BASREC Regional Handbook on Procedures for Joint Implementation in the Baltic Sea Region

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FOREWORD

This is the second version of the BASREC Regional Handbook on Procedures for Joint Implementation (JI) in the Baltic Sea Region which was first published in January 2003. It incorporates information from various policy and other initiatives since the Handbook was first developed.

This second version updates the original Handbook, providing greater detail on procedural issues both for national governments and project participants interested in developing JI projects. It provides an update of the Testing Ground Agreement for the Baltic Sea Region, which entered into force in early 2004, and has as its main purpose to help develop JI projects in the energy sector in the BSR. The Testing Ground Facility, a fund established to implement JI projects in the region, is also up and running. It is managed by the Nordic Environment Finance Corporation (NEFCO) and overseen by an investors committee. Founding investors in the Testing Ground Facility are Denmark, Finland, Germany, Iceland, Norway and Sweden. The Handbook also provides a summary on the European Union's Emissions Trading Scheme, including linkages with the project-based Kyoto mechanisms, i.e. JI and the Clean Development Mechanism (CDM). It also examines issues related to international emissions trading that affect JI, such as registry requirements.

The aim of the Handbook is to help promote a common understanding of the rules for JI as specified in the Kyoto Protocol and the JI guidelines in the Marrakech Accords. It provides an overview of the various steps involved in the JI project cycle for both first and second track JI, as well as requirements that Parties must fulfil in developing their national JI programmes and national registries. Where ever appropriate, information and lessons learned from the CDM and its Executive Board have been synthesised into this Handbook.

Our intention with the Handbook is to provide a useful guide to JI project participants from both the public and private sector in the Baltic Sea Region. The Handbook is based on existing information and where appropriate provides guidance on issues which have yet to be clarified. It is hoped that the Handbook will serve as a tool for national governments in bilateral and multilateral co-operation on JI.

This Handbook is intended to be a living document, and will be revised as polices evolve and new information on JI project development is gained. This Handbook is published by the Nordic Council of Ministers. The content of the Handbook does not necessarily reflect the views or policies of the Nordic Council of Ministers or any of the states of the Baltic Sea Region.

On behalf of the Nordic Council of Ministers, I would like to thank all the contributors and all others involved for their contribution to the production of the Handbook.

Name,

Title

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Thanks are due to NEFCO for permission to utilise their standard emissions reduction purchase agreement as the basis for the document presented in Appendix C. Similar thanks are expressed to the Swedish Energy Agency, STEM, who provided example copies of Letters of Approval that are also reproduced in Appendix C.

ECON Analysis produced this second version of the Regional Handbook on Procedures for Joint Implementation in the Baltic Sea Region. Responsibility for errors, omissions or misjudgements remains solely with the authors.

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DISCLAIMER

ECON Analysis and the Steering Committee under the BASREC Working Group on Climate Change have taken care to ensure that the facts stated herein are true and accurate in all material aspects. The content of this Handbook does not necessarily reflect the views or policies of the BASREC states. This document is intended as a guide to the procedure and potential for realizing economic value from carbon mitigation derived from the project analyzed. The international and domestic policy outcomes that may create this value are subject to material change that could dramatically impact the analysis. ECON Analysis and the Steering Committee under the BASREC Working Group on Climate Change shall have no liability to the user of this Handbook for any direct, indirect, special or consequential loss (including loss of profits) accruing from the use of this Handbook.

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ABBREVIATIONS & DEFINITIONS

The list below provides short pragmatic list of abbreviations and definitions of concepts central to joint implementation and emissions trading

Acronyms and Abbreviations

AA	Assigned Amount
AAU	Assigned Amount Unit
BASREC	Baltic Sea Region Energy Cooperation
CBS	Council of Baltic States
CBSS	Council of Baltic Sea States
CDM	Clean Development Mechanism
CER	Certified Emission Reduction Unit
CFC	Chlorofluorocarbon
CH_4	Methane
CHP	Combined Heat and Power
CO_2	Carbon Dioxide
COP	Conference of the Parties
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
CPR	Commitment period reserve
DOE	Designated operational entity (under the CDM)
EC	European Commission
EIA	Environmental Impact Assessment
ERU	Emissions Reduction Unit
ERUPT	The Emission Reduction Unit Procurement Tender for JI projects administered by the Government of the Netherlands
EU	European Union
EUAs	European Union Allowances
EU ETS	Emission Trading Scheme of the European Union
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFC	Hydro fluorocarbon
IE	Independent entity (under JI)
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
ITL	International transaction log
JI	Joint Implementation

LULUCF	Land use and land use change and forestry
NAP	National Allocation Plan
N_2O	Nitrous Oxide
NCM	Nordic Council of Ministers
NEFCO	Nordic Environment Finance Corporation
NGOs	Non-Governmental Organization
NO_x	Nitrogen Oxides
OECD	Organization for Economic Cooperation and Development
PCF	Prototype Carbon Fund administered by the World Bank.
PDD	Project Design Document
PIN	Project Idea Note
PFC	Per fluorocarbon
RMU	Removal Unit
SF_6	Sulphur Hexafluoride
SO_2	Sulphur Dioxide
TGA	Testing Ground Agreement
TGF	Testing Ground Facility
UNFCCC	United Nations Framework Convention on Climate Change

Definitions

Additionality	The requirement that project participants reasonably show that project emissions reductions are additional to what otherwise would have occurred absent the project.
Annex B Parties	Countries included in Annex B to the Kyoto Protocol that have ratified the Protocol, including all Annex I Parties (as amended in 1998) except Turkey and Belarus.
Annex I Parties	The 41 industrialized countries that committed to the aim of reducing their emissions to 1990 levels by the year 2000, including all the developed countries in the OECD, and economies in transition. Industrialized countries with emission reduction commitments. Annex I is an annex to the UNFCCC
Annex II Parties	All developed countries in the Organisation for Economic Cooperation and Development (23 countries plus the European Community). Annex II is contained in the UNFCCC.
Acquis communautaire	The existing body of EU regulations and requirements.
Assigned Amount (AA)	The total amount of greenhouse gas emissions that each Annex B country has agreed it will not exceed during the commitment period from 2008 to 2012. The AA is calculated by multiplying a country's total greenhouse gas emissions for its base year or period by five (for each year under the commitment period),

	and then by the reduction percentage contained in Annex B of the Kyoto Protocol.
Assigned Amount Units (AAUs)	Units derived directly from the assigned amount. One AAU is equal to 1 metric tonne of CO_2-equivalent emissions calculated using Global Warming Potentials of the Assigned Amount of an Annex B country expressed as one metric tonne of CO2 equivalent.
Baseline	The scenario that reasonably represents what would have happened to greenhouse gases in the absence of the proposed project, and covers emissions from all gases, sectors and source categories listed in Annex A of the Protocol and anthropogenic removals by sinks, within the project boundary.
CDM Executive Board	Board that supervises the CDM under authority of the COP/MOP.
Certified Emission Reduction units (CERs)	A Kyoto unit generated from CDM project activities, where one unit is equal to one metric tonne of CO_2 equivalent.
Clean Development Mechanism (CDM)	One of two project based mechanisms under the Protocol. The Clean Development Mechanism is intended to meet two objectives: (1) to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the convention; and (2) to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments. A project-based mechanism under the Kyoto Protocol for cooperation between Annex I and non-Annex I countries.
Commitment Period	Period for which the Parties included in Annex B of the Kyoto Protocol must achieve their respective targets. The commitment period begins in 2008 and ends in 2012.
Commitment period reserve	A requirement that Parties maintain a specified reserve of allowances in order to trade. The purpose is to help deter overselling by Parties utilising emissions trading schemes.
Compliance Committee of the Kyoto Protocol	This is the main component of the Kyoto Protocol's compliance system. The Compliance Committee consists of a facilitative and enforcement branch. The facilitative branch serves as an "early warning" system to Parties in cases where they are in danger of not meeting their target. The Enforcement Branch determines whether a Party is in compliance with its emissions target, as well as the eligibility requirements for participation in the Kyoto mechanisms.
Conference of the Parties (COP)	Conference of the Parties to the Framework Convention on Climate Change.
Conference of the Parties serving as the meeting of the Parties (COP/MOP)	The governing body of the Protocol is the Conference of the Parties serving as the meeting of the Parties (COP/MOP), and is composed of Parties to the Convention who have ratified or acceded to the Protocol.
Designated Operational Entity (DOE)	An entity accredited by the CDM Executive Board and designated by the COP/MOP (COP) to perform validation, verification and certification functions for CDM project

	activities.
Determination	The process of independent evaluation of a JI project by an accredited Independent Entity against the requirements of JI.
Emissions reductions	Emissions reductions generated by a JI project that have not undergone a verification or determination process as specified under the JI guidelines, but are contracted for purchase.
Emission Reduction Units (ERUs)	A Kyoto unit generated from the emissions reduced or sequestered by JI projects and derived from the assigned amount. ERUs are converted from AAUs or RMUs, and one unit is equal to one metric tonne of CO_2 equivalent.
Emissions Trading	A market based approach to meeting environmental goals, where a target is set in order to reduce emissions below a certain level. Article 17 of the Kyoto Protocol sets out an international emissions trading system in which parts of a country's assign amount can be transferred and/or acquired in order to meet its target.
European Union Allowances (EUAs)	The commodity traded under the European Union Emissions Trading Scheme.
Focal Point	National entity designated by the Party and responsible for JI (JI point of contact within a given Annex I country).
Global Warming Potential (GWP)	An index that compares the ability of greenhouse gases to absorb heat in the atmosphere in comparison to carbon dioxide. The index was established by the Intergovernmental Panel of Climate Change.
Greenhouse gas (GHG)	A gas that contributes to climate change. The greenhouse gases included in the Kyoto Protocol are: carbon dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorcarbons (HFCs), Perfluorcarbons (PFCs) and Sulphurhexafluoride (SF6).
Host country	Country in which a JI project is implemented.
Independent Entity (IE)	A legal entity that has been accredited by the Supervisory Committee to perform determination of JI projects and/or the verification of ERUs generated by JI projects.
International transaction log (ITL)	Accounting mechanism to record and manage transfer of Kyoto reduction units.
Investor country	Country purchasing, or receiving as a return on investments, ERUs that accrue from a JI project or sanctioning such purchases by legal entities.
Joint Implementation (JI)	Mechanism established under Article 6 of the Kyoto Protocol. JI provides Annex I countries or their companies the ability to jointly implement greenhouse gas emissions reduction or sequestration projects that generate Emissions Reduction Units.
Kyoto units	Generic term encompassing AAUs, RMUs, CERs and ERUs.
Kyoto Protocol	Protocol to the UNFCCC containing an agreement for Annex B Parties to reduce overall emissions collectively by at least 5 per cent below 1990 levels in the period 2008 – 2012. Emissions

	limitation and reduction commitments for Parties are contained in Annex B of the Protocol. See www.unfccc.int
Monitoring plan	Plan describing how monitoring of emission reductions will be undertaken. The monitoring plan forms a part of the Project Design Document (PDD).
National Allocation Plan (NAP)	Allocation, at the national level, of emission allowances to individual sites under the European Emission Trading Scheme.
Non Annex I Parties	Countries that have ratified or acceded to the UNFCCC and Protocol that are not included in Annex I of the UNFCCC.
Project Design Document (PDD)	The documents to be submitted to an Independent Entity for determination of a JI project.
Removal Unit (RMU)	A unit relating to land use, land use change and forestry activities under an assigned amount. One unit is equal to one metric tonne of CO_2 equivalent. RMUs cannot be rolled over (banked) for use in any subsequent commitment period.
Supervisory Committee	The Committee that will supervise the determination process under second track JI. The Supervisory Committee works under the authority of the COP/MOP.
UN Framework Convention on Climate Change (UNFCCC)	International agreement that entered into force in 1994. Its ultimate objective is the "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

1 GENERAL INTRODUCTION

1.1 PURPOSE OF THE HANDBOOK

This Handbook has been commissioned by the Nordic Council of Ministers (NCM) and the Baltic Sea Region Energy Cooperation (BASREC) programme. It builds on the Handbook published in January 2003. Its purpose is to provide a common understanding on the rules and procedures related to Joint Implementation projects in the energy sector. This would include projects in the following areas: energy supply projects, energy efficiency and energy saving projects (see Box 1 for an example of a potential JI project in the BASREC region). The Handbook is intended for use by project participants considering or currently developing ***Joint Implementation (JI)*** projects under the BASREC Testing Ground (see section 1.2).

Box 1 Pakri wind farm – a JI project in Estonia

Estonia's largest 18.4 MW Pakri wind farm located at a former Soviet military base at Paldiski entered commercial service in summer 2005.

Pakri is the first wind power project in Europe that is co-financed through the sale of Emission Reductions. Emission reductions have been sold to the Finnish Government under the framework of Finnish CDM/JI Pilot Programme utilising the Joint Implementation mechanism of the Kyoto Protocol.

Expected net revenue after transaction costs from the sale of 0,5 million tonnes of Emission Reductions during 2005-12 represents approximately 7 per cent of the total project investment of about 24 million Euros and thus provided the necessary additional cash flows to make the project viable. Half of the carbon financing was provided up-front.

The Pakri wind farm project benefits both countries: it contributes to Finland reaching its Kyoto target in a cost-efficient manner; and increases the share of renewable energy in Estonia to reduce the environmental impact of mainly fossil oil shale based electricity.

For more information please visit: www.tuulepargid.ee and www.pakri-tp.ee

The Handbook aims to provide an explanation of the Kyoto mechanisms, an overview of the EU emissions trading scheme and approaches to developing JI projects under the Kyoto Protocol (the Protocol) and the Testing Ground Facility. This handbook uses as its basis the Protocol, the JI guidelines as set out in Decision 16/CP7 of the Marrakech Accords, and where appropriate, guidance from the Clean Development Mechanism (CDM) Executive Board. The handbook aims to take a somewhat conservative approach to developing arguments for certain aspects of JI projects; in particular, baselines and additionality testing (refer to definitions). It is important to note, however, that the stringency of these two particular criteria is dependent on the host country criteria and/or the Supervisory Committee.

1.2 BACKGROUND ON BASREC

1.2.1 General info

In October 1999, Energy Ministers from countries in the Baltic Sea region and the European Commission decided to set up the inter-governmental Baltic Sea Region Energy Co-operation (BASREC). The countries participating in BASREC are Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia, and Sweden, and the Directorate General for Transportation and Energy (DG TREN) representing the European Commission. BASREC has a steering group of Senior Officials (GSEO) comprising of members from all 11 countries as well as from the European Commission. For more information on BASREC please see www.basrec.org.

In this context BASREC decided that a regional handbook on procedures for JI projects in the Baltic Sea Region should be developed.

1.2.2 The Testing Ground for the Kyoto mechanisms in the Baltic Sea Region

At the 1999 conference, held in Helsinki, Finland, it was decided that the BASREC initiative should emphasize the importance of early clarification of the international framework for the reduction of greenhouse gas emissions, including the through use of the Kyoto mechanisms and particularly JI in the energy sector in the Baltic Sea Region. The need for a clear and credible framework for long-term energy investments to underpin the development of environmentally sound energy systems in the area was a key area of concern. Since 1999, the Baltic Sea Region states have developed the legal, financial and technical basis for a regional Testing Ground of JI projects in the energy sector. The Testing Ground, which is supported by a Committee, conforms to the rules established under the Protocol, and a great deal of capacity and awareness for JI has been built up in all BASREC countries over the years.

At their meeting in Vilnius, Lithuania, in November 2002, the BASREC partners decided to establish a Testing Ground for the Kyoto mechanisms in the Baltic Sea Region, with the following objectives:

- to build capacity and competence on JI under the Protocol and to promote the realisation of high quality projects in the energy sector generating emissions reductions;
- to develop methods and procedures in conformity with the rules and guidelines of the Protocol;
- to collaborate in addressing administrative and financial barriers, and to minimise transaction costs, especially regarding small scale JI projects; and
- to facilitate generation, ensure issuance and transfer of greenhouse gas credits related to or accruing from JI projects, and to implement projects early, including transacting emissions reductions generated prior to 2008 by appropriate means.

The framework for cooperation – a multilateral government-to-government Testing Ground Agreement (TGA) – has paved the way for the development of JI projects in the region. The TGA entered into force in the beginning of 2004 and has so far been signed by 10 of the BASREC countries. The ambition is, as expressed in the TGA, to involve not only governments but also business, industries, energy utilities, financial institutions, regional and local authorities to take an active role in the activities in the Testing Ground initiative.

The Testing Ground is a regional initiative, but strives for consistency with the guidelines for the use of the Kyoto mechanisms, as well as with the interplay of climate change policies and instruments in the enlarged EU. One issue that has been of high priority recently has been the treatment of JI projects in the new EU-member countries and their consequences for the Baltic Sea Region, including under the Testing Ground initiative.

1.2.3 The Testing Ground Facility

A special fund, the Testing Ground Facility (TGF), has been established as an instrument for the implementation of projects in the Testing Ground and with the governments of Denmark, Finland, Germany, Iceland, Norway and Sweden as founding investors. The TGF is an open trust fund, managed by the Nordic Environment Finance Corporation (NEFCO) in accordance with the Operating Guidelines adopted by the investors.

The purpose of the TGF is:

- to provide economic resources for JI projects, primarily in the energy sector;
- to disseminate knowledge gained through the developing of JI projects under TGF activities; and
- to assist in achieving the objectives of the Testing Ground.

The TGF will purchase emissions reductions from JI projects in return for the transfer to the TGF of an agreed amount of ERUs or AAUs achieved in the period 2008-2012, AAUs for emissions reductions achieved prior to 1 January 2008 and ERUs or AAUs related to emission reductions after 2012. ERU and/or AAUs are acquired by the TGF jointly on behalf of all investors which have shared participation in the total portfolio of projects. The TGF has a geographic focus of Poland, the Baltic countries and the Russian Federation. At the time of writing, the TGF has a well developed portfolio of projects under negotiation and project ideas under review.

The steering committee for the TGF, the Investors' Committee, consists of members from investor countries. Their powers and duties are e.g.; reviewing the operations of the TGF, reviewing project proposals and approving projects, deciding on whether new investors are to be invited to participate in the TGF, reviewing and approving the business plan and annual budget for the TGF.

The fund manager in collaboration with the investors, potential host countries and other relevant bodies and institutions identify potential projects. From these projects, the fund manager selects projects and brings them to the Investors' Committee for approval. The criteria for project selection and project portfolio (included in the Operating Guidelines) are applied when identifying, developing, considering and approving potential projects. There is no minimum threshold of emissions reductions that projects must achieve under the TGF, but projects should be able to bear reasonable transaction costs.

The duration of the TGF is until 31 December 2012 and projects are to be contracted before 2008. The investors may, however, decide to continue the business of the TGF after 31 December 2012. It is the intention, in the second subscription of the TGF to invite private investors to participate in the TGF.

For more information on the TGF please see www.nefco.org/tgf.

1.3 BACKGROUND ON THE KYOTO MECHANISMS

The Kyoto Protocol was adopted at the third session of the Conference of the Parties (COP-3) in December 1997. One of the major achievements of the Protocol was the agreement by Annex I (industrialised) countries to take on legally binding targets.[1] The Protocol represents an agreement to collectively reduce global greenhouse gas (GHG) emissions by about five percent from 1990 levels.

The Protocol also establishes an international emissions trading system consisting of three market-based mechanisms designed to assist Annex I Parties in meeting their targets under the Protocol. Two of the mechanisms are aimed at Annex I countries: an emissions trading (cap and trade) programme and project-based trading or JI (carried out under the cap); the third mechanism provides a way for developing countries to participate in the carbon market through another project-based trading programme, the CDM.

The project-based mechanisms, JI and the CDM, generate credits through emissions reduced or sequestered by specific projects. Although there are similarities between the two mechanisms, they have separate, independent operations and are targeted towards different groups of countries. In addition, the methods in which credits are created are very different. Credits for JI projects are derived from the emissions cap of an Annex B Party, while credits from the CDM are generated from projects that are located in developing countries and can therefore be added to and used against the emissions target of an Annex B Party.

The CDM is established under Article 12 of the Protocol and has as its purpose: to assist Parties that have not taken on a target (i.e. developing countries) in achieving sustainable development; to contribute to the ultimate objective of the Convention (i.e. stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system); and to assist Parties included in Annex I (developed countries) in achieving compliance with their quantified emissions limitation and reduction commitments under Article 3 of the Kyoto Protocol. The CDM began operation following the conclusion of the seventh session of the Conference of the Parties to the UNFCCC (COP-7).

[1] The list of countries with commitments under the Protocol is contained in Annex B to the Protocol.

Box 2: Parties to UNFCCC and Protocol

Parties[2] are countries that have ratified or acceded to a treaty. Parties to the UN Climate Convention are divided into two main categories:

- Annex I Parties consist of 41 industrialised countries that committed to the aim of reducing their emissions to 1990 levels by the year 2000. This grouping is further divided to distinguish between the wealthier OECD countries and countries with economies in transition:
  - Annex II Parties are composed of 23 countries (EU countries, the US, Canada, Japan, Norway, New Zealand, Australia, Iceland, Switzerland) plus the European Community
  - Countries with economies in transition (commonly referred to as EITs) include countries from the former Soviet Union and Central and Eastern Europe.
- All remaining countries are ***Non-Annex I*** Parties, and are primarily developing countries.

Under the Kyoto Protocol, the majority of Annex I Parties took on emissions limitation or reduction targets. These countries are sometimes referred to as ***Annex B*** countries.

In 2001 at COP-7, Parties adopted a comprehensive package that enables implementation of the Kyoto Protocol. The Marrakech Accords contain many documents related to the development of a functioning international emissions trading system, including the majority of modalities and procedures for the CDM and JI, as well as compliance, monitoring and reporting of emissions and trades. This also marked the start-up of the CDM.

1.3.1 International emissions trading under the Kyoto Protocol

Article 3 of the Protocol places a cap on the amount of emissions an Annex B Party may emit during the commitment period (2008 – 2012). It also enables Parties to meet their targets by controlling any of the six greenhouse gases from the sources and sinks listed in Annex A (see Table 1). In conjunction with Article 17 and Decision 18/CP7, Article 3 and Decision 19/CP.7 establish part of the framework for the trading system.[i] This system provides Parties and/or their entities the ability to trade part of their cap (assigned amount) as an option for complying with its commitments; in other words it establishes the framework, but actual implementation is dependent on the actions of Parties in establishing domestic trading schemes. It is under this framework that many governments have developed domestic and regional greenhouse gas emissions trading schemes. The Protocol framework spells out the minimum requirements that governments must meet in

[2] Throughout this Handbook the terms "Party" and "party" have different meanings. "Party refers only to governments that have ratified or acceded to a Treaty, whereas "party" refers to any number of actors involved in an agreement (this could include project participants, governments, brokers, etc.)

order to trade under the Protocol, as well as requirements for complying with reduction and limitation targets such as greenhouse gas inventory monitoring and reporting requirements. These requirements therefore are generally reflected in domestic emissions trading schemes regardless of whether the domestic schemes intend to trade Kyoto units. Countries have also begun developing programmes aimed at placing additional criteria on transactions of AAUs, called Green Investment Schemes (see Box 3)

Box 3: Green Investment Schemes

Green Investment Schemes or GIS have emerged as a result of a desire on the part of the Annex I buyers (primarily the EU, Canada and Japan) to enhance the political acceptability of purchasing AAUs of certain EIT countries when these are seen as deriving from the decline of their economies subsequent to the Kyoto target base year[3]. The concept was originally introduced by Russia, but has been more fully developed in eastern European countries such as Bulgaria and Romania. Although there has been significant interest in GIS, no trades have taken place, and it is unclear how buyer countries in particular would develop and implement such a programme. Canada is in the process of examining how this could be achieved. Issues that they are likely to address are:

- How can criteria be set without imposing too many criteria on the selling country;
- How much more "greened" AAUs will cost, in particular against ERUs generated under first track JI; and
- How will a policy on purchasing "greened" AAUs interact with a price cap.

In simple terms, GIS requires ensuring that revenues from the purchases of AAUs are directed to projects that generate some type of real environmental benefit. GIS are not a recognised element under the Protocol. Consequently there is no formal or widely agreed definition of "green credits." The issue of "surplus" AAUs is not recognised under the Protocol, and developing international criteria to govern GIS would prove difficult given different priorities and national circumstances of Parties.

Although the Kyoto mechanisms provide for authorized public and private entities to participate, ultimate responsibility for commitments under the Protocol lies with the Party and not any individual within a given country. This is a key difference between the emissions trading system under the Protocol and domestic or regional emissions trading schemes in which sources/installations under those schemes bear ultimate responsibility for meeting their individual targets.

[3] Often called excess allowances or surplus AAUs

Table 1 Annex A of the Kyoto Protocol

Greenhouse gases	Carbon Dioxide (CO2) Methane (CH4) Nitrous oxide (N2O) Hydrofluorocarbons (HFCs) Perfluorocarbons (PFCs) Sulphur hexafluoride (SF6)	
Sector/source categories	Energy	Fuel Combustion: Energy industries Manufacturing industries and construction Transport Other sectors Other Fugitive emissions from fuels: Solid Fuels Oil and natural gas Other
	Industrial processes	Mineral products Chemical industry Metal production Other production Production of halocarbons and SF6 Consumption of halocarbons and SF6 Other
Solvent and other product use	Agriculture	Enteric fermentation Manure management Rice cultivation Agricultural soils Prescribed burning of savannas Field burning of agricultural residues Other
	Waste	Solid waste disposal on land Wastewater handling Waste incineration Other

Table 2 Annex B of the Kyoto Protocol

Country	***Emission limit***	***Country***	***Emission limit***	***Country***	***Emission limit***
Australia	108	Greece	92	Norway	101
Austria	92	Hungary	94	Poland	94
Belgium	92	Iceland	110	Portugal	92
Bulgaria	92	Ireland	92	Romania	92
Canada	94	Italy	92	Russian Federation	100
Croatia	95	Japan	94	Slovakia	92
Czech Republic	92	Latvia	92	Slovenia	92
Denmark	92	Liechtenstein	92	Spain	92
Estonia	92	Lithuania	92	Sweden	92
EC	92	Luxembourg	92	Switzerland	92
Finland	92	Monaco	92	Ukraine	100
France	92	Netherlands	92	UK	92
Germany	92	New Zealand	100	USA	93

* Percentage of base year or period

** European Community

Joint Implementation

JI, established under Article 6 of the Protocol, allows for the transfer and acquisition of Emissions Reduction Units (ERUs - the commodity traded under JI) resulting from activities that reduce anthropogenic GHGs or enhance the removals of GHGs. JI projects can be undertaken in any Annex I country that is Party to the Protocol. JI is often thought of, however, as a means to promote investments by OECD countries (Annex II Parties) in countries with economies in transition (Eastern Europe and countries from the former Soviet Union). Once ERUs have been transferred to the investor country or private legal entity acquiring ERUs they can then be used towards their own emission commitments either under the Protocol or in a domestic emission trading scheme, or could be sold to others in the carbon market.[4]

Under JI, Annex B Parties may transfer and/or acquire ERUs only during the period 2008 – 2012. However, projects starting as of the year 2000 may be eligible as JI projects if certain requirements are met. [5] The validity of any emissions reductions post-2012 will be determined by the outcome of negotiations on a second commitment period or other agreement reached by the Parties to the Protocol. Some guidelines for implementation of JI projects have been established and are contained in Decision 16/CP.7 of the Marrakech Accords.

[4] Use of ERUs within a domestic emissions trading scheme is dependent on the structure of the trading scheme, see for instance on the EU ETS.

[5] An aim of the BASREC testing ground is to provide a possibility also to reward emissions reductions that occur before 2008.

The CDM

The CDM, established under Article 12 of the Protocol, provides for participation by non-Annex I Parties, making it the global component of the international emissions trading system. In order to ensure it remains a fair and transparent mechanism with a high level of credibility, a significant amount of "rules" have been developed. The CDM rules are an important feature in ensuring that the emissions reduced or sequestered through CDM projects are real and verifiable, and that the projects themselves assist host countries with their development priorities. An important feature for Annex B Parties is that Certified Emissions Reductions (CERs – the commodity traded under the CDM) can be added to a Party's assigned amount, thereby increasing the Party's flexibility to trade.

Since the CDM was the first mechanism to go online, many of the more technical issues associated with project-based mechanisms, such as baseline development and additionality, are likely to influence the JI process. This influence will be discussed under various sections below.

Table 3 Kyoto units

Unit	***Abbreviation***	***Description***
Assigned Amount Unit	AAU	A unit derived directly from the Assigned Amount. One AAU is equal to 1 metric tonne of CO_2-equivalent emissions of the Assigned Amount of an Annex B Party.
Removal Unit	RMU	A unit relating to land use, land use change and forestry activities under an assigned amount. One unit is equal to one metric tonne of CO_2 equivalent. RMUs cannot be rolled over (banked) for use in any subsequent commitment period.
Emission Reduction Unit	ERU	A unit relating to credits generated from JI activities, where one unit is equal to one metric tonne of CO_2 equivalent.
Certified Emission Reduction	CER	A unit relating to credits generated from CDM activities, where one unit is equal to one metric tonne of CO_2 equivalent.

