**PROGRAMME DESIGN DOCUMENT FORM FOR SMALL-SCALE CDM PROGRAMMES OF ACTIVITIES (F-CDM-SSC-PoA-DD) Version 02.0**

# PROGRAMME OF ACTIVITIES DESIGN DOCUMENT (PoA-DD)

## PART I. Programme of activities (PoA)

### SECTION A. General description of PoA

### A.1. Title of the PoA

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FIRA Wastewater Treatment System, Methane Capture and Utilisation Programme in Mexico
Version 02
12/10/2012

### A.2. Purpose and general description of the PoA

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*Policy/measure or stated goal of the PoA*

The overarching goal of the PoA is to promote advanced wastewater treatment for FIRA's clients, and all participants in agro-industrial sectors that generate methane emissions through open anaerobic treatment of wastewater containing biogenic organic matter, through carbon finance while reducing greenhouse gas emissions and promoting a cleaner environment.

Its secondary goals are the reduction of odours, contamination of surface, underground water sources, and improvement of community hygiene (pathogen reductions).

*General operating and implementing framework of PoA*

The programme aims to help combat global climate change by avoiding the emission of methane ($CH_4$) through capture (and utilisation) of the methane emitted from the anaerobic digestion of wastewater and/or sludge in relevant agro-industries in Mexico. Furthermore, it wishes to serve as an example towards a less fossil fuel dependent future in Mexico.

The program is an initiative of Fideicomisos Instituidos en Relación con la Agricultura, FIRA[1] "*Trust Funds for Agricultural Development*" of Mexico. FIRA, as the programme developer, is also the Coordinating/Managing Entity (CME) for the programme. FIRA was formed in 1954 as four trust funds that were constituted between the Mexican Federal Government and Banco de México, BANXICO[2] "*Bank of Mexico*" (the country's central bank). The four public trust funds are located in the Secretaría de Hacienda y Crédito Público, SHCP[3] "*Ministry of Finance*", and consists of the Fondo de Garantía y Fomento Para la Agricultura Ganadería y Avicultura, FONDO "*Guarantee Fund and Promotion for the Agriculture, Cattle Farming and Poultry Farming*", Fondo Especial para Financiamientos Agropecuarios, FEFA "*Special Fund for Agricultural Financing*", Fondo Especial de Asistencia Técnica y Garantía para Créditos Agropecuarios, FEGA "*Special Fund of Technical Assistance and Guarantee for Agricultural Credits*" and Fondo de Garantía y Fomento para las Actividades Pesqueras, FOPESCA "*Guarantee Fund and Promotion for the Fishing Activities*". FIRA's objective is to provide credit,

[1] Fideicomisos Instituidos en Relación con la Agricultura, FIRA. Home page: http://www.fira.gob.mx.
[2] Banco de México, BANXICO. Home page: http://www.banxico.org.mx/
[3] Secretaría de Hacienda y Crédito Público, SHCP. Home page: http://www.shcp.gob.mx/Paginas/default.aspx

guarantees, technical assistance, training, and technology transfer to the fishing, rural and agricultural sectors in Mexico. FIRA is a second tier bank, so it does not directly disburse its funds, but rather does so through financial intermediaries (e.g. banks, leasing companies, credit unions, and others). FIRA's stated mission is "to promote the sustainable and competitive development of Mexican land resources through innovative financial and technological services that will provide a better quality of life to its inhabitants".

The activities to be included in the programme are advanced wastewater and/or sludge treatment systems, commonly referred to as bio-digesters, with provision for methane capture and destruction facilities. The methane capture facility typically consists in covered anaerobic lagoon or a sealed reactor in which wastewater is decomposed in a controlled manner. The biogas destruction measure will include a flaring unit, and/or thermal energy generation and/or electricity generation equipment. Destruction of the captured methane will reduce greenhouse gas emissions below the so-called baseline scenario.

Individual activities will have relative autonomy in choosing the exact combination of wastewater and/or sludge treatment systems and biogas destruction and/or utilization measures, depending upon the individual characteristics of each CPA involved in this CDM programme activity.

It is envisioned that the programme will be operated under a financial scheme whereby financial intermediaries finance the individual projects through funds provided by FIRA, or dependent upon guarantees of the individual activities by FIRA to financial intermediaries. In addition to this, FIRA may offer financial aid to partially cover costs related to training and/or other concepts that contribute to the necessary knowledge of the SSC-CPA participants in any subject related to the implementation or operation of the project.

As the Coordinating/Managing Entity ("CME"), FIRA will be in charge of establishing the operational and management arrangements for the implementation of the PoA, such as a record keeping system for each CPA under the PoA and including a system/procedure to avoid double counting. FIRA will also be responsible for maintaining the implementation framework, and the coordination between various programme participants.

Each one of the trusts that compose FIRA develops certain activities within the PoA according to their purposes and that these actions should be considered as a whole for FIRA's PoA. Each one of the trusts may conduct, among other activities within the PoA, the following:

- Fondo de Garantía y Fomento Para la Agricultura Ganadería y Avicultura, FONDO "*Guarantee Fund and Promotion for the Agriculture, Cattle Farming and Poultry Farming*": It can perform administration activities for the PoA and enter into contracts, costs and investments and receive payment for fees or commissions concepts.
- Fondo Especial para Financiamientos Agropecuarios, FEFA "*Special Fund for Agricultural Financing*": may receive the CERs generated by the PoA LW for sale, as well as lending and borrowing.
- Fondo Especial de Asistencia Técnica y Garantía para Créditos Agropecuarios, FEGA "*Special Fund of Technical Assistance and Guarantee for Agricultural Credits*": provide warranty services.
- Fondo de Garantía y Fomento para las Actividades Pesqueras, FOPESCA "*Guarantee Fund and Promotion for the Fishing Activities*": may, if required, provide financing to fishing activities.

*Voluntary Action*

The PoA is a voluntary initiative developed by FIRA to install advanced wastewater and/or sludge treatment systems, in agro-industries such as the tequila, mezcal, alcohol and dairy industries in Mexico.

Through this Program, FIRA will offer financial and technical help to those producers that are not able to implement a proper waste management control system.

**A.3. CMEs and participants of PoA**

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*Identification of the CME of the proposed PoA, as the entity which communicates with the Board*

The Coordinating/Managing Entity ("CME") is FIRA, and this is the entity which will establish any communications with the Board.

*Project participants to the PoA (project participants may or may not be involved in one of the component project activities (CPAs) related to the PoA).*

Fideicomisos Instituidos en Relación con la Agricultura, FIRA "*Trust Funds for Agricultural Development*" is the Project Participant in this PoA, and FIRA is the Coordinating /Managing Entity, CME.

**A.4. Party(ies)**

| Name of Party involved (host) indicates a host Party | Private and/or public entity(ies) project participants (as applicable) | Indicate if the Party involved wishes to be considered as project participant (Yes/No) |
|---|---|---|
| Mexico (host) | Fideicomisos Instituidos en Relación con la Agricultura (FIRA) (public) | No |

FIRA is the Project Participant in this PoA, and the Coordinating /Managing Entity, CME.
Fondo Especial para Financiamientos Agropecuarios, FEFA "*Special Fund for Agricultural Financing*", one of the four trust funds that constitute FIRA, is the Project Participant in this PoA, and FIRA is the Coordinating /Managing Entity, CME.

**A.5. Physical/ Geographical boundary of the PoA**

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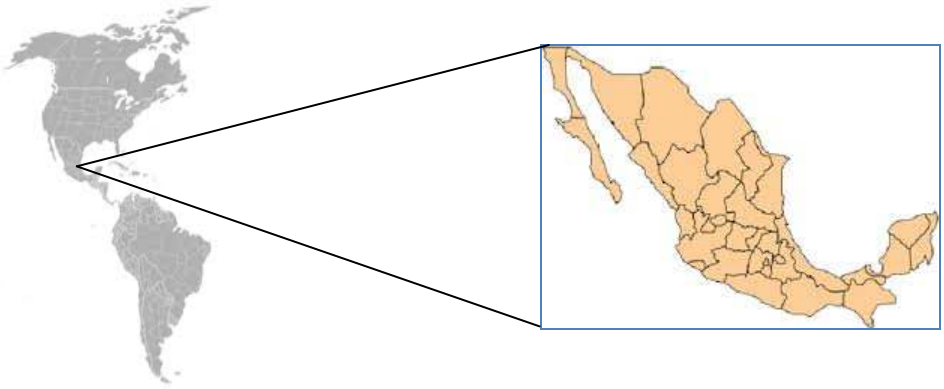
The geographical area within which all small-scale CDM programme activities (SSC-CPAs) included in the PoA will be implemented is the Mexican Republic. All CPAs will be implemented considering all applicable national/sectoral policies and regulations of Mexico.



**A.6. Technologies/measures**

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Each SSC-CPA will implement new wastewater and/or sludge treatment system(s) utilizing anaerobic digestor/reactor and biogas capture. Biogas captured by a system will be destructed by flaring, and/or combusted for energy purposes, i.e. heat and/or electricity generation. The systems will be implemented in agro-industrial facilities where wastewater containing biogenic organic matter is produced, including but not limited to tequila, mezcal and alcohol distilleries, and dairy processing facilities.

In the baseline of each SSC-CPA, $CH_4$ is emitted by open anaerobic wastewater and/or sludge treatment without any biogas capture and combustion facilities. In the case of each relevant SSC-CPA, in the baseline, $CO_2$ is also emitted by the combustion of fossil fuels for the generation of heat.

The main measure employed by the SSC-CPA will be the introduction of anaerobic wastewater and/or sludge treatment system(s) with biogas recovery and combustion components. The specific technology and provider will be chosen by each participating facility depending CPA specific conditions. FIRA will establish a working group that will give its no objection vote to the technology providers suggested by the participants, proven that the provider fulfills a list of pre-conditions. These pre-conditions shall be based accordingly to FIRA's experience in the implementation of this type of project, including but not limited to the recognitions that the providers might have from an external committee or association, or a qualification given by an outsourced consultant and / or after an internal verification by FIRA. The participating facility must demonstrate that the technology provider can execute the project. The technology providers that receive a no objection vote from FIRA will be compiled in a database useful to the participants and for future references on new CPA developments.

The optional measure employed by a SSC-CPA will be the combustion of biogas for heat. When a facility elects to implement this measure, the specific technology will be chosen by each participating facility depending upon CPA specific conditions. Examples of technology include, but are not limited to, infrastructure for feeding biogas to an existing boiler. A SSC-CPA may alternatively elect to generate electricity using biogas; however, emission reductions will not be calculated or claimed for this action.

**A.7. Public funding of PoA**

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Day-to-day operations of the CME will be financed by FIRA and/or by administration/coordination fees paid by CPAs. FIRA is a government trust fund; its resources come from the Ministry of Finance. All the money that FIRA operates is by definition public funding. However, funding is not in return for Programme CERs. Public funding is not used to purchase the PoA's CERs.

**SECTION B. Demonstration of additionality and development of eligibility criteria**

**B.1. Demonstration of additionality for PoA.**

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Additionality of the PoA as a whole will be demonstrated in line with Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. According to Attachment A to Appendix B, Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers: (a) Investment barrier, (b) Technological barrier, (c) Barrier due to prevailing practice, and/or (d) Other barriers.

***Define alternatives to the project activity***

The realistic and credible alternatives for wastewater treatment for an individual CPA are:
(1) Continuation of current wastewater treatment practice.
(2) Installation of anaerobic wastewater treatment with biogas capture and destruction, without CDM.

***Consistency with mandatory laws and regulations***
The proposed PoA is a voluntary coordinated action. There currently are no laws or regulations requiring the implementation of anaerobic wastewater treatment with biogas capture and destruction in Mexico.

Nevertheless the problem of methane emissions from wastewater in the agro-industrial sector in Mexico is one that already has been identified by the government. In 2009, Mexico adopted the Programa Especial de Cambio Climático 2009-2012[4] "*Special Program of Climate Change 2009-2012*" that describes Mexico's voluntary goal to reduce emissions as compared to baseline levels by 51 million tCO2e. One of the areas where Mexico aims to attain this reduction is in "Discharge and Treatment of Wastewater." A concrete step to promote treatment of wastewater in agro-industry was taken with the implementation of the Proyecto de Apoyo al Valor Agregado de Agronegocios con Esquemas de Riesgo Compartido, PROVAR[5] "*Aggregate Value of Agribusiness Supporting Program on a Shared Risk Scheme*" project by FIRCO[6] that provides subsidies of a maximum of 1 million MXN per bio-digester project, and of up to 250,000 MXN for a biogas electro-generator. This program is complementary to this SSC-PoA, as SSC-CPAs are able to apply for a FIRCO subsidy for part of their financing. The SSC-PoA will promote even further the voluntary adoption in agro-industry of bio-digesters, i.e. anaerobic wastewater treatment with biogas capture and destruction in Mexico.

