity) signals about high cost-effectiveness of potential CDM projects as it implies that large volume of GHG emission reductions can be achieved per 1 US\$ of investments. Relatively higher abatement potential in Macedonia as compared to other Central and Eastern European countries also stems from the fact that Macedonia's energy sector is heavily reliant on coal- and lignite-based thermal power and thus any project measures replacing grid-based electricity in Macedonia are likely to lead to high emission reductions and therefore would be more attractive from CDM.

Table 3-1 Carbon Intensity in Central and Eastern European Countries

Country	Carbon intensity of GDP, tCO ₂ eq/ mIn\$GDPintl	World rank
Bulgaria	856.6	21
Czech Republic	725.2	29
Macedonia	705.9	31
Romania	641.8	35
Slovakia	608.0	37
BiH	594.1	38
Turkey	458.8	54
Croatia	456.2	56
Slovenia	443.5	62
Hungary	401.1	69
Lithuania	359.1	80
Latvia	309.6	95
Albania	296.5	99

Source: World Resources Institute 2006

3.2 Energy sector: energy efficiency and renewable energy

Macedonia's energy sector contributes about 70% of the total country's GHG emissions or approximately 10 MtCO₂eq/yr. Energy generation capacities in Macedonia are based primarily on the domestic lignite coal, imported liquid fuels and natural gas, hydro resources and wood biomass. The biggest lignite mine is located in the Bitola region where three thermo power plants are built with the capacity of 220 MW each. The other lignite mine is located in the Kicevo region where one thermo power plant is built with the capacity of 125 MW.

Depending on hydrological conditions in the year, 15 to 18% of the annual electricity production comes from hydro power plants. There are six hydro power plants and some small ones with the total net capacity of 441 MW. One thermo power plant (Negotino) with 210 MW capacity, which uses a residual oil, is not in operation regularly because of the high price of the produced electricity. The geothermal energy accounts for 2.4% in the heat production sector. There are possibilities for increasing the exploitation of existing and new geothermal sources. The solar energy is being used at a symbolic level (hot water heating). But the geographical position and climate in Macedonia offer a very good perspective to intensify the use of solar collectors.

It is evident that in the Macedonian power system, nowadays and in the future, electricity production from thermal plants will be dominant which makes projects that promote efficiency of energy use and renewable energy highly attractive from CDM perspective. In particular, it is estimated that combined margin (CM) emission factor for Macedonian electricity grid accounts for 0.915 tCO₂/MWh. It means that a hypothetical renewable energy project (hydro, wind or geothermal) with expected annual electricity generation at the level of 60,000 MWh/yr can generate approximately 54,900 CERs annually or 274,500 CERs during 2008-2012. By selling this amount of CERs additional financial resources in the range of 2.74 mIn USD¹ can be mobilized (For examples of projects - see Project Idea Note for St Petka (Matka 2) 36 MW Hydropower Project in Annex I).

According to the development plan prepared in 2001 by the Electricity Power Company of Macedonia (Elektrostopanstvo na Makedonija - ESM), it is envisaged to construct 29 new small hydroelectric plants,

¹ at 10\$/CER

with total capacity of 89 MW, part of them in range of 47 MW until 2015. Registration of these projects under CDM framework will allow mobilizing additional financing for hydro-power development in Macedonia, improving financial attractiveness and reducing pay-back period for investments in hydro-power. See Text Box 3-1 for description of potential project on small hydro power plants rehabilitation in Macedonia.

Text Box 3-1 Rehabilitation of seven small run-of-river hydropower plants

This project is deemed to have medium - high potential as a CDM project activity. The project activity involves the rehabilitation of seven small run-of-river hydropower plants. This will increase the amount of renewable energy that is generated and exported to the Macedonian grid. The generated electricity will displace electricity produced predominately by coal fired power plants. An average of 25,272 tCO₂eq/yr could potentially be generated.

Although this project is small-scale in nature, the total installed capacity of the hydropower plants included in the project boundary would surpass the 15 MW_e limit for small-scale CDM project activities. However, the project would be likely to satisfy all the applicability conditions as set out in the consolidated methodology for grid-connected electricity generation from renewable sources (ACM0002)

Other priority areas and examples of potential CDM projects in Macedonia’s power and energy sector are listed in Table 3-2 below and selected Project Idea Notes (PINs) are provided in Annex I.

Table 3-2 Priority areas and projects for CDM in Macedonia's energy sector

Priority Areas	Potential CDM projects
Rehabilitation of large power plants	Rehabilitation of the Bitola plant (three 225 MW coal-fired units)
Fuel Switching to Natural Gas	Toplifikacija 340 MW natural gas powered cogeneration project (approximately 785,000 tCO ₂ eq/year)
CHP for District Heating	Rehabilitation of district heating system in Skopje and Negotino
Industrial Efficiency Improvements	Okta oil refinery waste heat/gas collection and utilization projects
Hydro Power	Rehabilitation of seven small run-of-river hydropower plants (See PIN in Annex I)
Geothermal Energy	Kocani geothermal central heating system project

3.3 Waste Sector

3.3.1 Municipal and industrial waste

Waste is one of the major environmental challenges in Macedonia. Although the generation of waste has been influenced by the economic situation of the past ten years with its lower industrial output, the poor condition of existing landfills is causing whole range of environmental problems, such as air pollution, soil and groundwater contamination. Moreover, as economy started to recover the volume of municipal waste is projected to grow and may reach the level of 828,000 t/yr by 2025 (see Table 3-3). According to the National Environmental Action Plan (NEAP), development of six new regional landfills for communal solid waste and technological waste is envisaged.

Table 3-3 Projected Increase in municipal waste 1999-2025 ('000 tonnes)

Year	Total	Urban areas	Rural area
1999	479	359	120
2005	541	424	117
2010	600	486	114
2015	667	558	109
2020	743	641	102
2025	828	735	93

Source: MoEPP

Carbon finance has already proved to become a significant source of finance for waste management projects, particularly those dealing with landfill gas (LFG). CDM project activity normally involves the collection of landfill gas (LFG) from the landfill and its destruction using flares or utilization for heat generation. Emission reductions will be claimed for the amount of methane gas which is combusted in the flares or utilized. Nowadays, LFG projects comprise almost 10% of the global CDM pipeline. From the current CDM market perspective, LFG recovery and utilization projects are very attractive since they are not capital intensive, have short lead times and apply approved methodologies. Furthermore, carbon financing can significantly improve economic attractiveness of investments in LFG projects by increasing Internal Rate of Return (IRR) of such projects by 30-40%. Short description of Macedonia's priority LFG project is presented in Text Box 3-2.

Text Box 3-2 Drisla Landfill Gas Collection and Utilization project

Out of approximately 500,000 tons of municipal waste generated annually in Macedonia, roughly one third (150,000 tons) is being stored at Drisla landfill nearby Skopje. It is the only legally operating landfill in the country, which still lacks basic environmental infrastructure, e.g. proper lining and a drainage system to prevent polluted leachate entering the groundwater.

The proposed project is deemed to have high potential as a CDM project activity. The project activity will involve the collection of landfill gas (LFG) from the Drisla landfill and its subsequent use for heat and/or electricity generation. Emission reductions will be claimed for the amount of methane gas which is utilized. Emission reductions are expected to average 70,000 tCO₂eq/yr. The project is likely to satisfy all the applicability conditions as set out in the consolidated CDM methodology for landfill gas project activities (ACM0001). The project will become the first LFG collection and flaring project in Macedonia, so its additionality will not be questioned.

However, it is necessary to conduct a feasibility study to accurately assess the total project costs and the actual amount of LFG which is expected to be collected. For the implementation of project cooperation with an experienced LFG technology provider should be sought. The company should have experience with implementing LFG projects in countries which experience sub-zero temperatures during winter.

3.3.2 Waste in Agricultural and Forestry Sector

Agricultural sector plays a very important role in the Macedonian economy providing for more than 10% of country's GDP. It is therefore also one of the largest producers of waste. There are no formal collection systems for agricultural wastes, other than individual farms' own systems. According to NEAP, agricultural waste management practices in Macedonia are outdated and do not often meet technical

and ecological requirements: manure and other waste is being spread over nearby pastures and cropland without preliminary treatment leading to nitrate pollution, emissions of methane, as well as traces of ammonia and other odorous substances. As it is illustrated in Table 3-4 livestock breeding and such agricultural activities as crop production, horticulture and viticulture, generate the largest volume of waste and are thus associated with major negative impact on the local environment.

Table 3-4 Agricultural Waste in Macedonia

	Cereal-based agriculture	Horticulture & viticulture	Forestry	Extensive Livestock	Intensive livestock
Waste oil/fuel	* *	*	* *		*
Old tires/batteries	* *	*	* *	*	* *
Old machines/parts	* *	*	*		* *
Pesticide waste/packs	* * *	* * *	*		*
Sheep dip residues				* *	
Waste fertilizer	* *	* *	*		* *
Vet products/packs				*	* *
Old plastics	*	* *	*		*
Crop residues	* * *	*	* *		
Pruning waste		* *			
Animal feed residues				*	* *
Manure/slurry					* * *
Dead animals/birds				*	* *
Waste paper/cardboard	*	*		*	* *
Waste wood	*	*	* *	*	*
Waste creosote			*		
Primary precess waste	*	* * *			* *

Source: MoEPP

Key:

- * Minor volume of waste and/or minor potential impacts
- * * Medium volume of waste and/or medium potential impacts
- * * * Major volume of waste and/or major potential impacts

Use of bio-energy, in particular production of biogas from agricultural waste, can potentially become a significant alternative source of green and climate-friendly energy for Macedonia's agricultural sector. The presence of large quantities of organic waste is a potential source of bio-gas which can be recovered from the waste through the anaerobic digestion process and then used for production of heat and electricity. From current CDM market perspective one of the most attractive projects in Macedonia's agricultural sector can be those aiming at construction of bio-digestors for recovery and use of biogas from livestock and poultry farms because they result in the reduction of methane (CH₄) emissions, the greenhouse gas whose global warming potential is 21 times higher than CO₂. This project type offers good potential in Macedonia due to the presence of big and well-developed poultry and husbandry sector (see Table 3-5 on country's livestock data). Furthermore, agricultural waste management projects are normally associated with sizeable social and environmental benefits for local communities, such as new opportunities for employment for skilled rural labor force, production of cheap and ecologically-clean fertilizers for farmers and individual households, and reduction of nitrate and odor pollution from manure. Existence of approved CDM methodologies, short implementation time and moderate start-up costs make this type of projects interesting for potential CDM investors.

