

**SMALL-SCALE CDM PROGRAMME ACTIVITY DESIGN DOCUMENT FORM
(CDM-SSC-CPA-DD) - Version 01**



**NAME /TITLE OF THE PoA: “Programme of activities to switch from
residual fuel oil to LPG in manufacturing industries in Peru”.**



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**CLEAN DEVELOPMENT MECHANISM
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NOTE:

- (i) This form is for submission of CPAs that apply a small scale approved methodology using the provision of the proposed small scale CDM PoA.
- (ii) The coordinating/managing entity shall prepare a CDM Small Scale Programme Activity Design Document (CDM-SSC-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the SSC PoA DD. At the time of requesting registration the SSC PoA DD must be accompanied by a CDM-SSC CPA-DD form that has been specified for the proposed SSC PoA, as well as by one completed CDM-SSC CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the SSC PoA must submit a completed CDM-SSC CPA-DD.

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).

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SECTION A. General description of small scale CDM programme activity (CPA)

A.1. Title of the small-scale CPA:

“Project activity to switch from residual fuel oil to LPG at () in Peru”.

Document version number ().

Date: ()

A.2. Description of the small-scale CPA:

The purpose of this Programme activity is to reduce greenhouse gas emissions by replacing residual fuel oil used in () in Peru with a low-carbon fuel: liquefied petroleum gas (LPG).

To this purpose, RYCOPESA and () have reached an agreement by which () will take part in the Programme of Activities and RYCOPESA will provide the necessary incentive for the change of fuels, in the form of the needed equipment for the fuel switch as well as LPG at a discount price. The agreement will circumscribe to the fuel change at ().

In order for this small Peruvian industry to be able to use LPG as an energy source instead of the more carbon-intensive () residual fuel oil used traditionally, it must make an investment to adapt the fuel storage system, feeding system and burner. In the absences of the CDM Programme of Activities, it would also have to pay a significantly higher price for the LPG than it would for residual fuel. Both the investment and higher price render the fuel switch un-attractive and () would continue to consume () residual fuel in its processes.

That is why RYCOPESA, under the Programme of Activities, will finance the installation of the required equipment, assuming the expenses of adapting the client’s systems; replacing the storage and feeder systems and the burners. In addition, further incentives are required to help () overcome the significant price differential between the two fuels and motivate the company to switch over to LPG. As such, RYCOPESA will offer this client, on the condition of subscribing to the Programme of Activities, the LPG at a discount to competitive market price. In order for RYCOPESA to be able to offer LPG at a sufficient discount, it must obtain additional income through registering the Programme as a CDM, with the subsequent generation of CERs as a result of the reductions in greenhouse gas emissions due to the change of fuel.

This CPA will implement the AMS-III.B Switching fossil fuels (version 16), an approved Type III small scale CDM methodology.

The fuel used in ()’s productive process is () residual fuel oil, a carbon intensive fuel commonly used in Peruvian industry. () is stored in a single fuel storage tank where the unloading of fuel is undertaken from the trucks of the fuel supply company.

In ()’s processing and packaging plant, the fossil fuel is used to ()

()

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Figure 1. CPA’s element process. Source: RYCOPESA

Therefore, ()’s element process is defined as the combustion of a single energy source (residual fuel oil in the baseline and LPG after the implementation of the Programme activity) in a single equipment () in order to generate a single energy output ().

RYCOPESA will supply the required equipment, replacing the storage and feeder systems and the burners. The items to be installed are shown below in red.

()

Figure 2. New equipment installed. Source: RYCOPESA

A description of the equipment to be installed in this CPA is:

()

The Programme activity will also lead to several additional environmental, technological and economic benefits.

a. Local environmental benefits

The proposed activity, by replacing residual fuel oil with LPG, reduces not only GHG emissions, but also the emission of other gases with major impacts on air quality, such as CO, NO, NO_x or SO₂ and particulate.

The most significant air pollutants generated in the combustion of heavy fuels include particulate matter (PM₁₀ and PM_{2.5}), lead, carbon monoxide, nitrogen oxide, volatile organic compounds and hydrocarbons. All of these have negative impacts on human health. The reaction in the atmosphere of the nitrogen oxides and the hydrocarbons with sunlight also causes the formation of photochemical oxidants, primarily ozone (O₃). This gas causes smog, material deterioration and respiratory diseases.

Switching fuels from residual fuel oil to LPG will contribute in a positive manner to improving air quality locally, preventing the emission of particulate from the combustion of heavy fuels.

b. Technological benefits

The activity includes the installation of new LPG burners, storage tanks and feeding systems at the CPA’s industrial plant. This represents a technological benefit for this plant because the use of LPG as a fuel provides for better flame control.

Moreover, the Programme activity involves the transfer of equipment into Peru. The specific origin of the equipment to be installed in this CPA is:

()

c. Economic benefits

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This Programme activity will also offer economic benefits to (). Through registering the Programme as a CDM, with the subsequent generation of CERs, RYCOPESA will be able to offer to () the use of LPG (a cleaner, higher-quality fuel) at a discount price.

Moreover, this Peruvian industry currently uses liquid fuels and it suffers from losses due to theft of spillage of those fuels. Switching to gaseous fuels will reduce these losses.

In the long term, the Programme also promotes the conversion of the country towards a more environmentally sustainable industrial sector, which contributes to encouraging sustainable development globally.

A.3. Entity/individual responsible for the small-scale CPA:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or Public Entities participating (*) in the Programme (as appropriate)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Peru (Host)	Repsol YPF Comercial del Perú S.A. (RYCOPESA)	No
(*) According to the CDM modalities and procedures, when making the CDM-PDD public during the validation stage, an involved Party may or may not have given its approval. When requesting registration, the Party/Parties involved must give their approval.		

A.4. Technical description of the small-scale CPA:

A.4.1. Identification of the small-scale CPA:

“Programme of activities to switch from residual fuel oil to LPG in manufacturing industries in Peru” – CPA (), “()”.

