Biogas Plant Pálhalma

Monitoring Plan

DRAFT

June 2004

Table of contents

List of Tables

Abbreviations and Conventions

1) Throughout the document the current biogas plant in Pálhalma will be referred to as the 'the project'.
2) Greenhouse gases are always intended as the sum of the greenhouse gases enlisted in Annex A of the Kyoto Protocol expressed as equivalents of tonnes of CO_2.
3) Technical terms of the Kyoto protocol and of related literature which are deemed to be of common use and understanding today are broadly used without further explanations.

The following abbreviations and conventions are used in the text:

Term		*Meaning*
Baseline	…	The most probable development of the system if no carbon financing is available. (Marrakesh accord (COP7): 'The baseline… is 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.').
Baseline scenarios	…	Several conceivable scenarios for the future development of the system which exclude carbon financing. Out of these potential baselines the final baseline is chosen in a selection process.
Baseline study	…	A study which describes several → baseline scenarios and establishes one of them as the → baseline by providing according arguments.
Bo	…	Methane Producing Capacity
Carbon credits	…	see → ERU-revenues
Carbon financing	…	Financing (of a project) by → ERU-revenues
CDM	…	Clean Development Mechanism – a mechanism of the Kyoto Protocol (defined in Article 12) for Annex I countries to generate CERs in developing countries.
COP	…	Conference of Parties
EF	…	Emission Factor
Emission reduction unit	…	One metric ton of greenhouse gas reduction (reduction is achieved by implementing a project).
ERU-revenues (of a project)	…	revenues which accrue to a project due to the sale of Emission Reduction Units. In the literature this capital is often termed 'carbon credits'.
ERPA	…	Emission Reduction Purchase Agreement
FGD	…	Flue Gas Desulphurisation
GHG	…	Greenhouse gas(es)
hd	…	Heads
HPP	…	Hydro Power Plant
IRR	…	Internal rate of return
IPCC	…	Intergovernmental Panel for Climate Change (http://www.ipcc.ch)

Term		*Meaning*
JI	…	Joint Implementation; flexible mechanism of the Kyoto Protocol (defined in Article 6) for Annex I countries to obtain ERUs from another Annex I country.
KPC	…	Kommunalkredit Public Consulting, is operator of the Austrian JI/CDM-Program
Kyoto Protocol	…	A convention dating from 1997 between several states of the industrialised world committing themselves in Kyoto to country specific emission limits of greenhouse gas emissions relating to the period of 2008-2012. For the majority of countries the commitments resulted in a net reduction target relative to their 1997 emission level (and to their current level)
MM-system	…	Manure Management System
Monitoring Plan	…	'Monitoring Protocol' (Monitoring Plan). A protocol which describes the requirements to monitor in time if the projected emission reductions really take place.
PA	…	Pálhalmai Agrospeciál
Process Monitoring Plan	…	any distinguishable entity within a model which may be sufficiently described in terms of costs, inputs and outputs (incl. emissions), e.g. a power plant, the residential sector, a boiler etc. 'Monitoring Protocol' (Monitoring Plan). A protocol which describes the requirements to monitor in time if the projected emission reductions really take place.
VS	…	Volatile Solids
Workbook	…	Excel – sheet including tables and formula based on the baseline methodology to calculate the emission reductions annually and to observe other data for the monitoring report.

1 Introduction

1.1 Purpose of the Monitoring Plan

The Monitoring Plan is part of the preparation of Biogas Plant Pálhalma project (the Project) for the requirement of a Joint Implementation (JI) project that generates verifiable emission reductions (ER). Pálhalma Agrospeciál Kft. (PA) intends to offer these emission reductions to the Austrian JI/CDM-Program which is operated by Kommunalkredit Public Consulting (KPC).

The ERs will be generated by the Biogas Plant Pálhalma. Electricity will be produced and fed into the Hungarian public electric grid, thus displacing production from other grid power plants. The heat produced will substitute natural gas as energy source in the nearby laundry. Furthermore methane emissions from conventional manure management (MM) systems will be avoided. The effluent of the biogas plant constitutes a high quality fertilizer and displaces chemical fertilizer of PA. Hence GHG emissions of chemical fertilizer production are reduced. The ERs have been calculated in the baseline study as the difference between what would have been emitted without the project (baseline scenario) and what is actually emitted in the project.