Table 3-5 Macedonia's Livestock and Poultry Data

	Poultry	Sheep	Cattle	Pigs	Goats	Horses
Number, 000	4,100	2,300	280	167	80	65

Source: MoEPP

Forests cover more than one third of the total territory of Macedonia or about one million ha, 90% of which is owned by 30 major forestry companies. Out of 900,000 m³ of wood, 750,000 m³ is used for domestic heating purposes and the rest is provided to the wood processing industry generating around 70,000 m³ of waste (45,000 tons) annually. An additional 150,000 m³ of wood waste is produced during the logging process. Most of the produced wood waste is left unexploited and landfilled representing another important source of clean and climate-neutral energy in Macedonia. In this context, CDM can be used to leverage financing for the construction of biomass power plants using forestry residues. This is a one of the most common type of projects in global CDM and JI pipe-line; biomass accounts for 30% of the total number of CDM/JI projects. Examples of potential projects include installation of biomass-fired boilers to replace fossil-fuel based thermal power; cogeneration biomass plants may also be an option and could supply a district heating system with thermal energy as well as supply electricity to the grid.

3.4 Forestry sector

Forests are the most significant natural resource in the system of maintenance, restoration and promotion of primary natural resources (water, soil and air). According to the Physical Plan of Macedonia, forests, forest crops and intensive plantations occupies an area of 934.128 ha or 36,7 % of the total area of the Country. Net absorption of CO₂ by Macedonian forests is estimated to be in the range of 2.2 MtCO₂eq/yr. However, the level of CO₂ absorption can be significantly ameliorated: almost 71% of the total area under forest in Macedonia is currently occupied by low dendriform and degraded forests. Activities leading to reforestation of degraded forest areas are technically eligible to be registered under CDM mechanisms and generate CERs in the amount corresponding to the increase in sinks of GHG in re-forested area. However, CDM rules impose certain limitations on Afforestation/Reforestation (A/R) activities (See Text Box 3-3) which have tended to reduce their attractiveness relative to other CDM projects. There is also a lack of approved CDM methodologies for this category and furthermore, A/R projects sequester carbon over long periods of time and often take 10 years or more before they generate significant volumes of CERs which makes them economically less attractive than normal CDM projects (i.e. LFG or biogas) with quicker pay-back period and higher returns.

Text Box 3-3 Definition of Afforestation/Reforestation CDM

An A/R CDM project activity is an afforestation or reforestation measure, operation or action that aims at achieving net anthropogenic GHG removals by sinks:

- ☞ "Afforestation" is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.

- ☞ "Reforestation" is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989.

There is only one registered A/R CDM project globally, namely "Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin" in China.

4 Establishment of Designated National Authority

4.1 Role of DNA

A prerequisite for Macedonia’s participation as CDM project host is the establishment of a Designated National Authority (DNA) for issuing written approval of CDM projects. The main responsibilities of the DNA include:

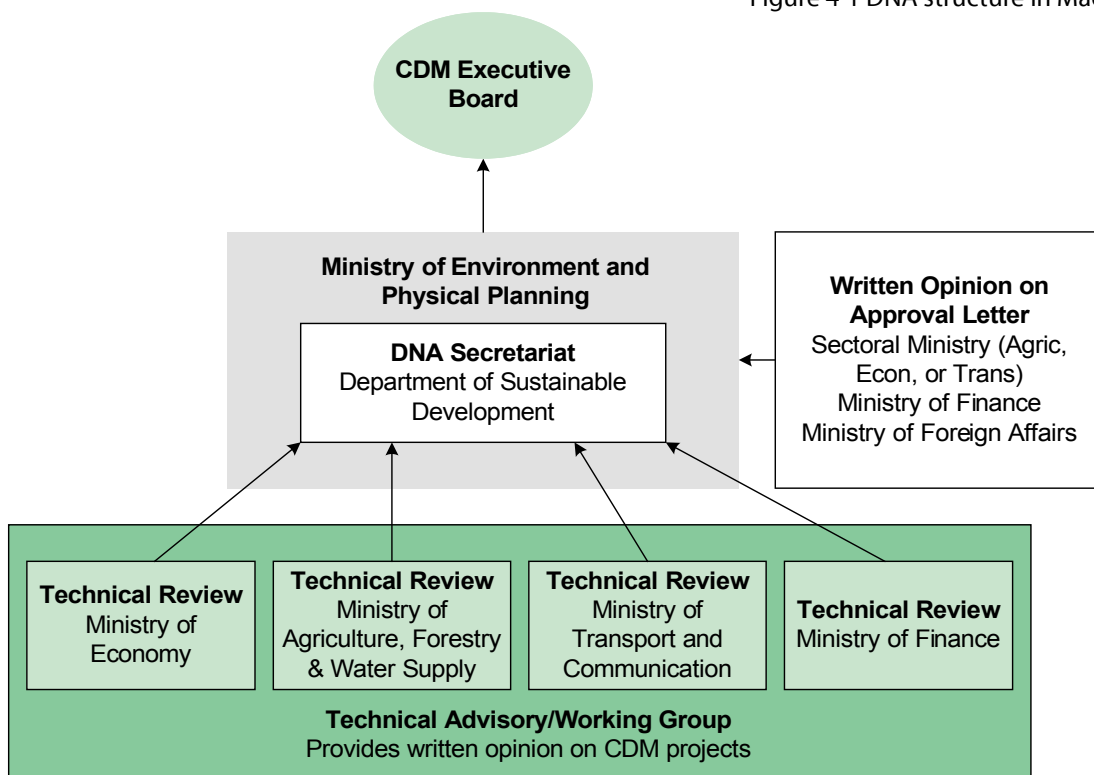
- 1) Establish national rules for CDM project eligibility, submission, and approval;
- 2) Ensure CDM project compliance with national sustainable development criteria;
- 3) Certify CDM project compliance with other country-specific eligibility criteria, such as Environmental Impact Assessment (EIA); and
- 4) Issue host country approval letter for CDM projects undertaken in Macedonia, including certification that the project is undertaken on a voluntary basis.

The DNA may also get involved in project outreach, training activities for potential project developers, creation of a database of potential CDM project opportunities, and promotional activities targeting international carbon investors and funds.

4.2 Structure of Macedonia’s DNA

Macedonia’s Designated National Authority for CDM will be located within the MoEPP according to a “Single Ministry Model.” According to this model, the MoEPP will have final legal authority on project review, approval, and signature of the host country endorsement and/or approval letter (Figure 4-1). The MoEPP will also be authorized to enter into special CDM project agreements or MOUs with potential investor countries.

Figure 4-1 DNA structure in Macedonia



The DNA Secretariat will be housed by the MoEPP, within the Department of Sustainable Development. It will be responsible for CDM outreach and would act as a contact point to the public, including project developers, validators, potential investors, and the CDM Executive Board. In addition, the secretariat will be responsible for internal review of CDM projects, coordination of expert review by other relevant ministries, and drafting of the decision letter. *The Minister of the MoEPP will be the final decision maker and will provide the signature for any endorsement and approval letters.*

Other relevant ministries will be involved in project review through **a two-step review process:**

Step 1: CDM Project Review by Technical Advisory Group, consisting of appointed experts from the MoEPP, the Ministry of Finance, and relevant sector ministries, such as the Ministry of Economy, the Ministry of Agriculture, Forestry and Water Supply, and the Ministry of Transport and Communication. Based on the internal MoEPP review and the inter-ministerial expert reviews, the DNA Secretariat would draft a recommendation memo to the Minister of MoEPP who would then make the final decision on the project. Based on the Minister’s decision, the DNA Secretariat would draft an approval/rejection letter.

Step 2: Review of Host Country Approval Letter by Relevant Ministers.

As part of the second step of the inter-ministerial review process, the DNA Secretariat would send the draft host country letter for review by the relevant sectoral ministry (Ministry of Economy, Agriculture, or Transportation), the Ministry of Finance, and the Ministry of Foreign Affairs. These ministries would respond in the form of a written “opinion,” which would then be taken into account by the MoEPP in the preparation of the final decision letter.

4.3 National CDM project review and approval procedures

Macedonia adopts a two-tiered CDM approval process which envisages optional submission of a Project Idea Note (PIN) and a required submission of a Project Design Document (PDD). Table 4-1 describes key steps and time-frames in Macedonia’s national CDM project review and approval process.

Table 4-1 CDM Project Approval Procedure for Macedonia

Step	Time-frame	Voluntarily/ Mandatory
Step I: Initial Screening and Endorsement of the Project Idea Note (PIN)	15 working days	Voluntarily
- Review of the PIN	10	
- Issuance of Letter of Endorsement	5	
Step II: Final Review and Approval/Rejection of the Project Design Document (PDD)	30 working days	Mandatory
- Initial Screening of PDD	2	
- Review by Technical Advisory Group	10	
- Technical Review Summary and Recommendation to the Minister of MoEPP	4	
- Decision by the Minister of the MoEPP	2	
- Draft Letter of Approval	3	
- Inter-ministerial Review of Approval/Rejection Letter	5	
- Final Approval/Rejection Letter	4	

Annex II provides detailed information on each step, role and responsibilities of various stakeholders in CDM project review and approval process.

4.4 Criteria for assessing Sustainable Development impact of CDM projects

One of the key CDM objectives from non-Annex I country perspective is to assist it in achieving sustainable development. As such, participation in CDM is seen by Macedonia as an opportunity to facilitate market transformation in order to create less greenhouse gas intensive and more sustainable development pathway. Each CDM project will be reviewed by DNA against its compliance with national sustainable development goals and objectives. In particular, each proposed CDM project should:

- (i) provide a **net environmental benefit** to Macedonia or community in which it is located (reduced GHG emissions, air quality, waste reductions), or at least not result in a net adverse environmental impact;
- (ii) deliver a **net contribution to economic development** (including the transfer of more efficient and environmentally benign technologies, employment, decreased dependence on energy imports, positive financial flows), or at least not result in net economic loss;
- (iii) contribute to an **improvement in social conditions** (poverty alleviation, more equitable distribution of benefits) particularly that it does not discriminate against a particular community or result in a less equitable distribution of rights or benefits.

In order to assess concordance of CDM projects with the above principles, the government of Macedonia will develop and approve a set of specific criteria and indicators which would be used by DNA to measure individual projects' contribution to sustainable development and prioritize them for Annex I parties interested to invest in CDM projects in Macedonia.