A.4.1.1. Host Party:

Peru

A.4.1.2. Geographic reference or other means of identification allowing the unique identification of the small-scale CPA (maximum one page):

The table to identify this CPA is described below:

Company	RUC	Address	City	Region	Geographic reference	
					Latitude	Longitude

()

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Figure 3. Location of the Programme activity. Source: RYCOPESA

A.4.2. Duration of the small-scale CPA:

A.4.2.1. Starting date of the small-scale CPA:

The starting date of the SSC-CPA was (), the date on which RYCOPESA and () finalized the negotiations of the LPG supply and PoA subscription contract.

This starting date has been chosen because it represents the binding decision on behalf of both parties to execute the fuel switch project.

A.4.2.2. Expected operational lifetime of the small-scale CPA:

The duration of the Programme activity will depend on the length of time that () continues to consume LPG from RYCOPESA. This in turn is dictated by the existence of a valid LPG supply contract between the parties. The initial duration of the contract is of () years. The contract is expected to be renewed due to the fact that () will only continue to benefit from below market prices if it remains in the PoA.

A.4.3. Choice of the crediting period and related information:

Fixed credit period

A.4.3.1. Starting date of the crediting period:

The starting date of a crediting period of this CPA shall be () or the date of its inclusion in the registered PoA, whichever is later.

A.4.3.2. Duration of the credit period or the first credit period of the renewable credit period option is chosen:

The length of the fixed crediting period for this CPA is 10 years.

NOTE: the duration of the credit period for any Programme activity must be limited to the end date of the Programme of activities, regardless of when the Programme activity was added.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

The estimated amount of emission reduction was calculated for this CPA from the equations described in the PoA – "Programme of activities to switch from residual fuel oil to LPG in manufacturing industries in Peru". The table below demonstrates the total emission reduction estimated for the duration of the LPG supply contract signed between () and RYCOPESA.

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Year	Estimation of Programme activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
Total (tonnes of CO ₂ e)				
Annual average over the crediting period of estimated reductions (tonnes of CO ₂ e)				

A.4.5. Public funding of the CPA:

The Programme activity does not have public financing.

A.4.6. Information to confirm that the proposed small-scale CPA is not a de-bundled component

In an instance where a CPA of another PoA or CDM project activity is already registered involving the same industrial plant as a proposed SSC-CPA, the coordinating entity will not proceed with the registration of the SSC-CPA. In the instance where a CPA of another PoA or CDM project activity is requesting registration, is under review or for which review or corrections have been requested, involves the same industrial plant as a proposed SSC-CPA, the coordinating entity will wait for these processes to be resolved before proceeding with registration of the new SSC-CPA.

- (i) *The SSC-CPA included in the PoA is not a de-bundled component of another CDM Programme Activity (CPA) or CDM project activity.*

The coordinating entity intends to implement multiple CPAs within Peru, of the same sectoral scope. The SSC-CPAs included in the PoA will not be de-bundled from another CDM Programme Activity, nor from a large-scale CDM project. In order to avoid registering a SSC-CPA that is in fact a de-bundled component of another CPA or CDM project, the coordinating entity will follow the guidance provided by the “Guidelines on assessment of de-bundling for SSC project activities”, version 3:

If each of the independent subsystems/measures (e.g. biogas digester, solar home system) included in the CPA of a PoA is no greater than 1% of the small scale thresholds defined by the methodology

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applied¹, then that CPA of PoA is exempted from performing de-bundling check i.e. considered as being not a de-bundled component of a large scale activity.

For each CPA, it will be checked if the annual emission reductions in each subsystems are greater than 1% of the small scale thresholds defined by the methodology applied, which is 600 tCO₂e, and de-bundling check has to be performed for that CPA.

In case the de-bundling check has to be performed for a CPA, it will be done according to what the “Guidelines” states:

For the purposes of registration of a Programme of Activities (PoA)², a proposed small-scale CPA of a PoA shall be deemed to be a de-bundled component of a large scale activity if there is already an activity³, which satisfies both conditions (a) and (b) below:

- (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and;*
- (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.*

For each CPA, it will be checked if within 1 km of the boundary of the proposed SSC-CPA at the closest point, there is any activity having the same activity implementer as the proposed SSC-CPA, or having a coordinating/managing entity which also manages a large scale PoA of the same technology/measure.

Finally, according to the “Guidelines”:

If a proposed small-scale CPA of a PoA is deemed to be a debundled component in accordance with paragraph 2 above, but the total size of such a CPA combined with a registered small-scale CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale CDM (...), the CPA of a PoA can qualify to use simplified modalities and procedures for small scale CDM (...) project activities.

For each CPA deemed to be a debundled component, it will be checked if the total size of such CPA combined with a registered SSC-CPA or registered CDM does exceed the limits for small scale CDM.

<p>A.4.7. Confirmation that <u>small-scale CPA</u> is neither registered as an individual CDM project activity or is part of another Registered PoA:</p>

The Programme activity described in this CPA-DD is neither registered as a CDM project activity, nor is it part of another Programme of Activities that has already been registered.

¹ i.e. 15 kW installed capacity or 0.6 GWh annual energy savings or 0.6 ktCO₂e annual emission reductions.

² Only those POAs need to be considered in determining de-bundling that are: (i) in the same geographical area; and (ii) use the same methodology; as the POA to which proposed CPA is being added.

³ Which may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity.