Environmental legislation associated with livestock operations in Mexico is framed by General de Equilibrio Ecológico y Protección al ambiente, LGEEPA "*General Law for Ecological Equilibrium and Environmental Protection*"[7], enacted in 1988. This law establishes that wastewater discharges from industrial, municipal, agriculture and livestock sectors (among others) are subject to federal and local regulation (Article 120). Also, wastewater discharges to sewage systems in populated areas, to water bodies, and those that are spilled on the soil or are infiltrated into the ground should comply with the necessary conditions to prevent water and land pollution.

To this end, and according to the Ley de Aguas Nacionales, LAN *"National Water Law"*[8], the National Water Commission (CONAGUA according to its Spanish acronym), in coordination with state and municipal governments, is responsible for setting the conditions on wastewater discharges, for issuing permits and licenses for water use and discharge, and for drafting and enforcing the corresponding Mexican Official Standards. With regard to wastewater discharges applicable to industrial operations, SEMARNAT has set up two environmental standards: NOM-001-SEMARNAT-1996, which sets the maximum pollution limits for wastewater discharge into water bodies.

Therefore, the regulation that governs the characteristics of wastewater discharge is NOM-001-SEMARNAT[9]. This regulation states that for final discharge via land irrigation, there is no specified limit for BOD (biochemical oxygen demand) of the discharged wastewater. Many facilities which are eligible for this PoA use land irrigation as the current final wastewater treatment step.

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[4] Programa Especial de Cambio Climático 2009-201. Federal Executive Power, Mexico. Page ix. Available at: http://pncs.imta.gob.mx/noticias-eventos/noticias/74-programa-especial-de-cambio-climatico-2009-2012.html
[5] Proyecto de Apoyo al Valor Agregado de Agronegocios con esquemas de Riesgo Compartido. Available at:http://www.firco.gob.mx/proyectos/provar/Documents/0_Lineamientos_Provar_2010.pdf
[6] Fideicomiso de Riesgo Compartido, FIRCO. Home page: http://www.firco.gob.mx/Paginas/default.aspx
[7] Can be consulted at : <www.diputados.gob.mx/LeyesBiblio/pdf/148.pdf>
[8] Can be consulted at : <http://www.diputados.gob.mx/LeyesBiblio/pdf/16.pdf>
[9] Norma Oficial Mexicana. SEMARNAT. Available at: http://www.semarnat.gob.mx/leyesynormas/Pages/nom_aguas_residuales.aspx

A facility also may have a maximum BOD or COD level for final discharge, specified by Comisión Nacional del Agua, CONAGUA "*National Water Commission*" at the specific facility level. If these levels are not complied with, a fine must be paid on a regular basis. Historically it is common practice for small and medium sized facilities to pay a fine on a regular basis rather than obtain specified levels.

***Demonstration of Barriers***

The voluntary coordinated action would not be implemented in the absence of the PoA. There are three reasons for this: one, an investment barrier; two, a prevailing practice barrier; and three, a technological barrier.

***Explanation of the Investment barrier***

The implementation of an anaerobic wastewater treatment with biogas capture and destruction generally is not financially attractive. Here, generic financial analyses are performed for an average sized facility[10] for an activity involving flaring only or heat generation. NPV is used as the financial indicator, since the investment is undertaken to improve environmental performance, not to generate profit.

Results:

| Scenario | NPV without CERs | NPV with CERs |
|---|---|---|
| Biogas Only, Average size facility | - €383,638 | - €31,620 |
| Biogas + Heat, Average size facility | - €290,175 | + €124,121 |

As the results demonstrate, the investments considered under the PoA are not attractive without CERs.

***Explanation of the Barrier due to Prevailing practice***

In agro-industry in Mexico, very few anaerobic wastewater treatment systems like those that are promoted by the PoA have been implemented.

The common practice study described in the PDD for registered project 2333 consisted in surveying 207 mezcal distilleries; and from the 102 who proportioned some information these were the numbers: 75 micro-scale to small scale businesses (effluents less than 1m$^3$ up to 30 m$^3$ per day) did not have any treatment systems, 13 businesses deliver their effluents to the municipal wastewater treatment plant, 2 had fully aerobic treatment plants, 2 had physical and chemical treatments systems and 3 had open anaerobic lagoons. Also, 4 medium businesses (effluents from 30m$^3$ to 400 m$^3$ per day) had open anaerobic lagoons and 3 large businesses (effluents in the range of 2,000 m$^3$ per day) used anaerobic/aerobic systems.

For the preparation of this PoA, more than 50 facilities comprising tequila, mezcal and alcohol distilleries and dairy processing facilities were contacted to draw up a common practice study for the broader sector targeted by this PoA[11]. Furthermore information from an existing study by FIRA was added to this information[12]. In total, companies representing more than 50% of tequila production in

[10] The average size was determined based on the wastewater flow and COD data of facilities included in the common practice study, based upon the arithmetic mean of wastewater flow, which is 316 m$^3$/day.

[11] Common practice analysis will be made available to Validator.

[12] Proyecto MDL en la Industria del Tequila en Jalisco. Informe sobre Procesos Industriales en las Principales Empresas. 29/03/11. Jose Antonio Garcia Vigil, JAJC, y Maria de la Paz Luna Angel; FIRA.

Mexico were considered[13], as well as numerous from other industries. It indicates that still most of the companies continue with practices on their wastewater treatments that results on higher methane emissions to the atmosphere instead of using advanced wastewater system treatments such as it promotes the present PoA.

A few facilities have installed advanced wastewater treatment systems, presumably anaerobic digestion with methane capture and destruction. For example, one facility utilizes a process (presumably a bio-digester) that generates biogas that is used to supply internal fuel demand[14]; another has installed a wastewater treatment system that is purportedly in the vanguard in the industry[15] (this may also encompass a biodigester with biogas capture[16]).Other facility also has a wastewater treatment system employing European technology[17]; this may encompass a biodigester with biogas capture[18] as well. Another facility installed an anaerobic reactor with biogas capture and energy use for steam production, due to the benefits of carbon finance; its activity is registered as CDM project 2333.

However, it should be noted that in the case of the tequila industry the very large companies that produce more than 50% of the product have been absorbed by or affiliated with transnational companies and therefore, have had easy access to foreign capital that helped the necessary investments for the treatment wastewater to materialize[19],. In this way, they are unlike the medium to small sized facilities targeted by the PoA that are usually locally owned companies.

Second, the large companies experience international pressure for environmental performance, giving them an exceptional reputational incentive to implement advanced wastewater treatment systems. As such, they are unlike the medium to small sized facilities targeted by the PoA.

***Explanation of the Technological barrier***

Although bio-digester technology already has been implemented in the agricultural sector in Mexico (mainly in manure management), the implementation experience has been negative. For example, of 71 registered CDM manure management projects in Mexico (applying methodology AMS-III.D.), only 6 have issued CERs (as of 02/03/2012)[20]. Thus, although the application of the technology has grown, this gives evidence to unsuccessful implementation of the technology for the operational phase. As a result here is a technological barrier at the operational phase for bio-digesters in Mexico.

***Conclusion***

By providing project financing and carbon revenues to otherwise financially unattractive projects, the PoA will promote the installation of advanced wastewater treatment systems in agro-industry in Mexico. In one part, the PoA will help to overcome the investment barrier by providing an additional revenue stream from carbon finance, making financially unattractive activities more attractive. Further, the PoA will help to overcome the prevailing practice barrier for activities financed via FIRA by enabling FIRA to provide loan funds and/or guarantees for such activities that are outside the norm for the small and medium sized companies in the agro-industry. Finally, the PoA will help to overcome the technological barrier by generating a database of implementation experience and

[13] Based upon tequila production as presented in "DIAGNOSTICO RED AGAVE 2009 FEB," FIRA (02/2009).
[14] http://www.oportunidadesdenegocios.com.mx/texto.asp?id_noticia=4515933
[15] http://www.mexicosgreatestbrands.org/Vol4/pdf/JoseCuervo.pdf
[16] http://www.inforural.com.mx/imprimir.php?id_rubrique=252&id_article=60714
[17] http://www.tequilasdonrafael.com/web/a_noticias.php?id_noticia=66
[18] http://www.inforural.com.mx/imprimir.php?id_rubrique=252&id_article=60714
[19] E.g. , view. <http://investors.brown-forman.com/phoenix.zhtml?c=98415&p=irol-newsArticle&ID=951829&highlight=> ; <http://beamglobal.pixel.us.com/news/49-beam-appoints-veteran-marketing-executive-debora-boyda-as-mixables-general-manager >
[20] IGES CDM Project Data Base. Institute For Global Environmental Strategies. Available at: http://www.iges.or.jp/en/cdm/report_cdm.html

technology provider data that will allow new SSC-CPAs to avoid errors in implementation and successfully operate their anaerobic wastewater treatment systems with biogas capture.

***Programme Development History***

The programme has been conceptualized as a CDM-PoA from the outset. The history of the programme's development is as follows:

| Event | Date |
|---|---|
| FIRA begin working on the concept of the PoA | December 2009 |
| PIN for this PoA is developed | July 2010 |
| No objection letter from the DNA is obtained | February 2011 |
| First potential CPA project developer is identified | May 2011 |
| FIRA got authorization to use its resources to continue developing the PoA | January 2012 |
| FIRA hires a consultancy service as CDM consultant | March 2012 |

**B.2. Eligibility criteria for inclusion of a CPA in the PoA**

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Companies that are interested in participating in this PoA shall complete a pre-feasibility questionnaire and will confirm in writing that the CPA has not been registered as a CDM project activity or as a CPA of another PoA and that has agreed to be included in the PoA on a voluntary basis. Moreover, project participant will frequently contact the Mexican DNA in order to identify projects that already have received a Non Objection Letter and/or Letter of Approval for cross checking.

An SSC-CPA to be included under this SSC-PoA must present the following characteristics:

- The geographical boundary of the SSC-CPA lies within the boundary of Mexico.
- Be eligible to receive a credit from FIRA resources, and be an eligible activity for FIRA's resources[21] ;
- Technology provider for the main wastewater treatment system has received a no objection vote by FIRA;
- Will implement an advanced wastewater and/or sludge treatment system(s) including destruction and/or utilization of methane captured;
- Project developer(s) (will) have a credit and/or guarantee supported by FIRA;
- The starting date of the CPA is not prior to the Validation start date of the proposed programme;
- Any existing wastewater treatment system does not include biogas recovery and combustion and directly vents biogas to the atmosphere;
- Shall follow and comply with the requirements of methodology AMS-III.H. Version 16.0 (specified in section E.2 of this document);
- Applies one of the following primary technology combinations:
    - Anaerobic digestion plus flaring of biogas.
    - Anaerobic digestion plus application of biogas for heat generation (follows and complies with AMS-I.C. Version 19.0).
    - Anaerobic digestion plus application of biogas for electricity generation (Emission reductions are not claimed for electricity generation; no other methodology is applied)

[21] As described in FIRA's internal documentation, e.g. the Conditions of Operation of the Funds Service between FIRA and Financial Intermediaries (*Condiciones de operación del Servicio de Fondeo entre FIRA y los ntermediarios Financieros*).

- Each SSC-CPA will stay within the small-scale threshold criteria of the Type I (i.e < 45 $MW_{th}$ and/or 15 $MW_e$) and Type III (i.e < 60,000 CERs per year) components of the project activity and will remain within those thresholds throughout the crediting period of the SSC-CPA.
- Demonstrates additionality via, at least, an investment barrier;
- Has signed an inclusion agreement with FIRA accepting the inclusion requirements to participate in the programme (these inclusion requirements refers to the knowledge of the CPA developer of these eligibility criteria as specified in this section);
- Its SSC-CPA-DD has been checked by FIRA and approved for forwarding to the DOE for inclusion in the SSC-PoA.
- If an environmental assessment or any other specific type of assessment is required by law or regulations, each CPA shall undertake this assessment at the time of inclusion of the CPA in the PoA.
- Each SSC-CPA will either i) not involve funding from Annex I parties, or ii) if any funding from Annex I parties is involved, it will not result in a diversion of official development assistance.
- The sampling related activities for each SSC-CPA for measurement and monitoring must meet the requirements of the "Standard for sampling and surveys of CDM project activities and programmes of activities".
- Each SSC-CPA will demonstrate that there is no debundling involved in the Project.

**B.3. Application of methodologies**

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The approved baseline and monitoring methodology applied to a SSC-CPA included in this PoA is:

- AMS-III.H "Methane Recovery in Wastewater Treatment" Version 16.0, EB 58, Sectoral Scope 13.
- AMS-I.C. "Thermal energy production with or without electricity" - Version 19.0, EB 61, Sectoral Scope 01.