JI is a mechanism to trade emissions. As background, it is useful to understand the institutional arrangements governing international emissions trading. The following sections examine the eligibility requirements and accounting arrangements for emissions trading.

1.3.2 Eligibility requirements to engage in international emissions trading

Requirements for the transfer or acquisition of Kyoto units under Article 17 emissions trading and first track JI (see Chapter 2) and for the ability to use CERs under the CDM are as follows:

- The country must be a Party to the Kyoto Protocol;
- It must have calculated and recorded its Assigned Amounts;
- There must be a national system for estimating GHG emissions;
- There must be a national registry in place;

- The country must have submitted annually the most recent required GHG inventory; and
- The country must submit the necessary supplementary information on its Assigned Amount, as required under Article 7 (communication of information).

These requirements have different timelines, although much of the information must be contained in a report due to the UNFCCC Secretariat by 1 January 2007; this report will be used to determine eligibility for use in the mechanisms. Parties must have their national system for estimating emissions in place no later than 2007, but Parties are urged to put them in place as soon as possible in order to gain experience. If Parties are unable to meet the compliance requirements by that date, their use of the mechanisms during the commitment period may be limited – depending on the scope of non-compliance. An Expert Review Team and the Enforcement Branch of the Compliance Committee will assess compliance with the above requirements.

1.3.3 Accounting for international emission trades

Under the Protocol, the ***assigned amount***[6] caps the amount of greenhouse gases a Party listed in Annex B Party may emit during the commitment period, and is the basis for trading under the Protocol. Once the assigned amount is calculated, it is recorded (or finalized) by the Compliance Committee of the Protocol. The Party can then issue a quantity of AAUs and RMUs into its national registry. If a Party intends to use JI, it may only transfer ERUs to another national registry (for example, the registry to which the project investor belongs), once the host country Party has converted specific units issued under their assigned amount (AAUs and/or RMUs) into ERUs.[ii]

All Kyoto units are tracked through a Party's national registry. Annex B Parties are required to have a national registry in place. The purpose of the national registry is to account for its assigned amount as well as to monitor any changes to the ***commitment period reserve*** (see below). The national registry is an accounting tool that records transactions of Kyoto units, including issuance and conversion of units (from AAUs and RMUs to ERUs), as well as internal (such as retirement and cancellation) and external (i.e. to another Party) transfers. Units are tracked through the system by their serial numbers. Any transactions that occur between registries are monitored by the ***international transaction log*** (ITL), to be maintained by the UNFCCC Secretariat. The ITL relays transaction messages and responses between registries, and verifies that transactions occurring in the national registries are valid, i.e., that the unit to be transferred has not been previously transferred or cancelled. When a transaction occurs within a national registry, a notice is automatically transmitted to the ITL, and it in turn verifies that the transaction is valid. Notification is then sent to the national registry of all Parties involved in the transaction. In cases where the ITL identifies a problem, the issuing registry must stop the transaction.

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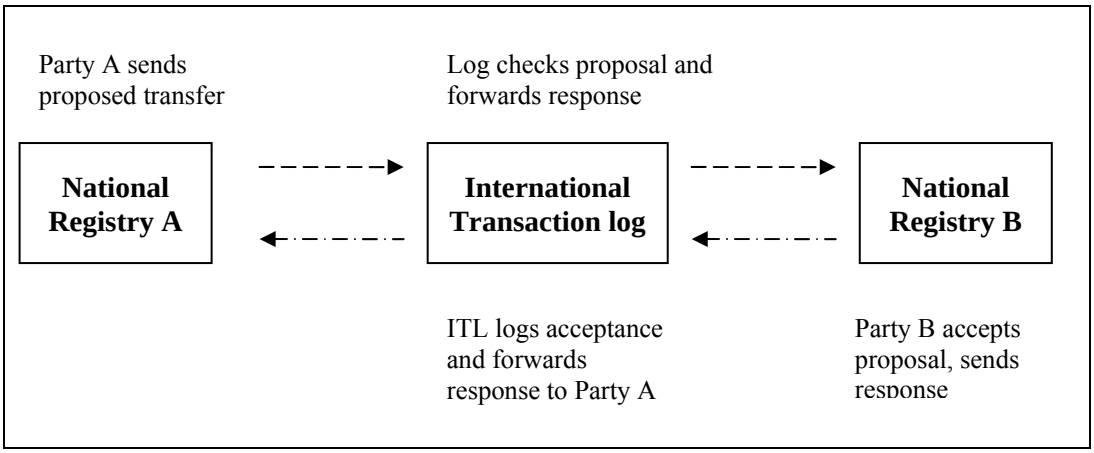
[6] The assigned amount is calculated by multiplying a country's total greenhouse gas emissions for its base year or period by five (for each year under the commitment period), and then by the reduction percentage contained in Annex B of the Kyoto Protocol.

Figure 1 Communication between Registries and the ITL



1.3.4 The Commitment Period Reserve

In developing the international trading system, Parties were concerned about the potential of overselling Kyoto units. In order to decrease the possibility of overselling units, Parties are required to maintain a continuous reserve of units known as the ***commitment period reserve*** (CPR).[iii] The rules require that the level be set at either 90 per cent of its recorded assigned amount or 100 percent of five times its most recently reviewed inventory which ever is lowest. This means that the amount **Parties** can trade will vary from year to year dependent on their latest inventory. The CPR covers all Kyoto units (AAUs, ERUs, CERs, and RMUs) held in national accounts that have not been cancelled. It is important to note, however, that ERUs verified through the procedures under the Supervisory Committee are not subject to CPR limits, and can be traded freely.[iv] The commitment period reserve must be maintained until all five inventories have been submitted and reviewed. If a Party goes below its CPR, the Secretariat notifies the Party, who then has 30 days to correct the imbalance. A Party can correct the CPR level by buying additional units. It should be noted that the CPR only affects trading under the Kyoto Protocol and not domestic trading schemes.

Table 4 The Commitment Period Reserve

	2008	***2009***	***2010***
Assigned Amount (AA)	500	500	500
Most recently reviewed Inventory	90	94	89
Option 1: 90 % of AA	450	**450**	450
Option 2: 100% of 5x inventory	450	470	**445**
Commitment Period Reserve (Lowest of Options 1 or 2)	450	450	445
Tradable Amount	50+ ERUs*	50+ERUs*	55+ERUs*

*ERUs verified through the Supervisory Committee

1.4 BACKGROUND ON THE EU EMISSIONS TRADING SCHEME

The European Commission (EC), as a Party to the Protocol, has a reduction commitment of eight percent from its 1990 base year of greenhouse gas emissions during the period

2008-2012. This commitment only covers the original 15 European Union (EU) Member States included in the agreed internal EU burden sharing scheme which redistributes the EC target; 8 of the new EU Member States retain the targets listed in Annex B of the Protocol.[7] The two remaining States do not have Kyoto targets during the first commitment period.[8] Under the terms of Article 4 of the Protocol (for "bubble" targets), any changes in EU membership (the Protocol uses a generic term–regional economic integration organisations), such as the addition of 10 new EU members, would not be covered by the EU bubble until any subsequent commitment period.

In October 2003, in preparation for meeting the targets set in the burden sharing agreement, the EU adopted Directive 2003/87/EC of the European Parliament and of the Council establishing an emissions trading scheme (EU ETS) that incorporates many elements from the international emissions trading system under the Protocol. The Directive requires its 25 Member States to set up domestic trading schemes based on key components prescribed in the Directive. In addition, countries joining the EU will be required to comply with this Directive. It also provides the ability to link with two of the Kyoto mechanisms and with other national trading schemes.

The EU ETS is a regional trading programme containing several harmonised elements in order to ensure consistency across trading programmes. These elements include criteria for developing allocation plans, method of allocation, monitoring and reporting requirements, and registry requirements. The EC has not set limits on the amount of allowances a State can allocate but States are required to allocate no more than is deemed necessary to put it on the right track to meeting its commitment under the Protocol. In doing so, they must take into account its internal burden sharing target, Kyoto target as contained in Annex B of the Protocol, and the percentage of emissions covered in the EU ETS versus the percentage not covered by the system. National Allocation Plans (NAP) are required for each period, and should contain the total quantity of allowances to be allocated and how they will be allocated.

The EC is responsible for monitoring the scheme and maintains the authority to veto NAPs. Member states are to appoint a *Competent Authority* to administer the trading scheme. In addition, the EC plays a supervisory role, and receives reports from Member States and updates criteria and makes structural changes. The Commission also maintains a transaction log to record transactions between Member States Registries, similar to the ITL under the Protocol.

The EU ETS was officially launched in January 2005, affecting over 12,000 installations across the EU and covering over 40 percent of the EU's CO_2 emissions.[9] The EU ETS is a downstream system targeting CO_2 emissions from four specific activities (see Table 5). It contains two distinct periods, the first is a pre-Kyoto period from 2005 – 2007, and the

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7 If the EC and its original 15 Member States do not reach the overall eight percent reduction, then each country must meet the reduction target specified in the EUs burden sharing agreement.

8 Malta and Cyprus remain eligible for CDM projects, at least through 2012.

9 In 2001, CO_2 accounted for 82.4 per cent of total GHG emissions (excluding land use change and forestry activities. The energy sector accounted for 81.4 per cent of total GHG emissions (excluding GHG related to land use change and forestry).

second coincides with the Kyoto commitment period (2008-2012). Subsequent periods will follow in five-year increments starting in 2013.

Installations covered under the EU ETS are required to hold a greenhouse gas permit, which sets an obligation on the operator to hold allowances equal to the actual emissions of that installation. Operators must apply to the relevant State authority for the permit. State authorities grant a permit to the site operator (a permit can cover one or more installations). The permit contains monitoring and reporting requirements and an obligation to surrender allowances equal to total emissions of installation in each calendar year. The permit enables installations to emit GHG emissions as long as it surrenders a sufficient number of allowances at the end of the compliance period. Permits are site-specific and non-transferable.

EU Allowances (EUAs), the commodity traded under the EU ETS, are recognised community-wide and based on the same unit of measurement as the Kyoto units – one allowance is equal to one metric tonne of CO_2 equivalent. Although the EU ETS will be used as an important means for meeting the EC's Kyoto target, it is not directly linked to the international emissions trading system under the Protocol. In fact, no provisions exist for entry of AAUs and RMUs into the EU ETS. From 2008, however, EUA transactions within the EU system will be followed by AAUs, but no AAUs from outside the system are currently expected to enter into it. CERs will be allowed from 2005 and ERUs from 2008, but must meet specific requirements.

In 2006 the EC is to review the Directive in light of experience gained and progress made in monitoring GHG emissions to consider further development of the EU ETS including for example, whether to extend the EU ETS to include other sectors and activities, the relationship of the EU ETS with the international trading system under the Protocol, and use of credits from project mechanisms.

Table 5 Annex I of the ETS Directive

Energy Activities
Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations)
Mineral oil refineries
Coke Ovens
Production and processing of ferrous metals
Metal ore (including sulphide ore) roasting or sintering installations
Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2.5 tonnes per hour
Mineral industry
Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes ore day'
Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day
Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity

exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m^3 and with a setting density per kiln exceeding 300 kg/m^3
Other activities
Industrial plants for the production of • pulp from timber or other fibrous materials • paper and board with a production capacity exceeding 20 tonnes per day

1.4.1 Linking with JI and the CDM

In October 2004, the Directive establishing the EU ETS was modified to enable linking of the Kyoto project-based mechanisms to the EU ETS.[10] The Directive enables CERs to be imported into the EU ETS for compliance purposes from 2005, and ERUs from 2008. There are no limits on the use of CERs during the first phase, although Member States are free to impose a limit if they choose. In the second phase Member States may allow operators to use CERs and ERUs for compliance in the EU ETS up to a percentage of the allocation to each installation. This is to be specified in the NAP.

In general, credits from a broad range of CDM and JI projects that reduce emission in any of the sectors and greenhouse gases covered by the Protocol (CO_2, CH_4, N_2O, HFCs, PFCs and SF_6) can be used within the EU ETS. The Directive does, however, place some limits on CERs and ERUs from certain project types:

- CERs from land use change and forestry projects are not eligible for entry into the ETS during the first trading phase; CERs and ERUs from these projects may be eligible in the 2008 – 2012 period.
- CERs and ERUs generated from hydro projects larger than 20 MW can be used but must "respect" relevant international criteria and guidelines, including those of the World Commission on Dams.
- CERs and ERUs generated from nuclear projects are also excluded from use in the EU ETS, in accordance with the CDM and JI guidelines.

In addition, Member States may also impose restrictions on use of CERs and ERUs from certain project types.

JI projects can be undertaken by any Annex I countries, meaning any two countries within the EU can undertake a JI project. In order to prevent double counting of emissions reductions, Member States are to ensure that no ERUs or CERs are issued for reductions or limitations of emissions from installations covered under the EU ETS except under the following two conditions:

- Through the end of 2012, any JI and CDM projects that directly generate emissions reductions or removals from installations falling within the scope of the EU ETS,

[10] This was achieved through the so-called "Linking Directive." Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.

may issue ERUs and CERs *only if an equal number of EUAs are cancelled in the national registry by the operator of the installation*.

- Through the end of 2012, JI and CDM projects at installations not covered by the EU ETS, but which affect (i.e., limit or reduce) emission reductions at installation that are covered by the EU ETS are not eligible to generate ERUs under JI *unless an equal number of EUAs is cancelled from the national registry of the Member State from which the ERUs originated.* Since the emissions associated with these projects are not under the EU ETS, but affect emission levels of installations covered by the ETS these are commonly referred to as "indirectly covered projects."

In order to accomplish the requirements related to "indirectly covered projects," Member States must take these projects into account in their NAP. The use of a reserve pool of EUAs corresponding to the number of ERUs and CERs generated and transferred by these projects is expected to be the most common approach. There are, however, disadvantages to this approach due to the need to approximate the size of the reserve pool.

Projects that are not covered by installations in the EU ETS, and that do not lead to a limitation or reduction of emissions from installations covered by the EU ETS remain eligible under JI. In developing JI projects, however, the Directive requires the *acquis communautaire* to be taken into account, meaning that the existing body of relevant regulations and requirements, including those covering energy, environment, and transport, must be included in baseline calculations. This implies that only emission reductions achieved by a JI project that are beyond the *acquis communautaire* would be eligible for generating ERUs. Countries that acceded into the EU in 2004 must integrate all Community law into their national legislation. Provisions have been established that enable full implementation of Community law to be transitioned in on a case-by-case basis, for example, Poland has until 2012 (rather than 2009) to fully comply with legislation related to waste landfills.

2 JOINT IMPLEMENTATION UNDER THE PROTOCOL

The Kyoto Protocol and the JI guidelines contained in Decision 16/CP.7 of the Marrakech Accords provide part of the legal framework for JI. Requirements under JI can generally be placed under three categories: eligibility requirements which affect the ability of a Party or its legal entity to trade under the Protocol; participation requirements which may affect a Party's ability to participate in JI; and project level criteria which govern the procedures and structure of a JI project.

2.1 ELIGIBILITY REQUIREMENTS FOR PARTIES

Under JI, eligibility requirements affect the transfer and acquisition of ERUs between Parties rather than the ability to undertake a project. The actual transfer and acquisition of ERUs, however, are governed by a broader set of rules, including M*odalities for the Accounting of Assigned Amount* and M*odalities, rules and guidelines for emissions trading under Article 17*.

The information provided in the following section will be of particular interest to Focal Points, while the information pertinent to project participants (the compliance status of Parties) will be available on the UNFCCC Secretariat website.(http://ji.unfccc.int). The Secretariat is required to maintain a list of Parties that meet the eligibility requirements as well as those Parties that are ineligible to trade. Given the somewhat complex rules governing the transfer and acquisitions of ERUs, the Secretariat is also likely to include a list of Parties under which questions of implementation have arisen.

Eligibility requirements and the two track approach

The JI guidelines provide for two approaches for developing JI projects commonly known as the two-track approach. First track JI is more closely related to emissions trading in that the host country Party plays a greater role in determining the project criteria related to transacting ERUs. Transactions are based on the performance of a project, but unlike second track there is no outside governing body that verifies the emissions reduced or sequestered. Second track JI more closely resembles the CDM, and projects must be examined and the emissions reduced or sequestered verified by an independent entity before any transaction can occur. Transaction costs are likely to be lower under first track JI, and investor countries in particular are likely to prefer use of first track JI. Under the first track, host countries are free to apply their own criteria and approve the project and emission reductions according to their own rules. The eligibility criteria for first track, however, are much stricter than for trading under second track JI.

A Party using the first track must meet all of the eligibility requirements and must remain in compliance with these (see section 1.3). For Parties that only meet a subset of these requirements (see Table 6) , transfers of ERUs from a host to investor Party/entity can still occur, but they must go through a verification procedure similar to that under the CDM and which is overseen by the Supervisory Committee (See Section 3.3.4).

These requirements, however, do not preclude projects from taking place before a host or investor country Party has met any of the eligibility requirements. Any emissions reduced or sequestered by a JI project would have to go through verification procedures established by the JI guidelines, but if the host country Party is not eligible to trade no verified ERUs would be transferred until (at least) the minimal eligibility requirements are met.

Parties in full compliance (meeting all of the eligibility requirements) may also opt to use the second track process.[11] One possible advantage to using the second track is that it exempts ERUs that have been verified under this process from the CPR limit. These ERUs can therefore be traded regardless of the status of the CPR, meaning that a country may be out of compliance with its CPR level, but this will not impede the transfer of any ERUs that have been generated through the Supervisory Committee's verification process (see Section 1.3.4). Once a Party has submitted the required information in the form of a report to the Secretariat, the Party will be considered to have met the eligibility requirements after 16 months have elapsed from the submission of the report, unless the enforcement branch of the Compliance Committee triggers any questions of implementation.[12] If a Party submits the required report to the Secretariat by January 1, 2007, this means that the earliest date by which a Party will know its eligibility for participation in JI and the other mechanisms is approximately April 2008. Continued compliance with the rules is a requirement for ability to use ERUs (i.e. apply the ERU for compliance purposes). In cases where a question of implementation is triggered, transfers and acquisitions of ERUs may continue, but Parties will be unable to use the ERUs for compliance purposes until the question of implementation has been resolved (Article 6.4 of the Protocol). ERUs that have been generated through the verification procedures under the Supervisory Committee are not subject to limitations on transfers, as long as the investor Party is in compliance with its requirements.

Requirements of the two tracks are summarized in Table 6 below.

[11] Until the Supervisory Committee is fully operational, and absent national JI guidelines, many project developers are using second track procedures in developing JI projects.

[12] In order to meet the eligibility requirements Parties must submit its "report to facilitate the calculation of its assigned amount pursuant to Article 3, paragraphs 7 and 8, and to demonstrate its capacity to account for its emissions and assigned amount…." Decision 16/CP.7 Annex, Section D, paragraph 22 (a).

Table 6 JI First Track and Second Track

	JI First Track	*JI Second Track*
A. Process **Eligibility Requirements for transferring and acquiring ERUs**	1. It is a Party to the Kyoto Protocol. 2. Its assigned amount has been calculated and recorded. 3. It has in place a national system for the estimation of GHG emissions. 4. It has in place a national registry to record the acquisition and transfers of AAUs, ERUs, CERs, and RMUs. 5. It must have submitted annually the most recent required greenhouse gas inventory report. 6. It must submit the necessary supplementary information on its Assigned Amount, as required under Article 7 (communication of information).	1. It is a Party to the Kyoto Protocol. 2. Its assigned amount has been calculated and recorded. 3. It has in place a national registry for recording the acquisition and transfers of AAUs, ERUs, CERs, and RMUs.
B. Documentation **Project requirements for generating and transferring ERUs**	Host country Party applies own criteria for project approval, including additionality assessment.	Project participant must follow verification procedures under the supervisory committee, including development of a Project Design Document (PDD). The PDD needs to be determined by an Independent Entity accredited by the Supervisory Committee.
C. Reporting requirements	A host country Party must make information on a project publicly available directly or through the Secretariat Information must conform to the JI reporting guidelines.	Accredited independent entities (IE) must make the PDD publicly available through the Secretariat for a 30 day commenting period. Reports related to monitoring and verification are made publicly available by IE.
D. Issuance of ERUs	ERUs can be issued by host country Party. No approval is required from Supervisory Committee.	If Supervisory Committee does not call the Independent Entity's verification report into a review procedure then host country Party can issue ERUs.
F. Affect on CPR	ERUs must be included in the CPR and are subject to its limits on trading.	ERUs are excluded from the CPR and can be freely traded.

2.2 PARTICIPATION REQUIREMENTS

While the eligibility requirements govern the ability of a Party to trade under the Protocol, participation requirements cover specific elements that must be included in the domestic implementation/structure of a Party's JI programme. They are mainly related to the method or process of approving projects. These requirements must be met regardless of the track used by a host Party or project.

Parties are to inform the Secretariat of its Focal Point for approving projects pursuant to Article 6, paragraph 1(a).[v] As with the CDM, there are no specific requirements that the Focal Point must fulfil other than approving projects. In the case of host country Parties, it is likely that the Focal Point would bear responsibility for making information on JI projects publicly available. In either case, the Focal Point must work with domestic administrators of the national registry since there are requirements specified within the *Modalities for the Accounting of Assigned Amounts* that relate to publicly assessable information under the national registries, including on JI projects (see Box 4).

Box 4 National registry requirements related to JI

Conversion of ERUs

Before a host Party may transfer ERUs, it must first convert previously issued AAUs or RMUs that are held in the national registry (in the Party holding account) into ERUs. The conversion is accomplished by adding a "project identifier", a number unique to that project and changing the "type" indicator on the serial number from AAU or RMU to ERU. The serial number must also identify whether the ERU was verified through the Supervisor Committee verification process.

Publicly assessable information

Each national registry must make all non-confidential information publicly available and assessable through the internet that enables interested persons to search and view information. This information must include up-to-date information on all accounts within a national registry including: the account name (including a point of contact for "representative" and contact information) and a unique account number (including Party identifier plus a unique number that identifies the representative. In addition, publicly assessable information related to JI must include ***a list of legal entities authorised by that Party*** to hold ERUs in its national registries.

For each "project identifier" against which the Party has issued ERUs, the following information must be made publicly available:

(a) Project name: a unique name for the project;

(b) Project location: the Party and town or region in which the project is located;

(c) Years of ERU issuance: the years in which ERUs have been issued as a result of the JI project;

(d) Reports: downloadable electronic versions of all publicly available documentation relating to the project, including proposals, monitoring, verification and issuance of ERUs, where relevant, subject to the confidentiality provisions contained in Article 6.

Parties must also have in place national guidelines and procedures for approving JI projects, "*including the consideration of stakeholders' comments, as well as monitoring and verification*[13]*."* This is likely to mean that national guidelines must include provisions for a process stakeholder input, as well as a process for verification and monitoring of reductions or removals associated with the project. Although not specified in the rules, this duty is likely to be accomplished through the Focal Point.

The final requirement states that all Parties involved in a JI project must approve it. This is embedded in Article 6, paragraph 1(a) which states that "…any Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units…provided that any such project has the approval of the Parties involved." This means that all Parties regardless of whether they intend to host a project must approve the project in order to transfer or acquire ERUs resulting from the project. Party involvement, however, is not defined.

Under the CDM Party involvement is defined as a Party that provides a written approval of voluntary participation for the project. Under this definition, Parties, through the Focal Point, would be required to submit written approval of the project (under track two) or include any Party approvals with publicly available information (under track one). It is possible that projects could go forward with only host country approval with approval by the investor country Party coming just prior to the transfer of ERUs. While under the CDM written approval also constitutes a DNA's authorization of participation by its legal entities in a specific CDM project activity; authorisation of a legal entity's participation in JI by a Party may be achieved through the list of entities authorised to hold ERUs within a national registry. In the case of projects funded through multilateral funds, approval by the fund may be sufficient but it is unclear what requirements will need to be met to transfers ERUs into the appropriate National Registries since the ability to hold ERUs within a national registry is clearly a requirement for transferring and holding ERUs. It is likely that a multilateral fund must first be considered a "legal entity" and have a holding account within one national registry in order to hold ERUs that would later be transferred to the funds investors in various other registries.

2.3 PROJECT LEVEL CRITERIA

In addition to participation and eligibility criteria, there are several project related criteria that must be met. Assessment of these criteria at the project level will be dependent on the track which the project takes. For track one projects, the host country must assess whether the project meets the relevant criteria; while under track two, the IE will determine this. Project-level criteria include requirements related to baselines, additionality, and conformity with land use change and forestry activities.

2.3.1 Baseline

The function of a baseline is to allow measurement of the project's emission reductions by comparing project emissions with emissions in the baseline. Under the JI guidelines, baselines must reasonably represent the anthropogenic emissions by sources or removals by sinks of "greenhouse gases that would occur in the absence of the proposed project,

[13] Decision 16/CP.7, Annex, Section D, paragraph 20 (b).

and is to cover emissions from all gases, sectors and source categories listed in Annex A of the Protocol and anthropogenic removals by sinks, within the project boundary."[vi]

Appendix B to the JI guidelines contains criteria for baseline setting and monitoring. Criteria for establishing baselines are:

- On a project-specific basis and/or using a multi-project emissions factor;
- In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors;
- Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector;
- In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to *force majeure;*
- Taking account of uncertainties and using conservative assumptions.

Baseline criteria for JI are somewhat similar to the CDM. All projects must meet criteria for baseline setting, monitoring and additionality, and must do so in a transparent and conservative manner (for a discussion of terminology used in both the CDM and JI see Box 5). There are also distinctive differences. First, under JI there is no requirement for development of methodologies.[14] Second, unlike the CDM, the JI guidelines provide for more flexibility in developing standardised baselines. Baselines for JI project may be established either on a project-specific basis and/or through use of a multi-project emissions factor. This should allow projects to be established using benchmarks, sectoral baselines or other more standardised methods.

Given the requirement for countries participating in JI to establish national guidelines for project approval, countries will play a greater role in developing what under the CDM would be termed methodologies, particularly in cases where standardised baseline approaches are developed. It is also likely, however, that the Supervisory Committee will either adopt some of the methodologies for baseline development for use in JI (although the methodologies may need to be modified for use under JI) or develop other methodologies for use by project participants. It is uncertain how this process will evolve, particularly since many project participants are currently applying existing CDM rules for JI projects. It is important to note, however, that the Supervisory Committee is to consider the body of work created by the CDM Executive Board in further elaborating rules for second track JI. In practice, the Supervisory Committee is likely to approve the use of at least some CDM methodologies (in cases where they are applicable for JI projects). Given the importance the JI guidelines place on national JI procedures,

[14] It should be noted that paragraph 40 of the JI guidelines states that information used to *"describe the baseline methodology and its application cannot be considered as proprietary or confidential."* This is, however, the only reference to baseline methodologies in the JI guidelines. This is likely to be an area in which the Supervisory Committee will provide further guidance. In practice, any procedures adopted by host country Parties related to baseline development will be a form of methodology. A methodology is simply a protocol for selecting the baseline scenario and calculating baseline emissions for a particular project type or within a particular sector so as to produce a baseline scenario.

however, national guidelines are likely to take precedence over any methodologies adopted by the Supervisory Committee and be required for use once they are established by the host country Party.

Box 5 Transparency, Uncertainty and Conservativeness

Under the CDM *transparency* means that all choices must be substantiated and explicit. The best method for ensuring transparency is to develop a logical and fully documented baseline and whenever possible to use established factors, algorithms and protocols. All reference documents should also be clearly cited.

Uncertainty and *conservativeness* relate to the impact of emissions and choices of assumptions and other key factors in establishing a baseline. When uncertainty exists, i.e., when there are one or more factors that can be used for calculating emissions, the most conservative must be chosen. This means that the factor that provide the lowest emissions reduced or sequestered must be used.

2.3.2 Additionality

Emissions reductions or removals must be additional to any that would have occurred without the project, which means that as with the CDM the only appropriate test is on the emissions reduced or removals achieved.[vii] The *additionality criterion* under JI is applicable to all projects, and development of the baseline is a key component in demonstrating additionality. A reduction of emissions resulting from a JI project is additional if the emissions reductions are additional to what would otherwise have occurred, i.e., are lower than those of the baseline scenario. But how it is assessed is different under the two tracks. Under first track JI, the host country determines whether the project is additional to business as usual. In this circumstance it is preferable for the host country to outline what must be incorporated into the baseline scenario. JI projects hosted in an EU country, for example, must incorporate *acquis communautaire* into the projects baseline. Any emissions reduced or sequestered beyond that would be considered additional.