The Monitoring Plan is part of the Project Design Document (PDD) and is based on the methodology and results of the Baseline Study. It defines the ongoing process which will be used to collect, analyse and verify the data and calculations used to determine the qualifying ERs that can be sold in each year covered by the Emission Reduction Purchase Agreement (ERPA) between PA and KPC.

1.2 Use of the Monitoring Plan

The Monitoring Plan consists of a workbook (Excel file) and this guideline document. It is a working document that identifies the key project performance indicators and sets out the procedures for calculating the impacts of the project implementation particularly regarding the ERs.

The plan provides guidance for the project operator regarding the ongoing ER generation from 2006 to 2012. PA finds its obligation for data collection, analysis and reporting.

2 Annual Reporting and Responsibilities

2.1 Reporting Obligations

The reporting obligations intend to state that the installations comply with the major assumptions used in the baseline. Therefore the Monitoring Workbook has been prepared to calculate the emission reductions in relation with the baseline methodology and to avoid an overestimation of the emission reductions.

The project is expected to have only outage times for maintenance, but generally it will operate on a year round basis. As payments for emission reductions are envisaged annually, it will be sufficient to monitor the project once a year.

PA has to prepare a monitoring report for every year during the crediting period with at least following scopes:

- An emission reduction calculation according to this Monitoring Plan and the Monitoring Workbook
- A description of the socio economic effects. A table has been prepared in the Monitoring Workbook for monitoring the creation of new jobs.

2.2 Responsibility

PA is primarily responsible for the management and operation of the monitoring system. The following table defines the responsibilities of PA:

	Responsibilities of PA
Monitoring system	- Review the Monitoring Plan and suggest adjustments if necessary. - Establish and maintain the monitoring system and implement the Monitoring Plan - Prepare for initial verification and project commissioning
Data collection	- Establish and maintain data measurement and collection systems for all Monitoring Plan indicators - Check data quality and collection procedures regularly
Data computation	- Enter data in the Monitoring Plan workbooks - Use the Monitoring Plan workbooks to calculate emission reductions
Data storage systems	- Store and maintain records - Implement approval system for completed worksheets - Forward annual worksheet outputs
Performance monitoring and reporting	- Analyse data and compare project performance with project targets - Analyse system problems and recommend improvements (performance management) - Prepare and forward annual reports
Monitoring Plan training and capacity building	- Ensure that operational staff is trained and enabled to meet the needs of this Monitoring Plan
Quality assurance, audit and verification	- Establish and maintain an internal approval system with a view to allowing for audits and verification - Prepare for, facilitate and co-ordinate audits and verification process

Table 1: Responsibilities

3 Methodology Approach

3.1 Emission Reduction from the project

The PA Joint Implementation project consists of the construction of a biogas plant, where biogas (mixture of CO_2 and CH_4) is produced from agricultural wastes, energy crops, slaughterhouse wastes, a small amount of kitchen wastes and residues from sun flower oil production under controlled conditions. In comparison to the baseline scenario methane from MM-systems is combusted and thus GHG emissions are avoided.

The project foresees the installation of two combined heat and power (CHP) biogas engines with an electric capacity of 836 kW each. When the project will be completed, it produces 13,376 MWh/a electricity from renewable resources on average that is fed into the public Hungarian electricity grid. Heat from the biogas engines substitute 136.832 m^3 natural gas in the nearby laundry of PA at least.

Nutrients of the input substrate are preserved during the biogas process. Additionally the degradation process of organic material by bacteria improves fertilizer characteristics of the digested substrate. Thus, the digested substrate constitutes a high quality fertilizer that PA will use to fertilize its fields instead of chemical fertilizer. Hence, chemical fertilizer demand is reduced and emissions from its production as well.

3.2 Alternative Monitoring Methods and Revisions to the Monitoring Plan

The Monitoring Plan can be adjusted as it is necessary and in response to changing circumstances in order to maintain a high quality monitoring and emission reductions calculation system. All adjustments must be approved by the verifier.

4 PA´s JI-Project Workbook

4.1 Data Collection

PA is the seller of ERs and thus responsible for the necessary data collection and reporting according to this Monitoring Plan.

4.2 Electricity production

The biogas plant generates electricity from renewable sources. The whole quantity of electricity is fed into the public Hungarian electricity grid. But, the biogas plant does also have an own demand of electricity, that is delivered from the Hungarian grid. Thus, both of these measurements are relevant for calculating the ERs.