During the validation phase, in case the applied approved methodology is revised or replaced, subsequent to being placed on hold, the CME will update the eligibility criteria to the requirements of the revised or new methodology with immediate effect. A new version of the F-CDM-SSC-PoA-DD and further F-CDM-SSC-CPA-DD documents containing updated eligibility criteria validated by a DOE will be submitted for approval.
Such revisions are not required in cases where a methodology is revised without being placed on hold or withdrawn

The most common expected approach to be applied by the CPAs is indicated below:

***Description of the treatment technology(ies)***

The methane emissions will be captured through e.g. New Anaerobic Wastewater Treatment Facilities (NAWTF). The anaerobic digesters will be designed to meet each project requirements, e.g. Hydraulic Retention Time (HRT), volume, etc. Besides, the bio-digestion system shall typically consist of a feeding inlet, digester, compensation chamber, overflow point and a post treatment tank. The digesters can consist of tanks (steel or concrete) or from covering the existing lagoons. They are sealed at the top with a special geo membrane, which acts as a cover as well as a gas holder. This geo membrane, which is made of resistant polymeric material, prevents the biogas from escaping the anaerobic digestion process within the tanks. Other technologies could be utilised as well, as long as they are able to capture the biogas generated by the anaerobic digestion, preventing its emission to the atmosphere.

In addition to the methane capture facility, an auxiliary tank may be installed at the outlet of the digesters in order to reduce the hydrogen sulphides concentration.

Downstream of the NAWTF, a system of pipes and pumps will move the biogas from the digester tanks to the combustion facilities, which consist of a flaring unit and may include thermal and/or electricity generation via e.g. biogas boiler or biogas electricity generator, although the latter will not be a component of the CDM activity (CERs will not be claimed for any electricity generation). Flare unit is also used during emergency shut down and planned maintenance. Thermal and/or electricity generation typically will be for captive consumption.

Other equipments may be included as part of the anaerobic digestion system, such as:

- Cooling/settling tanks
- Wastewater transfer pumps to anaerobic digesters
- Mixing System and Floating Cover/Gas Holder
- Dewatering/recycling pumps
- Biogas blowers
- Sludge dewatering and disposal units

The technologies that the program activity involves are common industrial operations. The wastewater and sludge digestion, as well as biogas based heat and/or electricity generation technologies are reliable and widely used in wastewater treatment plants, landfills and biogas-based systems worldwide.

***Raw material and input supply***
The project developer will be responsible for coordinating the resources required for the construction phase of the unit and those required once the unit begins operation. The project developer will also need to collaborate with the technology provider and the construction company in order to provide them with necessary raw materials. These materials may be sourced locally or be imported. As previously mentioned the programme is designed to incorporate different kinds of technologies and allows for technology improvements over time.

Note: The exact description will depend upon the specific configuration of the activity implemented under each SSC-CPA, and may differ significantly from the above.

**SECTION C. Management system**
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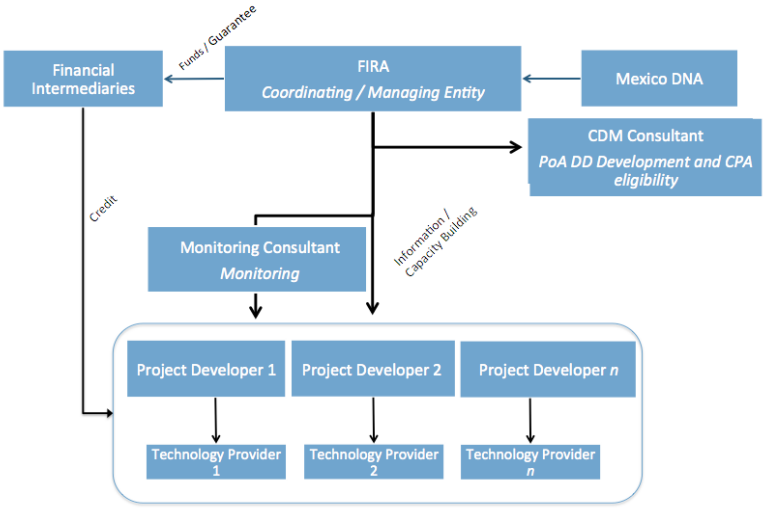
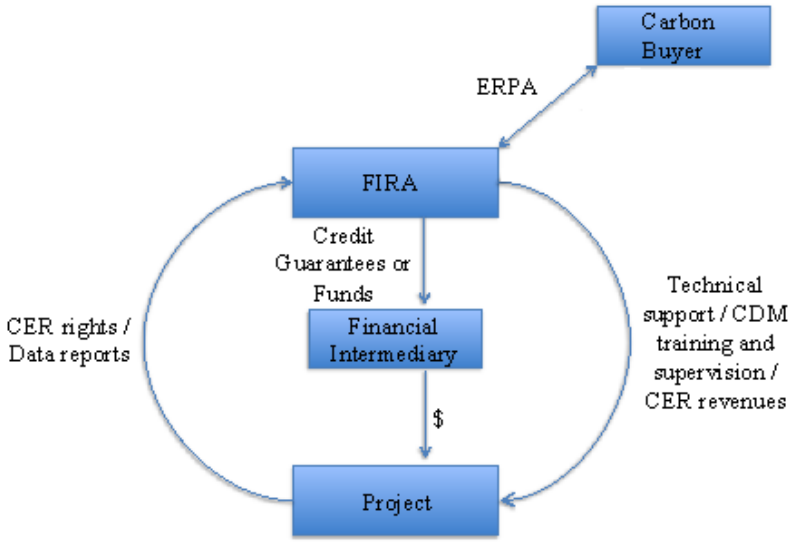
The general operating and implementing framework of the PoA is presented in the diagram below:



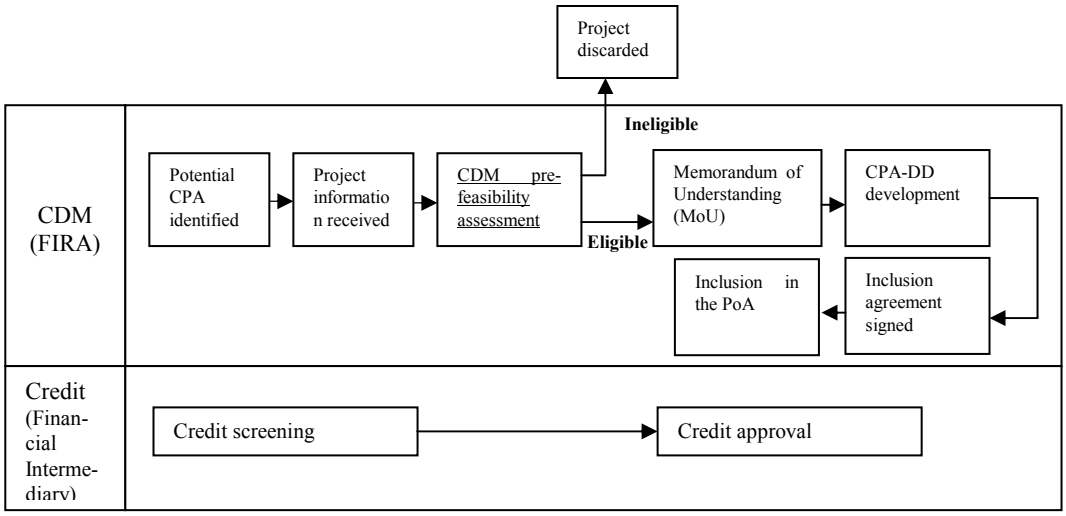

The operating and implementing framework for an individual CPA is presented in the following diagram:




***Implementation of the Programme***

FIRA will promote the project with its clients through its local offices. When a potential project reaches FIRA, an internal process will determine whether the project will receive financing or not, operating in line with existing FIRA norms[22]. The PoA will also be promoted outside the circle of FIRA's clients so that projects that comply with the PoAs eligibility criteria may be added to the PoA and become FIRA clients. As the CPAs under the PoA will be part of FIRA's portfolio of project, all FIRA agents will promote the program. FIRA will take advantage of the existing credit screening process that is usually run by all of its financial intermediaries.

[22] Relevant internal FIRA documents will be made available to the Validator upon request.




***Inclusion of a CPA under the PoA***

A potential CPA must pass a CDM pre-feasibility screening managed by FIRA, which is a simple questionnaire in order to determine the eligibility of the project (e.g. proper identification of the baseline scenario according to the applied methodologies). The potential CPA must also receive credit approval from a financial intermediary, taking into account CDM revenues. These two screening and approval processes may happen in parallel. If the CDM pre-feasibility is passed, the next step toward joining the PoA will be to sign a Memorandum of Understanding (MoU) in order to proceed to develop the specific CPA-DD. If the outcome of the CPA-DD is, after FIRA has reviewed the information, eligible to be included in the PoA then it will be signed an inclusion agreement with FIRA. The inclusion agreement will ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA. By signing the inclusion agreement, the participant will declare that its planned activity is neither registered as a CDM project activity or a CPA of another PoA, nor is a de-bundled component of a CDM project activity or CPA. FIRA will perform a cross-check using public information about registered CDM projects. After that, the information will be subjected to the DOE approval, and after its approval, the SSC-CPA will participate in the programme.

***Record-keeping system***

Financial information of each CPA in the PoA will be recorded and stored in the Sistema Informatico Integral de las Operaciones de FIRA, SIIOF, "Integral Informatic System of FIRA's Operations", the system through which financial intermediaries communicate with FIRA when disbursing funds. Each participant that obtained a credit and/or guarantee with FIRA funds will have its information stored within that system. The participant and its activity are assigned a unique identification number by SIIOF that is used to track the information of that CPA and ensure that no double counting takes place.

Another record-keeping system for the CDM and contact information will be stored for each CPA, until the financial information of each CPA becomes available and/or consolidated, it will be employed a consecutive number for each SSC-CPA and later identified within the SIIOF data. The Investment Banking and New Products Sub-directorate from FIRA will be in charge of all forms of communication with the individual CPAs. Individual CPA information will include all contact information including email, phone, fax, and mobile phones (as available).

A check of project implementation will be required by the financial intermediary and/or FIRA. Proof that the project is being implemented will consist of e.g. receipts, contracts, etc. This may include site checks in all or some cases, depending on the determination of the Coordinating/Managing Entity.

FIRA may subcontract a monitoring consultant, and / or may undertake the monitoring by itself.

The project participant may also be provided with technical training to monitor the projects itself, when necessary. FIRA may cover a percentage of training costs and monitoring consultancy costs. The monitoring plan will be implemented by a person appointed by the project owner. FIRA may perform physical checks from time to time as deemed necessary of selected CPAs to verify that the monitoring plan is being implemented correctly.

**SECTION D. Duration of PoA**

**D.1. Start date of PoA**

>>

15/05/2012 (expected Date PoA is submitted for validation)

**D.2. Length of the PoA**

>>

28 years

**SECTION E. Environmental impacts**

**E.1. Level at which environmental analysis is undertaken**

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1. Environmental Analysis is done at PoA level ☐
2. Environmental Analysis is done at SSC-CPA level X

The requirements for environmental analysis vary in Mexico on a state-by-state basis. At least the first CPA from a state will consult with the state level environmental authority to determine what, if any, environmental analysis is required for their activity; further CPAs in the same state may refer to this precedent, if accepted by the environmental authority. For this reason, it is appropriate to describe the environmental analysis at the SSC-CPA level.

**E.2. Analysis of the environmental impacts**

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National legislation does not require an environmental impact analysis for this type of GHG project activity[23]. There are no negative environmental impacts expected to result from the proposed activity. On the contrary, the proposed activities will also result in positive environmental co-benefits, including reducing atmospheric emissions of Volatile Organic Compounds (VOCs) that cause odour.

**SECTION F. Local stakeholder comments**

**F.1. Solicitation of comments from local stakeholders**

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1. Local stakeholder consultation is done at PoA level ☐
2. Local stakeholder consultation is done at SSC-CPA level X

The local stakeholders are likely to vary significantly for every CPA included in PoA. Hence it is considered more appropriate to undertake local stakeholder consultation at the SSC-CPA level.

Comments of local stakeholders will be invited as follows:

1) Specific letters of invitation to stakeholders immediately affected by the activity.

[23] Ley general del Equilibrio Ecológico y la Protección al Ambiente. Mexican Deputy Congress. Available at: http://www.redindigena.net/leyes/mex/docs/2/equileco.html

2) Open invitation via newspaper and/or other appropriate publications.

Local stakeholders to be invited could be any of the following, but not limited to:

1) Local residents.
2) Local government representatives.
3) Delegates from political parties.
4) Local entrepreneurs.
5) Employees.

The stakeholder consultation will consist of a meeting, or otherwise as required by Mexican law or regulation (if applicable). It is expected that the stakeholder consultation will provide an explanation of the activity, its role in reducing GHG emissions, and provide the opportunity for stakeholders to comment on the activity. Comments of stakeholders will be recorded, compiled and summarized by the individual SSC-CPA.

**F.2. Summary of comments received**

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Since the local stakeholder consultation will be done at the SSC-CPA level, the manner in which comments will be invited, compiled and summarized shall be described at that level.