For second track projects, an accredited Independent Entity assesses the additionality of the emissions reduced or sequestered. The assessment of additionality in second track projects would be dependent on the approach taken by the Supervisory Committee. Two approaches are possible. In the first, the Supervisory Committee could adopt an additionality tool similar to that of the CDM Executive Board, or alternatively the Supervisory Committee could require use of any additionality tests supplied by host countries in their national guidelines and procedures for the approval of JI projects.

Assessment of additionality will also be affected by the type of baseline used. If a project specific baseline approach is used by a project then that project will have to determine whether the emissions reduced or sequestered are additional on a case-by-case basis. If a benchmark or other top-down approach is used, then additionality could be automatically determined through meeting requirements specified within the baseline.

Chapter 4 of this Volume explains further how to select an appropriate baseline, how to calculate an emissions baseline, and calculate the emissions reductions.

2.3.3 Land use and land use change and forestry (LULUCF)

Projects in the land use change and forestry sector must conform to UNFCCC rules on LULUCF. The acceptability of ERUs generated from LULUCF activities, however, is a different matter. Depending on the intended compliance purpose of the ERUs from LULUCF activities, there may be restrictions on their use. Some Parties have stated that they will limit the use of ERUs from LULUCF projects to be used for compliance purposes.

2.4 TIMING OF THE JI TWO TRACK PROCEDURES

The JI guidelines govern two key aspects. The first relate to project requirements and the project cycle(s), and the second is the ability to trade ERUs.

Projects starting from the year 2000 that meet all the guidelines may be eligible as JI projects, but ERUs may only be transferred and acquired during the commitment period. Trading of ERUs under the Protocol, however requires that the Compliance Committee be established, reports by countries be submitted, the assigned amount calculated, the national registry operational, and the commitment period underway. The determination of eligibility also requires expert review teams to be in place to review the required reports; as stated above, a green light for trading by the enforcement branch of the Compliance Committee is likely to take approximately 16 months as long as no questions of implementation are raised.

For Parties in full compliance with the eligibility requirements for participation under the Kyoto trading system, there are no internationally imposed requirements for JI projects, other than those stated above. The Parties apply their own criteria for JI projects and must determine whether the project meets them. In addition, the host country Party determines the amount of emissions reduced or sequestered by a project and whether the emissions reduced or sequestered are considered *additional*. The host Party must make information on the project "publicly available" directly through the national registry. Information on the project, including on baselines and monitoring may also be sent to the Secretariat. It is unclear whether these projects will be required to send information in the format of a project design document (PDD). Although Parties may design their own format for submitting project information, use of the PDD adopted by the Supervisory Committee is likely to provide more transparency and ease of use. It would also reduce costs in cases where a project developed under first track procedures was suddenly required to go through second track procedures (in cases of non-compliance for instance). Finally, the host country has the responsibility for transferring ERUs to the investor Party/Parties.

A key criterion for operationalising Second Track JI is the establishment of the Supervisory Committee. The Supervisory Committee was established at the meeting of the first COP/MOP in December 2005 and will operation in 2006. Drawing on the experience of the CDM Executive Board in certain areas should accelerate the readiness of the Supervisory Committee.[15]

[15] Specifically, the Supervisory Committee is to consider the CDM Executive Boards work in relation to three areas: standards and procedures for the accreditation of Independent

Since the Supervisory Committee is not yet fully operational and most countries have not yet established their national guidelines and procedures, a number of questions remain as to what project participants should do in the interim period. The first step is to consult with the host country Party or their Focal Point and to develop projects according to the guidelines that currently exist. Many project participants are choosing to develop their projects in line with the CDM rules.

Once the Compliance Committee begins determining eligibility to trade, the UNFCCC Secretariat will maintain a publicly available list of countries that meet the eligibility requirements for JI First and Second Track projects, and of those that are in non-compliance with the requirements.[viii]

Entities, reporting guidelines and criteria for baseline and monitoring, and in development of a project design document.

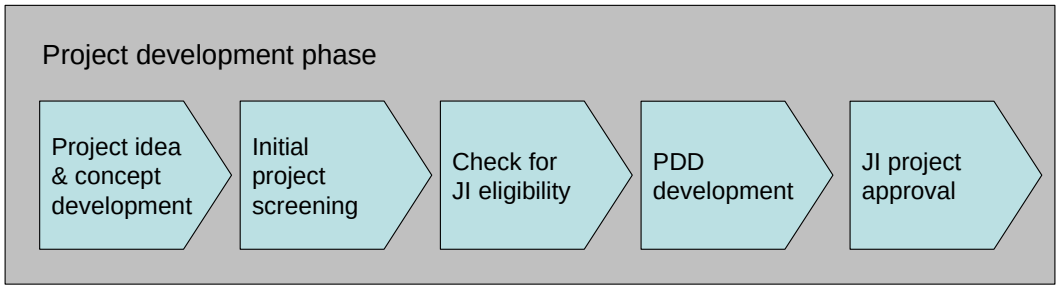
3 THE JI PROJECT CYCLE

This Chapter describes the steps involved in the project cycle for the two tracks, and the roles of the participants in each step. The order of steps is not prescriptive but rather descriptive of the potential development of a JI project. The activities and priorities of the host country could affect the order or steps involved in the development and implementation of a JI project. In some cases, host country Parties may have a preference for the types of JI projects they are willing to have implemented within their borders, or they may have a portfolio of projects that they have prioritized for JI whose development would expedite some of the steps. The project cycles differ somewhat between the two tracks. These differences will be discussed in greater detail in the sections that follow (see Sections 3.2 and 3.4).

3.1 THE JI PROJECT CYCLE

The JI project cycle contains steps and activities comparable to those undertaken in the development of any conventional project (i.e. an investment without a JI component). As with other types of projects, the JI project cycle can be divided into two main phases: the development and implementation phases. The project development phase encompasses development of the project idea, its assessment for eligibility under JI and its approval by the host country Party (and other Parties involved). This phase incorporates all activities prior to the construction or start of any of the project's activities. Figure 2 below presents the JI project cycle for the project development phase.

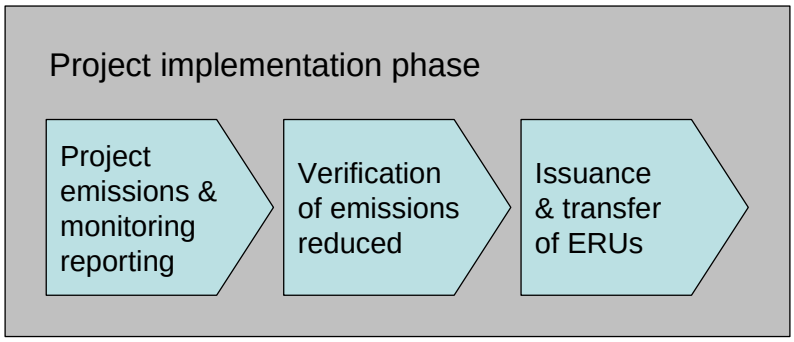
Figure 2 JI project development phase



Once a project idea has been developed, the project should be assessed to determine whether it will produce a sufficient number of GHG emissions reductions to warrant further development. If this assessment is positive, the project participant should establish contact with the national Focal Point for JI or, if this has not been appointed, the Ministry with responsibility for JI and discuss development of the proposed project as a JI project. This should include an assessment of the applicable and relevant international and national regulations and policies, as well as to determine whether the national JI guidance and procedures for project approval have any bearing on development of the project under JI (such as any restrictions on projects types).

The second phase is the implementation phase. This refers to the point in time from which the project is operational and emissions reductions are generated. This phase includes all monitoring, reporting and verification of emissions reduced or sequestered, and the transfer of ERUs. Figure 3 below presents the JI project cycle for the project implementation phase.

Figure 3 JI project implementation phase



3.2 FIRST TRACK PROJECT CYCLE

There are two primary participants in First Track JI projects. The first is the project participant whose primary responsibility is the development and implementation of JI projects in accordance with the guidelines and procedures of the host country. The second participant is the host country Party, primarily the Focal Point that is responsible for the verification of the emissions reduced, determination of the additionality of those emissions, and issuance of the ERUs.

For Parties in full compliance with the eligibility requirements listed above, there are only minimal internationally imposed requirements for JI projects hosted in those countries. As stated previously, Parties apply their own criteria for JI projects and must determine whether projects meet them. In addition, the host country Party verifies the amount of emissions reduced or sequestered by projects and whether the emissions reduced or sequestered can be considered *additional*. The host country Party must make information on the project "publicly available" both directly, or by sending project information, including on baselines and monitoring to the Secretariat.[ix] As stated previously, however, information is also to be made available through the national registry. Parties may choose to design their own format for submitting project information, or they may adopt the PDD that the Supervisory Committee designs. Finally, the host country Party has the responsibility for transferring ERUs to the investor Party/Parties. A guide for First Track JI project cycle is provided in Table 7.

Since verification of ERUs under First Track JI is left to the host country Party, verification procedures may vary by host country Party, and could differ from Second Track JI procedures. It should be noted that a Party meeting the First Track JI requirements may at any time opt for using the Second Track JI verification procedures.

Table 7 Guide for First Track JI project cycle

Step 1:	Identification of project idea by project participant and an initial evaluation of the eligibility and feasibility of developing the project as a JI project.
Step 2:	Determination of Track to be used for project development. a) Has the host country Party met all six eligibility requirements? b) If no, are they likely to by the time ERUs are to be transferred out of the host country Party's national registry? It is also important to check with the host Party to determine their JI policy. Some Parties may choose to begin trading under Second Track JI and trade under Article 17 and first track JI at a later stage. c) If the project is not eligible under First Track go to Section 3.4 on Second Track JI.
***Step 3*:**	If the project is eligible under First Track JI, the project participant must develop the necessary documentations for submission to the host country's Focal Point. The national guidelines and procedures for project approval will be a key source of information in determining the structure of documentation, i.e., whether the host Party requires use of the PDD or has designed its own reporting format, specifications for baseline development, monitoring requirements and verification procedures. Documentation may include: a) Development of a baseline and a monitoring plan, and any other documentation specified by the Focal Point, this may include documentation of analysis of environmental impacts of the project as required by host country national law. b) Assessment that the emissions reduced by the project are additional to what would otherwise have occurred. c) Stakeholder comments, as specified in the national guidelines and procedures for approving JI projects. d) Letters of approval of the project from involved Parties. Additional information on baseline development can be found in Section 4.
Step 4:	The Focal Point makes the information publicly available through the national registry or other means and may also submit information to the Secretariat.
***Step 5*:**	The Focal Point verifies the reduction in emissions as being additional to what would otherwise have occurred.
***Step 6*:**	The Focal Point/host Party may issue the appropriate quantity of ERUs in accordance with the modalities and procedures for the accounting of assigned amounts.

At this stage, project participants are advised to develop a project under Second Track procedures, primarily because compliance with the eligibility criteria will not be determined until at least 2008.

It is important to reiterate that the ability to transact ERUs under First Track JI is dependent on Parties being in full compliance with all eligibility requirements for trading (see Section 2.1). The earliest this is likely to occur is sometime during mid-2008. Parties must submit information to the Secretariat by January 2007, but the process for assessing eligibility will take 16 months (in cases where no problems or "questions of compliance" are found) or longer. It is also important to check with the host country Party to determine whether and/or when they will comply with eligibility requirements for First Track JI. Host country Parties could opt to use Second Track JI throughout all or most of the commitment period rather than move to First Track. Although First Track JI may involve lower transaction costs on a per-project basis and is seen by investors as the preferable method for transacting ERUs, it places a higher burden on the host country Party. First Track JI requires that standards applicable for conducting emissions trading under Article 17 be met which entails ensuring that GHG emissions can be estimated and reported at the national level rather than monitoring and reporting emissions at the project level as under Second Track JI. As a result, some these Parties may choose to use Second Track JI first; moving to First Track JI at a later stage during the commitment period.

3.3 PARTICIPANTS INVOLVED IN THE JI SECOND TRACK PROJECT CYCLE

The four primary participants involved in the Second Track JI project cycle are:

- Project participants
- Parties
- Accredited Independent Entity (IE)
- Supervisory Committee for JI

Each of the above participants is responsible for different tasks involved in implementing and administering JI projects. The role of each of the participants is outlined in the sections below.

3.3.1 Project Participants

Article 6 of the Protocol establishes a Party's ability to authorize legal entities to participate, under its responsibility, to undertake *"actions leading to the generation, transfer or acquisition under this Article of emission reduction units."* [x] The JI guidelines note however, that the Party remains responsible for ensuring that its Kyoto commitments are met.[xi] This suggests that a wide range of bodies could, if authorised by a Party, develop projects and acquire or transfer ERUs. Examples of possible entities that could participate as project participants include Government bodies or agencies, municipalities, foundations, financial institutions, companies and NGO's. In order to acquire ERUs, however, the "legal entity" must have a holding account in a national registry.

3.3.2 Parties

Parties are those national governments which have ratified or acceded to the Protocol, and in the context of Article 6, are involved in a JI project. The country where the project is located is generally referred to as the Host Party. An investor Party would be the country in which the ERUs are transferred. Every JI project includes the involvement of a host

Party. According to the JI guidelines a JI project has to have the approval of the Parties involved. See Section 2.2 for a more detailed discussion of requirements for Parties involved in JI projects.

Under JI, host country Party involvement is a critical component for the development of a project, and in particular for the ability of project participants to acquire ERUs. Without host country Party involvement, no ERUs can be transferred.

See Appendix C for samples of Host and Investor Party Letters of Approval.

3.3.3 Accredited Independent Entities

An IE under the Second Track JI procedure is responsible for determining whether the proposed project meets the requirements specified in the JI guidelines and verifying the emissions reductions accruing from the project. A "determination" occurs when the PDD is reviewed to ensure the project meets the JI guidelines. Once a project participant submits a PDD to the IE, the tasks of the IE are to:[xii]

- Make the PDD submitted by the project participant publicly available for 30 days through the Secretariat;
- Receive comments from Parties, stakeholders and UNFCCC accredited observers on the PDD and any supporting documentation. Comments can be made for 30 days from the date from which the PDD is made publicly available; and
- Provide a summary of comments received and a report of how due account was taken of these.

The IE has to determine whether the proposed project has been approved by the relevant Annex I Parties involved, whether the project would result in a reduction of emissions by sources that is additional to any that would otherwise occur, and whether the project has an appropriate baseline and monitoring plan in accordance with JI guidelines. The IE must also determine whether project participants have submitted documentation on the analysis of environmental impacts of the project, including trans-boundary impacts, in accordance with procedures determined by the host country Party. If the impacts are considered significant by project participant or the host country Party, the IE will have to determine whether an environmental impact assessment has been undertaken in accordance with the procedures required by the host country Party.

Verification of emissions reduced by a project is also the responsibility of the IE. Verification is the periodic independent review and *ex-post* determination of the reductions in GHG emissions that have occurred as a result of the operation of the JI project.[16] In other words, verification can only be carried out once the project has begun generating emissions reductions. It serves to verify that the project results in real emission reductions, and that the emissions were monitored and calculated in accordance with the monitoring plan.

[16] Under the JI guidelines, verification of emissions reduced or sequestered is term a "determination". For simplicity and clarity, this handbook refers to the review of the PDD as "determination" and the verification of emission reductions as "verification".

IEs are to be accredited by the Supervisory Committee. This is likely to be one of the first areas the Supervisory Committee will proceed with during 2006.

This raises the question of what project participants and Parties can do in the interim. It is important to recognise that there is a risk that projects implemented in this interim period may not ultimately qualify as JI projects.

One option is to select companies that are Designated Operational Entities (DOEs) under the CDM. There is a high likelihood that many of these organizations will apply for accreditation under Second Track JI. A list of DOEs can be found on the CDM website maintained by the Secretariat at http://unfccc.int/cdm/doe.html.

It should be noted, however, that using entities not accredited by the Supervisory Committee to determine project eligibility will only result in provisional determinations or verifications that may require re-examination once the Supervisory Committee has been established and provided any further guidance it deems necessary. Since ERUs cannot be transferred until the commitment period is underway and eligibility of Parties to trade has been established, project participants could consider waiting until IEs have been accredited before verification of ERUs is undertaken. In this case it is important to maintain detailed and transparent monitoring data and any other relevant information for verification. The project participant and/or purchaser of emissions reductions determined by an entity not accredited by the Supervisory Committee will face the risk that the project, and its related emission reductions, may not be accepted by an IE or recognized by the Supervisory Committee. This risk is generally reflected in the purchase price of the emissions reductions (see Sections 5.3 and 5.4 for more information on risks).

3.3.4 Supervisory Committee for Second Track JI

The Supervisory Committee will work under the authority of the COP/MOP and report on its activities to each session of the COP/MOP. The Supervisory Committee will:[xiii]

- Set up accreditation process and procedures;
- Review standards and procedures for the accreditation of IE, taking into account the work of the CDM Executive Board;
- Accredit IEs;
- Review and revise reporting guidelines and criteria for baselines and monitoring, for consideration by the COP/MOP, giving consideration to relevant work by the CDM Executive Board;
- Design a PDD, for consideration by the COP/MOP, giving consideration to relevant work by the CDM Executive Board;
- Review procedures in connection with determination of proposed JI projects and verification of emission reductions by those projects;
- Elaborate any rules of procedure additional to those already contained in the JI guidelines, for consideration by the COP/MOP.

3.4 STEP-BY-STEP GUIDE TO THE JI SECOND TRACK PROJECT CYCLE

The main task of the project participant during the project design phase is to prepare all the required documentation for developing a JI project, which is contained in a PDD. An important part of this is to attain project approval by the Parties involved in the project. This is generally accomplished through a letter of approval. The letter of approval from an investor country Party usually fulfils the following functions:

- Gives clear approval of the project
- Authorises the purchaser (the legal entity which should have a holding account within its national registry) to participate in the project (and thereby enable the host country Party to issue Kyoto units from its registry into the holding account of the investor country Party registry).
- Ensures that the host and investor country Parties will enable their registries to authorise transfers between registries and in some cases states that the investor country will assist the host country in facilitating the transfer.

Letters of approval by host country Parties require greater detail since the majority of requirements fall on the host rather than the investor country Party. Host country letter of approval usually includes the following:

- Clear approval of the project by the host country.
- Ensures that the host country Party will fulfil requirements related to reporting on the project.
- Authorisation for the local owner (within the host country) to generate (and possibly hold) ERUs.
- Clear requirement for the host country Party to issue and transfer AAUs and/or ERUs to their purchaser (this also requires that an agreement for the purchase of AAUs and/or ERUs be in place) according to any contracts executed between the various parties (i.e., governments, project participants, and so on).
- Clear requirement for the issue and transfer of Kyoto units to be free and clear of any taxes, levies or charges to the Purchaser (this does not imply that the project participant will be exempt from any such charges and project participants must determine whether they will be responsible for bearing any such charges).

Once a PDD is completed and letters of approval received, the next step will be to hire an IE for the determination of the proposed JI project.

The steps in the Second Track JI project cycle are presented in detail below:

- Figure 4 and Figure 5 present key steps, and participants involved, in the Second Track JI project design and implementation phases. The figures provide a diagrammatic overview of the project cycle and the steps involved.
- Table 8 and Table 9 describe briefly each of the steps in the Second Track JI project design and implementation phases. The tables also provide references to the requirements listed in the JI guidelines and links to sections in the Handbook that provide further guidance.

Figure 4 Project cycle for project development phase of JI Second Track

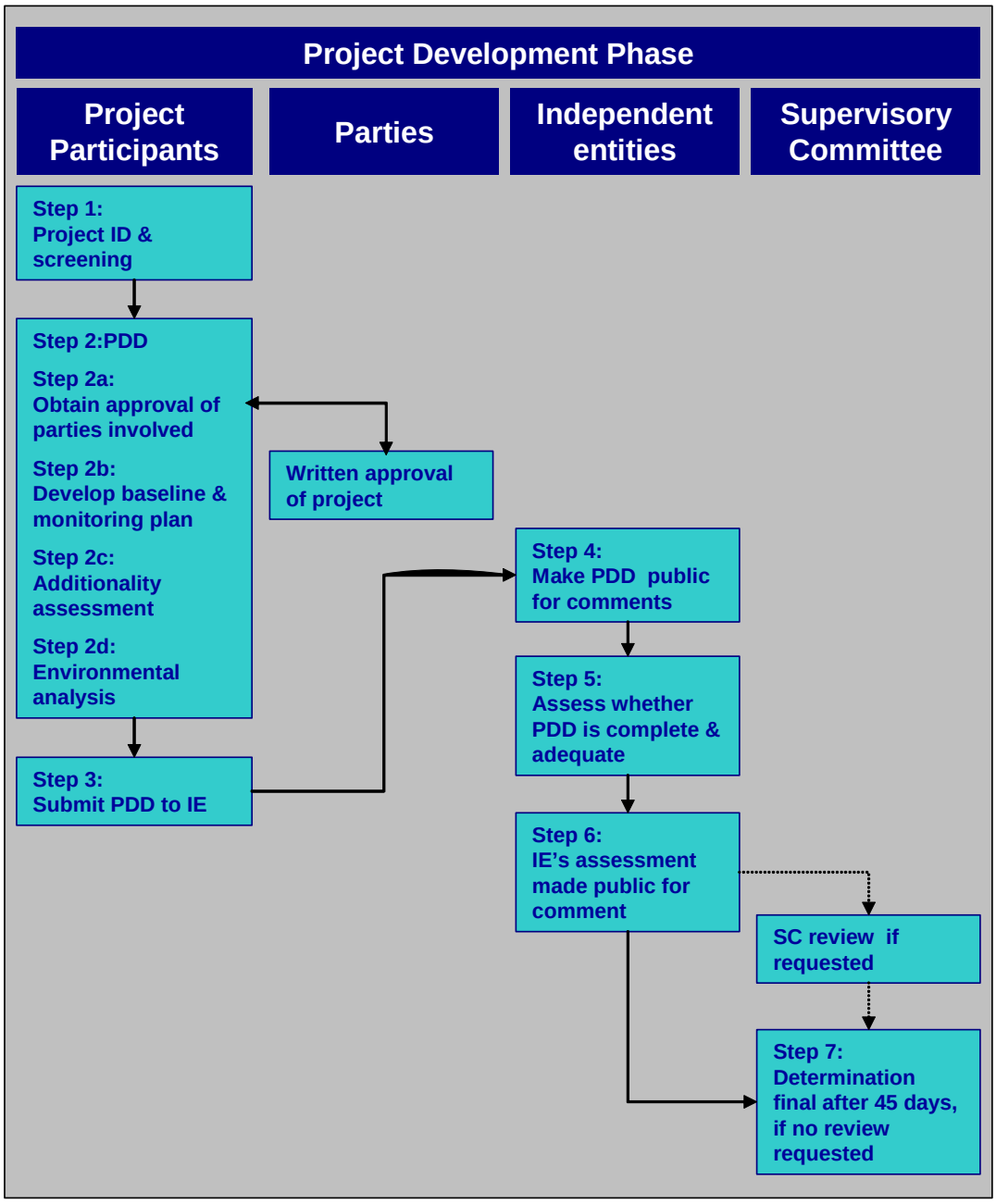


Table 8 Step-by-step guide for the project development phase

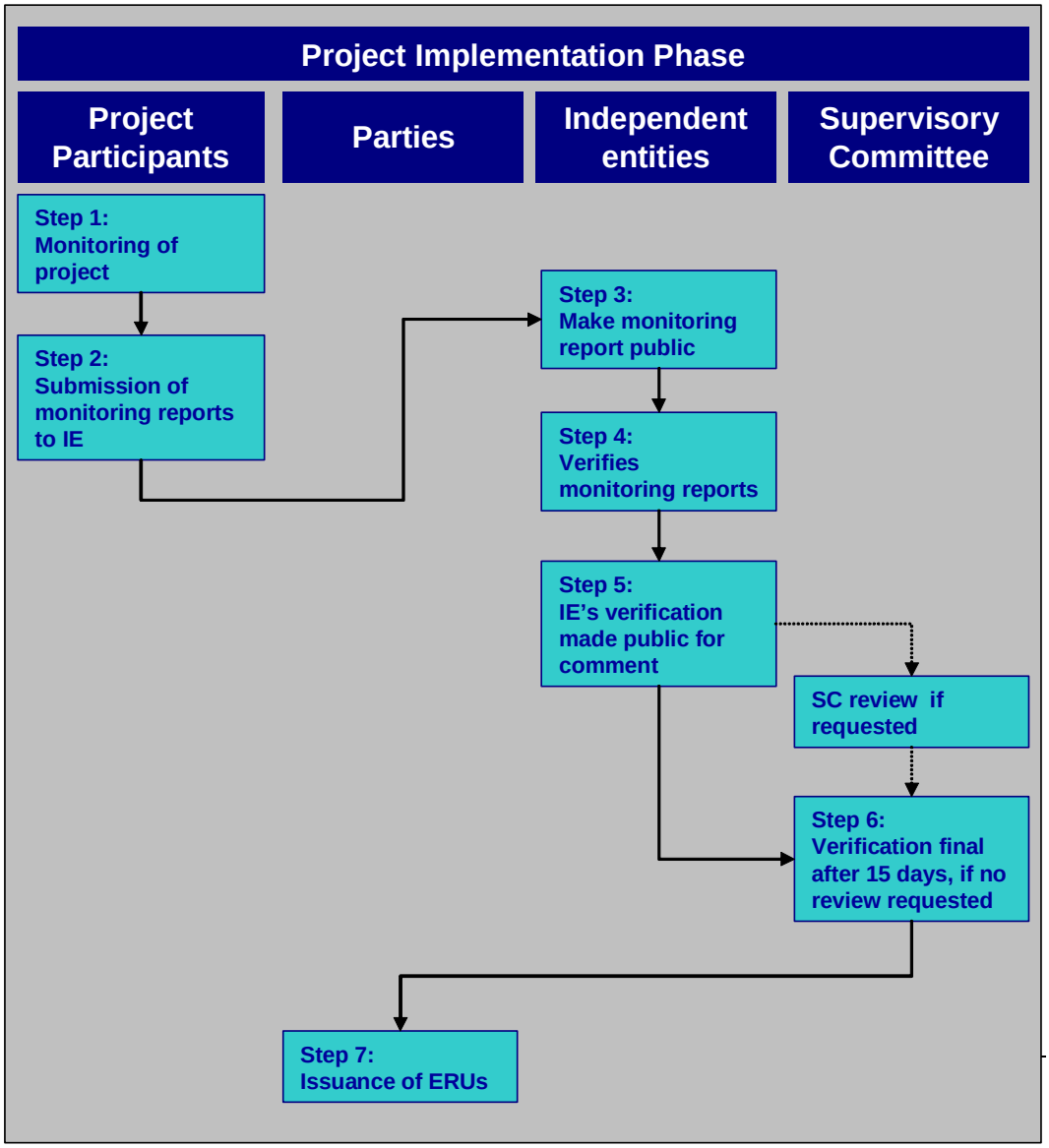
Step 1:	Identification of project idea by project participants and an initial evaluation of the eligibility and feasibility of developing the project as a JI project.
***Step 2*:**	Project participants must develop PDD containing all information needed for determination by an IE, including:[xiv] a) Obtain approval of the project from involved Parties (most likely in the form of a letter of approval). b) Development of an appropriate baseline and monitoring plan. c) Explanation of how the emissions reduced/sequestered by the project is additional. d) Documentation on analysis of environmental impacts of the project, and if considered significant, documentation of an environmental impact assessment undertaken in accordance with procedures as required by the host country Party. For further guidance see also Section 3.5.
***Step 3*:**	Project participants submit PDD to IE.[17]
Step 4:	The IE makes the PDD publicly available through the Secretariat for 30 days. During this time Parties, stakeholders and UNFCCC accredited observers may comment on the PDD and any of its supporting information (subject to confidentiality provisions in the JI guidelines.
Step 5:	The IE determines whether the PDD is complete and the requirements have been met. See section 3.6 for further guidance.
***Step 6*:**	The IE makes the determination publicly available through the Secretariat, together with an explanation of its reasons, including a summary of comments received and a report of how due account was taken of these[xv].
Supervisory Committee review[xvi]:	If a Party involved in the project or at least three members of the Supervisory Committee request a review, the Supervisory Committee will undertake a review. This request must be made within 45 days of the date the IE makes its determination publicly available. The scope of the review is not specified in the JI guidelines, but is likely to be limited to issues associated with the determination requirements. The review process and subsequent decision must be finalized as soon as possible but no longer than 6 month after the request for review or at the second meeting of the

[17] Under the CDM process, the PDD can be submitting for validation without the letter of approval from the host country, although the letter must be provided before validation can be finalised and the project submitted for registration. A similar situation may well apply to JI, although it will depend on the detailed procedures and the procedures may differ from country to country.

	Supervisory Committee after the decision for review was made by the Supervisory Committee.[18]
***Step 7*:**	The determination is final 45 days after the receipt of the determination report, unless a review is requested.[xvii]

Once the project is operational, the main task of the project participant is to monitor project performance and to report the monitoring results to an IE. The IE is responsible for: (a) making the PDD publicly available, (b) determining whether the PDD meets JI requirements, (c) summarising stakeholder comments and (d) taking into account stakeholder comments. The IE is then responsible for making publicly available (a) the determination report, (b) stakeholder comment summary, and (c) the report on how the stakeholder comments were taken into account.