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SECTION B. Eligibility of small-scale CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which small-scale CPA is added:

“Programme of activities to switch from residual fuel oil to LPG in manufacturing industries in Peru”

B.2. Justification of the why the small-scale CPA is eligible to be included in the Registered PoA :

The small-scale Programme activity can be included in the registered Programme of Activities because it meets all the requirements established in the PoA-DD:

Eligibility Criteria			
N°	Category (“Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” - version 02.1)	Description	Evidence to be checked at CPA inclusion
1	(a) The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;	Each SSC-CPA must be located within the geographical boundary of Peru.	
2	(b) Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	Each SSC-CPA must be identified uniquely and defined explicitly by providing geographical information and the exact date on which the credit period begins and ends;	
3		Each SSC-CPA must be neither registered as an individual CDM project activity nor included as a CPA in another registered PoA involving fuel switching;	
4	(c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;	The measure to be undertaken in this PoA (fossil fuel switch from residual fuel oil to LPG in industries), which will mainly require the replacement of the current burners designed for liquid fuels with others that can work with LPG, the fuel storage and feeding systems, will not affect the level/type of service and the performance specifications of the single equipment (boiler, furnace, turbine, etc) included in the element process. The characteristics of the single output (such as steam, heat or electricity) produced in this single equipment will remain equivalent throughout the crediting period and will be comparable to its characteristics in the baseline.	
5	(d) Conditions to check the start date of the CPA through documentary evidence;	Companies in which the Project activity will be implemented must have signed a contract for the supply of the LPG to become part of the PoA;	

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6		CPAs will implement AMS-III.B Switching fossil fuel (version 16);	
7		The fuel switch carried out in the CPA must be implemented in a single element process or may include several element processes within the facility;	
8		Multiple fossil fuel switching in a single element process cannot be carried out in a CPA;	
9		CPAs will involve new facilities or retrofit/replacement of existing installations;	
10		Each SSC-CPA primarily aims at reducing emissions through fuel switching. If the fuel switching is part of an initiative focused primarily on energy efficiency, the CPA cannot be included in the PoA;	
11		CPAs for activities that propose switch from fossil fuel to renewable biomass, biofuel or renewable energy cannot be included in the PoA;	
12		CPAs for activities involving the use of waste gas cannot be included in the PoA;	
13	(e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	CPAs involving emission reductions on account of shift from use of a grid electricity or electricity exported to a grid cannot be included in the PoA;	
14		It must be possible to directly measure and record the energy output and consumption within the project boundary. In case of CPAs in which the estimated annual emission reductions are equal to or less than 600 tCO ₂ e per year per element process it must be possible to directly measure and record at least the energy consumption in the element process;	
15		The energy output (heat, steam or electricity) produced under the CPA will be for on-site captive use and/or export to other facilities included in the project boundary;	
16		In those CPAs in which the energy produced by the project activity is delivered to another facility, or facilities, within the project boundary, a contract between the supplier (CPA) and consumer(s) of the energy must be entered into force specifying that only the facility generating the energy (CPA) will claim emission reductions from the energy displacement;	
17		CPAs involving an integrated change of the element process where the fuel switch is implemented cannot be included in the PoA.	

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18		<p>CPAs developed in existing facilities must have historical information on the use of fossil fuels and the plant energy output from at least three years prior to project implementation. For facilities that are less than three years old, all historical data shall be available (a minimum of one year data would be required). For existing facilities having no historical data/information on baseline parameters such as efficiency, energy consumption and output, the baseline parameters can be determined using a performance test/measurement campaign prior to the implementation of the project activity.</p> <p>In CPAs with an estimated annual emission reductions equal to or less than 600 tCO₂e per year per element process a simplified approach for calculating emission reductions based on the amount of fossil fuel consumed in the project activity, may be used and no historical information on the use of fossil fuels and the plant energy output is required.</p>	
19	(f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality;	<p>Additionality shall be demonstrated by means of one of the two following approaches:</p> <p>Approach 1) Micro-scale CPAs are additional if: a) each of the independent subsystem/measure in the CPA achieves an estimated annual emission reduction equal to or less than 600 tCO₂e per year and b) end user are households/communities/ SMEs (with the exception of CPAs implemented in special underdeveloped zone of Peru as identified by the government in accordance with the paragraph 2 (a) from the “Guidelines for demonstrating additionality of microscale project activities, version 04.0”, which will be automatically additional).</p> <p>Approach 2) Small-scale CPAs are additional if, following the “Guidelines on the demonstration of additionality of small-scale project activities (version 09.0)”, the investment analysis shows that the Programme activity is not financially attractive (the IRR obtained from the Programme activity does not exceed the benchmark IRR), and the sensitivity analysis indicates that it is unlikely to be financially attractive compared to the benchmark under any reasonable variations in the assumptions.</p>	
-	(g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	This category is not applicable to this PoA and no eligibility criteria is required	

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-	(h) Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	This category is not applicable to this PoA and no eligibility criteria is required	
20	(i) Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation);	<p>The target group in this PoA is:</p> <p>1) Companies in Peru, mainly small and medium-sized part of different industrial sectors (for example: Food processing, Cooking farm produce, Smelting and metal processing, etc).</p> <p>2) Industries that include either new facilities or retrofit/replacement of existing installations.</p> <p>3) Small-scale or Micro-scale projects. In the first case, the emissions reductions achieved must be equal to or less than 60.000 tCO₂e per year. In case of Micro-scale projects the emissions reductions achieved must be equal to or less than 600 tCO₂e per year and the industries in which the fuel switch is implemented are households/communities/SMEs⁴ (two out of three must be met: ≤300 employees, ≤\$15,000,000 total assets, ≤\$15,000,000 total annual sales).</p>	
-	(j) Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys;	This category is not applicable to this PoA and no eligibility criteria is required	
21	(k) Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;	CPAs must meet the eligibility criteria for small-scale or micro-scale CDM project activities;	
22	(l) Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.	The SSC-CPAs to be included in the PoA must not be de-bundled from another CDM Programme Activity, nor from a large-scale CDM project.	

Note: The requirements described in (c) of “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” (version 02.1) are included in applicability criteria 6 to 18. The requirements described in (g), (h) and (j) of the Standard are not applicable to this PoA.

B.3. Assessment and demonstration of additionality of the small-scale CPA , as per eligibility criteria listed in the Registered PoA:

⁴ Peruvian national legislation defines micro and small enterprises but there is no an official description of SMEs. For this reason, the definition of the International Finance Corporation (IFC), part of the World Bank Group will be used.

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To assess the additionality of this Programme activity, the aspects indicated below have been verified, as mentioned in section A.4.3 and E.5.2 of the Programme of Activities design document, since they constitute the relevant points of the additionality analysis.