Comments of the local stakeholders will be summarized for each SSC-CPA

**F.3. Report on consideration of comments received**

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The report of how due account is taken of any comments will be provided for each SSC-CPA as appropriate.

**SECTION G. Approval and authorization**

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The letter of approval from the local Host Party isavailable after the time of submitting the PoA-DD to the validating DOE. The letter of approval from the Mexican DNA authority was issued on 15/06/2012 (reference No. 308/2012) by the Interministerial Commission on Climate Change (ICC), in its capacity as Designated Authority of Mexico to the Executive Board of the Clean Development Mechanism outlined in Article 12 of the Kyoto Protocol.

## PART II. Generic component project activity (CPA)

**SECTION A. General description of a generic CPA**

**A.1. Purpose and general description of generic CPAs**

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Each SSC-CPA will implement new wastewater and/or sludge treatment system(s) utilizing anaerobic digestor/reactor and biogas capture. Biogas captured by a system will be destructed by flaring, with the possibility of being combusted for energy purposes. The systems will be implemented in agro-industrial facilities where wastewater containing biogenic organic matter is produced, including but not limited to tequila, mezcal and alcohol distilleries, and dairy processing facilities.

**SECTION B. Application of a baseline and monitoring methodology**

**B.1. Reference of the approved baseline and monitoring methodology(ies) selected**

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The following methodologies are employed:

- AMS-III.H. "Methane recovery in wastewater treatment" - Version 16.0
- AMS-I.C. "Thermal energy production with or without electricity" - Version 19.0

The Board (e.g. SSC working group) agreed that a combination of any one of the Type III methodologies where activities lead to generation of methane, (i.e. AMS-III.H) with any one of the Type I methodologies for utilising the methane generated for generation of renewable energy (i.e. AMS-I.C.), can be applied in a PoA without a pre approval[24].

In addition, the following tools are referred according to the methodologies mentioned as follows:

- "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" - Version 1.
- "Emissions from solid waste disposal sites" – Version 06.0.1
- "Project emissions from flaring" version 02.0.0..
- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" – Version 2
- "Tool to determine the baseline efficiency of thermal or electric energy generation systems" – Version 1.

**B.2. Application of methodology(ies)**

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The activities pertain to sectoral scope 13: Waste handling and disposal. The activity of each SSC-CPA pertains to project Type III. The methodology used is the *AMS-III.H, version 16.0. Methane Recovery in Wastewater Treatment* and the corresponding methodology is applicable as follows:

| Paragraph | Condition | Compliance by an SSC-CPA |
|---|---|---|
| 1 | This methodology comprises measures that recover biogas from biogenic organic matter in wastewater by means of one, or a combination, of the following options: (a-f) | Each SSC-CPA will involve activity(ies) taking place at agro-industrial facilities that generate wastewater containing biogenic organic matter. A SSC-CPA will apply the measure d): Introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant, or the measure f): Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, with or without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery. |
| 2 | In cases where baseline system is anaerobic lagoon the methodology is applicable if:<br>(a) The lagoons are ponds with a depth greater than two meters, without aeration. The value | SSC-CPAs are expected to have a baseline system of an open anaerobic lagoon. The SSC-CPA will provide the characteristics of lagoon depth, ambient temperature and |

[24] View report: <http://cdm.unfccc.int/Panels/ssc_wg/meetings/027/ssc_027_an08.pdf>

| | | |
|---|---|---|
| | for depth is obtained from engineering design documents, or through direct measurement, or by dividing the surface area by the total volume. If the lagoon filling level varies seasonally, the average of the highest and lowest levels may be taken;<br>(b) Ambient temperature above 15°C, at least during part of the year, on a monthly average basis;<br>(c) The minimum interval between two consecutive sludge removal events shall be 30 days. | sludge removal events to demonstrate that they comply with the stated requirements. |
| 3 | The recovered biogas from the above measures may also be utilized for the following applications instead of combustion/flaring: (a-e) | The recovered biogas will be flared, used for thermal energy generation directly, and/or used for electricity energy generation directly, although emission reductions will not be claimed for the last option. |
| 4 | If the recovered biogas is used for project activities covered under paragraph 3 (a), that component of the project activity can use a corresponding methodology under Type I. | In relevant cases, AMS-I.C will be applied. In the case of electricity generation, no emission reductions will be calculated and no second methodology will be applied. |
| 5 | For project activities covered under paragraph 3 (b), if bottles with upgraded biogas are sold outside the project boundary, the end-use of the biogas shall be ensured via a contract between the bottled biogas vendor and the end-user. No emission reductions may be claimed from the displacement of fuels from the end use of bottled biogas in such situations. If however the end use of the bottled biogas is included in the project boundary and is monitored during the crediting period CO2 emissions avoided by the displacement of fossil fuel can be claimed under the corresponding Type I methodology, e.g. AMS-I.C .Thermal energy production with or without electricity.. | No activities covered under paragraph 3(b) will be either covered nor carried out, hence they are not applicable. |
| 6 | For project activities covered under paragraph 3 (c) (i), emission reductions from the displacement of the use of natural gas are eligible under this methodology, provided the geographical extent of the natural gas distribution grid is within the host country boundaries. | No activities covered under paragraph 3(c) (i) will be either covered nor carried out, hence they are not applicable. |
| 7 | For project activities covered under paragraph 3 (c) (ii), emission reductions for the displacement of the use of fuels can be claimed following the provision in the corresponding Type I methodology, e.g. AMS-I.C. | No activities covered under paragraph 3(c) (ii) will be either covered nor carried out, hence they are not applicable. |

| | | |
|---|---|---|
| 8 | In particular, for the case of 3 (b) and (c) (iii), the physical leakage during storage and transportation of upgraded biogas, as well as the emissions from fossil fuel consumed by vehicles for transporting biogas shall be considered. Relevant procedures in paragraph 11 of Annex 1 of AMS-III.H .Methane recovery in wastewater treatment. shall be followed in this regard. | No activities covered under paragraph 3(b) and 3(c) will be either covered nor carried out, hence they are not applicable. |
| 9 | For project activities covered under paragraph 3 (b) and (c), this methodology is applicable if the upgraded methane content of the biogas is in accordance with relevant national regulations (where these exist) or, in the absence of national regulations, a minimum of 96% (by volume). | No activities covered under paragraph 3(b) and 3(c) will be either covered or carried out, hence they are not applicable. |
| 10 | If the recovered biogas is utilized for the production of hydrogen (project activities covered under paragraph 3 (d)), that component of the project activity shall use the corresponding methodology AMS-III.O .Hydrogen production using methane extracted from biogas. | No activities covered under paragraph 3(d) will be either covered nor carried out, hence they are not applicable |
| 11 | If the recovered biogas is used for project activities covered under paragraph 3 (e), that component of the project activity shall use corresponding methodology AMS-III.AQ .Introduction of Bio-CNG in road transportation | No activities covered under paragraph 3(e) will be either covered nor carried out, hence they are not applicable |
| 12 | New facilities (Greenfield projects) and project activities involving a change of equipment resulting in a capacity addition of the wastewater or sludge treatment system compared to the designed capacity of the baseline treatment system are only eligible to apply this methodology if they comply with the relevant requirements in the "General guidelines to SSC CDM methodologies". In addition the requirements for demonstrating the remaining lifetime of the equipment replaced, as described in the general guidelines shall be followed. | An SSC-CPA in a new facility or contemplating a capacity addition will comply with the relevant guidelines, and the requirements for demonstrating the remaining lifetime of the equipment replaced shall be followed. |
| 13 | The location of the wastewater treatment plant as well as the source generating the wastewater shall be uniquely defined and described in the PDD. | Each SSC-CPA will describe the relevant location(s) and source(s) of wastewater in its SSC-CPA-DD |
| 14 | Measures are limited to those that result in aggregate emissions reductions of less than or equal to 60kt $CO_2$ equivalent annually from all Type III components of the project activity. | The PoA primarily targets medium- and small-size facilities; hence the emission reductions from the Type III component will not exceed 60,000 $tCO_2e$ per annum. Each SSC-CPA will demonstrate individually its compliance with the SSC |

| | | |
|---|---|---|
| | | limit. |

SSC-CPAs may also have a component pertaining to project Type I. The Type I activities will pertain to sectoral scope 1: Energy industries (renewable / non-renewable sources). When the component involves thermal energy production, the project category will be *"AMS-I.C, version 19.0 Thermal Energy Production with or without Electricity"*. The corresponding methodology will be applicable as follows:

| Paragraph | Condition | Compliance by an SSC-CPA |
|---|---|---|
| 1 | This methodology comprises renewable energy technologies that supply users with thermal energy that displaces fossil fuel use. These units include technologies such as solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass and other technologies that provide thermal energy that displaces fossil fuel. | The activity will utilize biogas captured from anaerobic wastewater treatment system to replace fossil fuel in thermal energy applications |
| 2 | Biomass-based cogeneration systems are included in this category. For the purpose of this methodology .cogeneration. shall mean the simultaneous generation of thermal energy and electrical energy in one process. Project activities that produce heat and power in separate element processes (for example heat from a boiler and electricity from a biogas engine) do not fit under the definition of cogeneration project. | Biomass-based activities are not eligible under the PoA; not relevant |
| 3 | Emission reductions from a biomass cogeneration system can accrue from one of the following activities:<br>(a) Electricity supply to a grid;<br>(b) Electricity and/or thermal energy (steam or heat) production for on-site consumption or for consumption by other facilities;<br>(c) Combination of (a) and (b). | Biomass-based activities are not eligible under the PoA; not relevant |
| 4 | The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW thermal (see paragraph 6 for the applicable limits for cogeneration project activities). | The maximum installed capacity possible using biogas would be approximately 4.57 MWe[25]. Hence the installed capacity is not expected to exceed 45 MW thermal; however, when relevant this will be demonstrated by the individual CPA in the CPA-DD. |
| 5 | For co-fired systems, the total installed thermal energy generation capacity of the project equipment, when using both fossil and renewable fuel shall not exceed 45 MW thermal (see paragraph 6 for the applicable limits for cogeneration project activities). | In case of a co-fired system, the individual SSC-CPA will demonstrate compliance with this requirement |
| 6 | The following capacity limits apply for biomass | Biomass-based activities are not |

[25] The limit for the Type III activity is 60,000 tCO2e, i.e. not more than 60,000 t of CO2 equivalent of methane may be generated each year. 60,000 tCO2e / 21 $GWP_{CH4}$ x (50.4 GJ/tCH4) / (3.6 GJ/MWh) / 8760 hr = 4.57 MW

| | | |
|---|---|---|
| | cogeneration units: (a-c) | eligible under the PoA; not relevant |
| 7 | The capacity limits specified in the above paragraphs apply to both new facilities and retrofit projects. In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should comply with capacity limits in paragraphs 4 to 6 and should be physically distinct from the existing units | The PoA contemplates new renewable energy generation only; not relevant |
| 8 | Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category | The PoA contemplates new renewable energy generation only; not relevant |
| 9 | New Facilities (Greenfield projects) and project activities involving capacity additions compared to the baseline scenario are only eligible if they comply with the related and relevant requirements in the "General Guidelines to SSC CDM methodologies". | A SSC-CPA in a new facility or contemplating a capacity addition will comply with the relevant guidelines. |
| 10 | If solid biomass fuel (e.g. briquette) is used, it shall be demonstrated that it has been produced using solely renewable biomass and all project or leakage emissions associated with its production shall be taken into account in the emissions reduction calculation. | Only biogas-based activities are eligible under the PoA; not relevant |
| 11 | Where the project participant is not the producer of the processed solid biomass fuel, the project participant and the producer are bound by a contract that shall enable the project participant to monitor the source of the renewable biomass to account for any emissions associated with solid biomass fuel production. Such a contract shall also ensure that there is no double-counting of emission reductions | Only biogas-based activities are eligible under the PoA; not relevant |
| 12 | In case electricity and/or steam/heat produced by the project activity is delivered to another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into that ensures there is no double-counting of emission reductions. | This case is not foreseen under the PoA; however if it occurs, the appropriate contract will be put in place |
| 13 | If the project activity recovers and utilizes biogas for power/heat production and applies this methodology on a stand alone basis i.e. without using a Type III component of a SSC methodology, any incremental emissions occurring due to the implementation of the project activity (e.g. physical leakage of the anaerobic digester, emissions due to inefficiency of the flaring), shall be taken into account either as project or leakage emissions. | This methodology will only be used in conjunction with a Type III methodology in this PoA. |
| 14 | Charcoal based biomass energy generation project | Charcoal-based activities are not |

| | | |
|---|---|---|
| | activities are eligible to apply the methodology only if the charcoal is produced from renewable biomass sources provided: (a-b) | eligible under the PoA; not relevant |

**B.3. Sources and GHGs**

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| Source | | Gas | Included? | Justification / Explanation |
|---|---|---|---|---|
| Baseline | Emissions of the wastewater treatment system | $CO_2$ | No | Minor source; exclusion is conservative |
| | | $CH_4$ | Yes | Primary source from anaerobic decay |
| | | $N_2O$ | No | Minor source; exclusion is conservative |
| | Emissions on account of electricity or fossil fuel used | $CO_2$ | Yes | Primary source from combustion of fossil fuels |
| | | $CH_4$ | No | Minor source; exclusion is conservative |
| | | $N_2O$ | No | Minor source; exclusion is conservative |
| Project | Emissions from electricity and fuel used by the project facilities | $CO_2$ | Yes | Primary source from combustion of fossil fuels |
| | | $CH_4$ | No | Minor source |
| | | $N_2O$ | No | Minor source |
| | Emissions from the project wastewater and/or sludge treatment system | $CO_2$ | No | Minor source |
| | | $CH_4$ | Yes | Primary source from anaerobic decay |
| | | $N_2O$ | No | Minor source |

According to the methodology AMS-III.H version 16.0, the project boundary for an SSC-CPA is the physical, geographical site where the wastewater and sludge treatment takes place, in the baseline and project situations. It covers all facilities affected by the project activity including sites where processing, transportation and application or disposal of waste products as well as biogas generation takes place. The SSC-CPA-DD should describe the baseline wastewater and/or sludge treatment system including both components that will and will not be affected by the programme activity. The assessment and identification of the systems affected by the activity will be undertaken *ex ante*, and the SSC-CPA-DD shall justify the exclusion of sections or components of the system.