5 Capacity building for CDM

5.1 Creating national institutional framework for CDM

Legal and legislative requirements

In order to establish proper legal environment for CDM in Macedonia, there is a need to consider the relative strength of the existing incentives for investment and make improvements wherever necessary and feasible. The following are some issues where the proper legal and regulatory environment will be critical:

- *Investment:* This includes legislation regarding foreign participation in domestic companies, including legislation that may limit foreign participation in CDM projects. Another issue that could hinder CDM investment would be a requirement that entities must remit profits earned abroad, such as those gained by selling CERs.
- *Taxation:* Tax incentives for certain types of investment, including those favored by CDM investors, could encourage increased investment in the country. For example, introducing tax incentives for green projects would positively affect the number of CDM projects in the country. Other taxes may be levied in the form of import or export duties on CDM project technologies or CERs.
- *Legal status of CERs:* Classification of the CERs within the domestic legal framework is an important issue that may impact decision of carbon investors. To provide clarity and reduce risk to investors, Macedonia will need to adopt a legal document clarifying if and how CDM projects and the underlying CERs will be affected by existing tax laws, including the treatment of CER revenues in corporate taxation.
- *Environment and Natural Resources:* integration of domestic EIA processes with the international environmental assessment requirements of CDM projects would speed up the project development and approval process.
- *Establish a Link to the CER Registry of the CDM Executive Board:* This registry is currently under development and is expected to be completed by the end of 2007. Once a CDM project begins to generate certified CERs, the CERs will be issued to the accounts of the relevant entities identified by the project participants in the PDD. Macedonia is entitled to hold an account within this registry, and should therefore establish procedures for receiving CERs from relevant CDM projects, such as those developed unilaterally (i.e. without involvement of an Annex I Party).

Financing DNA and technical assistance

Direct costs of Macedonia's DNA will be primarily funded by the Government of Macedonia. However, there is a need, especially during the start-up of DNA's operation for external assistance and capacity building for DNA staff and other governmental players involved in CDM project review and approval process. Priority areas of such assistance include:

- Support for development and testing methodology for assessing sustainable development impact of CDM projects
- Assistance with technical review of CDM projects and their compliance with CDM rules and requirements
- Access to information and best practices on national legal and regulatory framework for CDM in other non-Annex I countries

- Preparation of sectoral baseline studies and assessment of sectoral CDM potential in priority sectors (energy and waste)
- Development of pilot CDM projects and their marketing to potential carbon investors

The Government of Macedonia will seek to incorporate provisions for such technical assistance in the bilateral MoUs that it will negotiate with interested Annex I countries and other technical assistance providers.

Public participation

The CDM project review cycle is designed to allow public stakeholders to comment on proposed CDM projects. The Marrakesh Accords specify that project participants must invite comments by local stakeholders, summarize any comments received, and provide a report on how due account was taken of these comments. There are several ways to involve Macedonia's public in the decision making process on CDM and/or ensure that public stakeholder comments are addressed properly:

- Invite public to submit comments on all final project proposals (PDDs) which is being evaluated by placing respective advertisement on DNA's web-site.
- Notify the public and all stakeholders when a CDM project is undergoing public review as part of the validation process.
- Require project participants to include, along with the PDD, a discussion of measures taken to involve public participation in the project review. The DNAs will then assess whether public participation has been adequately organized.

Effective communication and information dissemination

Marketing and promoting Macedonia's potential for CDM is an important component of National CDM Strategy. Outreach is needed to notify potential project developers of possible CDM opportunities and for attracting foreign investors to the country. Because of the different target groups, an outreach strategy will be developed to reach all of these.

Activities directed at potential project developers in Macedonia will focus on explaining the concept of CDM, including CDM benefits, eligibility criteria, and application procedures.

International outreach will focus on CDM project investors and donors for capacity building activities and will highlight potential CDM project opportunities, national project developers and consultants, investment climate, application procedures, and relevant contact points within the DNA. International outreach may be organized in a form of:

- Participation in regional and international carbon expos or organization of public side events during the climate change meetings organized by the UN.
- Entering into special agreements with investor countries and individual carbon facilities to collaborate on the development and approval of CDM projects (typically by signing a Memorandum of Understanding (MOU), such as the one already agreed to by Macedonia and Italy).
- Distributing press releases to international climate change news services about important developments in the host country, including the free list serve "Climate Change Info Mailing List (Climate-L)" to which thousands of practitioners in the climate change community subscribe.

5.2 Capacity building for private sector

Knowledge and skills to identify and develop CDM proposal

Most potential project developers in Macedonia are currently unaware of CDM and the opportunities it can provide. In this regard, the Strategy foresees the following priority actions:

- Raise awareness of key potential project developers on CDM and urge them to incorporate CDM into the design of their investment project at an early stage
- Develop capacities and knowledge among Macedonian research, NGO and environmental consultancies for preparation of CDM project documentation
- Wherever possible mobilize external technical assistance to support local project developers in identification and implementation of CDM activities
- Promote exchange of experience and lessons learnt on CDM project development from other non-Annex I countries through participation in global and regional specialized events and other exchange schemes.

Financing transaction costs

High transaction costs associated with development and implementation of CDM projects is one of the most serious barriers that Macedonia's project developers will need to overcome. There are a number of options to limit (and in some cases avoid) such expenses. With a growing demand for CERs, many carbon funds and CDM consultancy companies (most of them are listed in Annex IV) are willing to take on CDM risk. This may include covering costs associated with preparing the PDD (and new methodology application if needed), paying CDM related fees to the DOE for validation, verification, etc., and fees associated with registration payable to the CDM EB. Such fees may be covered in exchange for a discount on the price of CERs or for the right to receive a percentage of the CERs.

6 Annexes

6.1 Annex I: Selected Project Idea Notes²

6.1.1 Drisla Landfill Gas (LFG) collection and flaring project

Project name	Drisla Landfill Gas (LFG) collection and flaring project
Project type	LFG collection/destruction
Project location in Macedonia	Drisla landfill is located in Batinci village, 14 km south-east of Skopje. It has been constructed in a declivitous depression which is oval in shape.
Summary of the project activity	<p>The Drisla municipal landfill near Skopje has a capacity of 26 million m³ and receives approximately 150,000 tons annually. Drisla is the only legal landfill in Macedonia, since it operates with a construction permit issued by the Ministry of Transport and Communications. However, no formal guidelines exist on the construction and operating requirements for landfills. The landfill lacks lining and a drainage system to prevent potentially polluted leachate entering the groundwater. In addition, most of the pipes of the gas (methane) collection system are damaged, and the 'daily' covering of waste with inert material is very irregular. Although there are no legal requirements to do so, the Drisla public enterprise monitors on a monthly basis dissolved oxygen (DO), biological oxygen demand (BOD), acidity (pH) and chemical oxygen demand (COD). However, only two of the six boreholes are in operation.</p> <p>The project activity will involve the collection of LFG from the Drisla landfill and its destruction using flares. Emission reductions will be claimed for the amount of methane gas which is combusted in the flares. At this stage it is not expected that the collected methane gas will be used as a fuel for thermal or electric power generation.</p>
Summary of the technology to be utilized by the project activity	In terms of LFG collection, vertical wells will be used to extract the LFG. The wells will be placed in a way to optimize the amount of gas collected while keeping costs as low as possible. Considerations will need to be made to prevent freezing of pipes in the winter months. Flares with an efficiency of at least 97% will be installed to ensure a high rate of methane gas destruction. Technological details will be finalized in the feasibility study, which should be conducted for the Drisla LFG collection and flaring project.
Choice of crediting period and justification	<p>7 year crediting period (renewable 2 times – maximum of 21 years) Justification for choosing this crediting period;</p> <ul style="list-style-type: none"> • The situation in Macedonia is unlikely to change significantly before the year 2021 (year in which the PDD is scrutinized for the last 7-year crediting period) so as the projects baseline or additionality comes into question. • The landfill will receive waste until the year 2020 so significant amounts of LFG should be emitted for at least 10 years after that. • A gas engine will not be used by the project for power generation so it is likely that the equipment will last for at least 21 years.
Starting date of the project activity and the crediting period	<p>Starting date: 2007</p> <p>Start of (1st) crediting period: 2007</p> <p>If commissioning of the project is delayed, the crediting period will be delayed until commissioning occurs.</p>

² Information about expected volume of CERs and other project details provided in the PINs are tentative and are subject to additional assessment and calculation to be done in the course of PDD preparation

<p>Expected number of CERs to be generated by the project activity</p>	<p>An average of 71,918 CERs/yr.</p> <p>A total of just over 1.5 million CERs over 21 yrs.</p>
<p>Additionality, baseline and emission reduction determination</p>	<p><u>Approved methodology to be used:</u></p> <p>Consolidated methodology for landfill gas project activities (ACM0001)</p> <p><u>Additionality:</u></p> <p>ACM0001 directs project participants to use the latest version of the “tool for the demonstration and assessment of additionality”.</p> <p>A realistic and creditable alternative to the project activity would be continuation of current practice. An investment analysis of the project activity demonstrates that the project will not receive any income apart from that derived from selling CERs.</p> <p>Although it is not necessary to conduct a barrier analysis, the project will face barriers due to prevailing practice. The project activity will be the first LFG collection project in Macedonia. It may also face technological barriers associated with the influence of low winter temperatures on equipment.</p> <p><u>Baseline determination:</u></p> <p>According to ACM0001, the baseline is the atmospheric release of LFG. No adjustment factor will be used since there are no enforced regulations or contractual requirements to collect LFG.</p> <p><u>Emission reduction determination:</u></p> <p>Baseline emissions are predicted based on the amount of methane gas which is expected to be collected and combusted in the flares. The actual amount of methane combusted in the flares will be monitored <i>ex post</i> after the project begins operations. Project emissions are calculated for CO₂ emission due to fossil fuel and electricity consumed in order to operate the project activity. Leakage will not occur.</p> <p>Expected CERs = baseline emissions (tCO₂/yr) – project emissions (tCO₂/yr)</p> <p>Predicted LFG generation and CER calculations are available as a separate document.</p>
<p>Project participants involved in the project activity</p>	<p>Municipality of Skopje</p>
<p>Contribution to sustainable development of Macedonia</p>	<ul style="list-style-type: none"> • The sale of CERs from the project will provide a significant injection of foreign cash into the Macedonian economy. • Transfer of foreign LFG collection/flaring technology and knowledge to Macedonia
<p>Expected environmental and social impacts</p>	<ul style="list-style-type: none"> • Reduces emissions of CH₄, a potent greenhouse gas • Reduces odors and noxious gases • Reduces the chance of fires