Figure 5 Project cycle for the implementation phase



[18] As with the CDM process, a request for review does not necessarily mean that a review will be undertaken. The Supervisory Committee could find that the grounds specified in the request are insufficient to undertake a review.

Table 9 Step-by-step guide for the implementation phase

Step 1:	Project participants monitor and record project.[xviii] Based on the monitoring results, the GHG emission reductions resulting from the JI project can be calculated.
Step 2:	Project participants submit monitoring results to IE. The project participant contracts an IE for verification of the monitoring results and the subsequent calculation of Emission Reductions Units resulting from the operation of the JI project. The Supervisory Committee will in due course provide a list of IEs that can be contracted to carry out verification activities.
Step 3:	The IE makes monitoring report publicly available through the Secretariat.[xix]
***Step 4*:**	The IE determines (verifies) whether monitoring results have occurred in accordance with the approved monitoring plan. [xx]
Step 5:	The IE makes its determination publicly available through the Secretariat, together with an explanation of its reasons.[xxi]
Supervisory Committee review	If a Party involved in the project or at least three members of the Supervisory Committee request a review, the Supervisory Committee will undertake a review. This *request must be made within 15 days of the date the IE makes its determination* publicly available. The scope of the review is not specified in the JI guidelines, but is likely to be limited to specific issues related to the determination requirements. The Supervisory Committee must decide on a course of action at its next meeting or no later than 30 days after the formal request for review. If a review is undertaken, it must be completed within 30 days following its decision to perform the review. It must inform the project participants of the outcome of the review and make its decision and the reasons for it publicly available.[xxii]
Step 6:	The determination is deemed final 15 days after the date on which it was made public, unless there is a request for review.[xxiii]
***Step 7*:**	Issuance of ERUs. The host country Party transfers ERUs according to any contractual agreements made. Any legal entities acquiring ERUs must have a holding account in a national registry in order for the transfer to occur.[xxiv].See Box 4 for more information on registry requirements.

3.5 DOCUMENTATION REQUIREMENTS – THE PDD

This section provides guidance on the information to be provided by project participants in developing PDDs for JI projects. It should be noted that the specific PDD form has not yet been established. As a starting point, the CDM PDD is used, but project participants should be aware that some items may not be relevant for JI projects, and other items may be added by the Supervisory Committee. What is certain is that the following information must be included in the PDD:

- Approval of the project from involved Parties (most likely in the form of letter of approval).
- A baseline and monitoring plan. This should include estimations of the emissions reduced by the project within the project boundaries, an estimation and description

of what would have occurred within those boundaries absent the project and the number of ERUs that are likely to be generated as a result of the project.

- Stakeholder comments, as specified in the national guidelines and procedures for approving JI projects.
- Additionality assessment.
- Documentation on analysis of environmental impacts of the project, and if considered significant, documentation of an environmental impact assessment undertaken in accordance with procedures as required by the host country Party.

A summary of all the information that should be compiled into a PDD is provided in the box below, and each of the components is discussed in the following subsections.

Box 6 Components of a PDD

1. General description of project
2. Approval of the Parties involved
3. Baseline Study (and additionality testing)
4. Monitoring Plan
5. Estimations of GHG emissions and emission reductions
6. Environmental impacts
7. Stakeholders' comments

Sections 3.5.1 to 3.5.7 further elaborate each of the above-mentioned components of the PDD. Section 3.6 then briefly discusses the determination process.

3.5.1 Description of the Project

Specific requirements for the description of the proposed project have not yet been established. However, information contained in this section of the PDD provides the basis for setting the project boundaries. It also provides the IE and stakeholders with information that is vital to assessing the project, and is based on information that project participants should have readily available. Much of this information is related to information needed for setting the project boundaries and in providing a narrative description of what would have occurred in the absence of the project.

It should also be noted that, in most cases, supplying such information will not place a significant additional burden on the project participant because this information should already be available and is necessary as part of conventional project development activities – such as in business plans used for raising capital, in submissions for gaining planning approval/permit, etc. Much of this information is also necessary in undertaking an initial assessment of the feasibility of a project under JI.

The following information is required under the CDMs PDD, and is highly likely to be required under any JI PDD developed by the Supervisory Committee. See Appendix B for links to guidelines and layout of the CDM PDD.

The project description should summarise information on the project participants, the project itself (including the start date, lifetime of the project and crediting lifetime of the project), and on the financial structure of the project. The project participants should provide the following information:

- A list of all project participants--a point of contact should also be identified;
- Purpose of the project;
- Location of the project;
- Size of project (e.g. heat and/or electricity capacity, e.g. in MW, or energy savings);
- Estimated project output (amount and type);
- Details on technology or techniques used (type and producer);
- Project planning (time schedule);
- Project lifetime;
- Crediting lifetime of the project;
- Description of key stages/steps in the projects development.

Box 7 Additional information for energy supply and demand side energy efficiency projects

Energy supply projects should include a clear description of:	Demand side energy efficiency projects should include a clear description of:
1. Project category/type; 2. Project capacity; 3. Estimated project output; 4. Fuel use; 5. Efficiency of technology used; 6. The estimated project lifetime 7. The project implementation plan, including timeframe of the planning, implementation and operation stages; 8. If the project involves a retrofit activity (i.e. a project that replaces or rehabilitates existing capacity), a description of the actual performance of the facility that is going to be replaced/rehabilitated; 9. The sector within which the project will be operating, including a brief description of the context and the circumstances in the project market.	1. Project category/type; 2. Output of the project or project demand (i.e. power, heat, lighting, paper, steel, shoes etc.); 3. Current situation of demand delivered or provided, including a description of the energy source used; 4. Volume of products/service; 5. The technical lifetime of the service/product provided; 6. The project implementation plan, including timeframe of the planning, implementation and operation stages; 7. The rebound effect that might occur when use of equipment increases as a direct response to increased energy efficiency measures.

If the project involves the introduction of a new service or product and no information can be collected from the current situation, then the project participant should look at

international or comparable services in other areas, and find out how the demand is currently delivered or provided.

If the project is expected to generate emissions reductions beyond 2012 that may be eligible under JI, this should also be listed (in the event that agreement on a second commitment period is reached). In some cases, however, projects will not be eligible under JI beyond 2012 due to national laws or other requirements such as the requirement for new EU Member States to fulfil the *acquis communautaire*.

3.5.2 Approval of the Parties Involved in the Project

A JI project has to be approved by the 'Parties' involved[xxv]. The JI guidelines do not provide further guidance on the form or content of the approval from the Parties involved. Based on experience from the CDM it can be inferred that project participants must obtain an official letter of approval from the Parties involved (see discussion in Sections 2.2 and 3.4).

Although not directly associated with project approval by Parties, it is important to check that there are legal arrangements, authorised by the host country Party that includes the terms and conditions of transactions and how ERUs will be issued, once the project is operational. Some of this information should be made available through the national guidelines and procedures for project approval. Where these arrangements have not been formalised, the project participant should arrange a legal document, signed by the relevant authorities, that sets out these terms and conditions (see Box 8 on various types of documentation that may be used when developing JI projects).[19]

Project participants should be aware that host country Parties could either charge a tax on any ERUs issued, or that credit sharing with or withholding of ERUs by the host country Party is possible.[20] If this is a host country Party requirement it may be stated in the national JI guidelines; in any case, this would need to be clarified between the host country Party and the project participants. It is possible that some host country governments may want to retain ownership of a proportion of ERUs from certain types of projects or under certain circumstance. For example, this situation could arise where national public funds have been used in the financing of project.

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19 The BASREC Model Project Agreement package could provide some guidance on how to formulate such documents

20 Credit sharing or withholding of ERUs is more likely to occur with CDM projects rather than with JI projects.

Box 8: Various contractual requirements related to JI projects and programmes

Project Idea Note (PIN): Many purchasing programmes require a PIN in order to undertake a preliminary assessment of a project's eligibility according to the programmes requirements. PINs contain information that will be more fully developed in later documents such as a PDD and Emissions Reduction Purchasing Agreement (ERPA). Information that may be required in a PIN includes:

- the type, size and location of the project
- an estimate of the anticipated total amount of Greenhouse Gas (GHG) reduction compared to the "business-as-usual" scenario
- the suggested ERU or AAU price in a specific currency (generally either US$ or € /ton CO_2e reduced)
- financial structuring of the project
- other socio-economic or environmental effects/benefits of the project

Letter of Intent or Options Agreement: First step in negotiating an emission reductions purchase agreement. This document declares the intent of the owner of the emissions reductions (i.e., project developer or owner, or host country) to sell them to the purchaser. This agreement provides exclusive rights to the purchaser for a specified time period, for example the negotiations must be concluded within 12 months of the entry into force of the agreement. After that time, the seller would be free to enter into negotiations with another purchaser.

Letter of Approval: This letter provides formal approval of the project as a JI project by the Parties involved. Requirements for the host and investor country Party involved in the project differ. Approval of the project is a requirement under the JI guidelines. See Appendix B for pro-forma contents of host and investor country Party letters of approval.

Emission Reductions Purchase Agreement: This agreement details contractual arrangements between the seller of emissions reductions and the buyer. It also provides the purchaser with all rights, title and interests in and to all or a part of the emission reductions or removals generated by a specified project. It also stipulates the purchase price, provides for payment upon delivery of the contracted amount and other provisions to ensure satisfactory implementation of the project.

Memorandum of Understanding (MOU): Some investor countries prefer projects be located in countries for which a MOU is in place. An MOU is not a requirement for project development and will not generally affect the terms or conditions of any legal contracts between the purchaser and seller, but they may ease the approval process which can be time consuming.

3.5.3 The Baseline and additionality assessment

The baseline for a project can be defined as the scenario that reasonably represents the anthropogenic emissions of greenhouse gases that would occur in the absence of the proposed project. It is useful to identify two components to the baseline:

- Baseline scenario which is a narrative description of what would have occurred in the absence of the JI project; and

- Baseline emissions which is a quantification of the greenhouse gas emissions in the baseline scenario, often expressed as an emissions factor, i.e. emissions per unit of product (e.g. tonne CO_2 per MWh of electricity).

The PDD must include both the narrative description and the quantification of emissions in the baseline which is used to estimate emissions reductions by the proposed project. Emissions reductions are the difference between baseline emissions and the project emissions. Baselines are discussed in depth in Chapter 4, and the rules governing baseline criteria are found in 2.3.1.

Project Boundary and Leakage

Although the JI guidelines treat the issue of project boundaries and leakage primarily within criteria for monitoring, they are key and required components for both baselines and monitoring plans.[21] The activities and GHG emissions that are included in the project boundary reflect what should be included in the baseline, in the proposed project and in estimating emissions reductions; and what will be monitored once the project is operational.

Leakage is defined as the net change of GHG emissions which occurs outside the project boundary and that is *measurable* and *attributable* to a project.[22] This can include instances where emissions decrease (positive leakage) or increase (negative leakage) outside the boundary. Under the CDM the majority of methodologies have only considered negative leakage. The total emissions impact of a JI project is the emissions reductions within the project boundary less any negative leakage outside the project boundary.

The project boundary and treatment of leakage affect the amount of credits that can be generated by a project.

Additionality Assessment

According to the Protocol and the JI guidelines, JI projects must generate emissions reductions that are additional to any that would otherwise occur (see 2.3.2). Beyond that, there is very little guidance related to additionality testing and JI projects.

The issue of additionality has been much discussed in the CDM context and provides some insight into options for testing additionality under JI. It is important to remember, however that testing emissions additionality under JI may vary considerably from country to country and between the two JI tracks. Some countries may require a simple test; some countries may provide categories of projects that are *a priori* considered additional, while others may require a more detailed examination similar to assessments that occurs under the CDM.

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21 The definition of a baseline contained in Decision 16/CP.7, Appendix B requires that the baseline include all emissions from all gases, sectors and sources as well as removals by sinks within the project boundary. Criteria for monitoring require more specific information on the data to be collected within and outside the project boundary. The project boundary is the same for both purposes.

22 This definition is contained in the CDM rules but is also relevant for JI projects.

The Supervisory Committee will have to consider three aspects of additionality under JI that are not present under the CDM. First, Parties wishing to participate in JI must establish national JI guidelines and procedures which could include instructions on assessing additionality. Second, unlike a CER, an ERU is part of a country's assigned amount and will not increase the overall cap on emissions, but measures will need to be taken to ensure that JI project emissions reductions are not counted under other mechanisms (for example, included in any emissions trading scheme). Third, sector wide baselines could automatically establish the additionality of emissions by a project, limiting the need for any further assessment in the PDD.

Key issues that could be examined in assessing additionality include:

- Demonstrating that there are barriers preventing a project's implementation. This could provide evidence of whether the reduction in emissions related to a project is additional.
- Comparing the current technological practices in a sector as a whole with those proposed by the project might reveal evidence of whether the project could have otherwise occurred. If the project involves a technology or practice that is equivalent or better in terms of its greenhouse gas emissions than the best technology prevalent in the corresponding industry or sector, this may be an indicator of additionality.
- Financial considerations may also be an important element in assessing additionality. If the project participant can demonstrate that the project is subject to high risks, and that the carbon revenues will assist in achieving financial viability, this could be considered supporting evidence of the additionality of a project's emissions reductions. It should be noted that just because a project has high rates of return, this does not mean a project cannot be additional. New technologies or the application of technologies in new contexts are generally viewed by the financial investment community as high risk and they will expect a high return for investing in such projects.

An important element in assessing additionality is the assessment of national, regional or local government policies and regulations that affect the type of project proposed. Where projects go beyond the scope of government policy and regulatory requirements, this might be an indicator of additionality. For instance if a country has regulatory requirements on minimum standards for building insulation, that are being adhered to, a potential additional reduction of emissions could be derived from a project that uses a higher standard of insulation.

BASREC states that are also EU Member States, must take into account the a*cquis communautaire*, including the EU ETS. It should be noted however, that fulfilment of the requirements or constraints set in the *acquis* may not be sufficient to show additionality, as specific Member States may require other means for testing emissions additionality.

Appendix B includes a description of emissions additionality testing methods and tools in the CDM.

3.5.4 Monitoring Plan

Monitoring project performance is an essential part of the JI project cycle. Project participants are required to include a monitoring plan as part of a JI project's PDD. National JI guidelines and procedures must also include information on monitoring and verification. As the monitoring plan forms a part of the PDD it must be developed during

the project development phase, prior to the operation of the project. Monitoring activities, however, only start once the project is operational.

The project participant is responsible for monitoring the project's performance. This does not necessarily mean that the project participant must carry out the monitoring activity itself. This can be delegated to other parties. However, the monitoring plan should describe who will carry out the monitoring activities and who has final responsibility.

In most cases, some sort of project monitoring is undertaken as part of normal operations. For example, for an electricity generation project, fuel use and electric output of a project will be measured and monitored for purposes of the sales of electricity. This data can then be used to calculate emissions reductions attributable to the project. In order to reduce costs of monitoring related to JI, it is recommended to link GHG monitoring activities as much as possible with existing monitoring activities.

Content of the monitoring plan

The monitoring plan serves as a protocol for carrying out monitoring activities. The monitoring plan should provide details on what and how data will be collected, who is responsible for data collection and storage, how data will be stored, etc. All relevant data necessary for estimating and measuring GHG emissions of the project within the defined crediting period must be collected. Moreover, monitoring must be carried out in such a way that the indicators of project performance and emissions can be compared with the baseline scenario. The monitoring plan is therefore closely related to the project boundary and baseline (see Chapter 4). Activity levels and performance of specific activities defined as being within the project boundary must be monitored if they are considered to be under the control of the project participants, significant and reasonably attributable to the project.

The list below provides guidance on the type of information that a monitoring plan must provide for during the crediting period of the project, including:

- Collection and archiving of all relevant data necessary for estimating or measuring emissions reduced or sequestered that occur within the project boundary, including how this will be accomplished;
- Collection and archiving of all relevant data necessary for determining baseline emissions by sources or sinks within the project boundary, including how this will be accomplished and the frequency at which this will occur;
- How leakage will be measured. Firstly all potential sources of GHG emissions outside the identified project boundary that are significant must be identified. In cases where such activities have been identified, the monitoring plan should indicate how GHG emissions data from these identified activities (outside the project boundary) will be collected, the frequency of collection and how they will be archived;
- Collection and archiving of data on environmental impacts, and how this relates with procedures as required by the host country Party;
- Explanation of the control procedures and how quality control for the monitoring process is accomplished;
- Description of procedures for periodic calculation of the GHG emissions reductions as a result of the proposed JI project. This should include the calculation of periodic leakage effects, in cases where these are identified as significant.

Revisions to the monitoring plan

The monitoring plan may be revised, but only where it improves the accuracy or completeness of the information needed to measure and calculate the GHG emissions of the project. A revised monitoring plan has to be submitted to the IE for approval. This approval procedure is likely to be a straightforward process concerned only with the monitoring plan.

The data collected as a result of the implementation of the monitoring plan form the basis for verification of emissions reductions as a result of the JI project.

3.5.5 Estimation of GHG emissions and emission reductions

The PDD should provide the basis for determining emissions reductions. This requires:

- The sources of GHG emissions in the project to be identified;
- The sources of GHG leakages to be identified, and a determination made as to whether these are significant and should be accounted for in determining emissions reductions;
- The methodology for quantifying project emissions and significant leakages to also be provided, demonstrating that emissions can be determined from the data collected in the monitoring plan;
- An estimate to be made of the likely emissions reductions to be achieved from the project by comparing project emissions and leakages with emissions in the baseline.

3.5.6 Documentation on Analysis of Environmental Impacts

The JI guidelines state that project participants must submit documentation on the analysis of environmental impacts of the project to the IE.[xxvi] This should include trans-boundary impacts, and should be carried out using procedures established under the national law of the host country Party. The project participant must therefore work with the JI Focal Point for guidance on how to proceed.

In practice it is likely that many projects under the Testing Ground will be subject to existing requirements for environmental assessment (e.g. for EU countries there is an EU Directive on EIA), but for projects where this is not the case procedures must follow national law.

3.5.7 Stakeholder Consultation at the National Level

According to the JI guidelines, the national JI guidelines and procedures are to include information on "consideration of stakeholder's comments".[xxvii] This implies that stakeholder consultations must occur. The project participant should contact the Focal Point for JI for advice on how to proceed.

Although there are no specific requirements to include stakeholder comments in the PDD, it is likely to be required by the Supervisory Committee and may also be required by the host country Party. As such, it would be to the project participant's benefit to include a section on stakeholder's comments in the PDD. Under the CDM rules, comments by

stakeholders are incorporated into a PDD in the following manner. First project participants must provide a brief description of how comments by local stakeholders were invited and compiled. Second, a summary of the comments received must be included. And finally, the PDD must include a report on "how due account was taken on any comments received." This format is likely to meet any requirements set by the Supervisory Committee on this issue.

3.6 DETERMINATION OF THE PDD

Once the PDD has been completed it must be submitted for determination to an IE (see section 3.3.3 for further details).

The determination process starts with the submission of all relevant documentation by the project participant. The IE must make the PDD publicly available through the Secretariat, and receive comments from Parties, stakeholders and UNFCCC accredited observers. In practice, the Secretariat is likely to place the PDD or a link to it on the UNFCCC website. Stakeholders then have 30 days to provide comments.[23]

The IE is likely to go through all documentation provided and check the validity of all references, assumptions and information, and where relevant contact stakeholders and institutions to establish the validity of the information. It is also possible that the IE will undertake a field visit to assess whether the information provided in the PDD and the assumptions made are valid. Whether a field visit is required will depend on factors such as the complexity of the project, the detail of information provided and assumptions made, availability of references, use of verifiable data through internet or hard copies, etc.

The IE must also take into account comments received from Parties, stakeholders, and accredited UNFCCC observers after making the PDD publicly available. Based on its review and the comments received, the IE may issue project participants with a draft determination report.[24] Such a report could raise issues and questions that need to be dealt with in order to provide a positive determination. The project participant would then respond to the issues raised by the IE, making any changes deemed necessary in order to conform to the JI guidelines.

The IE would then make its determination report publicly available through the Secretariat (again this is likely to be on or through the UNFCCC website), together with an explanation of its reasons, including a summary of the comments received and a report of how due account was taken of the comments. Information that is marked proprietary or confidential will not be disclosed, unless prior written consent by the provider of the information is given, except as required by applicable national law of the host country Party. Information relating to the following cannot be considered proprietary or confidential:[xxviii]

- Information to determine whether the anthropogenic emissions reduced or sequestered are additional;

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[23] This is 30 days from the date the PDD is made publicly available.

[24] This is not a requirement; rather it is a process by which the IE and the project participant can resolve any issues that would otherwise require the IE to issue a negative determination report.

- Information to describe the baseline methodology and its application; and
- Information to support an environmental impact assessment.

The determination of the proposed project is deemed final 45 days after its submission, unless a request for review is requested by any of the Parties or the Supervisory Committee.

4 BASELINE ASSESSMENT AND EMISSION REDUCTIONS

This Chapter provides guidance on developing emissions baselines, how to calculate project emissions and how to calculate the emissions reductions as a result of the project. Developing a baseline is not a straightforward activity. Currently, there are no approved methods for developing JI baselines, and baselines can be developed either on a project specific basis or on a more standardized basis. Unlike the CDM, there is no requirement for the development and use of methodologies for baselines. This may be, in part, because national rules on JI will play a greater role in the development of JI projects.

For a detailed discussion of issues related to baseline development, see the accompanying volume "Electricity and district heating baseline methodologies" which also includes case studies of baseline methodologies and their application.

4.1 INTRODUCTION TO BASELINES

Under JI the baseline is defined as "*the scenario that reasonably represents the anthropogenic emissions by sources or anthropogenic removals by sinks of greenhouse gases that would occur in the absence of the proposed project. A baseline shall cover emissions from all gases, sectors and source categories listed in Annex A, and anthropogenic removals by sinks, within the project boundary*."

The JI guidelines provide more detailed criteria. It states that a baseline shall be established:

- On a project-specific basis and/or using a multi-project emissions factor;
- In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors;
- Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector;
- In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure; and
- Taking account of uncertainties and using conservative assumptions.

4.1.1 Baseline Scenarios and Baseline Emissions

It is useful to identify two components to a Baseline:

- The Baseline Scenario: Being a narrative description of what would have occurred in the absence of the JI project;
- Baseline Emissions: Being a quantification of the greenhouse gas emissions in the baseline scenario, often expressed as an emissions factor, i.e. emissions per unit of product (e.g. tonne CO_2 per MWh of electricity).

The project is the activity being proposed as the JI activity, and can also be considered to comprise both a narrative description of the project and a quantification of the emissions in this scenario.

Emissions reductions are then the difference between the baseline emissions and the project emissions. Naturally, if the project is itself the baseline, then there are no emission reductions that are considered additional.

4.1.2 Baseline approaches and methodologies in JI

A *Baseline Methodology* is the approach taken to identify the baseline scenario and quantify the emissions in this scenario.[25] Baseline methodologies contain descriptive information on the conditions that a project must meet in order to use that methodology; they also contain the necessary algorithms and formulas needed to estimate emissions in the baseline and proposed project, and calculate emissions reductions. A baseline methodology should be applicable to a certain category of project, that is, it should be generally applicable beyond the context of any one specific project. When this methodology is applied to a specific case, it generates the baseline for that case, including both an identification of the baseline scenario and a quantification of baseline emissions.

Although use of approved baseline methodologies is not a requirement in JI, current practice in developing baselines for JI projects relies heavily on the CDM. This includes the practice of utilising a specific baseline methodology in the development of a baseline. The CDM rules establish at least three general approaches for developing baseline methodologies[xxix]:

a) Existing actual or historical greenhouse gas (GHG) emissions, as applicable;

b) Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment;

c) Average emissions of similar projects undertaken in the previous 5 years, in similar social, environmental and technological circumstances, and whose performance is in the top 20 per cent of their category.

In practice, there is a great deal of overlap between the approaches (particularly the first two), they are not exclusive and do not (in general) affect the content of the baseline methodology. The third approach does have some implications and disadvantages for baseline development. First, selecting a group of projects in "similar circumstances" that is truly representative is highly subjective, so the baseline methodology may not be replicable and transparent. Secondly, data collection and monitoring can be difficult and expensive. This is one of the main reasons why very few CDM baseline methodologies have so far used this method. In general, however, the choice of approach has not served as a major issue in the approval of CDM methodologies.

The JI guidelines do not make specific reference to methodologies nor do they require the use of a particular approach in developing methodologies. It is likely that baseline methodologies will be used, but unclear whether a specific approach will be required. This Handbook does not specify or recommend any particular approach.

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[25] As stated previously, there is no requirement to develop baseline methodologies under the JI guidelines, but development of a baseline requires that some protocol or method be used to develop a baseline. Therefore, this handbook uses the term "baseline methodology" and expects that baseline methodologies will be required by the Supervisory Committee regardless of whether or not they are similar to CDM baseline methodologies.

4.1.3 Baseline scenarios and additionality

Baseline methodologies in the CDM follow a fairly rigorous approach to identification of the baseline scenario. The rigour is required because identification of the baseline scenario is closely related to the test for additionality. That is, if the baseline scenario can be shown to be different from the project, then the project will be additional.

In the CDM, the baseline scenario is typically selected by identifying a range of possible options (including the project itself), eliminating those that are not plausible (for example, those that do not meet regulatory requirements or are high risk technologies), and then comparing the remaining options with the use of barrier or financial analysis. The accompanying volume, "Electricity and District Heating Emissions Baseline Methodologies", gives examples of how this process can be implemented, and builds on the CDM consolidated tool for testing additionality (published by the CDM Executive Board in 2004). Practically, this approach means that the project participant must show why the project is not included in the baseline scenario – in other words, why the project is not part of a reasonable description of the likely course of development.

Given the differences between JI and the CDM, it may not be necessary to follow the precedence of the CDM in baseline scenario identification, and a simpler approach may be acceptable. For example, it may be sufficient to simply take existing practice as the baseline scenario without rigorously testing the plausibility and competitiveness of a range of alternatives. However, in the absence of guidelines from the Supervisory Committee or national authorities, most JI project participants are adopting the CDM precedence as a guide in baseline identification and additionality testing.

4.1.4 Static v dynamic baselines

Some baseline methodologies allow for periodic updating of either the absolute baseline emissions or the baseline emissions factor. Such methodologies can be termed "dynamic baselines". This updating may be:

- Annually: As an example, a power sector baseline methodology might specify that the generation data of all the power plants on the grid should be collected each year, and this data used to update the emissions factors used for the baseline;
- At specified periods, or based on certain triggers that warrant a re-evaluation of the baseline, such as the 21 year (3 x 7 years) crediting period for CDM project activities in which the baseline must be re-examined in seven year intervals.

Dynamic baselines have the advantage that they can be more accurate and specifically accommodate changes in the sector or in regulation in a realistic manner. However, they do require additional monitoring and updating routines to be undertaken, and are usually only acceptable where such routines are simple and where the data requirements are not onerous. Further, they offer less certainty over projected income levels for project owners.

4.1.5 Absolute v relative baselines

For many types of projects, the baselines are determined ex-ante to the project commencement, and remain fixed over a crediting period. The baseline may be expressed as:

- An absolute baseline: an absolute amount of GHG emissions, or

- A relative baseline: as a carbon emissions factor.

For example, the relative baseline for a power generation project may be given as tonnes of CO_2 per MWh of generation. The actual project emissions reductions will therefore depend on the actual output of the project, not simply the projected output. Another example would be a land fill gas recovery project, where the precise amount of gas collected and therefore not released into the atmosphere is not known until after the project is implemented. For all JI projects, project documents will estimate emissions reductions ex-ante, but credits will only be only issued based on project performance i.e. actual emissions reduced or sequestered as measured according to a monitoring plan.

Relative baselines are more common than absolute baselines, and in most cases are more useful as they allow emissions reductions to be easily calculated from the actual output of a project, which may not be easily predictable. However, there are cases where absolute baselines are more appropriate – for example the calculation of avoided methane releases by avoiding landfill of biofuel is more easily determined as an absolute amount (for methods to do this, see the accompanying volume "Electricity and district heating baseline methodologies"). Where projects are not claiming emissions reductions related to suppressed demand (see Section 4.1.7 below), an absolute baseline is suitable. Relative baselines can also be difficult to utilise where a project reduces emissions in energy production and improves efficiencies in distribution or end-use.