For an SSC-CPA applying the methodology AMS-I.C. version 19.0, the project boundary also includes all plants generating heat located at the project site, whether fired with biomass, fossil fuels or a combination of both, and industrial, commercial or residential facility, or facilities, consuming energy generated by the system and the processes or equipment affected by the project activity.

**B.4. Description of baseline scenario**

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According to the methodology AMS-III.H version 16.0, the baseline scenario is the methane emissions that would have been emitted by the baseline wastewater treatment system and the carbon dioxide emissions on account of fossil fuel used for the baseline wastewater treatment facility. The specific

baseline scenario is an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant[26].

For a SSC-CPA applying AMS-I.C version 19.0, the simplified baseline for renewable energy technologies that displace technologies using fossil fuels is the fuel consumption of the technologies that would have been used in the absence of the project activity, times an emission factor for the fossil fuel displaced.

**B.5. Demonstration of eligibility for a generic CPA**

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Each CPA shall be subjected to the following eligibility test:

| No. | Eligibility Criteria | Requirements for inclusion of the CPA in the POA | Conclusion |
|---|---|---|---|
| 1 | The geographical boundary of the SSC-CPA lies within the boundary of Mexico. | SSC-CPA will specify the Geographic location of the wastewater treatment system. | Criteria met / not met |
| 2 | Be eligible to receive a credit from FIRA resources, and be an eligible activity for FIRA's resources. | SSC-CPA must meet the eligibility according to the Conditions of Operation of the Funds Service between FIRA and Financial Intermediaries. | Criteria met / not met |
| 3 | Technology provider for the main wastewater treatment system has received a no objection vote by FIRA | SSC-CPA will present to FIRA the wastewater treatment system to be implemented in the project activity, and receive a no objection vote from FIRA after its analysis. | Criteria met / not met |
| 4 | (The SSC-CPA) will implement an advanced wastewater and/or sludge treatment system(s) including destruction and/or utilization of methane captured. | Each SSC-CPA company that is interested in participating in this PoA shall complete a pre-feasibility questionnaire from FIRA describing the wastewater and/or sludge treatment system(s) to be implemented in the project activity. | Criteria met / not met |
| 5 | Project developer(s) (will) have a credit and/or guarantee supported by FIRA. | Project developers (or the SSC-CPAs) shall have a credit and/or guarantee supported by FIRA. | Criteria met / not met |
| 6 | The starting date of the SSC-CPA is not prior to the Validation start date of the proposed programme. | The start date of the SSC-CPA shall fall after the date of start of validation of the PoA, which is the date of uploading the PoA-DD for Global Stakeholder Consultation, which was done in May 23, 2012.<br><br>This shall be demonstrated, for example, by documenting the baseline wastewater system treatment in the SSC-CPA (i.e. presence of anaerobic lagoon(s) and/or | Criteria met / not met |

[26] Other technologies in Table 6.3 of Chapter 6: Wastewater Treatment and Discharge of 2006 IPCC Guidelines for National Greenhouse Gas Inventories are included.

| No. | Eligibility Criteria | Requirements for inclusion of the CPA in the POA | Conclusion |
|---|---|---|---|
| | | no installation of equipments for the project activity has taken place), or with a copy of an equipment purchase order for the project activity, or some other document related to the first real action undertaken to implement the SSC-CPA. | |
| 7 | Any existing wastewater treatment system does not include biogas recovery and combustion and directly vents biogas to the atmosphere | This shall be demonstrated, for example, by documenting the baseline wastewater system treatment in the SSC-CPA (e.g. dated photographs of the site of the current wastewater system, dated pre-feasibilities studies, etc.) | Criteria met / not met |
| 8 | Shall follow and comply with the requirements of methodology AMS-III.H. Version 16.0 | Each SSC-CPA shall apply the AMS-III.H Version 16.0 methodology, follow and comply with its requirements. | Criteria met / not met |
| 9 | (The SSC-CPA) Applies one of the following primary technology combinations<br>• Anaerobic digestion plus flaring of biogas.<br>• Anaerobic digestion plus application of biogas for heat generation (follows and complies with AMS-I.C. Version 19.0).<br>• Anaerobic digestion plus application of biogas for electricity generation (Emission reductions are not claimed for electricity generation; no other methodology is applied) | Each SSC-CPA will clearly indicate which case will apply for its project activity from the options indicated in this criterion. | Criteria met / not met |
| 10 | Each SSC-CPA will stay within the small-scale threshold criteria of the Type I (i.e < 45 $MW_{th}$ and/or 15 $MW_e$) and Type III (i.e < 60,000 CERs per year) components of the project activity and will remain within those thresholds throughout the crediting period of the SSC-CPA. | The emission reduction spreadsheet will assess the CME that this criterion is being considered by the SSC-CPA and being applied for the project activity. If the case applies, it shall be verified the installed capacity of the energy generation equipment(s). | Criteria met / not met |
| 11 | Demonstrates additionality via, at least, an investment barrier. | Each SSC-CPA shall demonstrate that its project is additional by showing that the project activity would not have occurred anyway due, at least, by | Criteria met / not met |

| No. | Eligibility Criteria | Requirements for inclusion of the CPA in the POA | Conclusion |
|---|---|---|---|
| | | investment barrier. The analysis shall be included in the SSC-CPA-DD document. | |
| 12 | Has signed an inclusion agreement with FIRA accepting the inclusion requirements to participate in the programme (these inclusion requirements refers to the knowledge of the CPA developer of these eligibility criteria as specified in this section) | Each SSC-CPA shall sign an inclusion agreement with FIRA accepting the inclusion requirements to participate in the programme. | Criteria met / not met |
| 13 | Its SSC-CPA-DD has been checked by FIRA and approved for forwarding to the DOE for inclusion in the SSC-PoA | Each SSC-CPA will have to present to the CME a finalized SSC-CPA-DD document in order to be reviewed and approved by the CME (FIRA) for forwarding to the DOE for inclusion in the PoA. | Criteria met / not met |
| 14 | If an environmental assessment or any other specific type of assessment is required by law or regulations, each CPA shall undertake this assessment at the time of inclusion of the CPA in the PoA. | Depending on the national law and/or (local) regulations, and when applicable, an environmental assessment shall be performed by the SSC-CPA at the time of inclusion of the CPA in the PoA. The environmental assessment information shall be available to the CME and included in the SSC-CPA-DD document. | Criteria met / not met |
| 15 | Each SSC-CPA will either i) not involve funding from Annex I parties, or ii) if any funding from Annex I parties is involved, it will not result in a diversion of official development assistance | It shall be included in the SSC-CPA-DD document a confirmation statement. | Criteria met / not met |
| 16 | The sampling related activities for each CPA for measurement and monitoring must meet the requirements of the "Standard for sampling and surveys of CDM project activities and programmes of activities" | Sampling approach for measurement and monitoring is to be specified in each SSC-CPA-DD document.<br><br>This can be related to:<br>1) Sampling of Chemical Oxygen Demand (COD) of the wastewater inflow to the baseline treatment system *i* in year *y*,<br>2) Sampling of COD of the wastewater before and after the treatment (sub)system(s) affected by the project activity during monitoring,<br>3) When applicable in each case of a | Criteria met / not met |

| No. | Eligibility Criteria | Requirements for inclusion of the CPA in the POA | Conclusion |
|---|---|---|---|
| | | SSC-CPA, sampling of the amount of dry matter in the sludge in the project scenario during monitoring; and<br>4) Sampling of the methane content in the biogas during monitoring only if not monitored continuously. | |
| 17 | Each SSC-CPA will demonstrate that there is no debundling involved in the Project. | In each SSC-CPA-DD document will include a demonstration of no debundling. | Criteria met / not met |

***Confirmation of additionality of a typical CPA.***

Additionality of the SSC-CPA will be demonstrated in line with Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. According to Attachment A to Appendix B, Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers: (a) Investment barrier, (b) Technological barrier, (c) Barrier due to prevailing practice, and/or (d) Other barriers.

As described in section A.4.3, the activity of a typical CPA would not be implemented in the absence of the SSC-CPA being included as registered PoA. The main reason for this is an investment barrier.

*Explanation of the Investment barrier*
The implementation of an anaerobic wastewater treatment with biogas capture and destruction generally is not financially attractive. Here, a generic financial analysis is performed for an average sized facility for an activity involving flaring only. NPV is used as the financial indicator, since the investment is undertaken to improve environmental performance, not to generate profit.

| Scenario | NPV without CERs | NPV with CERs |
|---|---|---|
| Biogas Only,<br>Average size facility | - €383,638 | - €31,620 |

As the results demonstrate, the investments considered under a typical CPA are not attractive without CERs. Hence, an investment barrier prevents the activity from occurring anyway. The inclusion of the SSC-CPA in the registered PoA helps to overcome this barrier.

The key data for assessing additionality of a SSC-CPA are the inputs required for a simple financial analysis, consisting of calculation of the NPV for the activity without carbon finance. These consist of at least the following:

- Capital Expenditure (including all components of the activity, i.e. advanced wastewater treatment system, plus energy generation component, if applicable)
- Operating & Management costs (including all components of the activity, i.e. advanced wastewater treatment system, plus energy generation component, if applicable)
- (Expected) Date of investment
- (Expected) Date of operation
- Expected electricity generation (if applicable)
- Electricity tariff (if applicable)

- Expected heat generation (if applicable)
- Fossil fuel price (if applicable)
- WACC (for debt cost, apply the Interbank Equilibrium Interest Rate <http://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadroAnalitico&idCuadro=CA51&sector=18&locale=es> at the date of financial closure of the activity, or at the date of SSC-CPA-DD completion if the former is in the future; for equity cost, apply the equity benchmark approved by the CDM EB as stated in the most recent approved version of the "Guidelines on the assessment of investment analysis")

The key criterion for assessing the results of the NPV calculation is whether the NPV is less than or equal to zero. If this is the case, then the activity is financially unattractive and faces an investment barrier. In line with Attachment A to Appendix B, the activity is therefore additional.

**B.6. Estimation of emission reductions of a generic CPA**

**B.6.1. Explanation of methodological choices**

>>

A typical SSC-CPA will apply the methodology *AMS-III.H version 16 Methane recovery in wastewater treatment*. The activity will consist of paragraph 1(d), introduction of biogas recovery and combustion to an anaerobic wastewater treatment system such as anaerobic reactor, lagoon, septic tank or an on site industrial plant; or (f): Introduction of a sequential stage of wastewater treatment with biogas recovery and combustion, without sludge treatment, to an anaerobic wastewater treatment system without biogas recovery. Biogas will be flared and may be used for heat generation.

Baseline emissions for the systems affected by the project activity will consist of Methane emissions from baseline wastewater treatment systems ($BE_{ww,treatment,y}$). In determining baseline emissions using equation 1, historical records of at least one year prior to the project implementation shall be used for the COD removal efficiency of the wastewater treatment systems. In case sludge treatment is included, equations for baseline sludge treatment shall be added by the individual CPA-DD.

If Project activity $CO_2$ emissions from the systems affected by the project activity are higher than the Baseline $CO_2$ emissions from those sources, then $CO_2$ emissions from electricity and fuel used by the project facilities ($PE_{power,y}$), and Emissions on account of electricity or fossil fuel used ($BE_{power,y}$) shall be calculated. In this case historical records of at least one year prior to the project implementation shall be used for fossil fuel and/or electricity consumption per m3 of wastewater treated.

Project activity emissions from the systems affected by the project activity are Methane fugitive emissions due to inefficiencies in capture systems ($PE_{fugitive,y}$) and Methane emissions due to incomplete flaring ($PE_{flaring,y}$).