The template for reporting these data is shown in the table below. This template is part of the monitoring workbook:

Line			General Data	Name	Telephone	email address			…Input Data	
2			Prepared by							
3			Approved by						…Calculations	
4										
5									…Default Value	
6										
7										
8	Input Data			2006	2007	2008	2009	2010	2011	2012
9	**Electricity supply to the Hungarian grid**	ID Nr PDD	**Unit**							
10	Electricity feed in	A01	[MWh]							
11	Own demand	A02	[MWh]							
12										
13										
14	**Total**			0	0	0	0	0	0	0
15	**Total Cumultativ**			0	0	0	0	0	0	0
16										
17										
18	Emission factor		[tCO2/MWh]	0.806	0.792	0.780	0.767	0.755	0.746	0.738
19										
20	**Total Emissions**		[tCO2]	0	0	0	0	0	0	0
21										
22										
23										
24										

Table 2: Electricity production data template

4.3 Livestock

The biogas plant displaces conventional MM-systems, where methane is released to the atmosphere. In the gas engines methane is combusted and used as an energy source. Consequently ERs are generated as methane emissions are avoided.

The relevant factors for the methane emissions are the number of livestock that “produce” organic material. The different methane conversation factors of each MM-system have been identified in the Baseline Study. Thus, the number of each livestock and the litter demand in Hangos and Bernatkut are the figures to be monitored for calculating the ERs from methane reduction.

Line			General Data	Name	Telephone	email address			…Input Data	
2			Prepared by							
3			Approved by						…Calculations	
4										
5									…Default Value	
6										
7										
8	Input Data			2006	2007	2008	2009	2010	2011	2012
9	**Livestock**	ID Nr PDD	**Unit**							
10	Diary cattle at PA	B01	[hd]							
11	Non diary cattle at PA	B02	[hd]							
12	Pigs at PA	B03	[hd]							
13	Pigs at Adonyhús	B04	[hd]							
14	Litter used in Hangos	B05	[t]							
15	Litter used in Bernatkut	B06	[t]							
16										
17	**Pigs PA**									
18	VS		[kg/hd/day]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19	Bo		[m^3CH_4/kgVS]	0.45	0.45	0.45	0.45	0.45	0.45	0.45
20	MCF		[%]	100%	100%	100%	100%	100%	100%	100%
21	De		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
22	GWP Methane		[-]	21	21	21	21	21	21	21
23	Emissions		[tCO2e]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	**Pigs Adonyhús**									
25	VS		[kg/hd/day]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
26	Bo		[m^3CH_4/kgVS]	0.45	0.45	0.45	0.45	0.45	0.45	0.45
27	MCF		[%]	100%	100%	100%	100%	100%	100%	100%
28	De		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
29	GWP Methane		[-]	21	21	21	21	21	21	21
30	Emissions		[tCO2e]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	**Diary cattle at PA**									
32	VS		[kg/hd/day]	5.1	5.1	5.1	5.1	5.1	5.1	5.1
33	Bo		[m^3CH_4/kgVS]	0.24	0.24	0.24	0.24	0.24	0.24	0.24
34	MCF		[%]	39%	39%	39%	39%	39%	39%	39%
35	De		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
36	GWP Methane		[-]	21	21	21	21	21	21	21
37	Emissions		[tCO2e]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	**Non diary cattle at PA**									
39	VS		[kg/hd/day]	3.9	3.9	3.9	3.9	3.9	3.9	3.9
40	Bo		[m^3CH_4/kgVS]	0.17	0.17	0.17	0.17	0.17	0.17	0.17
41	MCF		[%]	39%	39%	39%	39%	39%	39%	39%
42	De		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
43	GWP Methane		[-]	21	21	21	21	21	21	21
44	Emissions		[tCO2e]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45										
46	VS		[t/t input]	0.88	0.88	0.88	0.88	0.88	0.88	0.88
47	Bo		[m^3CH_4/kgVS]	0.6	0.6	0.6	0.6	0.6	0.6	0.6
48	MCF		[%]	39%	39%	39%	39%	39%	39%	39%
49	De		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
50	GWP Methane		[-]	21	21	21	21	21	21	21
51				0.00	0.00	0.00	0.00	0.00	0.00	0.00
52										
53	**Total Emissions**		[tCO2e]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
54										
55										
56										

Table 3: Emission reduction template

There is already an existing accounting system that delivers the necessary data. According to Hungarian regulations each Hungarian husbandry has to account and transfer its number of each livestock to the Hungarian Statistical Office quarterly and annually. Also litter demand of each husbandry is accounted and consolidated in PAs headquarter in Pálhalma.