6.1.2 St Petka (Matka 2) 36 MW hydropower project

Project name	St Petka (Matka 2) 36 MW hydropower project
Project type	Renewable energy
Project location in Macedonia	The project site is located along the Treska River between Kozjak hydropower plant and Matka I hydropower plant.
Summary of the project activity	The project activity is a run-of-river 36.4 MW hydropower plant which will generate renewable energy. The generated electricity will be sent to the Macedonian grid and displace electricity produced predominately by coal fired power plants. It is predicted that the project will generate approximately 66 GWh of electricity annually. Construction of the project started in 2003 and it is expected to be complete by the end of 2007.
Summary of the technology to be utilized by the project activity	A reinforced concrete tunnel will be used for river diversion. A 69 meter high double arch dam will be constructed and result in the formation of a reservoir which will have a maximum storage volume of 9.1 million m ³ of water and cover an area of 0.62 km ² . Flowing water will be directed through two Francis turbines units each rated at 18.2 MW.
Choice of crediting period and justification	7 year crediting period (renewable 2 times – maximum of 21 years) Justification for choosing this crediting period; <ul style="list-style-type: none"> • The situation in Macedonia is unlikely to change significantly before the year 2021 (year in which the PDD is scrutinized for the last 7-year crediting period) so as the projects baseline or additionality comes into question. • Hydropower projects have an operational life well in excess of 21 years.
Starting date of the project activity and the crediting period	Starting date: Dec. 2003 Start of (1 st) crediting period: Jan. 2008 If commissioning of the project is delayed, the crediting period will be delayed until commissioning occurs.
Expected number of CERs to be generated by the project activity	An average of 60,060 CERs/yr. A total of just over 1.26 million CERs over 21 yrs.
Additionality, baseline and emission reduction determination	<u>Approved methodology to be used:</u> Consolidated methodology for grid-connected electricity generation from renewable sources (ACM0002) <u>Additionality:</u> ACM0002 directs project participants to use the latest version of the “tool for the demonstration and assessment of additionality”. Although the project has already started construction, the new version of the additionality tool only requires project participants to produce proof that climate change mitigation was one of the motivating factors behind the decision to implement the project. Internal and/or public documents attesting to this can be used.

<p>Additionality, baseline and emission reduction determination</p>	<p>A realistic and creditable alternative to the project activity would be continuation of current practice. In the absence of the project, electricity would be supplied to the grid by existing capacity and new capacity additions. An investment analysis of the project demonstrates that it is not financially attractive without additional income derived from the sale of CERs. A reasonable benchmark for the project would be approximately 15%, which is higher than the project's IRR which is only 10.5%.</p> <p>It is not necessary to conduct a barrier analysis (step 3 of the additionality tools). It will be necessary to demonstrate that the project is not common practice. Since there are a number of existing hydropower plants, it must be demonstrated why the project cannot be implemented without the CDM while others could. This can be demonstrated by addressing barriers which the project faces which are not applicable to the other similar existing hydropower plants e.g. no access to ODA, technological difficulties, economic situation has deteriorated, other forms of risk have increased, etc.</p> <p><u>Baseline determination:</u></p> <p>According to ACM0002, the baseline scenario is electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described below.</p> <p><u>Emission reduction determination:</u></p> <p>Baseline emissions are predicted based on the amount of electricity which is expected to be supplied to the grid multiplied by the CM of the Macedonian grid. The CM has been calculated <i>ex ante</i> based on the most recent 3 years of actual grid data.</p> <p>Baseline emissions = 66,000 MWh/yr x 0.91 tCO₂/MWh</p> <p>Project emissions (methane emission from the reservoir, etc.) do not need to be taken into account because the project is a run-of-river hydropower project with a power-density ration of 59 w/m². Leakage will not occur.</p> <p>Macedonian grid CM calculations are available as a separate document.</p>
<p>Project participants involved in the project activity</p>	<p>Electricity Power Company of Macedonia</p>
<p>Contribution to sustainable development of Macedonia</p>	<ul style="list-style-type: none"> • The sale of CERs from the project will provide a significant injection of foreign cash into the Macedonian economy. • Transfer of foreign hydropower technology and expertise to Macedonia
<p>Expected socio-environmental impacts</p>	<ul style="list-style-type: none"> • Increased employment opportunities for local population • Reduces emissions of GHG and other pollutants from fossil fuel combustion

6.1.3 Toplifkacija 340 MW natural gas powered cogeneration project

Project name	Toplifkacija 340 MW natural gas powered cogeneration project
Project type	Low emission power generation
Project location in Macedonia	The project site is to be located in Skopje.
Summary of the project activity	The project activity is a 340 MW natural gas powered cogeneration project. Approximately 6 months per year (in summer) it will operate as a combined cycle power plant to produce electricity and for the remaining 6 months of the year (in winter) will produce both thermal energy and electricity. The plant will operate as an Independent Power Producer (IPP) and sell electricity to the grid and thermal energy to the district heating system. This will displace power production by more carbon intensive production plants and result in emission reductions of just over 785,000 annually. Construction of project is likely to start in 2007 and the plant will be owned by a Joint stock company made up of ITERA (70% share) and Toplifkacija AD (30% share).
Summary of the technology to be utilized by the project activity	The gas turbine natural gas fired power plant will be built utilizing Russian technology. No other information was available on the plant's design or technology.
Choice of crediting period and justification	7 year crediting period (renewable 2 times – maximum of 21 years) Justification for choosing this crediting period; <ul style="list-style-type: none"> • The situation in Macedonia is unlikely to change significantly before the year 2021 (year in which the PDD is scrutinized for the last 7-year crediting period) so as the projects baseline or additionality comes into question. • The plant is expected to have an operational life of at least 20 years.
Starting date of the project activity and the crediting period	Starting date: Jan. 2007 Start of (1 st) crediting period: Jan. 2009 If commissioning of the project is delayed, the crediting period will be delayed until commissioning occurs.
Expected number of CERs to be generated by the project activity	An average of 785,423 CERs/yr. A total of just under 16.5 million CERs over 21 yrs.
Additionality, baseline and emission reduction determination	<u>Approved methodology to be used:</u> Approved methodology AM0014 – “Natural gas-based package cogeneration” will not be applicable to the project. AM0014 is designed for projects which are developed by IPPs at a facility which consumes all the power (electricity and thermal) produced. No power from the projects under this methodology can be exported to the grid or other third-parties. Therefore, a new methodology application will need to be prepared for the project. <u>Additionality:</u> The new baseline methodology should direct project participants to use the latest version of the “tool for the demonstration and assessment of additionality”. A realistic and creditable alternative to the project activity would be continuation of current practice. In the absence of the project, electricity and heat would be supplied to the grid and

	<p>the district heating network by more emission intensive existing capacity (and new additions). An investment analysis of the project should demonstrate that the project is not financially attractive without additional income derived from the sale of CERs. Data to allow calculation of the IRR was not available.</p> <p>It may be necessary to conduct a barrier analysis (step 3 of the additionality tools) if the IRR is higher than a reasonable benchmark for similar projects. Demonstrating that the project is not common practice will be non-problematic since no cogeneration projects of this size currently exist in Macedonia.</p> <p><u>Baseline determination:</u></p> <p>Baseline determination will depend on that stipulated in the new methodology application. A method for baseline determination will need to be proposed. A number of alternative scenarios should be proposed and the most plausible one chosen. An example could be:</p> <p>“Power would have otherwise been generated by the operation of existing plants (grid-connected power plants and district heating network connected boiler plants) and by the addition of new generation sources.”</p> <p><u>Emission reduction determination:</u></p> <p>In the case that the baseline is determined to be consistent with the below example, baseline emissions (electricity production) are predicted based on the amount of electricity which is expected to be supplied to the grid multiplied by the CM of the Macedonian grid. The CM has been calculated <i>ex ante</i> based on the most recent 3 years of actual grid data.</p> <p>Baseline emissions (electricity) = 1,520,000 MWh/yr x 0.91 tCO₂/MWh</p> <p>Baseline emissions (thermal production) was calculated as the emissions (tCO₂/energy unit) from all boilers supplying the district heating system for the most recent year in which data is available. This method was only developed to demonstrate possible expected CERs and an official method will need to be proposed by the new methodology developer.</p> <p>Baseline emissions (thermal) = 500,000 MWh/yr x 0.296 tCO₂/MWh</p> <p>Project emissions will be equivalent to the amount of emission from burning natural gas to power the project. Other sources of emissions (leakage) may be natural gas leaks from the pipeline although this may not be applicable to any pipeline which was installed independent of the project.</p> <p>Expected CERs = Baseline emissions (tCO₂/yr) – project emissions (tCO₂/yr) – leakage (tCO₂/yr)</p> <p>Macedonian grid CM calculations and district heat (emission) calculations are available as separate documents.</p>
Project participants involved in the project activity	<p>Toplifkacija AD ITERA NGK</p>
Contribution to sustainable development of Macedonia	<ul style="list-style-type: none"> • The sale of CERs from the project will provide a significant injection of foreign cash into the Macedonian economy. • Transfer of foreign cogeneration plant technology and expertise to Macedonia
Expected environmental and social impacts	<ul style="list-style-type: none"> • Increased employment opportunities for local population • Reduces emissions of GHG and other pollutants from inefficient fossil fuel fired boilers and power plants • Reduced consumption of imported oil