For case 1 (d) and 1 (f), *ex post* emission reductions shall be based on the lowest value of the following, as per paragraph 34:

(i) The amount of biogas recovered and fuelled or flared ($MD_y$) during the crediting period, that is monitored *ex post*; and

(ii) *Ex post* calculated baseline, project and leakage emissions based on actual monitored data for the project activity.

Since biogas will be flared, $MD_y$ will be measured using the conditions of the flaring process.

In case thermal energy generation from biogas is included, baseline emissions shall include the baseline emissions from steam/heat displaced by the project activity during the year *y* ($BE_{thermal,CO2,y}$). Project emissions shall include any significant emissions associated with project activity (i.e. use of biogas for thermal energy generation) within the project boundary that are not accounted for as part of $PE_{power,y}$ above, although it is not expected that there will be any relevant emissions fulfilling these criteria.

Note: Methodological choices will depend upon the specific configuration of the activity implemented under each SSC-CPA, and may differ from the above.

**B.6.2. Data and parameters that are to be reported ex-ante**

>>

Note: Data and parameters will depend upon the specific configuration of the activity implemented under each SSC-CPA, and may differ from the following.

*AMS-III.H.*

| **Data / Parameter** | $\eta_{COD,BL,i}$ |
|---|---|
| **Unit** | - |
| **Description** | COD removal efficiency of the baseline treatment system *i* |
| **Source of data** | Historical records of at least one year prior to the project implementation |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | Determined according to the paragraphs 26, 27 or 28 as applicable to the circumstances of each CPA: from direct measurements records, feasibility studies, among other sources of data. |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | - |

| **Data / Parameter** | $MCF_{ww,treatment,BL,i}$ |
|---|---|
| **Unit** | - |
| **Description** | Methane correction factor for baseline wastewater treatment systems *i* |
| **Source of data** | Table III.H.1 from methodology AMS III.H version 16 |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | - |

| Data / Parameter | $B_{o,ww}$ |
|---|---|
| Unit | kg $CH_4$/kg COD |
| Description | Methane producing capacity of the wastewater |
| Source of data | AMS III.H methodology version 16 , page 6/32 (IPCC value). |
| Value(s) applied | 0.25 |
| Choice of data or Measurement methods and procedures | Default as per methodology |
| Purpose of data | Calculation of baseline emissions |
| Additional comment | |

| Data / Parameter | $UF_{BL}$ |
|---|---|
| Unit | - |
| Description | Model correction factor to account for model uncertainties |
| Source of data | AMS III.H methodology version 16 , page 6/32. |
| Value(s) applied | 0.89 |
| Choice of data or Measurement methods and procedures | Default as per methodology |
| Purpose of data | Calculation of baseline emissions |
| Additional comment | |

| Data / Parameter | $GWP_{CH4}$ |
|---|---|
| Unit | - |
| Description | Global Warming Potential for methane |
| Source of data | AMS-III.H |
| Value(s) applied | 21 |
| Choice of data or Measurement methods and procedures | Default as per methodology |
| Purpose of data | Calculation of baseline emissions; and<br>Calculation of project emissions |
| Additional comment | |

| Data / Parameter | $CFE_{ww}$ |
|---|---|
| Unit | - |
| Description | Capture efficiency of the biogas recovery equipment in the wastewater treatment systems |
| Source of data | AMS-III.H |
| Value(s) applied | 0.9 |
| Choice of data or Measurement methods and procedures | Default as per methodology |
| Purpose of data | Calculation of project emissions |
| Additional comment | |

| Data / Parameter | $MCF_{ww,treatment,PJ,k}$ |
|---|---|
| Unit | - |
| Description | Methane correction factor for the project wastewater treatment system *k* equipped with biogas recovery equipment |
| Source of data | Table III.H.1 of the AMS III.H methodology version 16, in page 6/32. |
| Value(s) applied | Defined by SSC-CPA |
| Choice of data or Measurement methods and procedures | as per Table III.H.1 |
| Purpose of data | Calculation of project emissions |
| Additional comment | |

| Data / Parameter | $UF_{PJ}$ |
|---|---|
| Unit | - |
| Description | Model correction factor to account for model uncertainties |
| Source of data | AMS-III.H |
| Value(s) applied | 1.12 |
| Choice of data or Measurement methods and procedures | Default as per methodology |
| Purpose of data | Calculation of project emissions |
| Additional comment | |

*From the Tool Project emissions from flaring*

| Data / Parameter | $\rho_{CH4,n}$ |
|---|---|
| Unit | kg/m$^3$ |
| Description | Density of methane gas at normal conditions |
| Source of data | Tool "Project emissions from flaring" Version 2 |
| Value(s) applied | 0.716 |
| Choice of data or Measurement methods and procedures | Default value according to Tool |
| Purpose of data | Calculation of project emissions |
| Additional comment | - |

| Data / Parameter | $SPEC_{flare}$ |
|---|---|
| Unit | Temperature - °C<br>Flow rate - kg/h or m$^3$/h |
| Description | Manufacturer's flare specifications for temperature and flow rate. |
| Source of data | Flare manufacturer. |
| Value(s) applied | Range of temperature –<br>Range of flow rate – |
| Choice of data or Measurement methods and procedures | The flare specifications are set by the manufacturer for the correct operation of the flare for these parameters:<br>(a) Minimum and maximum inlet flow rate, if necessary converted to flow rate at reference conditions or heat flux; and<br>(b) Minimum and maximum operating temperature. |
| Purpose of data | Calculation of project emissions |
| Additional comment | This parameter is applicable in case of enclosed flares. Note, however, that the maintenance schedule is not required if Option A (default flare efficiency value) is selected to determine flare efficiency of an enclosed flare. |

*From the Tool to calculate baseline, project and/or leakage emissions from electricity consumption*

| | |
|---|---|
| **Data / Parameter** | $EF_{EL,k,y}$, $EF_{EL,j,y}$ |
| **Unit** | $tCO_2/MWh$ |
| **Description** | Emission factor for electricity generation for source *j/k* in year *y* |
| **Source of data** | Refer to *Tool to calculate baseline, project and/or leakage emissions from electricity consumption* |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | |
| **Purpose of data** | Calculation of baseline emissions; and/or<br>Calculation of project emissions |
| **Additional comment** | |

| | |
|---|---|
| **Data / Parameter** | $TDL_{k,y}$, $TDL_{j,y}$ |
| **Unit** | - |
| **Description** | Average technical transmission and distribution losses for providing electricity to source j or k in year y |
| **Source of data** | Refer to *Tool to calculate baseline, project and/or leakage emissions from electricity consumption* |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | As per options given in the *Tool to calculate baseline, project and/or leakage emissions from electricity consumption* |
| **Purpose of data** | Calculation of baseline emissions; and/or<br>Calculation of project emissions |
| **Additional comment** | |

*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*

| | |
|---|---|
| **Data / Parameter** | $COEF_{i,y}$ |
| **Unit** | tCO2/mass or volume unit |
| **Description** | $CO_2$ emission coefficient of fuel type *i* in year *y* |
| **Source of data** | Refer to *Tool to calculate project or leakage CO2 emissions from fossil fuel combustion* |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | |

*AMS-I.C.*

| | |
|---|---|
| **Data / Parameter** | $EF_{CO2,i}$ , $EF_{FF,CO2}$ |
| **Unit** | $tCO_2/TJ$ |
| **Description** | The $CO_2$ emission factor of the fossil fuel that would have been used in the baseline plant obtained from reliable local or national data if available, alternatively, IPCC default emission factors can be used |
| **Source of data** | Reliable local or national data if available, alternatively, IPCC default emission factors can be used |
| **Value(s) applied** | Defined by SSC-CPA |
| **Choice of data or Measurement methods and procedures** | As per type of reliable local or national data if available, alternatively, IPCC default emission factors can be used |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | |

| Data / Parameter | $\eta_{BL,thermal}$ |
|---|---|
| Unit | - |
| Description | The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity |
| Source of data | Historical data or, if not available, refer to relevant provisions of the *Tool to determine the baseline efficiency of thermal or electric energy generation systems* |
| Value(s) applied | Defined by SSC-CPA |
| Choice of data or Measurement methods and procedures | |
| Purpose of data | Calculation of baseline emissions |
| Additional comment | |

**B.6.3. Ex-ante calculations of emission reductions**

>>

For a typical SSC-CPA, the equations to be used are as follows:

***Baseline emissions***

***AMS-III.H.***

$$BE_y = \{BE_{power,y} + BE_{ww,treatment,y}\} \quad \textbf{(1)}$$

Where:

| | |
|---|---|
| $BE_y$ | Baseline emissions in year *y* ($tCO_2e$) |
| $BE_{power,y}$ | Baseline emissions from electricity or fuel consumption in year *y* ($tCO_2e$) |
| $BE_{ww,treatment,y}$ | Baseline emissions of the wastewater treatment systems affected by the project activity in year *y* ($tCO_2e$) |

Baseline emissions from electricity and fossil fuel consumption ($BE_{power,y}$) are determined as per the procedures described in the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" and "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", respectively. The energy consumption shall include all equipment/devices in the baseline wastewater and sludge treatment facility. Historical records of at least one year prior to the project implementation shall be used for fossil fuel and/or electricity consumption per m3 of wastewater treated. This parameter ($BE_{power,y}$) shall only be included when $PE_{power,y} > BE_{power,y}$.

$$BE_{power,y} = \{BE_{EC,y} + BE_{FC,j,y}\} \quad \textbf{(2)}$$

| | |
|---|---|
| $BE_{EC,y}$ | Baseline emissions from electricity consumption in year *y* ($tCO_2e$) |
| $BE_{FC,j,y}$ | Baseline emissions from fossil fuel combustion in process *j* in year *y* ($tCO_2e$) |

$$BE_{EC,y} = \sum_{k} EC_{BL,k,y} * EF_{EL,k,y} * \{1 + TDL_{k,y}\} \quad \textbf{(3)}$$

| | |
|---|---|
| $EC_{BL,k,y}$ | Quantity of electricity that would be consumed by the baseline electricity consumption source *k* in year *y* (MWh/yr) |
| $EF_{EL,k,y}$ | Emission factor for electricity generation for source *k* in year *y* (tCO2/MWh) |
| $TDL_{k,y}$ | Average technical transmission and distribution losses for providing electricity to source *k* in year *y* |

$$BE_{FC,j,y} = \sum_{i} FC_{BL,i,j,y} * COEF_{i,y} \quad \textbf{(4)}$$

| | |
|---|---|
| $FC_{BL,i,j,y}$ | Is the quantity of fuel type *i* combusted in baseline process *j* during the year *y* (mass or volume unit/yr) |
| $COEF_{i,y}$ | Is the $CO_2$ emission coefficient of fuel type *i* in year *y* (tCO2/mass or volume unit) |

Methane emissions from the baseline wastewater treatment systems affected by the project ($BE_{ww,treatment,y}$) are determined using the COD removal efficiency of the baseline plant:

$$BE_{ww,treatment,y} = \sum_{i} (Q_{ww,i,y} * COD_{\inf low,i,y} * \eta_{COD,BL,i} * MCF_{ww,treatment,BL,i}) * B_{o,ww} * UF_{BL} * GWP_{CH4} \quad \textbf{(5)}$$

Where:

| | |
|---|---|
| $Q_{ww,i,y}$ | Volume of wastewater treated in baseline wastewater treatment system *i* in year *y* ($m^3$). For *ex ante* estimation, forecasted wastewater generation volume or the designed capacity of the wastewater treatment facility can be used. |
| $COD_{\inf low,i,y}$ | Chemical oxygen demand of the wastewater inflow to the baseline treatment system *i* in year *y* ($t/m^3$). |
| $\eta_{COD,BL,i}$ | COD removal efficiency of the baseline treatment system *i*, determined as per the paragraphs 26 |
| $MCF_{ww,treatment,BL,i}$ | Methane correction factor for baseline wastewater treatment systems *i* (*MCF* Anaerobic deep lagoon (depth more than 2 metres) = 0.8) |
| $i$ | Index for baseline wastewater treatment system |
| $B_{o,ww}$ | Methane producing capacity of the wastewater (IPCC value of 0.25 kg $CH_4$/kg COD) |
| $UF_{BL}$ | Model correction factor to account for model uncertainties (0.89) |
| $GWP_{CH4}$ | Global Warming Potential for methane (value of 21) |

Since the baseline treatment system is different from the treatment system in the project scenario, the monitored values of the COD inflow ($COD_{ww,untreated,y}$,) during crediting period will be used to calculate the baseline emissions *ex post*.