The additionality for the Project activity is demonstrated by:

- Approach 1: Approach 1: Micro-scale CPAs
- Approach 2: Small-scale CPA

Approach 1: Micro-scale CPAs

In these cases, additionality is assessed following the “Guidelines for demonstrating additionality of microscale project activities” (version 04). Those CPA that implement an approved Type III small scale CDM methodology and that aim to achieve emissions reductions at a scale of no more than 20 ktCO₂e per year, are additional if the following conditions are satisfied:

- (a) *The geographic location of the project activity is an LDC/SIDS or special underdeveloped zone of the host country as identified by the government before 28 May 2010;*
- (b) *The project activity is an emission reduction activity with both conditions (i) and (ii) satisfied (see below);*
 - (i) *Each of the independent subsystems/measures in the project activity achieves an estimated annual emission reduction equal to or less than 600 tCO₂e per year; and*
 - (ii) *End users of the subsystems or measures are households/communities/SMEs.*

The PoA will implement the AMS-III.B Switching fossil fuels (version 16), an approved Type III small scale CDM methodology.

This CPA is eligible under Approach 1 since each of the independent subsystem/measure achieves an estimated annual emission reduction equal to or less than 600 tCO₂e per year and () is households/communities/ SMEs according to the definition of the International Finance Corporation (IFC), part of the World Bank Group will be used.

Enterprise indicators (two out of three must be met)	Micro	Small	Medium	CPAs
1. Number of employees	≤10	>10; ≤50	>50; ≤300	
2. Total assets	≤\$100,000	>\$100,000; ≤\$3,000,000	>\$3,000,000; ≤\$15,000,000	
3. Total annual sales	≤\$100,000	>\$100,000; ≤\$3,000,000	>\$3,000,000; ≤\$15,000,000	
IFC Global Financial Markets Department and IEG proxy				
Financial intermediary subloan amount	<\$10,000	\$10,000; <\$100,000	\$100,000; <\$1,000,000	

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Therefore () is additional.

Approach 2: Small-scale CPA

Project activity additionality assessment has been undertaken using Approach 2 since the CPA does not comply with the requirements of the “Guidelines for demonstrating additionality of microscale project activities” (version 04). In this case, additionality is demonstrated following the “Guidelines on the demonstration of additionality of small-scale project activities (version 09.0)”, to show that the Project activity would not have occurred anyway. As per the “Guidelines on the demonstration of additionality of small-scale project activities (version 09.0)”, “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; (d) Other barriers.

The additionality argument for the PoA is demonstrated using option (a) Investment barrier.

Investment barrier

The investment barrier will be demonstrated based on the investment analysis Sub-step 2b, Option III. Apply benchmark analysis of the “Tool for the demonstration and assessment of additionality (version 06.0.0)”.

The following provides an estimated cash flow analysis, which will provide the discount rate for a null NPV; that is, the project IRR. This value will be obtained without taking into account the income earned from the sale of CER credits and subsequently taking into account that flow of funds. The values obtained will be compared in this case to the benchmark IRR. The CPA will be additional in those cases in which the investment analysis corroborates the fact that the Programme activity is not economically attractive and would not be undertaken in the absence of the PoA. For greater consistency, a sensitivity analysis will be undertaken as explained below.

The bases for the investment analysis, including unit price of LPG in the sales contract, will be made available to the DOE conducting the validation.

The time of investment decision corresponds to the date of the signature of the LPG supply contract and PoA subscription contract which is estimated to be (). This is the date on which it is envisaged RYCOPESA and () will finalise the negotiations and () accepts to take part of the PoA. This is the starting date, since RYCOPESA agrees to finance the installation of the required equipment and offer this client the LPG at a discount to competitive market price. RYCOPESA commenced the assessment of the Programme activity feasibility a few weeks before and some parameters used in the investment analysis were obtained prior to the date of the signature of the LPG supply contract.

A summary of the key assumptions pertaining to the investment analysis are presented below:

Key parameter	Unit	Description of the item	Date of the data source	Source of the data

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Table 1.- Key assumptions pertaining to the investment analysis

The expected IRR for this Programme activity, without taking into account revenues from CERs is ()% and taking into account them is ()%. See Annex 3 for more information.

As such, the incentives provided by RYCOPESA as part of the PoA can be valued at: i) US\$() for the provision of the equipment for the fuel switch; and ii) a discount relative to market price of LPG of ()%. These incentives make the fuel switch economically attractive to ().

The financial indicator that has been used is Project IRR. The Project IRR obtained from the Programme activity is compared to the benchmark IRR, which can be estimated as the lowest risk investment that would be made in Peru.

RYCOPESA has not approved an internal benchmark (weighted average capital cost of the company) for investments in Peru. It cannot be demonstrated that a single benchmark has been consistently used in the past, since it could vary depending on the type of project to be undertaken and the specific financial/economic situation of the country.

For the benchmark analysis, according to the “Tool for the demonstration and assessment of additionality” (version 06.0.0) option a) was used to determine the discount rate and benchmark used for the benchmark analysis.

(a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data;

In order to estimate an adequate discount rate to evaluate the Programme activity financial feasibility the following has been considered:

- Government bond rates: The Ministry of Economy and Finance of Peru indicates that the fixed bond rate for 10 years in Peru is ()%.
- Country Risk: The Organisation for Economic Co-operation and Development (OECD) publishes a country risk for some countries; the value applicable to Peru at () is ()%.

Therefore the reference profitability rate, or **IRR benchmark**, for this CPA is ()%.

The IRR benchmark is intended for post-tax comparisons.

Comparing this value to the IRRs obtained for both scenarios, it is clear that without the income from the CERs, the investment and discount offered produces a net loss and is not financially attractive (). The absence of the activity in this PoA and continuation of the current situation, in which no investment is

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necessary for the industrial client and residual fuel oil is the fuel consumed due to its low cost compared to LPG, would be a more attractive alternative.