6.1.4 Rehabilitation of small run-of-river hydropower plants project

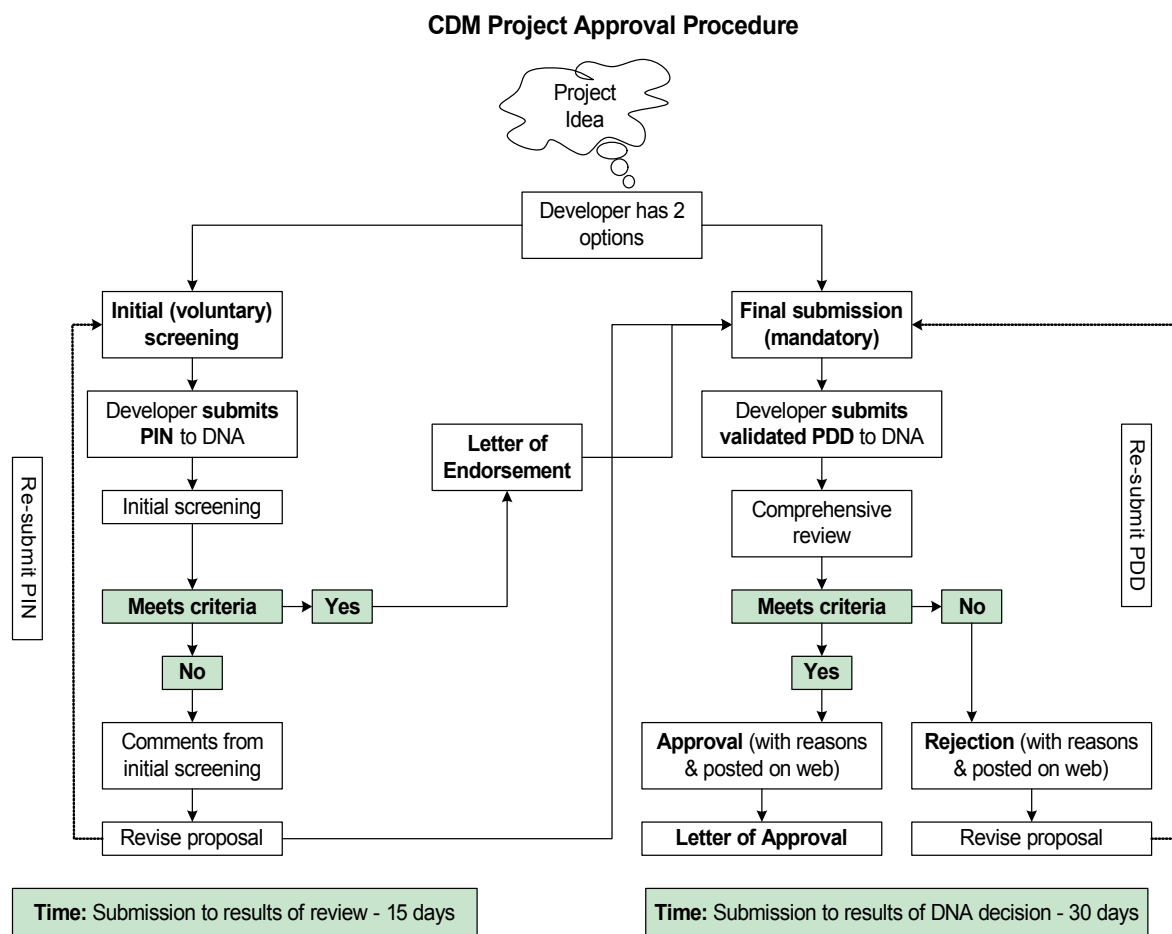
Project name	Rehabilitation of small run-of-river hydropower plants project
Project type	Renewable energy
Project location in Macedonia	<p>The project is made up of hydropower plants which are located on rivers in the following areas:</p> <ul style="list-style-type: none"> • MATKA hydropower plant - Skopje • PENA hydropower plant - Tetovo • PESOCANI hydropower plant - Ohrid • SAPUNCICA hydropower plant - Bitola • KALIMANCI hydropower plant - Delcevo • DOSNICA hydropower plant - D.Kapija • ZRNOVCI hydropower plant - Kocani
Summary of the project activity	The project activity involves the rehabilitation of seven small run-of-river hydropower plants. This will increase the amount of renewable energy that is generated and exported to the Macedonian grid. The generated electricity will displace electricity produced predominantly by coal fired power plants. It is predicted that the project will generate an additional 27,771 MWh/yr of electricity annually.
Summary of the technology to be utilized by the project activity	<p>Electricity generation efficiency will improve up to 10% by improving and reducing water losses for all plants, excluding Matka hydropower plant.</p> <p>The installed capacity of the Matka hydropower plant will be increased from 4.2MW to 9 MW.</p> <p>Other information /data on the technology to be used was not available.</p>
Choice of crediting period and justification	<p>7 year crediting period (renewable 2 times – maximum of 21 years) Justification for choosing this crediting period;</p> <ul style="list-style-type: none"> • The situation in Macedonia is unlikely to change significantly before the year 2021 (year in which the PDD is scrutinized for the last 7-year crediting period) so as the projects baseline or additionality comes into question. • All the Hydropower projects have an expected operational life well in excess of 21 years.
Starting date of the project activity and the crediting period	<p>Starting date: Jan. 2007</p> <p>Start of (1st) crediting period: 2007 (after the first hydropower plant is rehabilitated)</p> <p>If completion of rehabilitation of the first hydropower plant is delayed, the crediting period will be delayed until commissioning occurs.</p>
Expected number of CERs to be generated by the project activity	<p>An average of 25,272 CERs/yr (from 2008 onwards).</p> <p>The number of CERs to be generated in 2006 and 2007 will depend on when the hydro-power plants finish rehabilitation and the amount of additional generation.</p>
Additionality, baseline and emission reduction determination	<p><u>Approved methodology to be used:</u></p> <p>Consolidated methodology for grid-connected electricity generation from renewable sources (ACM0002)</p> <p>Although this project is small-scale in nature, the total installed capacity of the hydropower plants included in the project boundary would surpass the 15 MW_e limit for small-scale CDM project activities.</p>

	<p><u>Additionality:</u></p> <p>ACM0002 directs project participants to use the latest version of the “tool for the demonstration and assessment of additionality”. A realistic and creditable alternative to the project activity would be continuation of current practice. In the absence of the project electricity would be supplied to the grid by existing capacity and new capacity additions. An investment analysis of the project would likely demonstrate that the project is not financially attractive without additional income derived from the sale of CERs. However, sufficient data was not available to calculate the project IRR.</p> <p>It is not necessary to conduct a barrier analysis (step 3 of the additionality tools) if the project’s IRR is found to be lower than the benchmark. Rehabilitation of hydropower plants has occurred in the past but passing the step for common practice will not be difficult. A rehabilitation project for large hydropower was conducted from the year 2000 -2004 under a favorable loan from the World Bank.</p> <p><u>Baseline determination:</u></p> <p>According to ACM0002, the baseline scenario is electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described below.</p> <p><u>Emission reduction determination:</u></p> <p>Baseline emissions are predicted based on the amount of additional electricity (due to the rehabilitation project) which is expected to be supplied to the grid multiplied by the CM of the Macedonian grid. The CM has been calculated <i>ex ante</i> based on the most recent 3 years of actual grid data.</p> <p>Baseline emissions (2008) = 27,771 MWh/yr x 0.91 tCO₂/MWh</p> <p>Project emissions (methane emission from the reservoir, etc.) do not need to be taken into account because the project activity involves the rehabilitation of already established run-of-river hydropower project.</p> <p>Macedonian grid CM calculations are available as a separate document.</p>
Project participants involved in the project activity	<p>Electricity Power Company of Macedonia</p> <p>Independent Power Producer may conduct the project on a build, own, operate and transfer (BOOT) agreement.</p>
Contribution to sustainable development of Macedonia	<ul style="list-style-type: none"> • The sale of CERs from the project will provide a significant injection of foreign cash into the Macedonian economy. • Transfer of foreign hydropower technology and expertise to Macedonia
Expected environmental and social impacts	<ul style="list-style-type: none"> • Increased employment opportunities for locals • Reduces emissions of GHG and other pollutants from fossil fuel fired power plants

6.2 Annex II: CDM project review and approval procedures

Macedonia will follow a two-step procedure for CDM project review and approval, whereby project developers have the option of submitting a short Project Idea Note (PIN) for initial feedback, often in the form of a letter of endorsement, before the complete PDD is submitted for final approval. This two-tiered process reduces the risk to the project developer because he/or she will receive early feedback on the eligibility of the project before expending resources on preparing the full PDD. Most carbon funds also require submission of an initial PIN so this step would not lead to additional effort on the part of the project proponent. The approval process is illustrated in Figure 6-1 and described below.

Figure 6-1 CDM Project Approval Procedure for Macedonia



Step I: Initial Screening and Endorsement of the Project

This voluntary step allows project developers the opportunity to receive an initial evaluation of their project from the DNA to identify any potential conflicts with the project approval criteria and other government policies. Some investors require a Letter of Endorsement from the host country at an early stage to indicate that the government has been consulted on the project and has no principled objections to the project. If a project developer requires such a letter this can be requested from the DNA at this stage and can be made available to the project developer if no conflicts with the approval criteria are identified.

As part of this process, the Project Developer submits a 'Project Identification Note (PIN)' to the DNA. The Project Developer can request a Letter of Endorsement from the DNA; can request comments on the project; can request the DNA's assistance in project development; or can simply provide the DNA with a PIN

for information purposes. If the PIN is submitted to obtain a Letter of Endorsement, the following review steps will be undertaken by the DNA. The total process should take no more than 15 working days.

Step I.I: Review of the PIN: The DNA Secretariat and the inter-ministerial technical expert working group (described below under the final approval process) conduct an initial evaluation of the likely sustainable development impacts of the project against Macedonia's sustainable development criteria. Once the DNA Secretariat has sent the PIN to the expert reviewers they have 10 days to provide a written opinion on the project. Submission of no opinion will be interpreted as "endorsement" of the project.

Time frame: 10 working days

Step I.II: Decision on Initial Screening: Based on the reviews received, the DNA Secretariat makes a decision whether to endorse the proposed project and drafts a letter explaining the final result. The minister of the MoEPP approves this decision and signs the letter to be sent to the project developer.

Time frame: 5 working days

Step I.III: Decision Letter: The DNA informs the project developer of the results of the initial screening within 15 days of submission of the PIN. If initial screening is favorable and the developer has requested it the developer will receive a Letter of Endorsement from the DNA. Annex III includes a template Letter of Endorsement.

Step II: Final Approval of the Project

The following provides a step-by-step overview of the final CDM project approval process, including the process for inter-ministerial review. The entire process will take 30 days.

Step II.I: Required Information: To ensure that the project is complete and that the DNA Secretariat does not have to review proposals that have not been fully developed, Macedonia's DNA requires that only PDDs that have already undergone validation and can be submitted for final approval.

The DNA should request the following information along with the project proposal:

- A formal letter to the MoEPP requesting approval;
- A PDD in Macedonian and English, including electronic versions. The PDD should be based on the most recent PDD template used by the CDM Executive Board (<http://cdm.unfccc.int>). The PDD should also use one of the baseline and monitoring methodologies that have already been approved by the CDM Methodology Panel (<http://cdm.unfccc.int/methodologies/PAmethodologies>);
- A validation (or pre-validation) report, including a version translated into Macedonian;
- A letter from the MoEPP (or the State Environmental Inspectorate) stating whether an EIA is required. This depends on the project type. If an EIA is needed, the letter of approval will be conditional on the outcome of the EIA;
- A signed declaration on the financial and legal status of the offering company(ies);
- If more parties are involved in the CDM project, the company must show letters of evidence that it has the rights to the emission reductions;
- If desired, a letter of support from the municipality or other relevant institution (optional); and
- Any documents or information requested in the "letter of endorsement" submitted in response to the PIN.