***AMS-I.C. (when relevant)***

$$BE_{thermal,CO_2,y} = (EG_{thermal,y} / \eta_{BL,thermal}) * EF_{FF,CO_2} \quad \textbf{(6)}$$

Where:

| | |
|---|---|
| $BE_{thermal,CO_2,y}$ | The baseline emissions from steam/heat displaced by the project activity during the year *y* ($tCO_2$) |
| $EG_{thermal,y}$ | The net quantity of steam/heat supplied by the project activity during the year *y* (TJ) |
| $EF_{FF,CO_2}$ | The $CO_2$ emission factor of the fossil fuel that would have been used in the baseline plant obtained from reliable local or national data if available, alternatively, IPCC default emission factors can be used ($tCO_2$/TJ) |
| $\eta_{BL,thermal}$ | The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity |

***Project emissions***

***AMS-III.H.***

$$PE_y = \{PE_{power,y} + PE_{fugitive,y} PE_{flaring,y}\} \quad \textbf{(7)}$$

Where:

| | |
|---|---|
| $PE_y$ | Project activity emissions in the year *y* ($tCO_2e$) |
| $PE_{power,y}$ | Emissions from electricity or fuel consumption in the year *y* ($tCO_2e$). These emissions shall be calculated as per paragraph 19, for the situation of the project scenario, using energy consumption data of all equipment/devices used in the project activity wastewater and sludge treatment systems and systems for biogas recovery and flaring/gainful use |
| $PE_{fugitive,y}$ | Methane emissions from biogas release in capture systems in year *y* ($tCO_2e$) |
| $PE_{flaring,y}$ | Methane emissions due to incomplete flaring in year *y* ($tCO_2e$). For *ex ante* estimation, baseline emission calculation for wastewater and/or sludge treatment (i.e. equation 2 and/or equation 3) can be used but without the consideration of GWP for CH4. However, the *ex post* emission reduction shall be calculated as per tool "Project emissions from flaring"by using actual monitored data |

$$PE_{power,y} = \{PE_{EC,y} + PE_{FC,j,y}\} \quad \textbf{(8)}$$

| | |
|---|---|
| $PE_{EC,y}$ | Project emissions from electricity consumption in year *y* ($tCO_2e$) |
| $PE_{FC,j,y}$ | Project emissions from fossil fuel combustion in process *j* in year *y* ($tCO_2e$) |

<u>This parameter ($PE_{power,y}$) shall only be included when $PE_{power,y} > BE_{power,y}$.</u>

$$PE_{EC,y} = \sum_j EC_{PJ,j,y} * EF_{EL,j,y} * \{1 + TDL_{j,y}\} \quad \textbf{(9)}$$

| | |
|---|---|
| $EC_{PJ,j,y}$ | Quantity of electricity consumed by the project electricity consumption |

source $j$ in year $y$ (MWh/yr)

$EF_{EL,j,y}$ Emission factor for electricity generation for source $j$ in year $y$ (tCO2/MWh)

$TDL_{j,y}$ Average technical transmission and distribution losses for providing electricity to source $j$ in year $y$

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} * COEF_{i,y} \quad \textbf{(10)}$$

$FC_{i,j,y}$ Is the quantity of fuel type $i$ combusted in process $j$ during the year $y$ (mass or volume unit/yr)

$COEF_{i,y}$ Is the $CO_2$ emission coefficient of fuel type $i$ in year $y$ (tCO2/mass or volume unit)

$$PE_{fugitive,y} = PE_{fugitive,ww,y} \quad \textbf{(11)}$$

Where:

$PE_{fugitive,ww,y}$ Fugitive emissions through capture inefficiencies in the anaerobic wastewater treatment systems in the year $y$ ($tCO_2e$)

$$PE_{fugitive,ww,y} = (1 - CFE_{ww}) * MEP_{ww,treatment,y} * GWP_{CH4} \quad \textbf{(12)}$$

Where:

$CFE_{ww}$ Capture efficiency of the biogas recovery equipment in the wastewater treatment systems (a default value of 0.9 shall be used)

$MEP_{ww,treatment,y}$ Methane emission potential of wastewater treatment systems equipped with biogas recovery system in year $y$ (t)

$$MEP_{ww,treatment,y} = Q_{ww,y} * B_{o,ww} * UF_{PJ} * \sum_k COD_{removed,PJ,k,y} * MCF_{ww,treatment,PJ,k} \quad \textbf{(13)}$$

Where:

$COD_{removed,PJ,k,y}$ The chemical oxygen demand removed[27] by the treatment system $k$ of the project activity equipped with biogas recovery in the year $y$ ($t/m^3$)

$MCF_{ww,treatment,PJ,k}$ Methane correction factor for the project wastewater treatment system $k$ equipped with biogas recovery equipment (*MCF* values as per Table III.H.1)

$UF_{PJ}$ Model correction factor to account for model uncertainties (1.12)

$$PE_{flaring,y} = PE_{flare,y} = \sum_{m=1}^{525,600} F_{CH4,RG,m} \times \left(1 - \eta_{flare,m}\right) \times 10^{-3} \quad \textbf{(14)}$$

Where:

$PE_{flare,y}$ Project emissions from flaring of the residual gas in year $y$ ($tCO_2e$)

$GWP_{CH4}$ Global Warming Potential of methane valid for the commitment period

[27] Difference between the inflow COD and the outflow COD.

| | |
|---|---|
| $F_{CH4,RG,m}$ | Mass flow rate of methane in the residual gas in the minute *m* (kg) |
| $\eta_{flare,m}$ | Flare efficiency in minute *m* |

***AMS-I.C. (when relevant)***

Project emissions shall include any significant emissions associated with project activity (i.e. use of biogas for thermal energy generation) within the project boundary that are not accounted for as part of $PE_{power,y}$ above, although it is not expected that there will be any relevant emissions fulfilling these criteria. In case such an emissions source is identified, relevant equations for shall be added by the individual CPA-DD.

***Leakage emissions***

Leakage emissions are not considered, since project equipment is new, not transferred from another activity, and the only potential new fuel considered under the project activity is biogas.

***Emission reductions***

*Ex-ante*

Emission reductions shall be estimated *ex ante* as follows:

$$ER_{y,ex\,ante} = BE_{y,ex\,ante} - PE_{y,ex\,ante} + BE_{thermal,CO2,y} \quad \textbf{(15)}$$

Where:

| | |
|---|---|
| $ER_{y,ex\,ante}$ | *Ex ante* emission reduction in year *y* ($tCO_2e$) |
| $PE_{y,ex\,ante}$ | *Ex ante* project emissions in year *y* calculated as paragraph 29 ($tCO_2e$) |
| $BE_{y,ex\,ante}$ | *Ex ante* baseline emissions in year *y* calculated as per paragraph 18 ($tCO_2e$) |
| $BE_{thermal,CO_2,y}$ | The baseline emissions from steam/heat displaced by the project activity during the year *y* ($tCO_2$) |

*Ex-post*

The emission reductions achieved in any year are the lowest value of the following:

$$ER_{y,ex\,post} = \min((BE_{y,ex\,post} - PE_{y,ex\,post}), (MD_y - PE_{power,y})) \quad \textbf{(16)}$$

Where:

| | |
|---|---|
| $ER_{y,ex\,post}$ | Emission reductions achieved by the project activity based on monitored values for year *y* ($tCO_2e$) |
| $BE_{y,ex\,post}$ | Baseline emissions calculated as per paragraph 18 using *ex post* monitored values |
| $PE_{y,ex\,post}$ | Project emissions calculated as per paragraph 29 using *ex post* monitored values |
| $MD_y$ | Methane captured and destroyed/gainfully used by the project activity in the year *y* ($tCO_2e$) |
| $PE_{power,y}$ | Emissions from electricity or fuel consumption in the year *y* ($tCO_2e$). |

$MD_y$ will be measured using the conditions of the flaring process:

$$MD_y = BG_{burnt,y} * w_{CH4,y} * D_{CH4} * FE * GWP_{CH4} \quad \textbf{(17)}$$

Where:

| | |
|---|---|
| $BG_{burnt,y}$ | Biogas flared/combusted in year *y* ($m^3$) |
| $w_{CH4,y}$ | Methane content of the biogas in the year *y* (volume fraction) |
| $D_{CH4}$ | Density of methane at the temperature and pressure of the biogas in the year *y* ($t/m^3$) |
| $FE$ | Flare efficiency in year *y* (fraction). |

When AMS-I.C. is also applied, the total emission reductions are calculated *ex-post* as:

$$ER_y = ER_{y,ex\ post} + BE_{thermal,CO2,y} \quad \textbf{(18)}$$

Where:

| | |
|---|---|
| $ER_{y,ex\ post}$ | Emission reductions achieved by the project activity based on monitored values for year *y* ($tCO_2e$) |
| $BE_{thermal,CO_2,y}$ | The baseline emissions from steam/heat displaced by the project activity during the year *y* ($tCO_2$) |

Note: Equations will depend upon the specific configuration of the activity implemented under each SSC-CPA, and may differ from the above. In case sludge treatment is included, equations for baseline sludge treatment shall be added by the individual CPA-DD.

**B.7. Application of the monitoring methodology and description of the monitoring plan**

**B.7.1. Data and parameters to be monitored by each generic CPA**

>>

*AMS-III.H.*

| **Data / Parameter** | $Q_{ww,i,y}$ |
|---|---|
| **Unit** | $m^3$/month |
| **Description** | The flow of wastewater |
| **Source of data** | Monitored |
| **Value(s) applied** | |
| **Measurement methods and procedures** | Measurements are undertaken using flow meters |
| **Monitoring frequency** | It may be monitored continuously (at least hourly measurements are undertaken); alternatively, confidence/precision level of 90/10 shall be attained. |
| **QA/QC procedures** | Meter should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comments** | |

| | |
|---|---|
| **Data / Parameter** | $COD_{ww,untreated,y}$ |
| **Unit** | t COD/m³ |
| **Description** | The chemical oxygen demand of the wastewater before the treatment system affected by the project activity |
| **Source of data** | Monitored |
| **Value(s) applied** | |
| **Measurement methods and procedures** | Measure the COD according to national or international standards. |
| **Monitoring frequency** | COD is measured through representative sampling. Samples and measurements shall ensure a 90/10 confidence/precision level. |
| **QA/QC procedures** | Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years. |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comments** | |

| | |
|---|---|
| **Data / Parameter** | $COD_{ww,treated,y}$ |
| **Unit** | t COD/m³ |
| **Description** | The chemical oxygen demand of the wastewater after the treatment system affected by the project activity |
| **Source of data** | Monitored |
| **Value(s) applied** | |
| **Measurement methods and procedures** | Measure the COD according to national or international standards. |
| **Monitoring frequency** | COD is measured through representative sampling. Samples and measurements shall ensure a 90/10 confidence/precision level. |
| **QA/QC procedures** | Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years. |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comments** | |

| Data / Parameter | $BG_{burnt,y}$ |
|---|---|
| Unit | $Nm^3$ |
| Description | Biogas volume in year *y* |
| Source of data | Monitored |
| Value(s) applied | |
| Measurement methods and procedures | Measurements are undertaken using flow meters.<br>Volume should be normalised automatically, or using measurements of T and P. |
| Monitoring frequency | Monitored continuously (at least hourly measurements are undertaken), if less, confidence/precision level of 90/10 shall be attained. |
| QA/QC procedures | Meter should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | |

| Data / Parameter | $w_{CH4,y}$ |
|---|---|
| Unit | - |
| Description | Methane content in biogas in the year *y* |
| Source of data | Monitored |
| Value(s) applied | |
| Measurement methods and procedures | It shall be measured using equipment that can directly measure methane content in the biogas - the estimation of methane content of biogas based on measurement of other constituents of biogas such as $CO_2$ is not permitted. The methane content measurement shall be carried out close to the location in the system where the biogas flow measurement takes place. |
| Monitoring frequency | The fraction of methane in the gas may be measured with a continuous analyser or, alternatively, with periodical measurements at a 90/10 confidence/precision level. |
| QA/QC procedures | Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years; |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | |

| Data / Parameter | *T* |
|---|---|
| Unit | $^{o}$C |
| Description | Temperature of the biogas |
| Source of data | Monitored |
| Value(s) applied | |
| Measurement methods and procedures | The temperature of the gas is required to determine the density of the methane combusted. If the biogas flow meter employed measures flow, pressure and temperature and displays or outputs the normalised flow of biogas, then there is no need for separate monitoring of pressure and temperature of the biogas |
| Monitoring frequency | The temperature of methane in the gas may be measured continuously or, alternatively, with periodical measurements at a 90/10 confidence/precision level. |
| QA/QC procedures | Calibration of the instrument shall be followed according to the recommendations of the provider. |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | Shall be measured at the same time when methane content in biogas ($w_{CH4,y}$) is measured |

| Data / Parameter | **P** |
|---|---|
| Unit | Pa |
| Description | Pressure of the biogas |
| Source of data | Monitored |
| Value(s) applied | |
| Measurement methods and procedures | The pressure of the gas is required to determine the density of the methane combusted. If the biogas flow meter employed measures flow, pressure and temperature and displays or outputs the normalised flow of biogas, then there is no need for separate monitoring of pressure and temperature of the biogas |
| Monitoring frequency | The pressure of methane in the gas may be measured continuously or, alternatively, with periodical measurements at a 90/10 confidence/precision level. |
| QA/QC procedures | Calibration of the instrument shall be followed according to the recommendations of the provider. |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | Shall be measured at the same time when methane content in biogas ($w_{CH4,y}$) is measured |

| Data / Parameter | Scrapping of replaced equipment |
|---|---|
| Unit | (units) |
| Description | Independent monitoring of scrapping of replaced equipment |
| Source of data | monitored |
| Value(s) applied | |
| Measurement methods and procedures | The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other. For this purpose scrapped equipment should be stored until such correspondence has been checked. The scrapping of replaced equipment should be documented and independently verified.<br><br>This should be checked once only per SSC-CPA |
| Monitoring frequency | |
| QA/QC procedures | |
| Purpose of data | Calculation of leakage |
| Additional comments | the leakage effect of the use of the replaced equipment in another activity is neglected |