4.4 Laundry

The Laundry in Bernatkut will be connected to the biogas plant. Heat is transferred to the laundry to heat water for washing machines. The heat from biogas displaces natural gas and thus GHG emissions. Two different hot water storage tanks are installed in the laundry. One tank stores water with 60°C for the normal washing the other tank stores hot water with 85°C. Without the biogas plant heat this water would be heated by natural gas boilers and a natural gas steam boiler with an efficiency of 90% each.

Line			General Data	Name	Telephone	email address			…Input Data	
2			Prepared by							
3			Approved by						…Calculations	
4										
5									…Default Value	
6										
7										
8	Input Data			**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
9	**Heat Delivery**	ID Nr PDD	**Unit**							
10	Water 60°C	C01	[kw h]							
11	Water 85°C	C02	[kw h]							
12										
13										
14	Efficiency boilers		[%]	90%	90%	90%	90%	90%	90%	90%
15	Emission Factor [Natural Gas]		[tCO2/MWh]]	0.20196	0.20196	0.20196	0.20196	0.20196	0.20196	0.20196
16	Emissions		[tCO2e]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17										
18										
19										

Table 4: Laundry data template

Before hot water (60° and 85°C resp.) is delivered to the washing machines, the heat is metered. These two heat meters provide the relevant data for monitoring ERs from the laundry that have to be used in this Monitoring Workbook.

4.5 Fertilizer

Biogas fertilizer will be applied to PA´s fields. Hence, the use of chemical fertilizers is reduced, which leads to reductions of GHG emissions. An emission factor (tCO_2e/m^3 biogas fertilizer of PA) has been calculated in the baseline study. The emission factor is only related to PA´s fertilizing habits. This means that only biogas fertilizer that is applied to fields of PA can be used to calculate GHG ERs with that emission factor.

Each tapping point of the digested manure storages is equipped with a flow meter that provides the relevant data in m^3 for this monitoring.

	General Data	Name	Telephone	email address
	Prepared by			
	Approved by			

…Input Data
…Calculations
…Default Value

Input Data			2006	2007	2008	2009	2010	2011	2012
Biogas Fertilizer	ID Nr PDD	**Unit**							
Flow meter 1	D01	[m³]							
Flow meter 2	D02	[m³]							
Flow meter 3	D03	[m³]							
Emission Factor		[tCO2/m³]	0.0114	0.0114	0.0114	0.0114	0.0114	0.0114	0.0114
Emissions		[tCO2e]	0	0	0	0	0	0	0

Table 5: Fertilizer data template

4.6 Project Emissions

As a 100% fermentation of the organic material cannot be guaranteed in the digesters. Some small amount of methane is generated in the storages for the digested substrates after the digesters. To monitor these emissions the monitoring workbook foresees following template:

	General Data	Name	Telephone	email address
	Prepared by			
	Approved by			

…Input Data
…Calculations
…Default Value

Input Data			2006	2007	2008	2009	2010	2011	2012
Project Emissions	ID Nr PDD	**Unit**							
Biogas Production	E01	[m³]							
Pigs PA									
% biogas released from storages		[%]	3%	3%	3%	3%	3%	3%	3%
% methane in the biogas		[%]	60%	60%	60%	60%	60%	60%	60%
Density methane		[kg/m³]	0.67	0.67	0.67	0.67	0.67	0.67	0.67
GWP		[-]	21	21	21	21	21	21	21
Emissions		[tCO2e]	0	0	0	0	0	0	0

Table 6: Project emission data template

Therefore the biogas quantity per year in m³ has to be monitored. Biogas quantity that is generated in the digesters is metered and monitored metered in any state of the art biogas plant. It is an important figure for operation performance of the biogas plant. The biogas production is recorded continuously.

4.7 Socio Economic Effects

Socio economic effects of the project have to be monitored and summarized in the annual monitoring reports. Especially the following data has to be monitored annually by PA:

- Number of new jobs created (compare workbook: sheet “Socio Economic Effect”;)

- Equal gender opportunities (compare workbook: sheet “Socio Economic Effect”)

The monitoring workbook includes a special sheet for the observation of the socio economic effects. As shown in the table below, the total number of employees resulted from the project implementation, the number of new created high qualified as well as the number of low qualified jobs and the number of men and women working in the upper and middle management will be observed annually and be part of the monitoring report.