4.1.6 Sector wide v project specific baselines

As stated in section 2.3.1 standardised baselines such as sector-wide baselines may be used in JI; in this case the baseline would represent a quantification of emissions that can represent the baseline emissions for any project in that sector (expressed as an emissions factor). This approach is possible under two circumstances:

- Where the physical characteristics of the sector lead to a standard emissions factor applicable across the sector. This is best illustrated in the case of an integrated electricity network with no major transmission constraints where the physical characteristics of the system imply that the impact on emissions is the same (per unit of electricity) wherever electricity is generated.
- Where the emissions intensity of the activity does not vary significantly across the sector. An example of this is the case of diesel power generation in off-grid electricity systems. Here, the emissions factor for electricity generation can be based on standard factors with a reasonable degree of accuracy.

4.1.7 Dealing with suppressed demand

It is important to note that the level of service delivered under the project and baseline may differ significantly. Quite often, the project may offer a greater level of service, because in the baseline scenario there were constraints on service delivery. The project thus meets the demand in the baseline, plus meeting suppressed demand. Alternatively, demand for the service will increase over time with population growth and economic growth. Again, expected demand in the project will be greater than that experienced historically.

It is acceptable to determine emissions reductions as the difference in actual project emissions and the emissions in the baseline, *had the Baseline offered the same level of service as the Project* (service equivalence) [26]. One approach to implement this is to ensure that the baseline scenario is defined as offering the same service as the project. Alternatively, it is possible to define the baseline scenario irrespective of service levels, but to express the baseline emissions as an emissions factor. This factor can then be applied to the actual service levels in the project to determine the baseline emissions.

This approach with regard to suppressed demand has been accepted by the CDM Methodology Panel (the Panel) in the methodology "NM0046 Andijan district heating". In fact in this case the Panel explicitly rejected the originally proposed approach to use the status quo activity level, and recommended that future activity levels be used to determine both baseline and project emissions (i.e. account for suppressed demand).

4.1.8 Baseline period and the crediting period

For JI projects ERUs can only be transferred from 2008 to 2012, the commitment period of the Protocol (referred to here as the "crediting period"). Emission reductions can occur beginning in 2000 and can continue after 2012, but not all of these reductions will be eligible to generate credits. Any reductions generated prior to 2008 must be appropriately monitored and must be verifiable by an IE. Should the project end before 2012, the crediting period is from 2008 to the time of project closure (in terms of emissions reductions).

The baseline period should start at the time of project implementation and extend at least to the end of the crediting period. A baseline that extends beyond 2012 may be useful where the project hopes to benefit from a post-Kyoto settlement.

The TGA is designed to develop and reward projects that begin generating emission reductions prior to 2008. However, data on these early reduction must be verifiable in accordance with the international JI guidelines.

4.2 DEVELOPMENT AND APPLICATION OF BASELINES

Baseline development and quantification of emission reductions resulting from a JI project consists of the following steps, which are described in greater detail in the following subsections:

- Set the project boundary (see section 4.2.1);
- Identify the baseline scenario (see section 4.2.2);
- Identify emissions in the baseline scenario (see section 4.2.3);
- Quantify the baseline emissions (see section 4.2.4);
- Estimate project emissions (see section 4.2.5);

[26] The GHG Protocol terms this "equivalence of function provided" such as in terms of electricity produced. The point being that equivalence provides a transparent and reasonable basis for calculating the emissions reduced by a project.

- Estimate leakages (see section 4.2.6);
- Calculate emissions reductions including adjustment for leakage (see section 4.2.7).

4.2.1 Set the project boundary

Before collecting data and developing a baseline, the project boundary should be defined. Much of the information required for this is set out in the project description. Project boundaries are notional boundaries within which the impacts and effects of the project on GHG emissions are considered and quantified. Project boundaries are used to help select the baseline scenario, determine which activities are considered significant and therefore must be included in both the baseline and proposed project, and will affect the calculation of emissions reductions by the project. Under the JI guidelines project boundaries must encompass all emissions by sources of GHGs (and removals by sinks) which are:

- under the control of the project participants (this implies either direct control or influence over);
- that are significant; if they can be calculated with a reasonable level of accuracy to be more than one per cent of the total emissions/ emission reductions of the project they are considered significant; and
- are reasonably attributable to the project, this is closely linked to "control over".

In setting a project boundary a number of factors should be taken into account. The first involves defining the geographic area and activities to which the proposed JI project should be compared.[27]

A generally accepted approach to setting the project boundary is to identify direct and indirect emissions from sources and sinks that are owned or under the control of the project participant (OECD 2002):

- Direct on-site (e.g. fuel combustion and process emissions on the project site);
- Direct off-site (e.g. emissions from grid electricity (in the case of energy efficiency projects) or district heat, and other upstream and downstream life cycle impacts);
- Indirect on-site (e.g. rebound effects such as increased heating that may result from an insulation programme);
- Indirect off-site (e.g. project effects that are typically referred to as leakage, either negative or positive, such as economy-wide response to project-induced changes in market prices or project induced increases in the penetration of low carbon technologies in other regions).

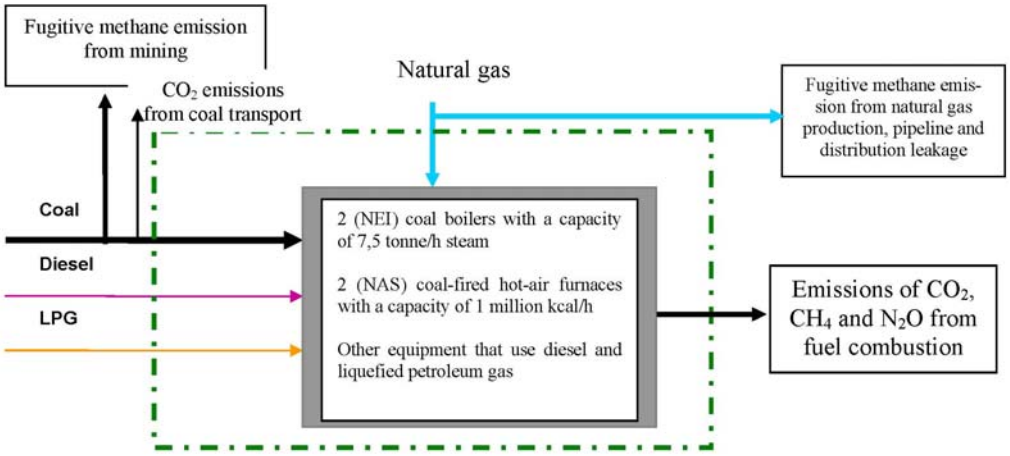
Whether impacts of an activity are considered (a) significant, (b) reasonably attributable to and (c) under control of the project participant should be estimated in each case.

[27] This may also require defining a temporal range in order to obtain reasonable baseline candidates. This would require determining whether to examine recent plants or practices within a given time period (for example the last 5 years) or new plant construction.

The project boundaries should be presented in a flowchart showing those emission sources that are included, and those emissions that are excluded from the project boundary (i.e. leakage, as discussed in Section 4.2.6). The emission sources that are included should be those that are considered to be within the control of the project.

Figure 6 Example of project boundary

For a district heating project, the project boundary may include the entire plant system including boilers and heat distribution system.



Source: Electricity and District Heating Emissions Baselines

4.2.2 Identify the baseline scenario

Baseline scenario selection can be closely linked to testing for additionality. This is because a project is considered additional if the selection of the baseline scenario makes it clear that this scenario is different from the project itself.

In order to do this, the Handbook has adapted the CDM consolidated tool for testing additionality tool (published by the CDM Executive Board in 2004) to select the baseline scenario and then undertake a simplified additionality test. The consolidated tool is available at http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html. Practically, this approach means that the project participant must show why the project is not included in the baseline scenario – in other words, why the project is not part of a reasonable description of the likely course of development.

Selection of the baseline scenario consists of the following four steps:

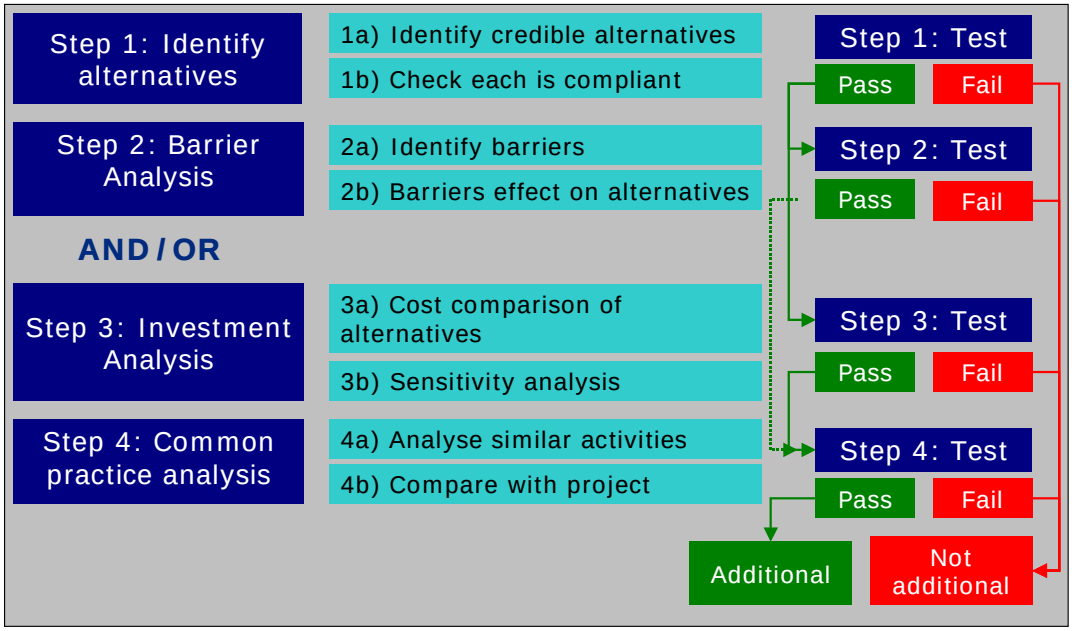
- Step 1: A set of plausible scenarios are defined, including the project itself as a scenario, as well as the business-as-usual case (if appropriate). This set is narrowed down to ensure that all scenarios either comply with regulations or are common practice in the project area. Following Step 1, proceed to either Step 2 or Step 3.
- Step 2: An analysis of barriers to implementation is undertaken and the set of alternative scenarios is narrowed down to eliminate those that face prohibitive barriers. If only one scenario remains, this is the baseline scenario, proceed to step

4; otherwise proceed to step 3. If there are no significant barriers that affect selection of the baseline scenario, then proceed directly to Step 3.

- Step 3: The costs of each remaining scenario are estimated, and a present value of future costs is calculated. The scenario with the lowest cost is the baseline scenario.
- Step 4: If the baseline scenario determined under Steps 3 and/or 4 is the project itself, then the project is not additional. Otherwise, assess whether the project is common practice under conditions similar to those in the project area. If the project is common practice, then it is not additional, otherwise the project is additional.

The outcome of these four steps is an identification of the baseline scenario from a set of plausible alternatives. If the baseline scenario is not the project, and the project is not common practice, then the project is additional. The selected baseline scenario is then used in the subsequent steps for determination of baseline emissions.

Figure 7 Illustration of approach to baseline scenario selection and additionality testing



In developing a baseline, it is important to identify and list the key factors that affect the development of the baseline over time, i.e. the course of the baseline. Key factors include relevant national and/or sectoral policies and circumstances (as specified in the JI guidelines) such as sectoral reform initiatives, local fuel availability, power sector expansion plans and the economic situation in the project sector.[xxx] Examples of factors that can have an impact on the course of the baseline include national and international policy; adopted and planned legislation; GDP; energy demand; fuel prices; fuel supply policy; existence of incentives and subsidies; economic situation in the project sector; financial situation in the country; and trends and existence of new and updated technologies.

All factors that are deemed to affect the business as usual scenario within the project sector should be considered[xxxi]. The role and effect of these factors should be briefly described. Where possible, these factors should be translated in baseline values and reflected in the development and course of the baseline.

The *acquis communautaire* is a key policy issue which will affect baseline scenarios for new EU member states. The EU for example prescribes tighter emissions and technical standards that new member states are required to incorporate into their national law on country specific timeline. Such policies include: Directive on the Liberalisation of the Electricity and Natural Gas Market, Directive on Promotion of Electricity from Renewable Sources of Energy in the Internal Electricity Market, Action plan on Improved Energy Efficiency in the Community, Security of Energy Supply, Guidelines on State Aid for Environmental Protection, Energy Products Directive (currently under discussion), and the IPPC Directive.

The JI guidelines also explicitly state that baselines should be set in such a way that ERUs cannot be earned for decreases in activity or *force majeure)*[xxxii].

4.2.3 Identify emissions in the baseline scenario

Having identified the baseline scenario, it is then necessary to identify the emissions that occur in the baseline. Baselines should also be defined in such a way that credits cannot be earned for decreases in activity levels outside the project or due to *force majeure*.

Identification of baseline emissions is closely linked to the nature of the project itself, and consideration of the project boundary will assist in identifying the emissions that will form part of the baseline. For example, in developing a wind farm, it would be necessary to determine whether to compare the project against the performance of a specific plant, or against the current electricity generating mix within the country (i.e. at a national level).

For projects that do not change the output at a facility (e.g. certain "brownfield" projects such as a fuel switch from coal to biofuel at an existing site), the activities and emissions in the baseline would be restricted to the project site itself. This would mean that the project emissions would be compared with the most likely alternative on that site, which may well be historical emissions.

For projects that do change output (including "greenfield" projects), the project should be compared with the supply option that would alternatively provide the equivalent service of the project. In the context of electricity projects supplying the network, the appropriate emissions factor based on the characteristics of the network should be the baseline emissions factor. The geographical scope of this depends on the nature of the network. In most cases, the emissions factor of the national electricity network can be taken. However, a more localised portion of that network may be more appropriate (where there are transmission constraints or bottlenecks between the local area and the rest of the network)[28].

A second factor that requires examination is the type of activity that should be included in the baseline emissions. For example, should emissions related to construction of the

[28] In some cases a national electricity network may be tightly integrated that with of neighbouring countries, implying that changes in production will affect production and emissions in a neighbouring country. However, it is unlikely that a project will be able to claim for emission reductions that occur outside the country in which the project is located. Hence, baselines with an international scope are not likely to be acceptable.

facility or equipment or the transport of the project equipment to the site be included? Although not usually the case, emissions related to construction might be significant, and in these cases a determination would need to be made as to whether they should be included and how (emissions could be aggregated over a number of years for example).

4.2.4 Quantify the baseline emissions

Having selected the baseline scenario, the next step is to identify and quantify the emissions in the baseline. Baseline emissions can either be expressed in absolute or relative terms:

- Absolute emissions provide a quantification of emissions per annum in the baseline, e.g. tonnes CO_2 per annum.
- Relative emissions provide a measure of an emissions factor in the baseline, e.g. tonnes CO_2 per kWh generated.

The use of a baseline emissions factor can be useful where the quantity of output in the project and baseline differs, or where the output in the project is variable (e.g. a hydropower plant subject to hydrological variability).

The baseline emissions should be calculated on an annual basis and until the end of the crediting period. Emissions should be calculated source-by-source and expressed in CO_2 equivalents. This can be calculated by using the global warming potentials (GWP) for each source, as provided by the IPCC.

In order to calculate baseline emissions, it is first necessary to identify emissions sources in the baseline and determine whether these sources should be quantified. This step should flow in a straightforward manner from the identification of the project boundary and the selection of the baseline scenario. For those emissions sources that are not significant contributors to total baseline emissions (less than 1 per cent), quantification need not be undertaken.

Emissions can usually be determined through the use of the appropriate emissions factors (see Appendix B). When possible, project, plant, technology or country specific emissions factors should be used for calculating baseline emissions. In general such information will be available when the baseline is established based on project-specific historic data. However, when all facilities connected to an electricity grid are included in the baseline scenario, information on the emissions factors might not be available for all facilities. Also, when making projections for the future, this information will be lacking. In these cases default emissions factors can be used.

The two most relevant types of emissions factors for energy supply and energy efficiency projects are emissions factors for a specific fuel and technology. When data on fuels consumed (for example in tonnes of coal, m^3 of natural gas, etc.) for the service delivered is available then this data should be used rather than data on technology.

Table 10 Example of emission sources (district heating project)

Source	***Emissions***
Fuel combustion	CO_2 emissions from fossil fuel combustion
	CH_4 emissions from fossil fuel combustion (usually not significant)
	N_2O emissions from fossil fuel combustion (usually not significant)
Biomass stockpiles	CH_4 emissions from stockpiled biomass
	N_2O emissions from stockpiled biomass
Fuel supply system	CH_4 emission from coal mining
	CH_4 emissions from natural gas production and transportation
	CO_2 emissions from rail and road transportation of fuel

Box 9 Example of calculating (relative) baseline emissions (district heating project)

Fuel combustion sources for a district heating project are identified as: CO_2, CH_4, and N_2O.

For each fuel utilised in the Baseline Scenario, calculate the emissions factor as follows. Equation (a) should be used for Projects where the Baseline Scenario is BAU. For Baseline Scenarios based on alternative investment options, equation (b) should be used.

$$EFC_i = [\ CO_2\_EFC_i + (21 * CH_4\_EFC_i + 310 * N_2O\_EFC_i) / 1000\ ] * [Fuel_i * CV_i] / Q \quad \text{(a)}$$

Or

$$EFC_i = [\ CO_2\_EFC_i + (21 * CH_4\_EFC_i + 310 * N_2O\_EFC_i) / 1000\ ] / Eff \quad \text{(b)}$$

Where

EFC_i = Emissions factor for combustion of fuel i [kg CO_2e/GJ]

$CO_2\_EFC_i$ = Emissions of CO_2 from the combustion of fuel i in an industrial boiler [kg CO_2/GJ]

$CH_4\_EFC_i$ = Emissions of CH_4 from the combustion of fuel i in an industrial boiler [kg CH_4/TJ]

$N_2O\_EFC_i$ = Emissions of N_2O from the combustion of fuel i in an industrial boiler [kg N_2O/TJ]

$Fuel_i$ = Quantity of fuel i combusted per annum [unit, e.g. tonne]

CV_i = Calorific value of fuel (lower heating value) [GJ/unit]

Q = Quantity of heat produced per annum [GJ]

Eff = thermal efficiency of heat production in boiler and heat exchanger,

lower heating value basis [%]

21 = Number 21, being the global warming potential of CH_4

310 = Number 310, being the global warming potential of N_2O.

Calculate the total fuel combustion emissions factor (EFC) for all fuel combustion in the Baseline Scenario as follows:

$$EFC = \Sigma_i EFC_i$$

4.2.5 Estimate project emissions

The information provided in the project boundary (see section 4.2.1) should provide guidance on assessing emissions in the project. It will likely to be based on the following characteristics:

- Type of product or service that will be delivered by the project;
- Size of the project (e.g., for heat and/or electricity capacity in MW)
- Estimated project output (e.g., MW hour, GJ, amount of products (steel, lamps, paper);
- Load profile (e.g. base-load, mid-load or peak-load, amount of hours);
- Emissions factors for the project.

Project emissions need to be estimated and calculated in a transparent manner for each year during the crediting period (see Section 4.1.8); it is also possible to begin the estimation and calculation from the first year the project begins generating emissions reductions rather than from the first year of the crediting period.[29] If the project output is estimated to change over the crediting period, this should be reflected in the emissions scenario and GHG emissions calculations of the project.

For energy supply projects, the estimated project output and the emissions factor for the project should be used for the calculation of direct on-site emissions. The direct off-site emissions can be calculated similarly.

[29] The JI guidelines allow for projects to start as of January 1 2000, although the ERUs cannot be transferred until the eligibility requirements have been met and the compliance period has begun.

Box 10 Example of estimating project emissions (district heating project)

Actual project emissions will be measured as part of the monitoring plan, and credits will only accrue to the project based on these measurements. However, for the purposes of estimating emissions reductions from the project ex-ante, the following approach may be used.

Calculate emissions from fuel combustion in the project:

$EFC_i = [CO_2\_EFC_i + (21 * CH_4\_EFC_i + 310 * N_2O\_EFC_i) / 1000] / Eff$

Where

EFC_i = Emissions factor for combustion of fuel i [kg CO_2e/GJ]

$CO_2\_EFC_i$ = Emissions of CO_2 from the combustion of fuel i in an industrial boiler [kg CO_2/GJ]

$CH_4\_EFC_i$ = Emissions of CH_4 from the combustion of fuel i in an industrial boiler [kg CH_4/TJ]

$N_2O\_EFC_i$ = Emissions of N_2O from the combustion of fuel i in an industrial boiler [kg N_2O/TJ]

$Fuel_i$ = Quantity of fuel i combusted per annum [unit, e.g. tonne]

CV_i = Calorific value of fuel (lower heating value) [GJ/unit]

Q = Quantity of heat produced per annum [GJ]

Eff = thermal efficiency of heat production in boiler and heat exchanger, lower heating value basis [%]

21 = Number 21, being the global warming potential of CH_4

310 = Number 310, being the global warming potential of N_2O.

Calculate the total fuel combustion emissions factor (EFC) for all fuel combustion in the Baseline Scenario as follows:

$EFC = \Sigma_i EFC_i$

For any fossil fuels used in the project, calculate emissions using above equations. The process efficiency will be measured as part of the monitoring methodology.

For demand side management projects, project emissions can be calculated by multiplying the energy used with the appropriate emissions factor.

Special attention must then be given to the indirect on-site emissions induced by the so-called rebound effect. The rebound effect occurs, for example, due to lowered marginal costs of energy due to increased energy efficiency. The lower marginal cost of energy may indirectly lead to expanded use of energy. The increased energy production that would follow partially off-sets the effect of the original efficiency improvement. Although the rebound affect is usually small compared with the primary emissions

reductions, rebound emissions should be included in the calculation to give the total project emissions. A similar effect (although not generally termed rebound) may occur for supply projects, where the project leads to cheaper electricity, which may stimulate consumption, and hence possibly additional production with associated emissions.

4.2.6 Assessment of leakage

In the JI guidelines, leakage is defined as 'the net change of anthropogenic emissions by sources and/or removals by sinks of greenhouse gases which occurs outside the project boundary, and that is measurable and attributable to the Article 6 project'.[xxxiii] Leakage can be viewed as off-site effects on GHG emissions that result from the project and that are not included within the defined project boundary.

An example of leakage for a district heating project involving switching from coal to gas would be upstream fugitive emissions from gas supply and pipelines. If more gas is produced and transported as a result of the project, then fugitive emissions from gas production and transport would be included in the overall project emissions calculations as leakage. The emissions impact should be considered because this change is directly related to the project.

The fact that emissions are outside the project boundary does not reduce the obligations on the project participant to measure them, as the monitoring plan must include leakage that is '*significant and reasonably attributable to the project during the crediting period'*.[xxxiv]

Leakage does not disqualify a project from becoming a JI project unless the projected leakage in terms of GHG emissions is so substantial as to negate a very large percentage of the projected GHG reductions. The project participant should undertake an assessment of the leakage potential of the project. Where there is potential for leakage, the participant should quantify it and deduct it from the predicted GHG reductions. Possible effects from the project resulting in leakage are:

- Activity Shifting - the activities that caused emissions are not permanently avoided, but simply displaced to another area, i.e. emissions activities avoided in one discreet area move to another area resulting in no net reductions in emissions.
- Outsourcing - purchase or contracting of services or commodities that were previously produced or provided on-site.
- Market Effects - emissions reductions are offset by higher emissions elsewhere due to project induced shifts in supply and demand. These effects should be taken into account only when non-marginal.
- Changes in Life Cycle Emission Profiles – changes in upstream or downstream processing as a result of the project's implementation causing changes in emission profiles.

.Box 11 Example of calculating estimating Leakage (District Heating Project)

Leakages outside the project boundary may arise from the fuel supply chain, should fossil fuel use continue in the heat combustion process in the project. These may include:

- Where coal is used: fugitive CH_4 emissions from coal mining;
- Where natural gas is utilised: fugitive CH_4 emissions from gas production and transportation to the project site;
- Where coal is railed to the project site: combusted CO_2 emissions from diesel engines, if diesel-locomotives are utilised;
- Where diesel or fuel oil is trucked to the project site: CO_2 emissions from diesel trucks.

For simplicity and conservativeness, only natural gas fugitive emissions have been included because: (a) excluding emissions related to fuel delivery in the baseline is correct in order to be conservative; (b) very few JI projects in the host country are likely to be based on fuels other than biofuel and gas, so the details of emissions for coal mining, coal transport and oil transport are largely irrelevant; (c) fugitive emissions in gas transport are an important issue in the host country so it is conservative to include them.

In addition, leakage emissions factors are calculated ex-ante, based on published local data, Project specifications and IPCC guidelines.

For Projects that introduce gas, determine methane emissions in production and transportation, as follows:

$$EF\_Leakage = 21 * (CH_4\_Prod + CH_4\_Trans) / Eff$$

Where

$EF\_Leakage$ = Leakage emissions factor for gas use (kg CO_2e/GJ)

CH_4_Prod = CH4 emissions for gas production (kg CH_4/ GJ)

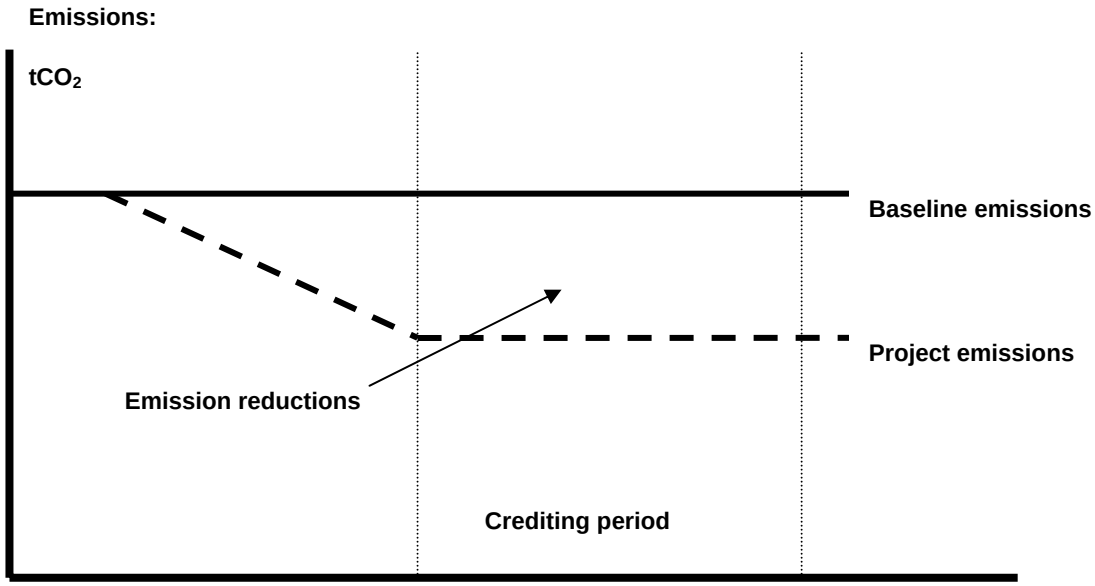
CH_4_Trans = CH4 emissions for gas transportation (kg CH_4/ GJ)

Eff = Thermal efficiency of the heat production system utilising gas in the Project (%)

4.2.7 Calculate emission reductions

Net emissions reductions can be calculated by subtracting the total project emissions (as calculated under section 4.2.5) from the baseline emissions (as calculated under Section 4.2.3). Calculations could be made for each year in the crediting period and expressed in tonnes of CO_2 equivalent. Should the leakage assessment identify quantifiable GHG effects (as calculated under section 4.2.6), this should be deducted from the emissions reductions calculated above.

Figure 8 Graphic Presentation of estimation of emission reductions



Box 12 Example of calculating emissions reductions (district heating project)

Determine the annual emissions reductions as:

$$ER = [\ EFC_b - (EFC_p + EF\_Leakage)\ ] * Q_p / 1000 + BER$$

Where

ER = Annual emissions reduction (t CO_2e)

EFC_b = Emissions Factor determined for the Baseline (kg CO_2e/GJ)

EFC_p = Emissions Factor determined for the Project (kg CO_2e/GJ)

BER = Biomass emissions reductions (tCO_2e/annum)

EF_Leakage = Leakage emissions factor

Q_p = Annual heat production for the Project (GJ)

4.3 DATA SOURCES FOR BASELINES

Different sources of data can be used in developing baselines. The box below gives a description of the main data types and sources that may be used in baseline development and for monitoring purposes once the project has been implemented.

Data can be derived from various sources and different methods in order to estimate baseline emissions and leakage, as well as to define the parameters for monitoring of

actual emissions. Data sources should be clearly identified and should be from a reliable source. The following types of data can be collected and assessed in order to define the baseline:

- Data on current or past performance of facilities. For baseline development, data would be collected on operations implemented prior to the implementation of the project. These could be trends or data at one specific point prior to project implementation;
- Data on trends and developments likely to happen, which are extrapolated into the future; and/or
- Data on recent capacity additions. In this case not all data within the project boundary is included (for example not all operational power plants connected to the grid), but only a selection out of those data (i.e. the five power plants most recently added to the grid).