*Tool "Project emissions from flaring"*

| Data / Parameter | $FE$ / $\eta_{flare,m}$ |
|---|---|
| Unit | - |
| Description | Flare efficiency |
| Source of data | Tool "Project emissions from flaring" version 02.0.0. |
| Value(s) applied | |
| Measurement methods and procedures | In case of enclosed flares and use of the default value, the flare efficiency for the minute *m* ($\eta_{flare,m}$) is:<br>• 0% if the temperature of the flare ($T_{EG,m}$) **and/or** the flow rate of the residual gas to the flare ($F_{RG,m}$) is not within the manufacturer's specification for the flare ($SPEC_{flare}$) in minute *m*; **and/or** the flame is not detected in minute *m* ($Flame_m$).<br>• 90% if the temperature of the flare ($T_{EG,m}$) **and** the flow rate of the residual gas to the flare ($F_{RG,m}$) is within the manufacturer's specification for the flare ($SPEC_{flare}$) in minute *m*; **and** the flame is detected in minute *m* ($Flame_m$).<br>• 80% for enclosed flares that are defined as *low height flares* that the temperature of the flare ($T_{EG,m}$) **and** the flow rate of the residual gas to the flare ($F_{RG,m}$) is within the manufacturer's specification for the flare ($SPEC_{flare}$) in minute *m*; **and** the flame is detected in minute *m* ($Flame_m$). |
| Monitoring frequency | This is a calculated value according to the Tool |
| QA/QC procedures | - |
| Purpose of data | Calculation of project emissions |
| Additional comment | Regular maintenance shall be carried out to ensure optimal operation of flares according to the recommendations of the manufacturer. |

| Data / Parameter | $F_{CH4,RG,m}$ |
|---|---|
| Unit | Kg/h |
| Description | Mass flow rate of methane in the residual gaseous stream in the minute *m* |
| Source of data | Calculated |
| Value(s) applied | |
| Measurement methods and procedures | Calculated using measurements for $BG_{burnt,y}$, $w_{CH4,y}$ and the density of methane |
| Monitoring frequency | - |
| QA/QC procedures | - |
| Purpose of data | Calculation of project emissions |
| Additional comments | The "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" shall be used to determine this parameter. The measured mass flow during minute *m*, shall then be used to determine the mass of methane fed to the flare in minute *m*. The value(s) shall be determined on a dry basis. |

| Data / Parameter | **Other flare operation parameters** |
|---|---|
| Unit | (various) |
| Description | This should include all data and parameters that are required to monitor whether the flare operates within the range of operating conditions according to the manufacturer's specifications, for example temperature of flare as well as its operation above 500° C in an hour. |
| Source of data | Flare equipment |
| Value(s) applied | (CPA specific) |
| Measurement methods and procedures | |
| Monitoring frequency | Monitored continuously |
| QA/QC procedures | |
| Purpose of data | Calculation of project emissions |
| Additional comments | For application of the default flare efficiency |

*Tool to calculate baseline, project and/or leakage emissions from electricity consumption*

| **Data / Parameter** | $EC_{BL,k,y}$ |
|---|---|
| **Unit** | MWh |
| **Description** | Quantity of electricity that would be consumed by the baseline electricity consumption source *k* in year *y* |
| **Source of data** | Calculated |
| **Value(s) applied** | |
| **Measurement methods and procedures** | Calculated using the *ex-ante* determination of electricity consumption per $m^3$ of wastewater treated based on one year of historical data |
| **Monitoring frequency** | |
| **QA/QC procedures** | |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comments** | |

| **Data / Parameter** | $EC_{PJ,j,y}$ |
|---|---|
| **Unit** | MWh |
| **Description** | Quantity of electricity consumed by the project electricity consumption source *j* in year *y* |
| **Source of data** | Monitored and/or calculated |
| **Value(s) applied** | |
| **Measurement methods and procedures** | If possible, monitored directly using a meter; alternatively calculated using operating hours and relevant equipment ratings. |
| **Monitoring frequency** | Annually. |
| **QA/QC procedures** | Meter should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years; |
| **Purpose of data** | Calculation of project emissions |
| **Additional comments** | |

*Tool to calculate project or leakage CO2 emissions from fossil fuel combustion*

| | |
|---|---|
| **Data / Parameter** | $FC_{BL,i,j,y}$ |
| **Unit** | Mass or volume unit per year (e.g. ton/yr or m3/yr) |
| **vDescription** | Quantity of fuel type *i* that would be combusted in baseline process *j* during the year *y* |
| **Source of data** | Calculated |
| **Value(s) applied** | |
| **Measurement methods and procedures** | Calculated using the *ex-ante* determination of fossil fuel consumption per $m^3$ of wastewater treated based on one year of historical data |
| **Monitoring frequency** | |
| **QA/QC procedures** | |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comments** | |

| Data / Parameter | $FC_{i,j,y}$ |
|---|---|
| Unit | Mass or volume unit per year (e.g. ton/yr or $m^3$/yr) |
| Description | Quantity of fuel type *i* combusted in process *j* during the year *y* |
| Source of data | Monitored |
| Value(s) applied | |
| Measurement methods and procedures | Use either mass or volume meters. In cases where fuel is supplied from small daily tanks, rulers can be used to determine mass or volume of the fuel consumed, with the following conditions: The ruler gauge must be part of the daily tank and calibrated at least once a year and have a book of control for recording the measurements (on a daily basis or per shift);<br><br>Accessories such as transducers, sonar and piezoelectronic devices are accepted if they are properly calibrated with the ruler gauge and receiving a reasonable maintenance;<br><br>In case of daily tanks with pre-heaters for heavy oil, the calibration will be made with the system at typical operational conditions. |
| Monitoring frequency | Annual monitoring |
| QA/QC procedures | The consistency of metered fuel consumption quantities should be cross-checked by an annual energy balance that is based on purchased quantities and stock changes.<br>Where the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities should also be cross-checked with available purchase invoices from the financial records.<br><br>Measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years; |
| Purpose of data | Calculation of project emissions |
| Additional comments | |

*AMS-I.C.*

| Data / Parameter | $EG_{thermal,y}$ |
|---|---|
| Unit | TJ |
| Description | The net quantity of steam/heat supplied by the project activity during the year *y* |
| Source of data | Calculated |
| Value(s) applied | |
| Measurement methods and procedures | Heat generation is determined as the difference of the enthalpy of the steam generated by the heat generation equipment and the sum of the enthalpies of the feed-fluid and if applicable any condensate returns. The respective enthalpies should be determined based on the mass (or volume) flows, the temperatures and, in case of superheated steam, the pressure. Steam tables or appropriate thermodynamic equations may be used to calculate the enthalpy as a function of temperature and pressure. |
| Monitoring frequency | Continuous monitoring, aggregated annually |
| QA/QC procedures | - |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | |

| Data / Parameter | - |
|---|---|
| Unit | $Nm^3/hr$ |
| Description | The net quantity of steam/heat supplied by the project activity during the year *y* |
| Source of data | Measured |
| Value(s) applied | |
| Measurement methods and procedures | Measured using calibrated meters. |
| Monitoring frequency | Continuous monitoring, integrated hourly and at least monthly recording |
| QA/QC procedures | Calibration shall be as per the relevant paragraphs of the “General guidelines to SSC CDM methodologies”. |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | |

| Data / Parameter | *T* |
|---|---|
| Unit | °C |
| Description | Temperature of steam |
| Source of data | Measured |
| Value(s) applied | |
| Measurement methods and procedures | Measured using calibrated meters (measuring device). |
| Monitoring frequency | Continuous monitoring, integrated hourly and at least monthly recording |
| QA/QC procedures | Calibration shall be as per the relevant paragraphs of the "General guidelines to SSC CDM methodologies" |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | |

| Data / Parameter | *P* |
|---|---|
| Unit | $Kg/cm^2$ |
| Description | Pressure of steam |
| Source of data | Measured |
| Value(s) applied | |
| Measurement methods and procedures | Measured using calibrated meters (measuring device). |
| Monitoring frequency | Continuous monitoring, integrated hourly and at least monthly recording |
| QA/QC procedures | Calibration shall be as per the relevant paragraphs of the "General guidelines to SSC CDM methodologies" |
| Purpose of data | Calculation of baseline emissions |
| Additional comments | Monitored in the case of superheated steam |

Note: Data and parameters monitored will depend upon the specific configuration of the activity implemented under each SSC-CPA, and may differ from the above

**B.7.2. Description of the monitoring plan for a generic CPA**

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*Operational and management structure*

The SSC-CPA operator will designate a CDM Manager to be responsible for operation and management of the SSC-CPA monitoring system.

*Data collection and archiving*

Data will be collected at the frequency described in the monitoring tables.

A data collection and archiving system under the responsibility of the CDM Manager will be put in place to record and maintain the required data as listed in the monitoring tables.

Data will be electronically archived as part of monitoring for a period of two years from the end of the crediting period.

*Procedures*

Procedures for collection of data required for SSC-CPA monitoring will be under the responsibility of the CDM Manager; procedures will comply or surpass the requirements described in the monitoring tables.

When measured data shows high levels of uncertainty, calibration is not in-line with requirements, or data is missing, affected data should be compared or substituted with location/national data and/or commercial data to ensure consistency.

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**Appendix 1: Contact information on entity/individual responsible for the PoA**

| | |
|---|---|
| **Organization** | FIRA (Fideicomisos Instituidos en Relación con la Agricultura) |
| **Street/P.O. Box** | Antigua Carretera a Patzcuaro 8555 |
| **Building** | |
| **City** | Morelia |
| **State/Region** | Michoacán |
| **Postcode** | 58342 |
| **Country** | México |
| **Telephone** | +52 (443) 3222300 |
| **Fax** | +52 (443) 3222300 |
| **E-mail** | amarin@fira.gob.mx |
| **Website** | www.fira.gob.mx |
| **Contact person** | |
| **Title** | *Subdirectora de Banca de Inversión y Nuevo sProductos* |
| **Salutation** | Mrs. |
| **Last name** | Marin Castillo |
| **Middle name** | Paulina |
| **First name** | Ana |
| **Department** | Business promotion |
| **Mobile** | |
| **Direct fax** | +52 (443) 3222502 |
| **Direct tel.** | +52 (443) 3222502 |
| **Personal e-mail** | amarin@fira.gob.mx |

## Appendix 2: Affirmation regarding public funding

There is no public funding from Parties included in Annex I of the UNFCCC in the sense of any deviation of funds for Official Development Assistance (ODA).

## Appendix 3: Application of methodology(ies)

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**Appendix 4: Further background information on ex ante calculation of emission reductions**

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## Appendix 5: Further background information on the monitoring plan

The following stepwise indicates a minor procedure considered in the inclusion and monitoring of the CPAs incorpored to the PoA program:

1. Each time an SSC-CPA is included in the PoA, the starting date of its operation is noted by the CME in the database and it is assigned a unique identification number.
2. On a case by case basis, as is deemed necessary and appropriate, FIRA will provide capacity building, coordination and support for SSC-CPA implementation.
3. A SSC-CPA passes monitoring information to the CME at least once annually. The monitoring data are coupled to the SSC-CPA information in the database.
4. A check of project implementation is performed by the financial intermediary and/or FIRA once for each CPA, to verify that the activity actually has been implemented. The results of this check are stored in the database.
5. The CME schedules Verification as it sees fit; CPAs will be verified. The CME elects which CPAs to include in the verification event and participation in the verification including monitoring periods covered are noted in the individual CPA record in the database. The use of a unique identification number for each CPA will prevent that a CPA is verified more than once for the same monitoring period.

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**History of the document**

| Version | Date | Nature of revision(s) |
|---|---|---|
| 02.0 | EB 66<br>13 March 2012 | Revision required to ensure consistency with the "Guidelines for completing the programme design document form for small-scale CDM programmes of activities" (EB 66, Annex 13). |
| 01 | EB33, Annex43<br>27 July 2007 | Initial adoption. |
| **Decision Class:** Regulatory<br>**Document Type:** Form<br>**Business Function:** Registration | | |