Therefore, this analysis corroborates the fact that the Programme activity is not financially attractive and, the fuel switch will not be undertaken in the absence of the CDM PoA.

Sensitivity Analysis

To verify the consistency of the investment analysis, a sensitivity analysis is undertaken. According to what is stated in “Combined tool to identify the baseline scenario and demonstrate additionality (version 4.0.0)”, only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues are subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude). As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and –10%. The variation necessary in order to reach the benchmark IRR has been calculated.

The next table shows a sensitivity of the Programme activity IRR by varying: LPG price, LPG sales amount, investment, expenses costs and transport costs. The analysis is carried out both considering the revenue obtained from the CER and not considering it:

	Parameter	% Variation	Without CDM	With CDM	Variation to reach the benchmark
Sensitivity analysis	LPG price	+10%			
		+5%			
		-5%			
		-10%			
	LPG sales	+10%			
		+5%			
		-5%			
		-10%			
	Investment	+10%			
		+5%			
		-5%			
		-10%			
	Expenses	+10%			
		+5%			
		-5%			
		-10%			
	Transport	+10%			
		+5%			
		-5%			

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		-10%			
--	--	------	--	--	--

Sensitivity analysis by varying LPG price:

()

Sensitivity analysis by varying LPG sales:

()

Sensitivity analysis by varying Investment:

()

Sensitivity analysis by varying Expenses:

()

Sensitivity analysis by varying Transport costs:

()

As is demonstrated in the sensitivity analysis, an increase in the Programme activity IRR would result from an increase in LPG sales price and LPG volume or a decrease in investment but, the expenses costs and transport cost, in no reasonable case does would the IRR rise above the benchmark IRR in the absence of the CDM.

Therefore, the financial analysis shows that the Programme activity is not financially attractive, and the sensitivity analysis shows that it is unlikely to be financially attractive compared to the benchmark under any reasonable variations in the assumptions. However, the revenue from the CERs will improve the financial feasibility of the proposed CPA, and it will also improve the ability to hedge risks.

In conclusion, the outcome of the Step 2 is that the Programme activity is additional.

B.4. Description of the sources and gases included in the project boundary and proof that the small-scale CPA is located within the geographical boundary of the registered PoA.

The only emission source included within the limits of the Programme activity is the combustion of LPG in the boiler burners used by each of the Programme activity included in the Programme of Activities to obtain thermal energy.

The only gas included within the limits of the Programme activity will be CO₂, since it is the primary emission from the combustion of fossil fuels. The gases CH₄ and N₂O are excluded from the scope of the Programme activity because there are lesser sources of emissions. However, leakage from the extraction, refining, transportation and distribution of the fuels are calculated.

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The Programme activity limits are defined as shown in the following figures.

BEFORE IMPLEMENTING THE PROGRAMME

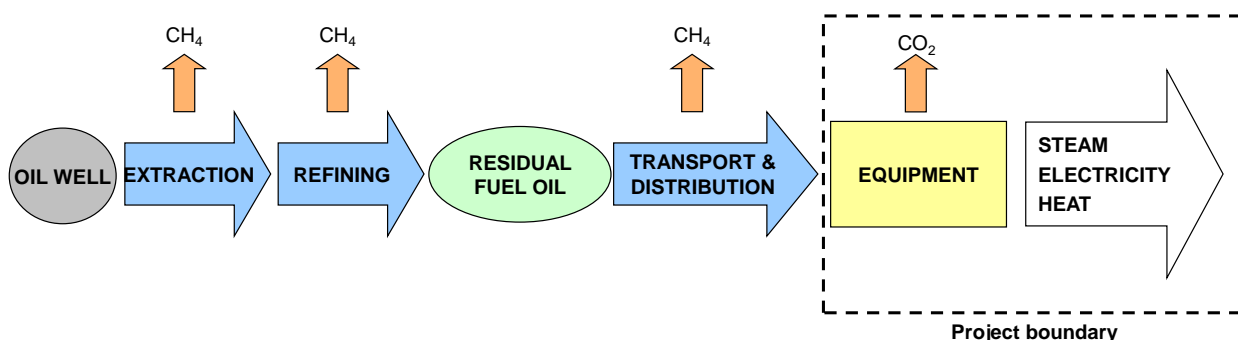


Figure 4. Limits of the Programme activity before implementing the Programme activity

AFTER IMPLEMENTING THE PROGRAMME

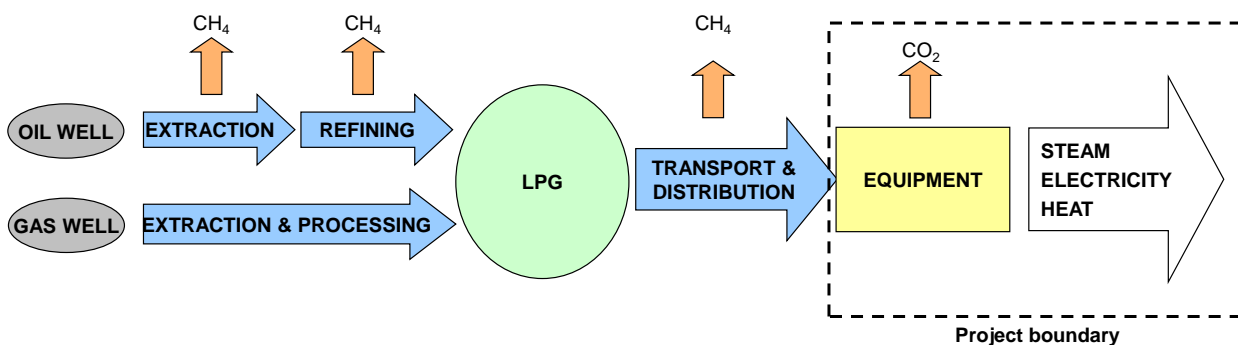


Figure 5. Limits of the Programme activity after implementing the Programme activity.

This CPA does not involve electricity consumption after the fuel switch. Therefore, the parameters needed for calculating the emissions derived from the consumption of electricity are not considered.