Step II.II: Initial Screening of PDD: Once a final PDD is submitted, the DNA staff undertakes an initial screening to determine if all the required documents have been submitted and that all questions in the PDD have been answered. If any documents or information are missing, the DNA may request these from the project developer before a complete internal evaluation is initiated. Time Frame for Initial Screening: 2 working days (once the letter/email/phone call requesting comments has been issued, the overall counting of days stops).

Step II.III: Review by Technical Advisory Group: When the application is complete, the DNA secretariat sends the proposal for review by a pre-designated expert group, using a pre-specified evaluation format. The focus of the evaluation is to determine whether Macedonia's sustainable development criteria have been met, but the reviewers could also assess the following:

- Completion of an EIA in accordance with procedures of the Law on Environment;
- The extent to which comments by local stakeholders, directly and indirectly involved with the project, have been addressed. This assessment should be based on the information provided in the validation report;
- Assessment of the description of institutional arrangements and each institution's participation in the implementation of the project; and
- Legal and financial sustainability of project participants.

The technical working group will consist of government representatives from the ministries representing sectors where CDM projects could be developed, including the Ministry of Economy, Ministry of Agriculture, Forestry and Water Supply, and the Ministry of Transport and Communication. Depending on the scope of each proposal, the relevant experts would then be asked for comments. Representatives from the ministries of Finance and Economy will be included in the review of all proposals. The individual ministries should appoint technical reviewers with sufficient expertise to review the projects and must grant these reviewers authority to provide an "opinion" on behalf of the individual ministry. If resources are available, the DNA Secretariat may also hire outside experts for the project review. These experts should also be given 10 days for a written review.

The reviewers should be given 10 working days for their reviews and their response should be submitted in the form of a written opinion on the project. If no opinion is submitted within those 10 days, the MoEPP may assume that the opinion is in favor of the project.

Time Frame: 10 working days

Step II.IV: Request for Additional Documentation: It is possible that the technical reviewers may want to obtain additional documentation from the project developers. In that case, the reviewer must notify the DNA Secretariat, which will contact the project developer for this information.

Time Frame: If additional information is requested on the PDD, the counting of days will be halted until the required information has been received.

Step II.V: Technical Review Summary and Recommendation to the Minister of MoEPP: Based on the comments received by the expert reviewers, the DNA secretariat must write up a final opinion, in the form of a recommendation memo, to be submitted to the minister of the MoEPP for his or her final decision on the project. This recommendation memo would highlight any issues raised by the technical reviewers in the "opinion documents" and suggest a resolution.

Time Frame: 4 working days

Step II.VI: Decision by the Minister of the MoEPP: Based on the recommendation memo, the Minister makes a final decision. If the minister makes a decision that goes against the "opinions" collected in the technical review, this must be justified in a written document that can be accessed by the public.

Time Frame: 2 working days

Step II.VII: Draft Letter of Approval: Once a final decision has been made by the Minister, an approval or rejection letter is drafted by the DNA Secretariat and reviewed by the Minister. A rejection letter should include an explanation of why the project was not approved and may include suggestions for how to improve the proposal. Annex III includes a template of Letter of Approval to be used by Macedonia's DNA.

Time Frame: 3 working days

Step II. VIII: Inter-ministerial Review of Approval/Rejection Letter: The draft Letter of Approval/Rejection is then sent for review by the relevant sectoral ministry (Ministry of Economy, Agriculture, or Transportation), the Ministry of Economy and the Ministry of Finance. These ministries must respond in the form of a written “opinion” and must do so within five working days. If they do not respond within those five days, the DNA Secretariat may assume that there are no comments on the final letter. The “opinions” cannot reverse the final approval/rejection decision reached by the Minister of the MoEPP, but can provide input on general wording and explanations provided in the letter.

Time Frame: 5 working days

Step II.IX: Final Approval/Rejection Letter: The DNA Secretariat, with feedback from the Minister of the MoEPP, incorporates comments received on the draft approval/rejection letter, writes a final letter, which is signed by the minister, and then sends this letter to the project developer.

Time Frame: 4 working days

6.3 Annex III: Templates of Letters of Endorsement and Approval for CDM projects

6.3.1 Letter of Endorsement (Stage I)

To:

*[name and address of
project sponsor/owner]*

[subject]

[date]

[place]

Dear Sir/Madam _____,

After reviewing the Project Idea Note (PIN) of project *[project title]* *[project number in national database]* that you submitted on *[date]*, I declare the following.

1. that the Ministry of Environment and Physical Planning is the authorized Designated National Authority (DNA) in Macedonia in accordance with the Decision of the Government taken on its 103rd Session held on 1 June 2006;
2. that the project on the basis of the PIN and other documents submitted does not show any violation of Macedonia's sustainable development criteria;
3. that the DNA is committing itself to render such assistance as may be necessary in the future validation, verification, issuance and transfer of CERs; and
4. that this letter in no way shall compromise the opinion, independence or transparency of the DNA when subjecting the project to the later final evaluation process required for granting of a formal host country approval letter.

[Optional Paragraph] As authorized representative of the DNA for Macedonia under the Kyoto Protocol, I offer the following recommendations for improving the project:

1. XXX
2. YYY

Yours Sincerely,

[Name of Signatory]

[Title]

6.3.2 Letter of Approval

To:

[name and address of project sponsor/owner]

[subject]

[date]

[place]

Dear Sir/Madam _____,

After reviewing the Project Design Document (PDD) of project *[project title]* *[project number in national database]* that you submitted on *[date]*, I declare the following.

1. that the Ministry of Environment and Physical Planning is the authorized Designated National Authority in Macedonia in accordance with the Decision of the Government taken on its 103rd Session held on 1 June 2006;
2. that Macedonia is participating voluntarily in the proposed CDM activity;
3. that the project on the basis of the PDD and other documents submitted contributes to achieving the sustainable development objectives of Macedonia;
4. that Macedonia has ratified the Kyoto Protocol;

As authorized representative of the DNA for Macedonia under the Kyoto Protocol, I further authorize:

1. The participation of *[the project entities]* as Project Participants in the project;
2. that the DNA of Macedonia authorizes the project developer and/or any future project owner to generate Certified Emission Reductions (CERs);
3. that the project developer/owner has full legal title to the officially generated CERs; and
4. that the DNA will assist the contractor/owner in any transfer of CERs;

Yours Sincerely,

[Name of Signatory]

[Title]

6.3.3 Template for the Project Idea Note (PIN)

A Project Identification

Title of the project activity:	
Applicant:	
Date of submission:	

B Project Participants

B 1 Applicant	
Name	
Type of organization <i>Please also describe the ownership structure.</i>	<input type="checkbox"/> Government _____ <input type="checkbox"/> Government agency _____ <input type="checkbox"/> Municipality _____ <input type="checkbox"/> Private company <input type="checkbox"/> Non-governmental organisation <input type="checkbox"/> Other: _____
Main activities	
Name of contact person	
Address	
Phone/fax	
E-mail	

B 2 Project developer/ advisor	
Name	
Type of organisation	<input type="checkbox"/> Government _____ <input type="checkbox"/> Government agency _____ <input type="checkbox"/> Municipality _____ <input type="checkbox"/> Private company <input type="checkbox"/> Non-governmental organisation <input type="checkbox"/> Other: _____
Main activities	
Name of contact person	
Address	
Phone/fax	
E-mail	

B 3 Other project participants/sponsors	<i>[if more than one, please copy this part of the table]</i>
Name of project participant	
Type of organization	<input type="checkbox"/> Governmental body: _____ <input type="checkbox"/> Private enterprise <input type="checkbox"/> NGO <input type="checkbox"/> Other: _____
Name of contact person	
Address	
Phone/fax	
E-mail	

C Location of the project

C 1 Location of project activity	
Host Country	
Region/State/Province etc.	
City/Town/Community etc.	
Brief description of the project location	<i>No more than 3-5 lines</i>

D General Project Information

D 1 General Information	
Project name	
Project objective	
Description of project background	

D 2 Category(ies) of project activity(ies)	
Project category	<ul style="list-style-type: none"> <input type="checkbox"/> Energy efficiency <ul style="list-style-type: none"> <input type="checkbox"/> Heat <input type="checkbox"/> Electricity <input type="checkbox"/> Transport <input type="checkbox"/> Industry <input type="checkbox"/> Commercial/Communal sector <input type="checkbox"/> Renewable energy <ul style="list-style-type: none"> <input type="checkbox"/> Hydro <input type="checkbox"/> Wind <input type="checkbox"/> Biomass <input type="checkbox"/> Geothermal <input type="checkbox"/> Solar <input type="checkbox"/> Fuel switch <ul style="list-style-type: none"> <input type="checkbox"/> Coal-to-gas <input type="checkbox"/> Oil-to-gas <input type="checkbox"/> Methane capture <ul style="list-style-type: none"> <input type="checkbox"/> Landfill <input type="checkbox"/> Waste incineration <input type="checkbox"/> Wastewater handling <input type="checkbox"/> Gas and oil exploitation <input type="checkbox"/> Gas distribution <input type="checkbox"/> Pit gas <input type="checkbox"/> Industrial processes <ul style="list-style-type: none"> <input type="checkbox"/> Mineral products <input type="checkbox"/> Chemical industry <input type="checkbox"/> Metal production <input type="checkbox"/> Others <input type="checkbox"/> Production and consumption of halocarbons and sulphur hexafluoride <input type="checkbox"/> Solvent use <input type="checkbox"/> Sorbent use <input type="checkbox"/> Agriculture <ul style="list-style-type: none"> <input type="checkbox"/> Enteric fermentation <input type="checkbox"/> Manure management <input type="checkbox"/> Rice cultivation <input type="checkbox"/> Agricultural soils <input type="checkbox"/> Field burning of agricultural residues <input type="checkbox"/> Carbon sinks, sequestration <ul style="list-style-type: none"> <input type="checkbox"/> Afforestation <input type="checkbox"/> Forest protection and reforestation <input type="checkbox"/> Other: _____

D 3 Technical aspects	
Technical description <i>The essential technical aspects should be briefly presented.</i>	

E Project Organisation

E 1 Project team	
Project-specific qualifications and experiences <i>The essential qualifications and experiences should be briefly presented.</i>	

E 2 Schedule	
Current project status	<input type="checkbox"/> Project idea <input type="checkbox"/> Pre-Feasibility study <input type="checkbox"/> Feasibility study
Status of financing	
Status of permission procedures of authorities	
Project preparation	From: _____ to: _____
Project lifetime	From: _____ to: _____
Generation of CERs	From: _____ to: _____

The following section deals with (preliminary) estimates of the costs of preparation and investments.