Table 11 Example of data sources for estimating baseline emissions and leakage (district heating example)

Parameter	***Description***	***Data source***
$CO_2\_EFC_i$	Emissions of CO_2 from the combustion of fuel i in an industrial boiler	National standards or, if not available, IPCC guidelines.
$CH_4\_EFC_i$	Emissions of CH_4 from the combustion of fuel i in an industrial boiler	National standards or, if not available, IPCC guidelines.
$N_2O\_EFC_i$	Emissions of N_2O from the combustion of fuel i in an industrial boiler	National standards or, if not available, IPCC guidelines.
$Fuel_i$	Quantity of fuel i combusted per annum	Where BAU Scenario is the Baseline Scenario: Last three year's fuel consumption at the site.
CV_i	Calorific value of fuel (lower heating value)	Measured values from fuel used at the site. If not available, IPCC guidelines.
Q_b	Quantity of heat produced per annum	Where BAU Scenario is the Baseline Scenario: Last three year's heat production at the site.
Eff	Thermal efficiency of heat production in boiler and heat exchanger, lower heating value basis	Measured values from the site, if available. If not available, manufacturer's stated efficiencies, adjusted for equipment age.
M_k	Quantity of wood wastes utilised in the Project	Measured values from the Project.
CH_4_Prod	CH_4 emissions for gas production	National or regional official statistics, as appropriate.
CH_4_Trans	CH_4 emissions for gas transportation	National or regional official statistics, as appropriate.

5 DEVELOPING JI PROJECTS UNDER THE TESTING GROUND AGREEMENT

This chapter provides information on Testing Ground project eligibility, as well as basic information on risks, costs, and revenues associated with contracting ERUs. A project participant will have to weigh up the transaction costs against the revenues that can be expected from the sale of emissions reductions, and whether the risks of credit delivery can be adequately managed or covered.

5.1 POTENTIAL PROJECTS UNDER THE BASREC TESTING GROUND AGREEMENT

As stated in the introduction, this Handbook focuses on JI projects in the energy sector located in states participating in the BASREC Testing Ground Agreement (TGA). Therefore, the Handbook does not address the issue of baseline development and quantification for other projects categories such as transportation, waste management, land use change and forestry sector, etc.

Projects developed under the TGA must conform to the JI guidelines and to all applicable rules and regulations within the host country Party. Projects in the energy sector reducing any of the GHGs listed in Annex A of the Protocol (see Table 1) are eligible under the TGA. Within the energy sector potential JI projects are energy supply projects, energy efficiency and energy saving projects. Energy supply projects include activities that produce energy (i.e. power and/or heat). Examples include, grid-connected electricity generation facilities, off-grid electricity generating units, activities increasing efficiency at power or heat production processes, facilities generating energy switching to fuel with lower carbon content, combined heat and power projects (CHP), and heat generation projects. Energy efficiency and energy savings projects include projects resulting in a decreased demand for fossil energy. Examples of such projects include those that involve improved management systems, improved systems of energy use, and the introduction of measures to increase efficiency of energy consumption.

5.1.1 TGF project cycle

The following provides a brief overview of the internal TGF process:

Table 12 The TGF Project Cycle

Step 1	• Submission of a Project Idea Note, screened by TGF and revised if necessary, submitted to Investor's Committee (meets four times per year) • Initial approval by TGF • Obtaining a letter of endorsement from the host country • Conclusion of an Option Agreement (Letter of Intent) between TGF and project developer which includes commercial conditions and period of exclusivity • Request for TA funding is made for covering costs of PDDs, JI determination, etc. (made on a case by case basis, subject to Investor Committee (IC) approval)
Step 2	• Detailed project design undertaken by project developer • Detailed technical due diligence undertaken by NEFCO (technology, environmental, financial assessment, etc.) • Preparation of a standard project design document (PDD) • JI Determination by an accredited Independent Entity (IE) • Obtaining a formal letter of Approval from the host country (usually under the Testing Ground Agreement)
Step 3	• Negotiation of a draft ERPA • Approval by IC • ERPA Signature
Step 4	• Project construction • Payment of any advance payment against agreed milestones (and subject to bank guarantee)
Step 5	• Project implementation, leading to the generation of emissions reductions • Verification of emission reductions by an IE • Issuance of AAUs / ERUs by host country Party • Payment by TGF against agreed delivery schedule

5.2 INFORMATION ON JI PROJECT COSTS AND REVENUES

In order to make an assessment on whether it is financially attractive to develop a project as a JI project, the sections below provide some basic information on the costs and

revenues associated with transacting ERUs. A project participant will have to weigh up the transaction costs against the revenues that can be expected from the sale of credits generated from JI projects, and whether the risks of credit delivery can be adequately managed or covered.

Cost of Developing a JI Project

The JI project cycle, while similar to conventional project development, requires that project participants be prepared to incorporate costs that are in addition to more "normal" development and operations costs. Baseline and monitoring plan development, PDD development, ex-ante and ex-post verification of emissions related to the baseline and the project, host country approval, these are all costs that are peculiar to Second Track JI and the CDM. Costs related to First Track JI are expected to be lower than Second Track on a project by project basis. Host country Parties however will incur higher upfront costs and bear a larger administrative burden under First Track JI due to the requirement to fulfil all six eligibility requirements.

Since JI projects imply additional reductions of emissions that would not have otherwise occurred there are in many cases increased costs for investing in a JI project compared to investing in the most economically attractive project or maintaining a business as usual scenario, e.g. the extra cost for investing in wind power rather than natural gas-fired power plants. These are also costs which a project participant must take into account in developing a JI project. These costs are sometimes referred to as 'transaction costs'.

Table 13 below provides an indication of the types of transaction costs associated with developing a JI project (it should be noted that actual costs can vary significantly from those contained in Table 13, as costs are affected by various factors including the complexity of the project). It is important to distinguish between upfront pre-operational costs (payable before the project is operational and generating revenue) and implementation/operational costs which will be paid once the project is operational and generating revenue. Upfront costs include feasibility studies, producing the PDD, validation costs and marketing of credits.

The implementation/operational costs include monitoring, verification, payments to brokers (if utilised), and administration charges to the Supervisory Committee. At present there is a requirement for the costs of the Supervisory Committee to be borne by the Annex I Parties and project participants involved in the project, but no indication of how this will be accomplished is given. The Supervisory Committee is to "design provisions" for charging fees to cover administrative costs. Until this has been determined, the question of who will bear the cost of a fee is subject to negotiation between the project participants (i.e. host government, investor government, carbon purchaser and project proponent). Issues such as these, including the party responsible for bearing this cost should be clearly specified in the ERPA.

Table 13 Transaction costs associated with second track JI

Transaction costs	***Description***	***Range of costs (€)***
Project development Phase		
Project identification, proposal development, screening	Costs associated with identifying partners and identifying, selecting and developing projects	
PDD development	Costs associated with development of PDD	1,000 – 31,000
Contract negotiations	Costs associated with negotiating terms of ERPA	7,000 – 21,000
Determination	Costs related to determination of PDD by IE, including contracting IE	10,000 – 19,000
Approval activities	Costs of attaining authorisation and approval from governments	
	Estimated Range:	€17,000 – 70,000
Implementation Phase		
Monitoring	Costs of monitoring in accordance with monitoring plan	1,000
Verification	Costs of related to verification of emissions by IE	24,000 – 26,000
Enforcement and supervision	Costs of measures taken to ensure that the terms of contract are honoured	1,000 – 5,000
	Estimated Range:	26,000 – 33,000
Transfer, trading and other costs		
Transaction activities – transfer of carbon credits	E.g., brokerage costs and possible fees or levies charged by the host country	If brokers are utilised success fee in region of 1 – 15% of value of emissions reductions
Administrative costs	Possible fee to cover the costs of the Supervisory Committee	No decision taken on possible fee
Risk Mitigation - optional	Mitigates loss of incremental value as a result of project risk	1-3% of credit revenue yearly
Registry	Costs of holding an account in the national registry	
	Total estimate range:	46,000 – 112,000

It should be noted that some credit purchasing programmes will pay for certain portions of the project participants' upfront costs (most commonly costs related to baseline and/or PDD development). For instance the Dutch Governments ERUPT purchasing programmes has provided funds for the preparation of PDDs and for the independent audit of projects. When developing a project, project participants should check with the purchasing programme to determine their rules for payment of upfront costs. These payments may take the form of a fixed grant or an upfront payment that must be repaid through the transfer of emissions reduction credits of an equivalent value, once the credits become available.

In general transaction costs are relatively fixed and not directly related to the size of the project. Since transaction costs are not directly proportional to project size, larger projects are generally better able to absorb these costs. This was an area of concern in the CDM, in which the transaction costs of small scale projects were seen as prohibitive and effecting the viability of these projects. In order to reduce transaction costs and increase the number of small scale CDM project activities, simplified rules for small scale were established. Although the JI guidelines do not provide for a small-scale process, it should be possible to bundle a series of small but similar projects (i.e. involving the same project proponent, financial structure, technology, project timeline, etc.) into one project vehicle or structure in order to reduce transaction costs.

Empirical evidence on transaction costs related to small-scale projects is scarce. In a report on the Finnish CDM/JI Pilot Programme, which has ten small-scale CDM and JI projects in its current portfolio, transaction costs for JI projects ranged between € 46 000 and € 112 000, while the six CDM projects incurred transaction costs of € 19 000 to € 121 000. The lowest transaction costs are associated with project bundles rather than single projects. Transaction costs in the Finnish programme represent a varying but considerable share of the total transaction costs. Total transaction costs of small-scale CDM and JI projects are estimated to lie between € 62 000 and € 303 000. The high end values reflect the transaction costs of early projects which pioneer new procedures, but which over time should be reduced.

5.3 RISKS AND UNCERTAINTIES

Developing a JI project can be time consuming and resource demanding,[30] complicated by the fact that many details in the JI guidelines have not yet been established. In addition, unlike the CDM, many of the JI related rules will be set at a national level rather than an international level since countries must have in place national guidelines and procedures for developing JI guidelines. Many detailed rules may be left to national governments in elaborating their JI guidelines, and absent those rules the Supervisory Committee may decide to fill in additional rules. Either way, IEs are likely to have to take into account the national JI guidelines of the host country in making their determinations on JI projects. This gap in rules creates some risks that project participants must assess in developing their project whether under the TGF or other

[30] The Prototype Carbon fund (PCF) for example, estimates that it may take anywhere from three to seven years from inception of a project idea to generation of emissions reductions. The Shell Group found that large projects took at least three years from project planning to construction.

programmes. The JI guidelines, as they are currently set out in the Marrakech Accords, provide some basis for assessing and developing projects. But as with potential CDM project activities developed prior to the full implementation of its project cycle, there are numerous risks associated involved undertaking JI projects. Some of these risks may be mitigated by application and use of the CDM rules, but the CDM rules take a much more conservative approach than may be necessary and required under JI. This issue is not likely to be resolved until at least the Supervisory Committee has begun to examine the CDM rules, and their relationship and applicability to JI.

Implementing any type of project requires assuming or mitigating risks. There are, however, additional risks that arise from the JI portion of projects. These include:

Project risks

Project risks arise in several areas. First, the JI guidelines as they are currently structured are open to interpretation and subject to change. This could impact projects that have already proceeded quite far towards implementation, including obtaining an unofficial determination by an organisation or entity intending to become an accredited IE. It is unclear how additional guidance for Second Track projects will be developed, whether it is incumbent on the Supervisory Committee or the host country Parties or a combination of the two. Secondly, there exists a possibility that projects already generating emissions reductions before the international project cycle has been fully implemented could loose early streams of credits in the event they do not conform to the rules (particularly Second Track JI). Some of this risk can be mitigated through application of the CDM rules to a JI project since they are more complete and much more conservative than is likely to be required under JI.

The practices of host countries can also greatly influence projects. First, a host Party's policies (or lack thereof) on JI can affect the attractiveness of a project. Developing a potential JI project before the host country Party has appointed institutions and established procedures to approve projects entails a risk that the project might be rejected as a JI project by the host country Party. And prior to the establishment of the Protocol bodies, there remains a question as to whether or when a host country Party will meet the eligibility requirements, discussed in Section 2.1. Any Party (whether as a host or investor) sanctioning such activities before they have complied with the eligibility requirements will ultimately bear the risk that emissions reductions may not be recognised or lead to issuance of ERUs under the terms of the Protocol.[31]

From the project participants perspective the ability of the host country to meet the minimum eligibility requirements for transferring ERUs as soon as possible is of paramount importance. From a time perspective, however, host countries have until the end of the commitment period to meet with the compliance requirements, in order to trade Kyoto units. Projects can proceed without the ability to trade as long as eligibility is met in time for final compliance with the commitment period to be assessed. From an investor

[31] Examples of where entities are already developing JI projects in anticipation that the ERUs generated from them will be transferable and recognised under the terms of the Protocol include the World Banks Prototype Carbon Fund the Dutch Governments ERUPT programme. Both programmes bear the risk that host countries might not meet their eligibility criteria for JI and will thus be unable to transfer the ERUs from their account and register to those of the investor country.

point of view this type of delay could lead to great uncertainty in using ERUs for domestic compliance purposes.

Other project risks relate to construction, performance and delivery (will the project be built on schedule, operate according to design and deliver the expected ERUs), the creditworthiness of the participants, and the regulatory environment in which the project is located.

Market risk

Although the carbon market changed significantly in 2004/2005 (particularly with emissions trading schemes coming on line), the market is still evolving and has yet to begin coalescing. The current carbon market is segmented by commodity type and by compliance purpose, and in markets where there is more certainty (such as the EU ETS) the commodity traded commands a much higher price compared to credits from JI and CDM projects under the Protocol, or voluntary markets. While the underlying commodity may seem the same (i.e., a tonne of CO_2 equivalent) the price of that commodity varies greatly between buyers, sellers, market segment and compliance purposes. Transacting ERUs prior to the implementation of the Protocol system entails assuming risks related to project viability and deliverability. This is due in part to the fact that ERUs will not be physically available in the market place until at least 2008, and only if the host Party meets the eligibility requirements for trading. This is currently reflected in the price at which the commodity is transacted. As more certainty evolves around JI and in particular the emissions reductions associated with a JI project, this is likely to be reflected in the price at which ERUs are contracted and/or traded.

5.4 MITIGATING RISKS

Some of the risk associated with developing projects in an immature system can be mitigated through the use of various tools. First, project participants should ensure that the host country has or will meet host Party requirements, and that a reasonable baseline and monitoring plan can be developed for the proposed project. See Table 14 for a guide to initial screening of JI projects.

Table 14 Initial screening of JI projects

	Questions
Host Party	Is the host country government a Party to the Protocol? Have national policies and guidelines on JI and a Focal Point been established *or* has the Party given indication of intentions to do so? Is the project in line with the national policies and guidelines? If no, or unknown, is the host government likely to approve the project?
Baseline	Can the project show within reason that the emissions reduced are not part of the baseline scenario (that they are additional to those in the baseline)?
Monitoring	Can the emissions reduced by the project be reliably monitored and verified? For example for on-grid projects will there be access to verifiable records of the amounts of electricity exported to the grid, for off-grid projects will there be access to verifiable records of the amount of fuel displaced by the project.

Second, many organisations require development of a Project Idea Note (PIN) prior to development of a PDD, and as part of the screening and negotiating process for contracting ERUs. As part of the PIN process the project participant may be required to assess the risks associated with the project, and propose methods for reducing them (see Box 13). The risks identified through this process might then be shared or reduced by identifying, defining and allocating them in ERU purchasing contracts. From the project participants perspective it may be preferable if the ERU purchaser assumes these risks, but this is subject to negotiations and affects the purchase price. From the purchaser's point of view, project risks and the purchaser's willingness to absorb these risks would be reflect in the price offered to the project participant for the ERUs. Various methods exist for reducing risks including investor or host Party arrangements with export or import credit organisations or insurance packages in the case of non-delivery.

Box 13 Testing Ground Facility PIN

Initial Information (PIN)	
General information	Project title
	Location of project
	Project owner(s) (incl. contact details)
	Project participant (if applicable)
	Project type (e.g. fuel switching, energy efficiency)
Host country	Information on relevant host country authorities
	Host country approval that it considers the project to be a potential JI Project
GHG reductions	Estimate of annual greenhouse gases emissions reductions (in metric tonnes of CO_2 equivalent)
	Technology that will be used (proven technologies will be favored)
	Baseline (calculation of the emissions if the project would not have been implemented)
	Motivation for choice of baseline method
	Readiness of the project in respect of Track 2 procedure (including cost coverage)
	Estimated total amount and period of delivery of AAUs (before 2008) and ERUs (2008-2012)[32]
	Estimated price per AAU/ERU offered
Other environmental effects	Need for EIA/EA and, if required, status of EIA/EA
	Other emissions reductions (SO2, NO_x, POPs etc.)
Project information	Objectives of the project
	Sector in which the project will be operating and sector policies and trends
	Planned project activities (construction, operation)

[32] Although neither AAUs nor ERUs can be transacted prior to the start of the commitment period, the Testing Ground Facility prefers to contract AAUs related to JI projects when emission reductions are generated prior to 2008.

	Implementation schedule (including timetable for obtaining of permits and conclusion of project agreements)
	Information on project owner (including financial data based on audited accounts for last three years)
	Information on project owner's experience/competence relevant for the implementation of the project
Investment and financing	Total project costs (in EUR €) (itemized budget)
	Financial projections (showing project's viability)
	Detailed financing plan indicating amounts and sources of financing
Risks and mitigation	Summary description of risks (market, financial, economic and environment) and envisaged mitigation

The final method for mitigating risk is through the structure of purchasing agreements. Since ERUs are not yet available for immediate purchase, the most common method of transaction emissions reductions related to JI projects is through forward contracts such as ERPAs (see Appendix C for a sample ERPA). Standardised contracts have been developed by a number of purchasing programmes and investor Parties.

5.4.1 Risk versus Price

There has been some speculation and concern that the price of ERUs in relation to EUAs remains low. Current transactions related to JI, however, entail assuming risks related to project viability and deliverability that do not exist when transacting EUAs. EUAs are an established commodity, whereas most Kyoto units have not yet been established, and the majority of them cannot be established until the eligibility requirements under the Protocol have been met. CERs are the first Kyoto unit to come into the market place, but because they are based on the ex-post performance of a project (the amount of emissions reduced or sequestered) any prices in forward contracts will be affected by the amount of risk associated with the project. If the project is not registered as a CDM project activity, if a PDD has not been developed, if the project is located in a country that is considered high risk (for political, security or other reasons), the price of the emissions reductions will be affected. The same is true for JI projects, although in this instance the risks include whether the host country Party will be eligible to trade and under which Track. ERUs will not be physically available in the market place until at least 2008, and only if the host country Party meets the eligibility requirements for trading. This is currently reflected in the price at which the commodity is transacted. The degree of risk also depends on what is being contracted for – emissions reductions or ERUs. If ERUs are contracted, then risks are reduced since the seller takes the institutional risks of the emission reductions resulting in ERUs. If emissions reductions are contracted, then the purchaser takes on this risk. Once Kyoto units are issued and available, they are likely to command a higher market price as the risks associated with the projects become less. For JI projects undergoing the Second Track process, the risks will be similar to those for CDM projects (will the project meet the determination requirements).

As more certainty evolves around JI, and in particular the validity of the emissions reductions associated with these projects, this is likely to be reflected in the price at which

they are traded, although prices are not expected to reach the prices associated with units under compliance based ETS.[33]

5.4.2 Contractual Issues

The ERPAs set out the terms and conditions of payment between the seller and buyer. ERPAs generally contract a specific amount of forward streams of emissions reductions and/or an equivalent number of ERUs, with an option (or right of first refusal) to purchase emissions reductions generated beyond those specifically covered by the contract. The purpose of these agreements is to reduce the risks associated with JI projects, and to ensure that the buyer is protected in the event that the seller will not or cannot meet the terms of the contract. Some of the key issues covered in an ERPA include[xxxv]:

- *Compliance* with international and domestic legal requirements.
- *Allocation of rights to ERUs*. All entities with potential claim on ERUs generated by the project must agree on their allocation (i.e., equipment suppliers, electricity/heat purchaser, host government) and it must be clearly specified which project participants have the ability or right to act as the seller of the ERUs.
- *Allocation of risks and guarantees.*
- *Definition of what is being sold/bought*. This could be emissions reductions that may or may not become ERUs. There is obviously a major difference between ERUs and emissions reductions, with emissions reductions receiving a lower market price since the buyer assumes the risk of converting the emissions reductions into ERUs (under second track JI, this would mean the risk associated with the determination process).
- *Sale and purchase conditions*. Description of the vintage and number of emissions reductions or ERUs to be delivered by the seller to the buyer. This should also cover any rights to credits beyond the scope of the contract, i.e. due to the risk of non-delivery the project participant may only want to guarantee delivery of 80% of the credits the project is expected to generate. The buyer may want the rights to the additional 20% of emission reductions, or rights of first refusal.
- *Delivery*. This concerns the capacity to deliver and the imposition of delivery obligations. This will involve agreement on delivery dates or trigger events. It is also likely to cover the issue of when ownership will accrue to the buyer – after verification, or after ERUs issued by host Government, etc. Delivery issues will also cover shortfalls in, or non-delivery of, the quantity of emission reductions agreed, and will cover the issues of financial penalties, or repayments of upfront costs, etc.
- *Evidence of Validity of Emissions Reductions*. The contract should outline what documentation is required, who will deliver it to whom, and when. This could

[33] Forward contracts are likely to remain at slightly lower prices since they involve the purchase of streams of emission reductions that have not yet occurred. CERs contracted for immediate settlement or purchased through the secondary market are likely to acquire a higher purchase/sale price since the transaction would be for a commodity that has been issued rather than a commodity that has yet to be created.

include - PDD, verification reports, and issuance and transfer of ERUs by the host Government.

- *Price and Terms of Payment*. The contract will define the price, and how inflation and taxation will be accounted for. The contract will also define whether the payments will be upfront, paid on delivery, or if an option clause is included under what conditions and sale price the emissions reductions/ERUs will be sold (i.e., pre-determined price or market price[34]). It should also cover the issue of penalties for late payments, and the method of payment.
- *Liabilities and Indemnities.* Any limitations on liabilities and whether indemnities are required must be specified in the contract.
- *Default, Termination and Remedies*. The issue of defaults, such as the failure by seller to deliver emissions reductions should be specified, and the consequences of defaults (termination or remedies) defined. Conditions for termination of the contract must also be stipulated.
- *Confidentiality*. The contractual parties need to define what information is confidential.
- *Arbitration and Dispute Resolution*. The contract should outline procedures for dispute resolution.
- *Taxes, Levies and Charges*. This should stipulate who has to pay any taxes, levies, and charges. For JI this is likely to include an administration fee requested by the Supervisory Committee, although no decision has been made on this yet.

The ERPA will also cover other project related issues such as:

- Estimation of reductions by the project. In some cases baselines are appended to the contract. This estimation is the basis for determining the number of units to be purchased/sold.
- Requirements for ensuring delivery of emissions reductions such as monitoring requirements, a schedule for verifying reductions and by whom.

5.4.3 Additional methods for contracting carbon

As the carbon market matures and in particular once ERUs are available as an actual commodity, other forms of contracts will emerge. Contracts can be structured for immediate as well as future delivery, or as options for the possibility of purchasing reductions by a specified date (including through cash settlement and forward contracts), financial derivatives or through direct investment in a project in exchange for emissions reductions or ERUs.[35] Contracts for immediate settlement are called spot trades, and in

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[34] For example, some sellers are interested in pegging prices to market prices for EUAs in the EU ETS.

[35] Derivatives are instruments that derive their value from an underlying product, and are commonly used by companies to manage and hedge business risks. In the carbon market a derivative is based on an allowance, e.g. CER or ERU, and is used to hedge against future exposure to higher carbon prices and to manage costs associated with emissions trading schemes.

this case all terms are agreed to up front and delivery of the commodity purchased occurs within a few days of the contract date (generally three to five days). Spot trades require that emissions trading schemes and/or credits be on-line and available.

As stated above, forward contracts can include options to purchase additional streams of ERUs generated by a project that are above the amount estimated. Options contracts can also be stand alone contracts that provide buyers and sellers the opportunity but not the obligation to enter into a transaction by a specific date at some time in the future. An options buyer pays a premium to the seller who in turn guarantees that it will sell the ERUs (or other carbon commodity) at a set price at the specified date in the future (if the option is used).

APPENDIX A: CONTACT INFORMATION

Contact details for BASREC:

Energy Unit, CBSS Secretariat, P.O. Box 2010, 10311 Stockholm, Sweden

Tel: +46 8 440 19 31

Fax: +46 8 440 19 44

E-mail cbss@cbss.st

Website: http://www.basrec.org

Contact details for the Testing Ground Facility:

Nordic Environment Finance Corporation (NEFCO) Fabianinkatu, 34 FI 00171 Helsinki FINLAND

Contact: Ash Sharma

Tel: +358 40 08 11 327

Fax: +358 96 30 976

E-mail: ash.sharma@nefco.fi

Website: http://www.nefco.org/tgf

Table 15 Contact Information for BASREC Testing Ground Countries

Country	***Focal Point***	***Contact information***	***Website***
Denmark	Hans Jürgen Stehr	Danish Energy Authority Ministry of Economic and Business Affairs. 44 Amaliegade, DK-1256 København Tel: +45 33 92 67 00 Fax: +45 33 92 68 37 E-mail:hjs@ens.dk	
Estonia	Madis Laaniste	Ministry of the Economy e-mail: madis.laaniste@mkm.ee	
Finland	Kristiina Isokallio	Finnish Environment Institute (SYKE) P.O. Box 35, FIN-00023 Government, Helsinki Tel: +358 9 16039508 Fax: +358 9 16039515	www.ymparisto.fi
Germany	Joint Implementation Coordination Office (JICO)	Federal Ministry for the Environment Nature Conservation and Nuclear Safety, Unit: AG Z II 6, 11055 Berlin Tel: +49 1888 305 – 2357 Fax:+49 1888 305 – 2349 E-mail: hans-juergen.nantke@uba.de	www.dehst.de

Iceland	Halldor Thorgeirsson	Ministry for the Environment International Affairs, Vonarstadi 4 IS-150 Reykjavik Tel: +354 560 9600 Fax: +354 562 4566 E-mail: halldor.thorgeirsson@umh.stjr.is	
Latvia	Mr Valdis Bisters	Ministry of Environmental Protection and Regional Development Officer Department of the Environment Protection. Peldu Str. 25. LV-1494 Riga Tel: +371 2 702-6508 Fax: +371 2 782-0442	
Lithuania	Jolanta Zaltkauskiene	Lithuanian Environment Investment Fund Laisves pr. 3, LT-04132 Vilnius, Lithuania Tel: +370 5 216 97 99 Fax: +370 5 216 93 99	www.laaif.lt
Norway		Ministry of Environment	www.miljo.no
Poland	Wojciech Jaworski	Ministry of Environment Department of Environmental Protection Instruments. 52/54 Wawelska St., 00-922 Warszawa, Poland Tel: +48 22 57 92 327 Fax: +48 22 57 92 217	www.mos.gov.pl
Russia	Andrei Sharanov, Deputy Minister, Oleg Pluzhnikov	Ministry of Economic Development and Trade Email: pluzhnikov@economy.gov.ru	
Sweden	Johan Nylander, Bengt Boström	Swedish Energy Agency Tel: +46-16-544 20 00 Fax: +46-16-544 20 99 E-mail: fp-ji@stem.se	www.stem.se

Table 16 Contact Information for BASREC Investor Countries

Country	***Institution***	***Contact information***	***Website***
Denmark	DanishCarbon.dk administered by Ministry of the Environment	info@danishcarbon.dk Tel: +45 32 66 01 00	http://www.danishcarbon.dk

Finland	Finnish CDM/JI Pilot Programme administered by Finnish Environment Institute (SYKE)	Mika Sulkinoja mika.sulkinoja@lahtisbp.fi Tel: + 358 9 403 000	http://www.ymparisto.fi
Germany	Federal Ministry of Economics and Labour Affairs (BMWA)	Mr Uwe Schroder-Selbach Uwe.Schroeder-Selbach@bmwa.bund.de Tel: +49 302 047 305	http://www.bmwa.bund.de
Norway	Not available	Ministry of Environment	http://www.miljo/no
Sweden	SICLIP, administered by the Swedish Energy Agency, STEM	Christian Sommer Christian.sommer@stem.se Tel: +46 16 544 2043	http://www.stem.se