Line										
2										
3										
4										
5										
6										
7		Unit	ID Nr Pdd	2006	2007	2008	2009	2010	2011	2012
8	Number of employes	[-]	F01							
9	New created jobs compared to the previous year (high qualified)	[-]	F02							
10	New created jobs compared to the previous year (low qualified)	[-]	F03							
11	Number of men (upper management)	[-]	F04							
12	Number of women (upper management)	[-]	F05							
13	Number of men (middle management)	[-]	F06							
14	Number of women (middle management)	[-]	F07							
15										

General Data	Name	Telephone	email
Prepared by	0	0	0
Approved by	0	0	0

...Input Data
...Calculations
...Default Value

Table 7: Socio economic effects

5 Auditing and Verification Procedures

5.1 Auditing and Verification Objectives

Periodic auditing and verification of project results is a mandatory component for all JI projects. The chief objective of the audit is to independently verify that the project has achieved the emission reductions reported by PA. Audits are an integral part of the verification process and are undertaken in conjunction with verification.

5.2 The Audit and Verification Regime

The verification system for JI projects consists of three activities:

Validation of project design:
JI projects undergo validation of the Project Design Document, including the Baseline Study and the Monitoring Plan, against JI requirements and modalities. Validation is a JI requirement. This Monitoring Plan has been (will be) validated for use with the project and must be followed by PA. This Monitoring Plan can be adjusted or amended, if necessary, in order to improve consistency with its objectives, general concepts and project circumstances, subject to approval by the project verifier.

Periodic verification of emission reductions:

All JI projects must undergo periodic audits and verification of emission reductions. This is a JI requirement and the basis for setting aside Assigned Amount Units (one to one for emission reductions prior to 2008) and issuance of Emission Reduction Units (ERUs) and for their value in the market place. Verification is arranged by PA and conducted at annual intervals.

The purpose of periodic audits and verification is to confirm that:

- the project has achieved the ERs claim for the verification period in compliance with the methodology laid down in this Monitoring Plan.
- the claimed ERs are real and additional to any that would have occurred in the baseline scenario as interpreted and developed in the Baseline Study and this Monitoring Plan.
- the operation of the project continues to be in compliance with all of the Kyoto Protocol.
- the project maintains a high quality monitoring systems consistent with the Monitoring Plan.

As part of the periodic audit and verification process auditors are expected to:

- review and audit relevant monitoring records and reports,
- verify that the required measurements and observations have been made for all monitorable indicators in this Monitoring Plan,
- check whether the Monitoring Plan methodology has been applied correctly and consistently
- check whether achieved ERs have been computed correctly using the provided spreadsheets, and, if necessary, recalculate achieved ERs,
- verify that all relevant monitoring and baseline assumptions are still valid,
- verify that the management and monitoring system, including data handling, record keeping and reporting, is in place and remains adequate,
- consult with the operator on the continued adequacy of the monitoring system and approve any modifications that need to be made to ensure a high quality monitoring operation.
- undertake any other activities required by this MP, by the Kyoto Protocol requirements and modalities for JI.

Verification concludes with a formal verification report.

Certification of emission reductions:
A successfully completed verification process and the related verification report provide the basis for the issuance by the verifier of an emission reduction certificate. The certificate is a legally binding statement which confirms the (successful) verification report's conclusion that has project has achieved the stated quantity of ERs in compliance with all relevant criteria and requirements.

The certificate is issued by the verifier for the project only and it does not automatically constitute or create Emission Reduction Units (ERUs) in the sense of Art. 6 Kyoto Protocol. However, the verifier's certificate may be used by the PA in the process of setting aside AAUs and issuance of ERUs by Hungary in line with applicable JI and Kyoto Protocol modalities and procedures.

5.3 Auditing Criteria and Needs

Verification includes an audit of the project's output information and data and management systems on the basis of the following established criteria:

- Completeness
- Accuracy
- Coverage
- Risk Management Controls

Auditors / verifiers will request information (in the form of records and documentation) from the operator to determine if key performance indicators meet the objectives of the PA´s JI-project as set out in this document. The operator is required to record all such indicators, and provide satisfactory documentation and an audit trail for verification purposes. The information that will be needed includes:

- Records on reported GHG emission reductions including the electronic spreadsheets / workbooks and supporting documentation (assumptions, data estimations, measurement methods, sampling techniques etc)
- Records on project management, including monitoring, data collection and management systems

The audit process followed, as with other management systems, is interactive, iterative and participatory. The auditors will determine the credibility and accuracy of the reported performance through spot checks of data measurement and collection systems and interviews with the key project participants. It is necessary for all involved in an audit to understand the audit process and verification requirements.