E 3 Financial aspects	
Costs of CDM-project development (EUR) Please give figures and briefly explain (background of) calculations.	
Costs of Investment (EUR) Please give figures and briefly explain (background of) calculations.	
Estimated annual operating costs (EUR) Please give figures and briefly explain (background of) calculations.	
Estimated annual revenues (EUR) Please give figures and briefly explain (background of) calculations.	
Financing sources	

F Greenhouse Gas Emission Reductios

Only projects resulting in emission reductions of greenhouse gases listed in table F1 can be accepted as CLEAN DEVELOPMENT MECHANISM projects. All emissions and/or emission reductions must be stated in metric tonnes of CO₂ equivalent.

F 1 Greenhouse gases						
Greenhouse gases to be reduced by the project	<input type="checkbox"/>	CO ₂	<input type="checkbox"/>	CH ₄	<input type="checkbox"/>	N ₂ O
	<input type="checkbox"/>	HFC _s	<input type="checkbox"/>	PFC _s	<input type="checkbox"/>	SF ₆

A Baseline is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the project (“business-as-usual-scenario”). By comparing the Baseline with the project emissions the emission reductions generated can be calculated.

F 2 Baseline	
<p>CDM projects must result in GHG emissions being lower than “business-as-usual” in the Host Country. At the PIN stage questions to be answered are at least:</p> <p>What is the proposed Clean Development Mechanism (CDM) project displacing?</p> <p>What would the future look like without the proposed CDM project?</p>	

F 3 Project emissions	
Description and estimation of project-specific greenhouse gas emissions	

F 4 Emission reductions	
Crediting period	<p>_____ years</p> <p>(i) a maximum of seven years which may be renewed at most two times, for a total of 3 periods of 7 years, provided that, for each renewal, the baseline is still valid or has been revised and updated; (ii) a maximum of ten years with no option of renewal.</p>
Estimated annual and total abatement of greenhouse gas emissions in tonnes of CO ₂ equivalent in comparison to the Baseline scenario	

F 5 Monitoring	
<p>Describe the parameters that will be used as performance indicators that will be monitored to verify that emission reductions are taking place.</p> <p>Note: parameters may include emissions output, energy production, energy sales, environmental impacts, etc.</p>	

G Sustainable Development Effects

The following section deals with the effects of the project activity on sustainable development. It follows the DNA procedures for assessment of the project's contribution to the country's sustainable development.

Note: This section should be revised according to the SD criteria selected by Macedonia.

G 1 Expected Social effects	
Stakeholder participation	
Improved service availability	
Capacity development	

G 2 Expected environmental effects	
Expected local environmental effects (positive and negative) of the project (if an Environmental Impact Assessment is mandatory, please use these results here; otherwise indicate the expected environmental effects of the project)	

G 3 Expected Economic effects	
Improved regional economy	Does the project have positive or negative effects on the regional economic situation?
Employment generation	How many jobs are created (over the crediting period)?
Sustainable technology transfer	Is the project's technology innovative for the country and can it be implemented and maintained locally?

G 4 Expected Policy effects	
National/Regional policy	Does the project contribute to national and/or regional policy objectives?
Sector policy	Does the project contribute to specific sector objectives?

H Additionality

CDM projects must comply with international and national criteria. One of the key-criteria is "Additionality of the project". In table H1 a first (indicative) presentation must be made on why the project is additional.

H 1 Additionality	
Presentation of the Additionality of the project <i>Please explain briefly how and why the project is additional and therefore not the (considered) Baseline scenario. Please describe why the emission reductions would not occur in the absence of the proposed project activity, taking into account national and/or sectoral policies and circumstances.</i>	

6.4 Annex IV: Work Plan for Macedonia's DNA: 2007

Activity	Description	Responsibility	Time-frame
Activity 1: Legalizing and operationalizing CDM in Macedonia	- Regulatory provisions formalizing CDM review and approval procedures, including sustainable development impact assessment	MoEPP	January – March
	- Nomination of representatives from sectoral Ministries to CDM Technical Review Group	Ministries of Economy; Finance; Agriculture, Forestry and Water Supply; and Transport and Communication	January - February
	- DNA capacity building workshop	MoEPP with donors' support	February - May
	- Development of legislation providing for legal status of CERs and legal title for CER ownership, taxation and related issues	MoEPP together with Ministry of Finance and Ministry of Justice	April - September
	- Opening a national account in CDM registry	MoEPP	Once CDM Registry is established (expected by the end 2007)
Activity 2: Outreach and awareness raising among potential CDM project developers in Macedonia	- Four round-table meetings with representatives of CDM priority sectors (power and energy sector, industry, agriculture and waste)	MoEPP in cooperation with sectoral Ministries and/or municipalities and with support from UNDP and other donors	January - September
	- Publication and dissemination of Macedonia's National CDM Strategy	MoEPP with support from UNDP	January
	- Development of Macedonia's CDM web-site	MoEPP with donors' support	February - April
Activity 3: Marketing Macedonia's CDM potential among CDM investors and carbon funds	- Preparation of an informational letter/ press release about Macedonia's DNA and National CDM strategy and its dissemination through international climate change networks such as Climate-L (www.iisd.ca/email/climate-L.htm)	MoEPP	January
	- Preparation, publication and dissemination of a list of potential CDM projects in Macedonia to Carbon Funds and Intermediaries	MoEPP together with project proponents	April - September
	- Participation in International Climate Change and Carbon Funds	MoEPP	Carbon Expo – April CoP/MoP – November
	- Development and continuous update of Macedonia's CDM web-site in English	MoEPP with donors' support	February - April

Activity 4: Support to identification and preparation of pilot CDM projects	- Data collection and preparation of power sector baseline study	MoEPP and Ministry of Economy with support of UNDP/GEF Climate Change Project Office	<i>March - September</i>
	- Data collection and preparation of baseline study for waste sector (agriculture & forestry)	MoEPP and Ministry of Agriculture, Forestry and Water Supply with support of UNDP/GEF Climate Change Project Office	<i>May - October</i>
	- Negotiation and signing framework MoUs with Bilateral and Multilateral Carbon Funds and Service Providers	MoEPP with support of Ministry of Foreign Affairs	<i>Throughout the year</i>
Activity 5: Public sector engagement in CDM	- Organizing public hearings on the sustainable development assessment procedures for CDM projects	MoEPP in collaboration with REC and other non-governmental actors	<i>March</i>
	- Holding public consultations for sustainable development assessment of pilot projects, including on-line through DNA's web-site	MoEPP	<i>Throughout the year</i>

6.5 Annex V: CDM funds and service providers

NAME	PARTICIPANTS	DETAILS
Austrian CDM Small-Scale Project Facility	Funded by: Austrian Ministry of Agriculture, Forestry, Environment and Water Management Coordinated by: EcoSecurities and Kommunalkredit Public Consulting (KPC)	<ul style="list-style-type: none"> • Launched in November 2004 • Focus on small-scale CDM projects. • Goal is to secure 1.25 Mt by 2012 via 7-15 projects • Sinks projects are excluded
http://www.kommunalkredit.at/up-media/1376_ssc-cdm-facility_(eng).pdf		
Austrian JI/CDM Programme	Funded by: Austrian Ministry of Agriculture, Forestry, Environment and Water Management. Coordinated by: Kommunalkredit Public Consulting (KPC)	<ul style="list-style-type: none"> • Launched in 2003 • Total budget of ~ US \$ 43 million allocated for the period 2003-2012 (some funds are allocated for the CDCF)
http://www.ji-cdm-austria.at		
Carboncredits	Funded by: Dutch Government Coordinated by: Carboncredits.nl (SenterNovem)	<ul style="list-style-type: none"> • CERUPT (CDM) tender program was launched in 2002 • SenterNovem pays approx. € 3-5 (US \$3.5-6) per tonne, though exact prices are determined through competitive bidding.
http://www.senternovem.nl/carboncredits/index.asp		
KfW Carbon Fund	Funded by: KfW (additional investors being sought)	<ul style="list-style-type: none"> • Launched in June 2004 • Target is € 50 million (US \$59m); KfW pledged € 10 million (US \$ 12m)
http://kfwgruppe.net		
Japan Carbon Fund	Funded by: Japan Bank for International Cooperation (JBIC), Development Bank Japan and private sector companies Coordinated by: JBIC	<ul style="list-style-type: none"> • Launched in 2004 • Size is approx. \$US 100 million • Applies to CDM & JI • Includes limits on number of projects from particular sector and geographic area as well as total size
http://www.cdmegypt.org/Djerba/20-JBIC%20Presentation.pdf		
BioCarbon Fund (BioCF)	Funded by: Governments of Canada , Italy, Luxembourg, & Spain, as well as Okinawa Electric, Tokyo Electric, Eco-Carbone, Agence Francaise de Developpement, Sumitomo Joint Power Coordinated by: Carbon Finance Unit (World Bank)	<ul style="list-style-type: none"> • Launched in 2004 • Currently capitalized at around US\$53.8 million • Project type focus on sequestration or conservation of carbon in forest and agro-ecosystems. • Contracted prices for ERs are expected to be in the range of US\$3 to \$4 per tonne of CO₂eq.
http://carbonfinance.org/biocarbon/home.cfm		
Clean Power Income Fund	Funded by: Various Coordinated by: Clean Power Income Fund	<ul style="list-style-type: none"> • Launched in 2001 • Provide capital for renewable energy projects • Works mainly in Canada with some interest in Mexico
http://www.cleanpowerincomefund.com/home/index.htm		
Climate Investment Partnership (CIP)	Funded by: Various European private sector firms, none of which need ERs for compliance. Coordinated by: CIP	<ul style="list-style-type: none"> • Provides up-front financing for projects that reduce GHG emissions in return for ERs
http://www.climateinvestors.com/home.php		