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation

Data / Parameter:	$FC_{Residual, BL}$
Unit:	metric tonnes
Description:	Quantity of residual fuel oil () consumed in the process during the last three years (average of the three years).
Source used:	Plant records

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Applied value:	
Justification of the selection of data or description of the methods for measurement and procedures applied:	The average quantity of residual fuel oil consumed during the last three years. This is determined by the available plant records which describe the quantities of residual fuel oil consumed in the element process.
Comments:	

Data / Parameter:	$EF_{Residual, CO_2, BL}$
Unit:	tCO ₂ e/MJ
Description:	Emission factor for residual fuel oil ()
Source used:	IPCC 2006 Guidelines.
Applied value:	0.0000755
Justification of the selection of data or description of the methods for measurement and procedures applied:	Emission factor of the residual fuel oil provided in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2. Chapter 1. Lower value has been chosen in a conservative manner. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Comments:	Any future revision of the IPCC Guidelines will be taken into account.

Data / Parameter:	$NCV_{Residual}$
Unit:	MJ/t
Description:	Net calorific value of the residual fuel oil ()
Source used:	IPCC 2006 Guidelines.
Applied value:	39,800
Justification of the selection of data or description of the methods for measurement and procedures applied:	Net Calorific Value of the residual fuel oil provided in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2. Chapter 1. This value already includes the oxidation factor. Lower value has been chosen in a conservative manner. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Comments:	Any future revision of the IPCC Guidelines will be taken into account.

Data / Parameter:	$EF_{LPG, CO_2, PJ}$
Unit:	tCO ₂ e/MJ
Description:	CO ₂ emission factor for the LPG
Source used:	IPCC 2006 Guidelines
Applied value:	0.0000656
Justification of the selection of data or	Emission factor of the LPG provided in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2. Chapter 1. Higher value has been

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description of the methods for measurement and procedures applied:	chosen in a conservative manner. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Comments:	Any future revision of the IPCC Guidelines will be taken into account.

Data / Parameter:	$NCV_{LPG,PJ}$
Unit:	MJ/t
Description:	Net calorific value of LPG
Source used:	IPCC 2006 Guidelines
Applied value:	52,200
Justification of the selection of data or description of the methods for measurement and procedures applied:	Net calorific value of LPG provided in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2. Chapter 1. Higher value has been chosen in a conservative manner. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
Comments:	Any future revision of the IPCC Guidelines will be taken into account.

Data / Parameter:	Q_{BSL}
Unit:	MJ
Description:	Net energy generated in the element process in the baseline situation during the corresponding period of time for which the total fuel consumption was taken (average value).
Source used:	Plant records
Applied value:	Specific value for each CPA
Justification of the selection of data or description of the methods for measurement and procedures applied:	The average quantity of net energy generated during the last three years or during the last year if the activity has been operational for fewer than three years.
Comments:	This parameter will not be calculated in those CPAs with an estimated annual emission reductions equal to or less than 600 tCO ₂ per year.

Data / Parameter:	$EF_{Residual, upstream, CH_4}$
Unit:	tCO ₂ /MJ
Description:	Emission factor of the methane leakage emissions existing upstream caused by the production of residual fuel oil ().
Source used:	<i>Fuel and Energy Production Emission Factors</i> , written by Dr. C. A. Lewis as part of the MEET Project: <i>Methodologies for Estimating Air Pollutant Emissions from Transport</i> .
Applied value:	0.00000528
Justification of the selection of data or	This value includes the emissions from extraction, refining, distribution and transportation. Taking into account that the source of the fuel oil is essentially

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description of the methods for measurement and procedures applied:	unknown and given that there are three types of refining and a factor for each type, the average of the three factors has been determined.
Comments:	Annex 3 of the PoA-DD shows details of the calculation of this factor.

Data / Parameter:	<i>EF_{LPG,upstream,CH4}</i>
Unit:	tCO ₂ /MJ
Description:	Emission factor of the methane leakage emissions existing upstream caused by the production of LPG
Source used:	<i>Fuel and Energy Production Emission Factors</i> , written by Dr. C. A. Lewis as part of the MEET Project: <i>Methodologies for Estimating Air Pollutant Emissions from Transport</i> .
Applied value:	0.00000791
Justification of the selection of data or description of the methods for measurement and procedures applied:	This value includes the emissions from extraction, refining, distribution and transportation. Taking into account that the source of the LPG is essentially unknown and given that there are three types of refining and a factor for each type, the average of the three factors has been determined.
Comments:	Annex 3 of the PoA-DD shows details of the calculation of this factor.

B.5.2. Ex-ante calculation of emission reductions:

Baseline

According to the AMS-III.B - Switching fossil fuels, version 16, the baseline emissions are determined according to the following 2 options:

Option 1: CPAs with an estimated annual emission reductions more than 600 tCO₂ per year

AMS-III.B - Switching fossil fuels, version 16, establishes in its paragraph 18:

18. *The emission baseline is the current emissions of the facility expressed as emissions per unit of output. Baseline emissions shall be determined as follows:*

$$BE_y = EF_{BSL} * Q_{PJ,y} \quad (1)$$

Where:

BE_y Baseline emissions in the project activity in year y (tCO₂e)

EF_{BSL} Emission factor for the baseline situation (tCO₂/ MWh)

$Q_{PJ,y}$ Net energy output in the project activity in year y (MWh)

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The emission factor in the baseline situation (EF_{BSL}) is the coefficient for the fossil fuel used in the baseline expressed as emissions per unit of energy output and shall be calculated as following:

$$EF_{BSL} = \sum_{i,j} FC_{i,j,BL,y} * NCV_j * EF_{CO_2,j} / Q_{BSL,j} \quad (2)$$

Where:

EF_{BSL}	Emission factor for the baseline situation (tCO ₂ / MWh)
$FC_{i,j,BL,y}$	Amount of fuel j consumed by the element process i during the year y operating at the baseline energy scenario (mass or volume unit)
NCV_j	Net calorific value of the fuel type j (kJ /unit)
$EF_{CO_2,j}$	CO ₂ emission factor of the fuel type j (tCO ₂ / kJ)
$Q_{BSL,j}$	Net energy generated in the element process j in the baseline situation during the corresponding period of time for which the total fuel consumption was taken, in accordance with paragraph 15 (MWh)

Option 2: CPAs with an estimated annual emission reductions equal to or less than 600 tCO₂ per year

AMS-III.B - Switching fossil fuels (version 16) involves a simplified approach for estimating emission reductions for small energy generation appliances with annual emission reduction less than 600 tCO₂e/year. The methodology establishes in its paragraph 21:

21. In case of project activities where the estimated annual emission reductions of each of the element processes are equal to or less than 600 tCO₂e per year per element process the amount of fossil fuel consumed in the project activity in year y , FC_y , can be used as a proxy for determining baseline emissions using the following equation:

$$BE_y = FC_{PJ,y} * NCV_{FF,PJ,y} * EF_{FF,CO_2,BL} \quad (3)$$

Where:

$FC_{PJ,y}$	Amount of fuel consumed in the project activity during year y (mass or volume unit)
$NCV_{FF,PJ,y}$	Net calorific value of the fossil fuel used in the project activity in TJ/mass or volume unit
$EF_{FF,CO_2,BL}$	CO ₂ emission factor of the fossil fuel used in the baseline activity (tCO ₂ /TJ)

In this CPA, the () approach (Option () above) has been used in order to estimate the annual emission reductions. The result is that the estimated emission reductions are () tCO₂e/year.

Parameter	Variable	Unit	Value	Formula
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Amount of LPG consumed in the project activity during the year y	$FC_{PJ,y}$	tonnes		
Net calorific value for the LPG	$NCV_{FF,PJ,y}$	MJ/tonne		
CO ₂ emission factor of the residual fuel oil	$EF_{FF,CO_2,BL}$	tCO ₂ eq/MJ		
Baseline emissions in year y	BE_y	tCO ₂ e		3

Project Emissions

According to the AMS-III.B - Switching fossil fuels, version 16, the emissions of the project are the emissions related to the consumption of fossil fuel. The project emissions are determined according to equation (4):

$$PE_y = FC_{PJ,y} * NCV_{FF,PJ,y} * EF_{FF,CO_2,PJ} \quad (4)$$

Where:

$EF_{FF,CO_2,PJ}$ CO₂ emission factor of project fuel combusted in the project activity in tCO₂/TJ

$NCV_{FF,PJ,y}$ Net calorific value of the fossil fuel used in the project activity in TJ/mass or volume unit

In this CPA:

Parameter	Variable	Unit	Value	Formula
Amount of LPG consumed in element process <i>i</i> in the project activity in year y	$FC_{PJ,y}$	tonnes		
Net calorific value for the LPG during the year y	$NCV_{FF,PJ,y}$	MJ/tonne		
CO ₂ emission factor for the LPG	$EF_{FF,CO_2,PJ}$	tCO ₂ e/MJ		
Project emissions in year y	PE_y	tCO ₂ e		4

Leakage

Based on the methodology AMS-III.B - Switching fossil fuels, version 16, the following conditions apply in a Programme activity under a Programme of Activities:

Leakage emissions resulting from fuel extraction, processing, liquefaction, transportation, re-gasification and distribution of fossil fuels outside of the project boundary shall be considered, as per the guidance provided in the leakage section of ACM0009. In case leakage emissions in the baseline situation are higher than leakage emissions in the project situation, leakage emissions will be set to zero.

The leakage emission source considered is the fugitive methane emissions associated with the extraction, processing, transportation and distribution of the fuels considered in the baseline and project scenarios.

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The quantity of LPG consumed in all element processes of the Programme activity in which the fuel switch has been undertaken will be multiplied by a specific emission factor for these upstream emissions ($EF_{LPG,upstream,CH_4}$). The product of the quantity of residual fuel oil consumed multiplied by the respective methane emission factor ($EF_{k,upstream,CH_4}$) will then be subtracted as follows:

$$LE_y = \left[FC_{project,y} \cdot NCV_{LPG,y} \cdot EF_{LPG,upstream,CH_4} - \sum_k FC_{baseline,k,y} \cdot NCV_k \cdot EF_{k,upstream,CH_4} \right] \cdot GWP_{CH_4} \quad (7)$$

The Emission factors of the upstream leakage emissions caused by the production of LPG and residual fuel oil will be calculated from reliable sources as indicated in Annex 3 of the PoA-DD.

Where:

LE_y	Leakage emissions due to upstream fugitive CH_4 emissions in the y (tCO ₂ e)
$FC_{project,y}$	Amount of LPG consumed in the project activity during the year y (t)
$NCV_{LPG,y}$	Net calorific value for the LPG (MJ/t)
$EF_{LPG,upstream,CH_4}$	Emission factor of the leakage emissions upstream caused by the production of LPG (tCO ₂ e/MJ)
$FC_{baseline,k,y}$	Quantity of type k fuel (residual fuel oil) that would be burned in the absence of the project activity in all processes in the year y (t/year)
NCV_j	Net calorific value for the residual fuel oil (MJ/t).
$EF_{k,upstream,CH_4}$	Emission factor of the leakage emissions upstream caused by the production of residual fuel oil (tCO ₂ e/MJ)

In this CPA:

Parameter	Variable	Unit	Value	Formula
Amount of LPG consumed in the project activity during the year y	$FC_{PI,y}$	tonnes		
Net calorific value for the LPG	$NCV_{FF,PI,y}$	MJ/tonne		
Emission factor of the leakage emissions upstream caused by the production of LPG	$EF_{LPG,upstream,CH_4}$	tCO ₂ e/MJ		
Amount of residual fuel oil consumed by the element process i during the the year y	$FC_{i,j,BL,y}$	tonnes		
Net calorific value for the residual fuel oil	NCV_j	MJ/tonne		
Emission factor of the leakage emissions upstream caused by the production of residual fuel oil	$EF_{k,upstream,CH_4}$	tCO ₂ e/MJ		
Leakage emissions in year y	LE_y	tCO₂e		5