5.4 Audit and Verification Process

Audits procedures used to verify JI projects are similar to audits of other environmental management systems (ISO 14000, EMAS) and should complement these established processes. Principle audit tools are spot check of documents and interview with participating organisations and individuals. Auditors/verifiers are generally free to apply any method that represents good auditing practice and internationally accepted standards. Auditors typically conduct risk-based spot checks, which are checks of the key parameters and systems with the highest risks for data measurement and collection problems. The planning and scheduling of audits and the verification process is covered in this section.

Audit preparation and requests for information:
The auditor will familiarise himself with the PA documentation, project reports, project requirements and expected project performance. The auditor will use this MP to prepare the audit process. He will make telephone contact with PA, and if necessary, will request additional information from PA, and other project partners.

Development and delivery of an audit checklist:
The auditor will develop a checklist to guide the audit process. The checklist will cover the key points of the audit. The checklist will be sent to PA accompanied by explanatory materials prior to a site visit.

The audit:
The auditing procedure may included, if necessary, visit to the project site to undertake the audit. The length of the audit visit depends on the complexity of the project and its monitoring system and on previous performance of an experience with the project and the project operator. The audit time will be spent checking records and undertaking interviews with staff and other individual, which will allow the auditor to complete the audit checklist. These activities are the basis for completing the verification process and for preparing the verification report.

Audit and draft verification reports:
The auditor will produce an audit report and a draft verification report, which summarises the audit findings. The draft verification report will state the number of ERs achieved by the project and will point to areas of possible non-compliance if warranted. The report will also include conclusions on data quality, the projects monitoring and management and operational system, and other areas where corrective action may be required to come into compliance, improve performance or mitigate risks. The draft report will be sent to PA. Relevant parties will be given opportunity to comment on the report. The operator will also have the opportunity to come into compliance, if necessary, by submitting the appropriate evidence or by taking corrective action.

Final verification report:
The auditor will revise the draft report taking into consideration reviewers comments and further findings and issue the final verification report. If justified, the final verification report will conclude and explain that, within the verification period, the project has generated the stated quantity of ERs in compliance with all applicable JI and other requirements. The final verification report is the basis for the issuance of a certificate by the verifier, which will state and confirm the conclusions of the report.

Non-compliance and dispute settlement:
In the event of non-compliance findings, the project operator will be given sufficient time to demonstrated compliance. It is the responsibility of the verifier to ensure that dispute over any non-compliance issue is communicated clearly and that any attempt is made to resolve it. The verifier will have final decision over the process. The verifier will also provide guidance as appropriate on how identified deficiencies can be met so that the operator can come into compliance in the following period.

Audit and verification schedule:
Audits and verification of the project will be conducted annually.

5.5 Roles and Responsibilities

Audit responsibilities are allocated between the project participants as follows:

Project Operator – PA.:
- The operator will prepare for the audit and verification process to the best of his abilities.
- He will facilitate the audit through providing auditors with all the required information, before, during and, in the event of queries, after the audit.

- PA will select a third party auditor/verifier in accordance with UNFCCC requirements and selection criteria.
- Make arrangements for and organise the auditing and verification process
- The operator will fully co-operate with the auditors and instruct his staff and management to be available for interviews and respond honestly to all audit questions.
- It is the operator's contractual obligation and in his best interest to fully co-operate with auditors and verifier, since only successful verification will enable him to deliver Emission Reduction Units to the Austrian JI Program in fulfilment of his contract with the Austrian Program.

Auditor / verifier:

- The auditors must be a professional organisation with a proven track record in environmental auditing and verification, experience with JI projects and work in economies in transition. Only accredited independent entities will be used once accreditation as an independent entity under the UNFCCC/Kyoto Protocol becomes available. The audit firm must guarantee professional work and assure the quality of the audit and verification team.
- The auditor / verifier must undertake the audit to the best of their professional ability. The auditor's responsibilities include to (I) provide the checklists and request for information in good time, (II) allow adequate time for sufficient review and preparation, (III) provide publishable reports in the agreed format, (IV) work with the project operator as appropriate, (V) report on Lessons Learnt during the course of the project