Community Development Carbon Fund (CDCF)	<p>Funded by: Governments of Austria, Belgium, Canada, Italy, Luxembourg and the Netherlands and Spain, as well as BASF (Germany), Daiwa Securities SMBC Co. Ltd (Japan), Electricidade De Portugal (Portugal), Endesa (Spain), Fuji Photo Film Co (Japan), Gas Natural (Spain), Goteborg Energi AB (Sweden), Hidroelectrica del Cantabrico (Spain), Idemitsu Kosan Co. Ltd. (Japan), KfW (Germany), Nippon Oil Corporation (Japan), Okinawa Electric Power (Japan), Rautaruukki (Finland), Statkraft Carbon Invest AS (Norway), Statoil ASA (Norway) and Swiss Re (Switzerland)</p> <p>Coordinated by: Carbon Finance Unit (World Bank)</p>	<ul style="list-style-type: none"> • Launched in 2003 • Investment of US \$128.6 million in contributions from 15 participants • Project type focus is on small-scale projects in the poorer rural areas of the developing world. • No more than 10% of the Fund's assets will be contributed to projects in the same country. A minimum of 25% of the Fund will be contributed to eligible projects located in developed countries and other poor developing countries, with a special focus on Africa. • CDCF prices will likely be higher than average
http://carbonfinance.org/cdcf/home.cfm		
Danish Carbon Fund	<p>Funded by: The Danish Ministry of the Environment, the Danish Ministry of Foreign Affairs, and the power companies E2Energy and Elsam (additional investors being sought)</p> <p>Coordinated by: Carbon Finance Unit (World Bank)</p>	<ul style="list-style-type: none"> • Launched in 2005 and set to run for five years • Target is to invest US\$35 million in a portfolio of 5-7 projects for a total reduction of 5-6 Mt (approx. US\$5 million will be placed in the CDCF). • Includes CDM & JI projects
http://carbonfinance.org/Router.cfm?Page=DCF&FID=9713&ItemID=9713		
EcoSecurities-Standard Bank Carbon Facility	<p>Funded by: Danish Ministry of the Environment, with participation of Danish industry</p> <p>Coordinated by: EcoSecurities</p>	<ul style="list-style-type: none"> • Launched in 2002 • Target is to invest €7.9 million (US \$9.3m) to obtain 1.2-1.7 Mt in the first round. • Geographic focus on Central and Eastern Europe, Caucasus and Central Asia • Projects must be minimum of 50,000 tonnes (sinks projects ineligible)
www.DanishCarbon.dk		
European Bank for Reconstruction and Development (EBRD) - Multilateral Carbon Credit Fund (MCCF)	<p>Funded by: Various, yet to be determined</p> <p>Coordinated by: EBRD</p>	<ul style="list-style-type: none"> • Expect to launch in 2005 • CDM geographic focus is Central Asia, Caucasus, and Macedonia
http://www.ebrd.com/country/sector/energyef/carbon/index.htm		
E+Co Carbon Access	<p>Funded by: Various investors and through individual donations</p> <p>Coordinated by: E+Co</p>	<ul style="list-style-type: none"> • Focus on projects under 15MW • Buy and sell CERs • E+Co provides early stage investment in the form of debt of equity ranging from US\$25,000-\$250,000.
http://www.energyhouse.com		
European Carbon Fund	<p>Funded by: Caisse des depots et consignations (CDC) and Fortis Bank & others</p> <p>Coordinated by: IXIS Environment & Infrastructures (wholly owned subsidiary of IXIS Corporate & Investment Bank)</p>	<ul style="list-style-type: none"> • Set to run from 2005-2012 as CO₂ mutual fund • Target audience is financial institutions and fund managers looking to invest in new class of assets. • Target is €100 million (US \$118m) • Sellers submit project proposals directly; ERs are paid on delivery
http://www.europeancarbonfund.com/		

FE Clean Energy Group's Funds	<p>Three distinct funds funded by:</p> <p>1) Dexia Bank, EBRD and others, including Maubeni Corporation, Mitsui & Co, Kansai Electric Power and J-Power (Japan)</p> <p>2) Tokyo Electric Power Company, Sumitomo Corporation, IADB, Banobras and NAFIN (Mexican banks)</p> <p>3) Mitsubishi Corporation, Chubu Electric Power, Japanese Bank for International Cooperation (Japan), Société de Promotion et de Participatiopn pour la Coopération Economique (France).</p> <p>Coordinated by: FE Clean Energy Group Inc</p>	<p>All funds are equity funds designed to provide capital financing rather than purchase Ers.</p> <p>1) Dexia-FondElec Energy Efficiency and Emissions Reduction Fund</p> <ul style="list-style-type: none"> • JI projects only <p>2) FondElec Latin America Clean Energy Services Fund, L.P.</p> <ul style="list-style-type: none"> • Set to run from 2001 – 2006 • Investment: US \$31.6 million • Geographic focus: Mexico, Central and South America. • Eligible projects: energy efficiency and renewable energy <p>3) Global Asia Clean Energy Services Fund, L.P</p> <ul style="list-style-type: none"> • Set to run from 2004-2008 • Investment: US \$46 million • Geographic focus: China, India, Philippines, Thailand, Central and Eastern Europe • Eligible projects: energy efficiency and renewable energy
http://www.fecleanenergy.com/		
Greenhouse Gas Credit Aggregation Pool (GG-CAP)	<p>Funded by: The Chugoku Electric Power Co., Inc.; Cosmo Oil Co. Ltd.; Electricity Supply Board (Ireland); Endesa Generacion; E.ON UK; EPCOR; Hokuriku Electric Power Company; Hokkaido Electric Power Co., Inc.; Iberdrola; Norsk Hydro ASA; The Okinawa Electric Power Co., Inc.; Public Power Corporation S.A.; Repsol YPF; Sergey Brin; Suntory, Ltd.; and Tokyo Gas Co., Ltd.</p> <p>Coordinated by: Natsource Asset Management</p>	<ul style="list-style-type: none"> • Launched in 2005 • Closed at US \$550 million, with 26 participants • Set up as private-sector buyer's pool
http://www.natsource.com/markets/index_sub.asp?s=178		
ICECAP	<p>Funded by: Cumbria Energy Limited, Investec Bank (UK) Limited and Less Carbon Limited</p> <p>Coordinated by: Less Carbon</p>	<ul style="list-style-type: none"> • Launched in 2004 • Target is 40Mt • Will act as a carbon credit clearinghouse
http://www.lesscarbon.com/icecap.asp		
Italian Carbon Fund (ICF)	<p>Funded by: Ministry for the Environment and Territory (Italy)</p> <p>Coordinated by: Carbon Finance Unit (World Bank)</p>	<ul style="list-style-type: none"> • Launched in 2003 • Target is US \$80 million • Preference given to projects that generate at least 60% of contracted emission reductions by 2012. • No more than 50% of the contributions of the ICF capital will be committed to projects located in the same country. No more than 50% of the assets of the ICF will be invested in any one project.
http://carbonfinance.org/Router.cfm?Page=ICF&FID=9710&ItemID=9710		

<p>Japan Greenhouse Gas Reduction Fund</p>	<p>Funded by: Toyota, Sony, Sharp, Terumo, Tokyo Electric Power, Tohoku Electric Power, Hokuriku Electric Power, Kansai Electric Power, Chugoku Electric Power, Okinawa Electric Power, Nippon Oil, Japan Energy, Kyushu Oil, Taiheiyo Cement, Tokyo Gas, Mitsui, Mitsubishi Corp, Sumitomo, Marubeni, Itochu Corp, Sojitsu, JGC and the Japan Iron and Steel Federation</p> <p>Coordinated by Japan Bank for International Cooperation (JBIC) and the Development Bank of Japan (DBJ)</p>	<ul style="list-style-type: none"> • Total investment of US \$141.5 million • Target of 10-20 Mt (by 2012). • Projects must have a minimum annual volume of 50,000 tCO₂eq • The fund will invest no more than \$30 million in projects in any one country or more than \$35 million in one project sector.
<p>http://www.oneworld.net/external/?url=http%3A%2F%2Fwww.enn.com%2Fbiz.html%3Fid%3D92</p>		
<p>Netherlands Clean Development Facility (NCDF)</p>	<p>Funded by: Ministry of Housing, Spatial Planning and the Environment (VROM)</p> <p>Coordinated by: Carbon Finance Unit (World Bank).</p>	<ul style="list-style-type: none"> • Launched in May 2002 • Currently capitalized at €136 million (US \$ 160 million) • CDM projects only • Target to purchase 31 million tCO₂eq. • Price paid per tonne generally lower than € 5.5 (US \$6.50).
<p>http://carbonfinance.org/Router.cfm?Page=NCDMF&FID=9711&ItemID=9711</p>		
<p>Prototype Carbon Fund (PCF)</p>	<p>Funded by: Governments of Canada, Finland, Norway, Sweden, the Netherlands and the Japan Bank for International Cooperation as well as British Petroleum (UK, Ireland), Chubu Electric Power Co. (Japan), Chugoku Electric Power Co. (Japan), Deutsche Bank (Germany), Electrabel (Belgium), Fortum (Finland), Gaz de France (France), Kyushu Electric Power Co. (Japan), MIT Carbon (Japan), Mitsubishi Corp. (Japan), Norsk Hydro (Norway), RaboBank (Netherlands), RWE (Germany) and Shikoku Electric Power Co. (Japan)</p> <p>Coordinated by: Carbon Finance Unit (World Bank)</p>	<ul style="list-style-type: none"> • Launched in 1999 • Closed at US 180 million • Projects will be paid at approx. US \$5/tonne • As of September 2003, the PCF had ERPA's signed for approximately 30.5 Mt of CERs totalling about US \$126 million.
<p>http://carbonfinance.org/Router.cfm?Page=PCF&FID=9707&ItemID=9707</p>		
<p>Spanish Carbon Fund</p>	<p>Funded by: Government of the Netherlands.</p> <p>Coordinated by: EBRD</p>	<ul style="list-style-type: none"> • Investment of €170 million (US \$201 million). • Target is 34 Mt. • Includes CDM and JI projects • Geographic focus on Latin America, North Africa and Europe
<p>http://carbonfinance.org/Router.cfm?Page=SCF&FID=9714&ItemID=9714</p>		
<p>Swedish International Climate Investment Programme (SICIP)</p>	<p>Funded by: Government of Sweden</p> <p>Coordinated by: Swedish Energy Agency</p>	<ul style="list-style-type: none"> • Launched in 2002 • 5 projects selected expected to generate 2 Mt SEK 350 million for international climate policy initiatives during the period 1997-2004.
<p>http://www.stem.se/</p>		
<p>UNDP MDG Carbon Facility</p>	<p>Funded by: UNDP and bilateral donors</p> <p>Coordinated by: UNDP</p>	<ul style="list-style-type: none"> • Launched in 2005 • Provides CDM project development and marketing services to UNDP client countries • Focus on CDM projects with strong MDG benefits.
<p>http://www.mdgcarbonfacility.org/</p>		

Source: Assessment of Progress with Establishment of CDM, UNDP 2006