Table 17 Relevant organisations and institutions

Organisation	***Website***
UNFCCC	http://www.unfccc.int
Official CDM Website	http://cdm.unfccc.int/
Danish Energy Agency	http://www.ens.dk
Danish Environment Ministry	http://www.mim.dk
Danish Environmental Protection Agency	http://www.mst.dk
Estonian Environment Ministry	http://www.envir.ee
European Commission – European Climate Change Programme	http://europa.eu.int/comm/environment/climat/eccp.htm
Finnish Ministry of the Environment	http://www.vyf.fi
Finnish Ministry of Trade and Industry	http://www.ktm.fi
German Environment Ministry	http://www.bmu.de
Icelandic Environment Ministry	http://www.environment.is
International Emissions Trading Association (IETA)	http://www.ieta.org
Latvian Environment Ministry	http://www.varam.gov.lv
Lithuanian Environment	http://www.am.lt
Norwegian Environment Ministry	http://www.environment.no
Prototype Carbon Fund	http://www.prototypecarbonfund.org
Polish Environment Ministry	http://www.mos.gov.pl
Swedish Energy Agency	http://www.stem.se
World Bank Group	http://www.worldbank.com

APPENDIX B: USEFUL REFERENCE MATERIAL

CDM Project Design Document

The structure and guidelines for a CDM PDD is available from:

http://cdm.unfccc.int/Reference/Documents/cdmpdd/English/CDM_PDD_ver02.doc

Guidelines for completing a PDD are available from:

http://cdm.unfccc.int/Reference/Documents/Guidel_Pdd/English/Guidelines_CDMPDD_NMB_NMM.pdf

Approved baseline methodologies for the CDM

Approved Consolidated Methodologies (as at 21 November 2005) ***Available from***: ***http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html***	
ACM0001	Consolidated methodology for landfill gas project activities
ACM0002	Consolidated methodology for grid-connected electricity generation from renewable sources – version 2
ACM0003	Emissions reduction through partial substitution of fossil fuels with alternative fuels in cement manufacture
ACM0004	Consolidated methodology for waste gas and/or heat for power generation
ACM0005	Consolidated methodology for increasing the blend in cement production
ACM0006	Consolidated methodology for grid-connected electricity production from biomass residues
Approved Methodologies (as at 21 November 2005) ***Available from***: ***http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html***	
AM0001	Incineration of HFC 23 Waste Streams – version 3
AM0002	Greenhouse gas emission reductions through landfill gas capture and flaring where the baseline is established by a public concession contract
AM0003	Simplified financial analysis for landfill gas capture projects
AM0004	Grid connected biomass power generation that avoids uncontrolled burning of biomass – version 2
AM0005	Small grid-connected zero-emissions renewable electricity generation
AM0006	GHG emission reductions from manure management systems
AM0007	Analysis of the least-cost fuel option for seasonally-operating biomass co-generation plants
AM0008	Industrial fuel-switching from coal and petroleum fuels to natural gas without extension of capacity and lifetime of the facility
AM0009	Recovery and utilisation of gas from oil wells that would otherwise be flared – version 2
AM0010	Land-fill gas capture and electricity generation projects where landfill gas capture is not mandated by law
AM0011	Landfill gas recovery with electricity generation and no capture or destruction of

	methane in the baseline scenario
AM0012	Biomethanation of municipal solid waste in India, using compliance with MSW rules
AM0013	Forced methane extraction from organic waste-water treatment plants for grid-connected electricity supply – version 2
AM0014	Natural gas-based package cogeneration
AM0015	Bagasse-based cogeneration connected to an electricity grid
AM0016	Greenhouse gas mitigation from improved animal waste management systems in confined animal feeding operations – Version 2
AM0017	Steam system efficiency improvements by replacing steam traps wand returning condensate – version 2
AM0018	Steam optimization systems
AM0019	Renewable energy project activities replacing part of the electricity production of one single fossil-fuel-fired power plant that stands along or supplies electricity to a grid, excluding biomass projects
AM0020	Baseline methodology for water pumping efficiency improvements
AM0021	Baseline methodology for decomposition of N2O form existing adipic acid production
AM0022	Avoided wastewater and on-site energy use emissions in the industrial sector – version 2
AM0023	Lead production from natural gas pipeline compressor or gate stations
AM0024	Methodology for greenhouse gas reductions through waste-heat recovery and utilization for power at cement plants
AM0025	Avoided emissions for organic waste composting at landfill sites
Indicative Simplified Small-Scale Methodologies (as at 21 November 2005) ***Available from***: ***http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html***	
AMS-I.A	Electricity generation by the user
AMS-I.B	Mechanical energy for the user
AMS-I.C	Thermal energy for the user
AMS-I.D	Renewable electricity generation for a grid
AMS-II.A	Supply side energy efficiency improvements – transmission and distribution
AMS-II.B	Supply side energy efficiency improvements – generation
AMS-II.C	Demand-side energy efficiency programmes for specific technologies
AMS-II.D	Energy efficiency and fuel switching measures for industrial facilities
AMS-II.E	Energy efficiency and fuel switching measures for buildings
AMS-II.F	Energy efficiency and fuel switching measures for agricultural facilities and activities
AMS-III.A	Agriculture
AMS-III.B	Switching fossil fuels
AMS-III.C	Emission reductions by low-greenhouse gas emitting vehicles
AMS-III.D	Methane recovery

AMS-III.E	Avoidance of methane production from biomass decay through controlled combustion

List of Designated Operational Entities for the CDM

An updated lost of Designated Operational Entities for the CDM can be found at the following website: http://cdm.unfccc.int/DOE/list.

The current list comprises the following entities:

Table 18 Current list of Designated Operational Entities

Number	***Entity Name (short name)***
E-0001	Japan Quality Assurance Organization (JQA)
E-0002	JACO CDM.,LTD (JACO)
E-0003	Det Norske Veritas Certification Ltd. (DNVcert)
E-0005	TUV Industrie Service GmbH TUV SUD GRUPPE (TUV Industrie Service GmbH TUV)
E-0007	Japan Consulting Institute (JCI)
E-0009	Bureau Veritas Quality International Holding S.A. (BVQI Holding S.A.)
E-0010	SGS United Kingdom Ltd. (SGS)
E-0013	TÜV Industrie Service GmbH, TÜV Rheinland Group (TÜV Rheinland)
E-0014	KPMG Sustainability B.V. (KPMG)
E-0021	Spanish Association for Standardisation and Certification (AENOR)
E-0022	RWTUV Systems GmbH (RWTUV)

Baselines for power and district heating sectors

The accompanying volume to this handbook is the publication "Electricity and district heating emission baseline methodologies".

The report presents a set of four Baseline Methodologies, largely based on precedents set under the CDM. In addition, the consolidated methodology for grid-connected renewables (the "Combined Margin") has been adapted for application in countries such as Russia.

These methodologies are designed to cover a wide range of potential JI projects in the power and district heating sectors. Given the importance of combined heat and power (CHP) projects in the Baltic Sea States, the report includes a methodology specifically for CHP projects, and have also incorporated special features to deal with CHP in the Combined Margin. Figure A illustrates the application of these methodologies to different types of projects.

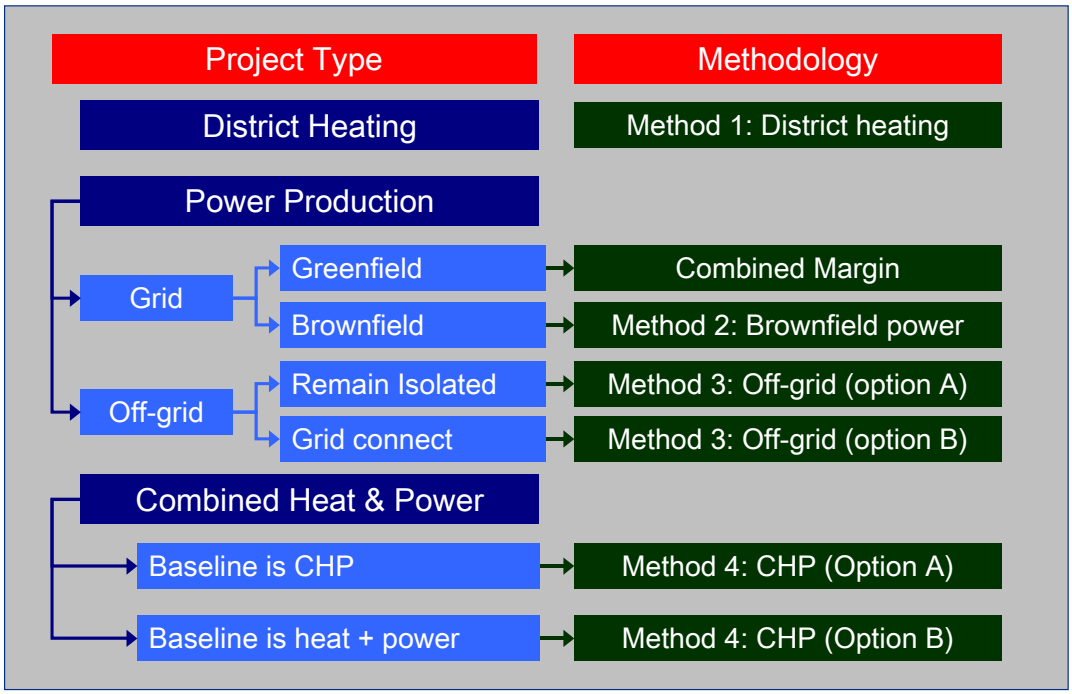
Each methodology follows the same structure:

- Firstly, there is the identification of the Baseline Scenario and additionality test, as illustrated in Figure A;
- Secondly, there is the identification of emission sources in the Baseline, and the quantification of these emissions where appropriate (not all emission sources are quantified);

- Thirdly, there is the identification of leakages (i.e. emissions due to the project but outside the project boundary), and quantification of these where appropriate;
- Fourthly, there is the estimation of project emissions and emission reductions.

Each baseline methodology also identifies data sources, but does not cover the monitoring methodology, which is required as part of a project design document (PDD).

Figure 9 Baseline Methodologies and their application to projects



A set of four case studies are presented in the report illustrating the application of these methodologies. The case studies have been drawn from the Arkhangelsk region of North West Russia.

Global warming potentials

The most recent GWP, provided by the IPCC, are (IPCC, 1996): CO_2 (1), CH_4 (21), N_2O (310), and SF_6 (23900). For example, this implies that for a baseline calculated at 10 tonnes of CH_4 per year, the baseline emissions should be expressed as 210 tonnes of CO_2 equivalent per year.

Emissions factors

An emissions factor indicates the amount of CO_2 or CO_2-equivalent emitted for each unit of fuel consumed or energy produced. Emissions factors are thus a measure of the GHG emissions intensity of a specific activity. For example, the emissions factor for the power sector can be expressed in tCO_2/MWh, for industrial process in tCO_2/product produced, etc.

Fuel combustion emissions factors

Presented below are combustion emissions factors for different fuels, with data sourced from the IPCC Guidelines.

Table 19 CO_2 emission factors for fuels

			Carbon emission factor *	Oxidation **	CO_2 emission factor***
			tC/TJ	%	tCO_2/TJ
Liquid fossil fuels	Primary fuels	Crude oil	20,0	99,0 %	72,6
		Orimulsion	22,0	99,0 %	79,9
		N. Gas liquids	17,2	99,0 %	62,4
	Secondary Fuels / Products	Gasoline	18,9	99,0 %	68,6
		Jet kerosene	19,5	99,0 %	70,8
		Other kerosene	19,6	99,0 %	71,1
		Shale oil	20,0	99,0 %	72,6
		Gas / Diesel oil	20,2	99,0 %	73,3
		Residual Fuel Oil	21,1	99,0 %	76,6
		LPG	17,2	99,0 %	62,4
		Ethane	16,8	99,0 %	61,0
		Naphtha	20,0	99,0 %	72,6
		Bitumen	22,0	99,0 %	79,9
		Lubricants	20,0	99,0 %	72,6
		Petroleum Code	27,5	99,0 %	99,8
		Refinery Feedstocks	20,0	99,0 %	72,6
		Other Oil	20,0	99,0 %	72,6
Solid fossil fuels	Primary fuels	Anthracite	26,8	98,0 %	96,3
		Coking Coal	25,8	98,0 %	92,7
		Other Bit. Coal	25,8	98,0 %	92,7
		Sub-bit Coal	26,2	98,0 %	94,1
		Lignite	27,6	98,0 %	99,2
		Oil Shale	29,1	98,0 %	104,6
		Peat	28,9	98,0 %	103,8
	Secondary Fuels / Products	BKB & Patent Fuel	25,8	98,0 %	92,7
		Coke Oven/Gas Coke	29,5	98,0 %	106,0
		Natural Gas (dry)	15,3	99,5 %	55,8

* Source: Table 1-1 Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual

** Source: Table 1-5 Table 1-1 Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual

*** Converted from tC/TJ by multiplying by oxidation rate and times 44/12

Electricity generation emission factors

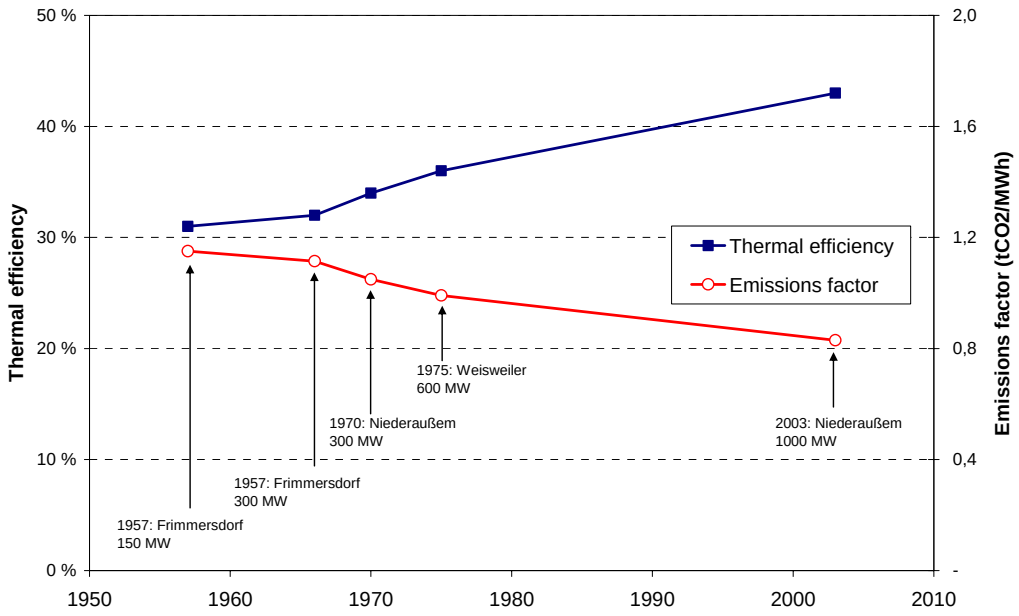
Emissions factors for electricity generation depend on fuel type and generation technology. Different generation technologies have different thermal efficiencies, affecting the emissions per kWh generated. Further, within one technology thermal efficiency can vary significantly with technology vintage and other characteristics (e.g. cooling system). As an illustration, Table 20 compares the average with the best thermal efficiencies of thermal power plants in Germany. RWE also illustrate how thermal efficiencies have improved over time, giving a 30 per cent improvement in emissions factors since 1957, illustrated in Figure 10.

Table 20 Comparing average and best thermal efficiencies of power plants in Germany

	Average	***Best***
Lignite	34 %	43 %
Coal	37 %	39 %
Gas	40 %	47 %

Source: RWE Facts and Figures 2005, available from http://www1.rwecom.geber.at/factbook/en/servicepages/downloads/files/electricity_generation_rwe_fact.pdf

Figure 10 Changes in thermal efficiency and emissions factors at German lignite plants over time



Source: RWE Facts and Figures 2005, available from http://www1.rwecom.geber.at/factbook/en/servicepages/downloads/files/electricity_generation_rwe_fact.pdf

Table 21 presents a set of benchmark emissions factors based on the fuel emissions factors from Table 19 and thermal efficiencies utilised by the US Energy Information Administration (EIA) in their 2005 Energy Outlook. It should be noted that ***these emissions factors apply to new plant***, and emissions factors for older plant may be significantly higher. Thermal efficiencies (or specific fuel consumption) at power plants can vary significantly with technology vintage, fuel characteristics and location.

Table 21 Benchmark emissions factors for electricity generation (new plant)

Fuel	***Technology***	***Fuel emission factor****	***Heat rate****	***Thermal efficiency***	***Electricity emissions factor******
		t CO2/TJ	***Btu/kWh***	***%***	***t CO2/MWh***
Natural gas	Conventional combined cycle	55,8	7 196	47,4 %	0,423
	Advanced gas technology	55,8	6 752	50,5%	0,397
	Conventional combustion turbine	55,8	10 817	31,5 %	0,637
	Advanced combustion turbine	55,8	9 183	37,2 %	0,540
Gas / Diesel oil	Conventional combustion turbine	73,33	10 817	31,5 %	0,836
	Advanced combustion turbine	73,33	9 183	37,2 %	0,710
Fuel oil	Conventional combustion turbine	76,6	10 817	31,5 %	0,873
	Steam turbine	76,6	8 844	38,6 %	0,714
Coal	Pulverised coal (steam turbine)	92,7	8 844	38,6 %	0,864
	Advanced coal (IGCC)	92,7	8 309	41,1 %	0,812
Lignite	Steam turbine	99,2	8 844	38,6 %	0,925
	Advanced coal (IGCC)	99,2	8 309	41,1 %	0,869

* From Table 19

** From EIA, Assumptions to the Annual Energy Outlook, Table 48, p79.

*** Fuel emission factor / Thermal efficiency / 278

IGCC = Integrated coal gasification combined cycle

Given the variation in thermal efficiency at different power stations, a caution is given about utilising the benchmark figures given above. The IEA publishes emissions factors from a sample of power stations in its publication *Projected Costs of Generating Electricity 2005 Update* (Tables 2.4 to 2.10).

Special methodologies have been developed for the calculation of a baseline emissions factor for an electricity grid (see the accompanying volume *Electricity and District Heating Emission Baseline Methodologies*). The standard approach, termed the *Combined Margin*, is to take a weighted average of the emissions factor of existing generation stations (the *Operating Margin*) and new plant (the *Build Margin*). The Operating Margin can be determined as the average emissions factor or all plant, or more sophisticated approaches can be used that exclude emissions from non-marginal (e.g. baseload) plant. Special consideration needs to be given to the emission from combined heat and power (CHP) stations, where only a portion of emissions need be allocated to power production.

Energy conversion factors

Table 22 Energy conversion factors

		To fuel				
		Multiply by				
		tce	**GJ**	**mmbtu**	**bbl oil**	**MWh**
From fuel	**tce**	1,00	25,8	24,5	4,38	7,18
	GJ	0,039	1,00	0,948	0,169	0,278
	mmbtu	0,0408	1,06	1,00	0,179	0,293
	bbl oil	0,229	1,06	5,59	1,00	1,64
	MWh	0,139	3,60	3,41	0,609	1,00

tce = tons of coal equivalent

k	kilo =	10^3
M	mega =	10^6
G	giga =	10^9
T	tera =	10^{12}
P	peta =	10^{15}

A wider range of energy conversions is also possible by using the tool available at http://www.processassociates.com/process/convert/cf_ene.htm

APPENDIX C: SAMPLE DOCUMENTS FOR JI PROJECTS

A sample Emissions Reduction Purchase Agreement (ERPA) can be downloaded from the International Emissions Trading Association (IETA) website from:

http://www.ieta.org/ieta/www/pages/download.php?docID=450

While this is for transactions of CDM CERs, the issues to cover in an ERU transaction will be similar.

Presented below is a sample ERPA for JI projects based on the standard utilised by NEFCO.

Document 1: SAMPLE ERPA for JI projects

Please note that the following SAMPLE ERPA is to be used as a guide for issues that may arise during contract negotiations between a buyer and seller, rather than a guide as to the issues that will be negotiated between a project participant and the TGF. Project participants seeking to enter into negotiations with the TGF could receive a contract with different terms and requirements as each contract is negotiated on a case by case basis.

SAMPLE

EMISSION REDUCTIONS PURCHASE AGREEMENT

between

the Nordic Environment Finance Corporation
as a Fund Manager to the Baltic Sea Region Testing Ground Facility

and

[HOST COMPANY]

Whereas:

(a) The Government of the [HOST COUNTRY] has ratified the United Nations Framework Convention on Climate Change ("Convention on Climate Change") and the Kyoto Protocol to the United Nations Framework Convention on Climate Change ("Kyoto Protocol"),

(b) The Governments of the countries in the Baltic Sea Region, the Kingdom of Denmark, the Republic of Estonia, the Republic of Finland, the Federal Republic of Germany, the Republic of Iceland, the Republic of Latvia, the Republic of Lithuania, the Kingdom of Norway and the Kingdom of Sweden, have signed the Agreement on a Testing Ground of the Kyoto Mechanisms on Energy Projects in the Baltic Sea Region ("TGA"),

(c) The objective of the Testing Ground for the Baltic Sea Region is to gain experience from and facilitate the use of Joint Implementation under Article 6 and Emissions Trading under Article 17 of the Kyoto Protocol and to implement projects generating Emission Reductions prior to and during the commitment

period commencing in 2008, in order to reduce anthropogenic emissions of greenhouse gases cost-effectively,

(d) The Baltic Sea Region Testing Ground Facility ("TGF") has been established as a regional fund, managed by the Nordic Environment Finance Corporation ("NEFCO"), for the implementation of Joint Implementation projects in the Testing Ground for the Baltic Sea Region,

(e) [HOST COMPANY] has undertaken to implement the **……..** [NAME OF PROJECT] Project in …… [LOCATION, HOST COUNTRY] ("the Project") as a JI project,

(f) The Baseline and the design of the Project have been determined as set forth in the Determination Report included in Annex II of this Agreement and the Project is expected to generate a reduction in greenhouse gas emission that is additional to any that would occur in the absence of the Project,

(g) [HOST COUNTRY] has endorsed the implementation of the Project as a Joint Implementation project under Article 6 of the Kyoto Protocol and issued a Letter of Approval [in conformity with Article 6 of the TGA] included in Annex III of this Agreement [thereby making a commitment to transfer the Emission Reductions generated by the Project and sold and purchased under this Agreement],

(h) NEFCO as Fund Manager for the TGF ("Fund Manager") has been authorized by the Investor Countries to participate in the Project and Investor Country Approvals, included in Annex IV of this Agreement, have been issued,

(i) [HOST COMPANY] wishes to sell, and the Fund Manager wishes to purchase, upon the terms and conditions set forth in this Agreement, Emission Reductions generated by the Project,

Now therefore this Emission Reductions Purchase Agreement is entered into between [HOST COMPANY] and the Fund Manager (each individually referred to as a "Party" and collectively as "Parties").

Article 1

Definitions

1. "Additional Emission Reductions" means the amount of Emission Reductions that the Project achieves during the Crediting Period in excess of the Total Emission Reductions,

2. "Assigned Amount Unit" or "AAU" means a unit issued in the national registry pursuant to the Kyoto Protocol and is equal to one metric tonne of carbon dioxide equivalent,

3. "Baseline Study" means the project specific study included in the Project Design Document in Annex I of this Agreement,

4. "Baseline" means the situation described in the baseline study that represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the Project,

5. "Conference of the Parties" or "COP" means the Conference of the Parties to the UN Framework Convention on Climate Change,

6. "Conference of Parties serving as the Meeting of the Parties" or "COP/MOP" means the Conference of the Parties to the UN Framework Convention on Climate Change serving as the meeting of the parties to the Kyoto Protocol,

7. "Crediting Period" means the period from [DATE] to [31 December 2012] during which the Project is expected to generate Emission Reductions,

8. "Determination" means the assessment by a third party of the Project design, including its Baseline, before the Project's implementation,

9. "Determination Report" means the report attached to this Agreement as Annex II and prepared by an Independent Entity pursuant to Determination,

10. "Emission Reduction Unit" or "ERU" means a unit issued in the national emissions registry pursuant to the Kyoto Protocol and is equal to one metric tonne of carbon dioxide equivalent,

11. "Emission Reductions" means monitored reductions in emissions of greenhouse gases achieved by the Project during its lifetime in excess of the applicable Baseline, expressed as AAUs, ERUs or, as the case may be, other relevant units,

12. "Greenhouse Gases" means the six gases listed in Annex A to the Kyoto Protocol, which are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6),

13. "Host Country" means the …….. as the country in which the Project is implemented,

14. "Independent Entity" means an entity accredited by the Kyoto Protocol Article 6 Supervisory Committee to determine and verify whether a JI project and the ensuing reductions in emissions meet the requirements of Article 6 of the Kyoto Protocol. Until such Independent Entities have been accredited, operational entities under Article 12 of the Kyoto Protocol may fill the functions of an Independent Entity, [*This definition is from TGF Guidelines*]

15. "Joint Implementation" or "JI" means the mechanism as defined by Article 6 of the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines adopted thereunder,

16. "Supervisory Committee" means the international body supervising activities under Article 6 of the Kyoto Protocol,

17. "Lien" includes mortgages, pledges, charges, privileges and priorities of any kind,

18. "Monitoring" means activities through which data assessing the reductions in emissions of greenhouse gases resulting from the Project is collected and recorded pursuant to the Monitoring and Verification Plan,

19. "Monitoring and Verification Plan" means the set of requirements, included in the Project Design Document, to be applied in the Monitoring,

20. "Monitoring Report" means a document indicating the annual results of the Monitoring process conducted in accordance with the Monitoring and Verification Plan and calculating the amount of Emission Reductions the Project has generated during the relevant period,

21. "Project Design Document" or "PDD" means the project study included in Annex I of this Agreement that contains, inter alia, project description, baseline study and Monitoring and Verification Plan,

22. "Project" means the project activity, described in the Project Design Documentincluded in Annex I of this Agreement,

23. "tCO_2eq" means metric tonne of carbon dioxide (CO_2) equivalent,

24. "Total Emission Reductions" means the number of tCO_2eq specified in Article 2 to be generated by the Project during the Crediting Period that the [HOST COMPANY] has committed to deliver to the Fund Manager under this Agreement,

25. "Verification" means the periodic independent review and ex post Determination by an Independent Entity or the Host Country of the monitored reductions in anthropogenic emissions by sources of greenhouse gas emissions that have occurred as a result of the Project during a specified time period,

26. "Verification Report" means a report prepared by an Independent Entity or the Host Country pursuant to a verification, which reports the findings of the verification process and indicates the number of tCO_2eq that the Project has generated during the relevant time period.

Article 2

Sale and Acquisition of Emission Reductions

Subject to the terms and conditions set forth in this Agreement, [HOST COMPANY] hereby sells and assigns to the Fund Manager, free and clear of any Lien, and the Fund Manager hereby accepts all rights, titles and interests in and to a total of ……. tCO_2eq of Emission Reductions to be generated by the Project during the Crediting Period.

Article 3

Delivery of Emission Reductions

1. [HOST COMPANY] shall deliver all Emission Reductions generated by the Project during the Crediting Period to the Fund Manager until the Total Emission Reductions have been delivered.

2. The delivery of the annual Emission Reductions shall take place upon receipt by the Fund Manager of the Verification report from the Independent Entity or the [HOST COUNTRY] and an acceptable invoice from [HOST COMPANY].

3. The delivery of Emission Reductions shall be made in instalments in accordance with the tentative timetable and the minimum annual amounts specified in the schedule attached as Annex V:

4. In the event that the Project becomes, during the Crediting Period, an installation included in the scheme for greenhouse gas emission allowance trading within the European Community, [HOST COMPANY] shall, at the request of the Fund Manager, deliver the Emission Reductions generated by the Project in the form of greenhouse gas emission allowances issued under that trading scheme.

Article 4

Purchase Price and Payments

1. Subject to the terms and conditions of this Agreement the Fund Manager shall pay a purchase price of Euro (€) …….. per tCO_2eq of Emission Reductions delivered by [HOST COMPANY] to the Fund Manager.

2. The Fund Manager shall pay the purchase price in annual payments. Each payment shall be in an amount equal to (purchase price * tCO_2eq of Emission Reductions delivered). Subject to the delivery of Emission Reductions as agreed, the payments shall be made in accordance with the tentative schedule in Annex V of this Agreement.

3. Each payment shall be made in Euros via wire transfer into such account as [HOST COMPANY] shall designate within sixty (60) days from the receipt of a Verification Report and an acceptable invoice.

4. All Emission Reductions purchased under this Agreement shall be delivered to the Fund Manager free of any charges, levies or taxes.

5. Any possible expenses related to the Emission Reductions purchased that are charged by the Supervisory Committee and/or the COP/MOP in accordance with Article 6 of the Kyoto Protocol and the relevant rules, decisions, guidelines and modalities thereunder shall be borne by the Fund Manager.

[Article 5—optional]

Advance payment

1. The Fund Manager shall make [HOST COMPANY] an advance payment of a total maximum Euro (€) [AMOUNT] in [NUMBER] instalments. Each instalment shall be paid subject to the fulfilment by [HOST COMPANY] of the milestones specified in Annex V of this Agreement.

2. The advance payment must be backed by a first demand guarantee equal by value to Euro € [AMOUNT] and based on the Uniform Rules for Demand Guarantees of the International Chamber of Commerce, and issued by bank, insurance company or other financing establishment subject to the approval by the Fund Manager. The first demand guarantee must remain valid until [DATE].

3. The advance payment shall be made in [NUMBER] instalments in accordance with the following conditions:

   a) The first instalment of the advance payment shall be paid within sixty (60) days of the entry into force of this Agreement and the receipt of an acceptable invoice, a written report demonstrating the current status of the project and the bank guarantee by the Fund Manager.

b) The subsequent instalments shall be paid within sixty (60) days of the receipt of an acceptable invoice and a written report from [HOST COMPANY] demonstrating that the relevant criteria specified in Annex V of this Agreement have been fulfilled to the reasonable satisfaction of the Fund Manager.

4. The Fund Manager shall subtract the advance payment from the purchase price. The subtraction shall be made in sums of equal amount from each annual payment as indicated in the tentative payment schedule in Annex V of this Agreement.

5. In order to verify how the advance payment has been spent, [HOST COMPANY] shall, at the request of the Fund Manager allow representatives designated by the Fund Manager access to all its books and records, kept for the Project, including the relevant parts of its audited accounts.

6. The Fund Manager has the right to reclaim the advance payment in full or in part and drawing on the bank guarantee if necessary in case [HOST COMPANY] fails to deliver the corresponding Emission Reductions by the last Verification of the Emission Reductions generated by the Project during the Crediting Period. This right also applies in case this Agreement is terminated due to a force majeure or an event of default by the Fund Manager or by [HOST COMPANY].

Article 6

Additional Emission Reductions

1. In the event that the Project achieves during the Crediting Period Emission Reductions over and above the Total Emission Reductions, [HOST COMPANY] hereby grants the Fund Manager the right of first refusal to purchase any such Additional Emission Reductions.

2. The price per tCO_2eq of Additional Emission Reductions shall be Euro (€) ….. per tCO_2eq of Emission Reductions delivered.

3. The Fund Manager may exercise this option, in whole or in part, by giving written notice to [HOST COMPANY] within ninety (90) days from the date that the Total Emission Reductions have been delivered.

4. The delivery and purchase of Additional Emission Reductions shall be subject to the same terms and conditions, including the Monitoring and Verification requirements, as the delivery and purchase of the Total Emission Reductions under this Agreement. The time limit in Article 5.1 shall be extended to such date when the Additional Emission Reductions have been delivered.

Article 7

Monitoring of Emission Reductions

1. The Parties agree that the careful and continuous Monitoring of the reduction in Greenhouse Gas emissions achieved by the Project is essential for the successful implementation of this Agreement.

2. [HOST COMPANY] shall ensure that the Monitoring activities are carefully and continuously performed in conformity with the Monitoring and Verification Plan, the Convention on Climate Change, the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines adopted thereunder.

3. [HOST COMPANY] shall submit the Monitoring Reports concerning each calendar year to the Fund Manager [and the relevant authority of Host Country] annually by [DATE] of the subsequent year.

4. [HOST COMPANY] recognizes that the Monitoring Reports will be made publicly available as required by the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines adopted thereunder.

Article 8

Verification of Emission Reductions

1. All Emission Reductions generated by the Project during the Crediting Period, including [LAST DAY OF CREDITING PERIOD], or until such earlier date that the Total Emission Reductions have been delivered, shall be subject to periodic Verification in conformity with the Monitoring and Verification Plan and the requirements of the Convention on Climate Change, the Kyoto Protocol and the relevant rules, decisions, guidelines, and modalities thereunder.

2. The Verification of the first Emission Reductions generated by the Project during [YEAR] shall be conducted by [DATE]. The subsequent Verifications shall take place annually no later than [DATE] each following year.

3. [HOST COMPANY] shall be responsible for arranging each annual Verification and contracting, in consultation with the Fund Manager [and the relevant national authority of Host Country], an Independent Entity for the purpose.

4. Any Independent Entity contracted by [HOST COMPANY] to verify Emission Reductions shall at all times be acceptable to the Fund Manager [and the relevant national authority of Host Country].

5. [HOST COMPANY] shall pay for all costs incurred in connection with Verification.

6. [HOST COMPANY] shall instruct the Independent Entity to issue after each Verification:

   (a) a statement of the amount of Emission Reductions the Project has generated during the relevant period, and

   (b) such other matters as may be required by law, the Convention on Climate Change, the Kyoto Protocol and/or such other emissions trading schemes and other mechanisms as may be requested by the Fund Manager.

7. [HOST COMPANY] shall submit the annual Verification Reports to the Fund Manager [and the relevant national authority of HOST COUNTRY] by [DATE] each year.

8. In course of the Crediting Period the Fund Manager and [HOST COMPANY] may agree that the Verification of Emission Reductions shall be conducted by [HOST COUNTRY] instead of an Independent Entity. Such agreement is possible with the consent of [HOST COUNTRY] and provided that [HOST COUNTRY] fulfils all the applicable criteria under the Kyoto Protocol and the relevant rules, decisions, guidelines, and modalities thereunder.

9. [HOST COMPANY] recognizes that the Verification Reports will be made publicly available as required by the Convention on Climate Change, the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines adopted thereunder.

Article 9

Representations and Warranties

1. Each Party represents and warrants to the other Party that it has the power and authority to execute and deliver this Agreement and to perform its obligations under it.

2. [HOST COMPANY] hereby represents and warrants that:

   a) It is a corporation duly incorporated, validly existing and in good standing under the laws of …….,

   b) There are no actions, suits or proceedings pending, or to the reasonable knowledge of [HOST COMPANY], threatened against or affecting [HOST COMPANY] before any court, administrative body or arbitral tribunal which might materially adversely affect the ability of [HOST COMPANY] to meet and carry out its obligations under this Agreement,

   c) It has secured *inter alia* from the Host Country all rights, title and interests in and to all Emission Reductions to be generated by the Project, and such Emission Reductions have not been sold or assigned to any party other than hereunder, or otherwise subjected to any Lien,

   d) It has fulfilled all relevant legal requirements in the Host Country for the implementation of the Project and secured the legal right of use of the relevant land areas, facilities and infrastructure,

   e) All the information provided to the Fund Manager concerning the Project, especially in the Project Design Document and its Annexes is true and correct and may be relied upon by the Fund Manager.

Article 10

Obligations of the Parties

1. [HOST COMPANY] hereby covenants and agrees that it shall:

   a) Not sell or assign to any other/third party, or otherwise subject to any Lien, the Emission Reductions generated by the Project and sold and assigned to the Fund Manager hereunder,

   b) Arrange for the periodic Verification of the emission reduction as provided in Article 5,

   c) Bear all expenses related to the Emission Reductions purchased that are charged by the Supervisory Committee and/or the COP/MOP in accordance with Article 6 of the Kyoto Protocol and the relevant rules, decisions, guidelines and modalities thereunder.

d) Fully co-operate with the Fund Manager and the Host Country and take such action as reasonable and appropriate to ensure the generation, Verification, delivery and transfer of Emission Reductions in accordance with the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines thereunder,

e) Satisfy all obligations in respect of licenses, permits, consents, concessions and authorisations required to implement and operate the Project,

f) Implement and operate the Project with due diligence and efficiency and in accordance with sound and ethical administrative, financial, environmental, social and technical practices and in compliance with the Host Country legislation, and so as to achieve the amount of Emission Reductions sold and assigned hereunder,

g) Maintain the legal rights, title and interests to the Emission Reductions to be generated by the Project and to the use of all lands and infrastructure necessary to implement and operate the Project and provide promptly funds, facilities, utilities, materials, equipment and other resources required for the implementation and operation of the Project,

h) Insure and keep insured with financially sound and reputable insurers acceptable to the Fund Manager all of its assets and business related to the Project against those risks that would be insured by a prudent company engaged in a business of the nature and scope of the Project, including any further insurance required by applicable law,

i) Grant any authorised representative of the Fund Manager [and/or the national authority of Host Country] at no extra cost, access to the project site and any relevant information for the purposes of implementing this Agreement,

j) Immediately inform the Fund Manager [and/or the national authority of Host Country], if the Project is hindered or in danger of being hindered risking the generation and/or delivery of the Emission Reductions.

2. The Fund Manager hereby covenants and agrees that it shall:

a) Pay the purchase price [and advance payments] as specified in Article[s] 7 [and 8],

b) Fully co-operate with [HOST COMPANY], the Host Country and any Independent Entity and take such action as reasonable and appropriate to ensure the proper Verification, transfer and acquisition of Emission Reductions in accordance with Convention on Climate Change, the Kyoto Protocol and the relevant rules, decisions, modalities and guidelines thereunder.

Article 11

Events of Default

1. Each of the following events shall constitute an event of default on part of [HOST COMPANY]:

a) The implementation of the Project is significantly behind schedule by ……., or such later date as may be established by the Fund Manager in writing, so as to

make it improbable that the Project will generate the Emission Reductions committed to the Fund Manager,

b) The Project fails to be operational by ……, or such later date as may be established by the Fund Manager in writing,

c) [[HOST COMPANY] fails to report to the Fund Manager of progress of the Project according to the schedule agreed in Annex V and does not provide a report within a week after having been requested to do so by the Fund Manager,]

d) [HOST COMPANY] fails to deliver any Emission Reductions by ……..,

e) [HOST COMPANY] fails to deliver by …….. at least seventy [70] per cent of the Emission Reductions due per that date according to the schedule in Article 6 of this Agreement,

f) [HOST COMPANY] fails to deliver for two consecutive calendar years between …….. at least seventy [70] per cent of the minimum annual amounts of Emission Reductions,

g) Breach of any covenant or agreement under this Agreement, other than the failure of deliver Emission Reductions on the agreed schedule,

h) Breach of any representation and warranty under this Agreement,

i) Violation of any terms and conditions imposed by the Host Country in accordance with its domestic legislation that would, in the reasonable opinion of the Fund Manager, adversely affect the generation of Emission Reductions by the Project or transfer of such Emission Reductions, or the Independent Entity determines during Verification that the Project does not comply with requirements imposed by the Host Country and such situation is not remedied within ninety [90] days,

j) Gross violation or wilful misconduct or criminal conduct established by a court,

k) The dissolution, disestablishment, liquidation, insolvency or bankruptcy of the [HOST COMPANY], or such changes in its ownership structure that in the reasonable opinion of the Fund Manager detrimentally affect its ability to carry out its obligations under this Agreement.

2. Each of the following events shall constitute an event of default on part of the Fund Manager:

a) It fails to make a payment within thirty [30] days of the agreed date,

b) It fails to make a payment within six months of the receipt of the data collected through Monitoring specifying the amount of Emission Reductions achieved during the relevant year in case the Fund Manager has decided to waive its right to a periodic Verification in accordance with Article 5.7.

Article 12

Remedies and Cure

1. Upon the occurrence of any event of default the Fund Manager and [HOST COMPANY] may exercise one or more rights provided in this Agreement or under the applicable law defined in Article 19 [SPECIFY number of Article depending on the inclusion/exclusion of optional articles] The selection of any one or more rights or remedies shall not operate as a waiver of any other rights or remedies provided.

2. The Party invoking an event of default shall deliver to the other Party a written notice of default specifying in reasonable detail the condition upon which the notice is based.

3. Each Party shall have sixty [60] days following the delivery of a notice of default to cure the identified default to the reasonable satisfaction of the other Party. A failure to do so shall give rise to a right to pursue any one or more of the following remedies. The Parties may mutually agree to extend the time for curing the default.

4. If any event of default by [HOST COMPANY] occurs, the Fund Manager may:

   a) suspend any pending payments under this Agreement until the event or events which gave rise to suspension of payments have ceased to exist, or the it otherwise decides to resume the payments,

   b) reduce pro rata the volume of Emission Reductions purchased during the later years,

   c) terminate this Agreement upon written notice to [HOST COMPANY].

5. In the event of default by the Fund Manger, [HOST COMPANY] may:

   a) suspend the delivery of Emission Reductions until the Fund Manager has fulfilled its obligations,

   b) terminate this Agreement upon written notice to the Fund Manager.

Article 13

Sanctions for Failing to Deliver Emission Reductions

1. In the event that [HOST COMPANY] fails to deliver the Total Emission Reductions it shall either:

   a) pay to the Fund Manager a penalty fee equivalent of the market price of the contracted Emission Reductions not delivered increased by [AMOUNT] per cent.

   OR:

   b) deliver to the Fund Manager a corresponding amount of Emission Reductions [increased by x per cent] from other sources acceptable to the Fund Manager. Such substitute Emission Reductions shall, where requested by the Fund Manager, be verified and made to comply with the Convention on Climate Change, the Kyoto Protocol and any relevant rules, decisions, guidelines and modalities thereunder at the expense of [HOST COMPANY].

2. For the purposes of calculating the penalty fee, the market price shall be determined by taking the middle of three price quotes from international brokers selected by the Fund Manager in consultation with [HOST COMPANY].

3. The Fund Manager shall pay for the substitute Emission Reductions a purchase price in accordance with Article 7. The proportion of the substitute Emission Reductions exceeding by x per cent the amount of the contracted Emission Reductions not delivered shall be delivered to the Fund Manager free of charge.

4. [HOST COMPANY] shall be obliged to pay the penalty fee or deliver the substitute Emission Reductions:

   a) after the last Verification of Emission Reductions generated by the Project during the Crediting Period in accordance with Article 5,

   b) any such earlier date that this Agreement is terminated due to an event of default by the [HOST COMPANY] or that it becomes otherwise evident that [HOST COMPANY] will not be able to deliver the Total Emission Reductions during the Crediting Period.

5. [HOST COMPANY] shall comply with the written request by the Fund Manager to either pay the penalty fee or deliver the substitute Emission Reductions within sixty [60] days.

6. The penalty fee shall not apply where the failure to deliver the Total Emission Reductions is caused by an event of default by the Fund Manager or force majeure as defined under Article 14.

Article 14

Force Majeure

1. In the event of force majeure, fulfilment of the obligations of both Parties arising from the Agreement shall be suspended in whole or in part without the Parties having to pay compensation to each other or [HOST COMPANY] having to deliver substitute Emission Reductions, provided that they take all reasonable steps to limit the effects of force majeure.

2. The Party invoking force majeure shall promptly inform the other Party of an instance of force majeure in writing and submit reasonable evidence.

3. Both Parties shall be entitled to terminate this Agreement in case it is evident that its implementation would be postponed by more than twelve months as a result of force majeure.

4. For the purposes of the Agreement, force majeure shall be a situation beyond the reasonable control of the Parties and include events such as wars, war-like actions, riots, revolutions, fires, floods and natural disasters.

5. Unexceptional weather conditions that do not cause serious physical damage to the Project or serious, unexpected interruptions in the logistical chain shall not be considered events beyond the reasonable control of the Parties for the purposes of this Agreement.

6. The withdrawal by the Host Country from the United Nations Framework Convention on Climate Change and/or the Kyoto Protocol and/or non-compliance by the Host Country with its obligations under the Kyoto Protocol determined by the Compliance Committee of the Kyoto Protocol shall be considered as force majeure situations for the purposes of this Agreement.

7. The suspension or termination of this Agreement due to an event of force majeure shall not affect the right of the Fund Manager to reclaim any such advance payments for which the corresponding Emission Reductions have not been delivered.

8. The suspension of the rights and obligations under this Agreement shall not affect the obligation of [HOST COMPANY] to monitor, if possible, the Emission Reductions in accordance with Article 4.

Article 15

Monitoring, Verification and delivery of Emission Reductions under special circumstances

1. If the relevant rules, decisions, guidelines and modalities under the UN Framework Convention on Climate Change or the Kyoto Protocol are changed so as to hinder or prevent the Project as envisaged at the time of signature of this Agreement from generating Emission Reductions compatible with such requirements, the Fund Manager and [HOST COMPANY] agree to co-operate in good faith and make every reasonable effort in order to make the Emission Reductions sold and purchased under this Agreement compatible with such changed rules, decisions, guidelines and modalities.

2. Such good faith co-operation by the Fund Manager and [HOST COMPANY] includes, inter alia, making every reasonable effort to consult and renegotiate the terms of transferring Emission Reductions with the Host Country and to adjust the Monitoring and Verification procedures under Articles 4 and 5 of this Agreement to such changed rules, decisions, guidelines and modalities. In case of redetermination Article 16 shall apply

3. In case the requirements concerning Monitoring and/or Verification of Emission Reductions are significantly adjusted, and/or other similar compulsory procedures are created in order to make the Emission Reductions compatible with the UN Framework Convention on Climate Change, the Kyoto Protocol or other emissions trading schemes or other mechanisms and the necessary costs accruing from such functions are therefore considerably higher than those foreseen at the time of signature of this Agreement, the Fund Manager shall be responsible for paying such additional expenses.

Article 16

Redetermination

1. In the event that redetermination of the Baseline and/or the project design is required by the UN Framework Convention on Climate Change, the Kyoto Protocol and/or the relevant decisions, modalities, guidelines and procedures the [HOST COMPANY] shall arrange for such redetermination at its expense.

2. [HOST COMPANY] shall co-operate at no extra cost with the Fund Manager, the Host Country and the Independent Entity for the purposes of redetermination and grant access to the project site and any relevant information.

3. The [HOST COMPANY] shall promptly inform the Fund Manager of the outcome of the redetermination and the Parties shall jointly and in consultation with the Host Country agree how the redetermination affects the implementation of this Agreement

and the transfer of Emission Reductions resulting from the Project by the Host Country.

Article 17

Information

1. The Parties shall, from time to time and at the request of any one of them, exchange information with regard to the progress of the Project, the purpose of this Agreement and their respective obligations. They shall promptly inform each other of any event or situation, which may affect the Project.

2. Each Party shall be allowed to disclose such information regarding the Project and this Agreement as required by law, the Convention on Climate Change, the Kyoto Protocol and the relevant rules, decisions, guidelines and modalities adopted thereunder.

3. Each Party may also disclose or divulge non-proprietary information regarding to the Project to third parties. Information related to the Determination of whether the Emission Reductions by the Project are additional, baseline methodology, its application and the assessment of environmental and social impacts of the Project cannot be considered as proprietary or confidential.

4. The Parties shall own jointly all documents related to the Project, including the Project Design Document, except where this Agreement is terminated due to an event of default, in which case the defaulting party will lose its ownership of these documents.

Article 18

Liability

The Fund Manager shall not in any way be liable for actions carried out by [HOST COMPANY] or any possible subcontractor, damages caused by the implementation of the Project and/or costs arising from actions and negligence contravening legal and/or social obligations in Host Country or any other consequential damages.

Article 19

Applicable Law and Settlement of Disputes

1. The rights and obligations of the Fund Manager and [HOST COMPANY] under this Agreement shall be governed by the laws and regulations of the [XXX].

2. The Parties shall seek amicably to settle all differences and disputes arising out of or in connection with the implementation of the Agreement.

3. All disputes or differences arising in connection with this Agreement, which cannot be amicably settled shall be finally settled by arbitration under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators to be appointed under the terms of those Rules.

4. The place of arbitration shall be [XXX]. The arbitrator(s) may, at its discretion, hold hearings, meetings and deliberations at any other convenient geographical place in order to secure the efficient and cost-effective conduct of the proceedings.

5. The language of the arbitration shall be English.

6. The award of the arbitrator shall be final and binding upon the Parties.

Article 20

Notices

Any notice or communication under the terms of this Agreement shall be in writing and shall be delivered personally, or via mail or facsimile to the address and numbers provided below.

For [HOST COMPANY]:	For the Fund Manager:
Address:	Address:
Tel:	Tel:
Fax:	Fax
E-mail:	E-mail:

Article 21

Amendment

This Agreement may be amended or modified by a written Agreement between the Parties [and with the consent of the [relevant national authority of the HOST COUNTRY]]. The amendment shall enter into force upon signature by the Fund Manager and [HOST COMPANY].

Article 22

Assignment by [HOST COMPANY]

[HOST COMPANY] may not assign, delegate or transfer its rights or obligations under this Agreement to any third party without the prior written consent of the Fund Manager Any such purported assignment without such consent shall be deemed ineffective and void.

Article 23

Waiver of Immunity

1. The Fund Manager and [HOST COMPANY] hereby expressly recognize that this Agreement is an agreement of a private and commercial nature and waives any right of immunity they or their assets might otherwise have on the grounds of sovereignty or otherwise in connection with any proceedings or any enforcement of an award.

2. However, nothing in this Agreement shall be construed as a waiver, renunciation or other modification of any immunities, privileges or exemptions of NEFCO accorded under the Agreement of 6 November 1998 among Denmark, Finland, Iceland,

Norway and Sweden regarding Nordic Environment Finance Corporation, any international convention or any applicable law.

Article 24

Execution in Counterparts and Language

1. This Agreement may be executed in two (2) counterparts in the English language, each of which is in original, but all of which together constitute one and the same agreement. Each of the parties keeps one copy.

2. All documents to be furnished or communications to be given or made under this Agreement shall be in the English language.

Article 25

Entry into Force and Termination

This Agreement shall enter into force upon signature by the Fund Manager and the [HOST COMPANY] and remain valid, unless cancelled or terminated as provided herein, until all the obligations have been duly fulfilled by both parties.

Done at _____ on _____the _____ 20__ in two originals in the English language and duly signed by the authorised representatives of the Fund Manager and [HOST COMPANY].

_____

ANNEXES

I Project Design Document including, *inter alia*, Project Description, Baseline Study and Monitoring and Verification Plan

II Determination Report

III Letter of Approval by [HOST COUNTRY]

IV Letters of Approval by Investor Countries

V Schedule for Project Implementation, Payments and Advance Payments

Document 2: Sample Letters of Approval

Please note that the following Letters of Approval are to be used as a guide for the type of information that is likely to be required in a Letter of Approval. The templates provided below are not necessarily reflective of host country requirements, and the terms and conditions within actual Letters of Approval are likely to vary on a project by project basis.

Host Country Letter of Approval

concerning

[name of the JI Project]

PREAMBLE

Whereas:

A. The [Host Country] and [Investor Country] have ratified the Kyoto Protocol and are in compliance with the relevant participation requirements for JI Projects under the Kyoto Protocol, the Marrakech Accords and the relevant rules, decisions, guidelines, modalities and procedures thereunder;

B. [name of the Project Entity] (the "Project Entity") is developing and implementing the JI Project, [name of JI Project] , described in Appendix 1 (the "Project");

C. The Project Entity and [name of the Purchaser] (the "Purchaser") have agreed to sale and purchase emission reduction units generated by the Project during the years [state period].

D. [further preambles, references, political statements]

NOW THEREFORE the undersigned as legal and authorized representative of the Host Country herewith declares that:

DECLARATION

1. The Host Country *approves* the Project as a JI Project in accordance with Article 6 of the Kyoto Protocol, the Marrakech Accords and the relevant rules, decisions, guidelines, modalities and procedures thereafter.

2. The Host Country *will notify* the Secretariat of the United Nations Framework Convention on Climate Change of the Project and make publicly available information on the Project in accordance with the Kyoto Protocol, the Marrakech Accords and the relevant rules, decisions, guidelines, modalities and procedures thereafter.

3. The Host Country *authorizes* the Host Company and any future owner of the Project to generate Emission Reduction Units (ERUs), by implementing and operating the Project.

4. The Host Country will issue and transfer, free of any taxes, levies or charges, to the Purchaser a contracted amount of Emission Reduction Units (ERUs) corresponding

to the emission reductions generated by the Project during the years 2008-2012 and sold to the Purchaser as ERUs, in accordance with Article 6 of the Kyoto Protocol.

5. In case the Host Country allocates emission allowances to any installation affected by the Project under the scheme for greenhouse gas emission allowance trading within the European Community or otherwise includes the Project in its national allocation plan, the Host Country will take into account the early action by the Project to reduce greenhouse gas emissions and make any necessary adjustments in order to avoid double counting of emission allowances.

_____

[Place and date]

For and on behalf of

[the Host Country]

_____

[name and title][name and title]

Appendices

Appendix 1 – Project Design Document

Investor Country Letter of Approval

concerning

[name of the JI Project]

PREAMBLE

Whereas:

A. The [Host Country] and [Investor Country] have ratified the Kyoto Protocol and are in compliance with the relevant participation requirements for JI Projects under the Kyoto Protocol, the Marrakech Accords and the relevant rules, decisions, guidelines, modalities and procedures thereunder;

B. [name of the Project Entity] (the "Project Entity") is developing and implementing the JI Project, [name of JI Project] , described in Appendix 1 (the "Project");

C. The Project Entity and [name of the Purchaser] (the "Purchaser") have agreed to sale and purchase emission reduction units generated by the Project during the years [state period];

D. [further preambles, references, political statements]

NOW THEREFORE the undersigned as legal and authorized representative of the Investor Country herewith declares that:

DECLARATION

1. The Investor Country *approves* the Project as a JI Project in accordance with Article 6 of the Kyoto Protocol, the Marrakech Accords and the relevant rules, decisions, guidelines, modalities and procedures thereunder (the "Provisions").

2. The Investor Country *authorizes* the Purchaser to participate in the Project activity in accordance with the Provisions.

3. The Investor Country *will assist* the Host Country to facilitate the transfer of the ERUs, generated by the Project and sold under the ERPA, to the Investor Country's national registry.

_____

[Place and date]

For and on behalf of [the Investor Country]

_____

[name and title][name and title]

Appendices

Appendix 1 – Project Design Document

APPENDIX D: REFERENCES

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The World Bank, Prototype Carbon Fund, 2004 Annual Report, Washington DC.

World Business Council for Sustainable Development and World Resources Institute, *The Greenhouse Gas Protocol a corporate accounting and reporting standard*, ISBN 2-940240-18-3, September 2001

[i] Article 3 of the Kyoto Protocol lays out the basic provision for Parties to trade parts of their assigned amount.

[ii] Decision 19/CP.7, Annex, Section II, paragraph 29.

[iii] Rules governing the CPR are contained in Decision 18/CP.7, Annex, paragraphs 6 – 10.

[iv] Decision 18/CP.7, Annex, paragraph 10 states "*Any provisions relating to the commitment period reserve or other limitations to transfers under Article 17 shall not apply to transfers by a Party of ERUs issued into its national registry which were verified in accordance with the verification procedure under the Article 6 supervisory committee*."

[v] Decision 16/CP.7, Annex, section D, paragraph 20 (a).

[vi] Decision 16/CP.7, Appendix B, paragraph 1.

[vii] Article 6, paragraph 1(b) states that "*For the purpose of meetings its commitments under Article 3, any Party…may transfer to, or acquire from, any other such Party emission reduction units resulting from such projects…provided that: Any such project provides a reduction in emissions by sources or an enhancement of removals by sinks, that is additional to any that would otherwise occur.*"

[viii] Decision 16/CP.7 Annex, Section D, paragraph 27.

[ix] Decision 16/CP.7, Annex, Section D, paragraph 28.

[x] Article 6, paragraph 3.

[xi] Decision 16/CP.7, Annex, Section D, paragraph 27.

[xii] Decision 16/CP.7, Annex, Section E, paragraph 32.

[xiii] Decision 16/CP.7, Annex, Section C, paragraph 3.

[xiv] Decision 16/CP.7, Annex, Section E, paragraph 31 and 33

[xv] Decision 16/CP.7, Annex, Section E, paragraph 34

[xvi] Decision 16/CP.7, Annex, Section E, paragraph 35 and 39

[xvii] Decision 16/CP.7, Annex, Section E, paragraph 35

[xviii] Decision 16/CP.7, Annex, Appendix B paragraph 4-6

[xix] Decision 16/CP.7, Annex, Section E, paragraph 36

[xx] Decision 16/CP.7, Annex, Section E, paragraph 37

[xxi] Decision 16/CP.7, Annex, Section E, paragraph 38

[xxii] Decision 16/CP.7, Annex, Section E, paragraph 39

[xxiii] Decision 16/CP.7, Annex, Section E, paragraph 39

[xxiv] Decision XX/CP.7 Annex, II National Registry Requirements, Section A, Paragraph 21 (b).

[xxv] Decision 16/CP.7 Annex E, paragraph 33 a.

[xxvi] Decision 16/CP.7, Annex, Section E, paragraph 33 (d).

[xxvii] Decision 16/CP.7, Annex, Section D, paragraph 20 (b).

[xxviii] Decision 16/CP.7, Annex, Section E, paragraph 40.

[xxix] Decision 17/CP.7, Annex, Section G, paragraph 48.

[xxx] Decision 16/CP.7, Annex, Section B, paragraph 2.c and Decision 17/CP.7 Annex, Section G paragraph 45.e

[xxxi] Decision 16, Annex, Section B, paragraph 2.c and Decision 17/CP.7, Annex, Section G paragraph 45.e

[xxxii] Decision 16/CP.7, Appendix B, paragraph 2

[xxxiii] Decision 16/CP.7, Annex, Section B, 4f.

[xxxiv] Decision 16/CP.7, Annex, Section B, 4c.

[xxxv] IETA Discussion Paper 02-01 “Carbon Contracts Cornerstones”, paper drafted by Baker & McKenzie, April 2002