Emission Reductions

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Emission reductions in year y (ER_y) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (8)$$

Where:

BE_y Baseline emissions in year y (t CO₂/y)

PE_y Project emissions in year y (t CO₂/y)

LE_y Leakage emissions in year y (t CO₂/y)

In this CPA:

Parameter	Variable	Unit	Value	Formula
Baseline emissions in year y	BE_y	tCO ₂ e		
Project emissions in year y	PE_y	tCO ₂ e		
Leakage emissions in year y	LE_y	tCO ₂ e		
Emission reductions in year y	ER_y	tCO ₂ e		6

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
Total (tonnes of CO ₂ e)				
Annual average over the crediting period of estimated reductions (tonnes of CO₂ e)				

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B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

The monitoring plan, as described in section E.7 of the PoA-DD, under which this CPA is being proposed, will be followed.

The flow to be followed to carry out the monitoring of the reduction of emissions generated by the Programme activity is the following:

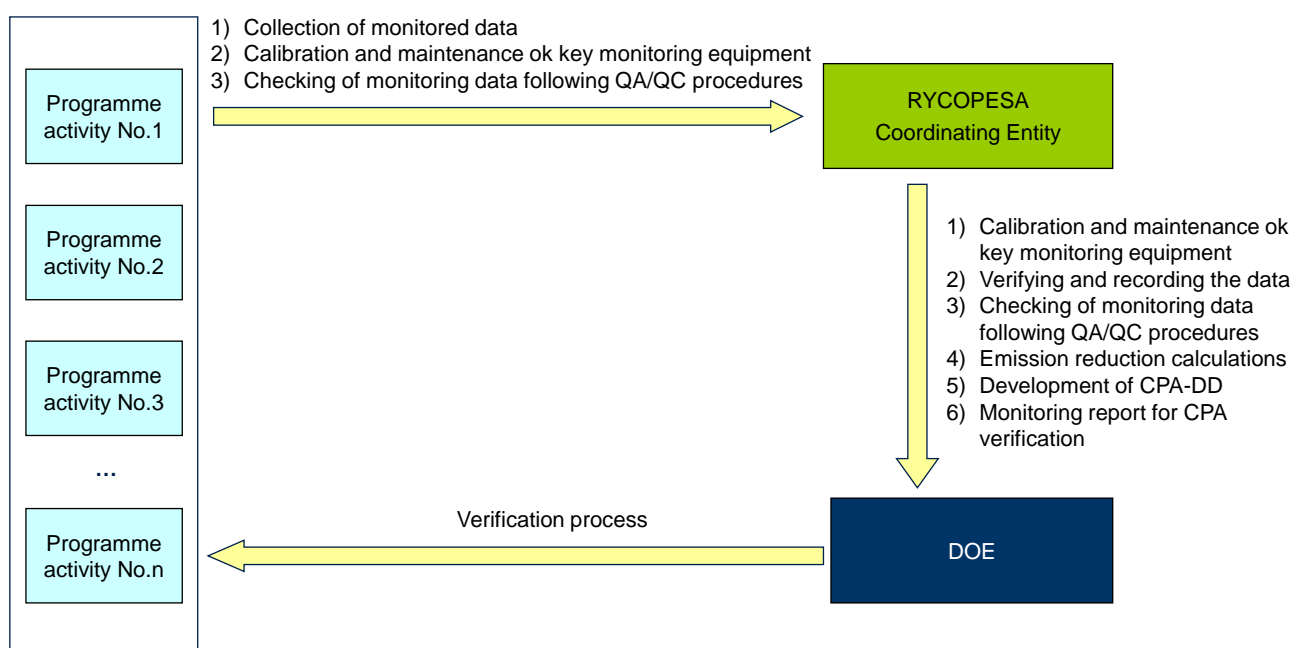


Figure 6 - Monitoring flow

Clear roles and responsibilities will be assigned to all staff involved in the Programme of Activities. RYCOPESA will be responsible for the application of the monitoring plan and will coordinate the interaction within all these components.

Role and responsibilities description	CPA's technical staff	RYCOPESA
Overall responsibility of development and implementation of the management system		Director of RYCOPESA
Collection of economic and technical data from the CPA		RYCOPESA's Commercial staff
Assessment whether eligibility criteria included in PoA-DD are met and demonstration of CPA's additionality		RYCOPESA's Commercial staff and Technicians
Assessment whether a proposed SSC-CPA has already been registered as a CDM project activity or as a CPA of another PoA or is requesting registration, is under review or for which review or corrections have been requested.		RYCOPESA's Commercial staff and Technicians

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Development of CPA-DD		RYCOPESA's Commercial staff and Technicians
Collection of data to be monitored	Technicians responsible for production process (energy output)	Technicians of RYCOPESA (LPG combusted)
Calibration and maintenance of key monitoring equipment	Technicians responsible for maintenance and calibration of monitoring equipment (equipment to monitor the energy output)	Technicians of RYCOPESA (equipment to monitor the LPG consumed)
Checking of monitored data following QA/QC procedures	Technicians responsible for production process	RYCOPESA's and Technicians
Verifying and recording the data		RYCOPESA's Commercial staff and Technicians
Calculations of the emission reductions of year y		RYCOPESA's Commercial staff and Technicians
Development of the Monitoring report		RYCOPESA's Commercial staff and Technicians

Table ().- Roles and responsibilities

All the CPA staff members involved in implementing the Programme activity will be trained by RYCOPESA's technicians before the start of the relevant monitoring steps. Specifically, CPA's Plant Manager, as well as the technicians responsible for control of production process, maintenance and calibration of monitoring equipment and quality system management will be trained by RYCOPESA's technicians in order to make them aware of the rules of the CDM and PoA.

Client's staff	Training content
Plant Manager	- Rules of the CDM and PoA - Eligibility criteria for inclusion of a CPA in the PoA (general issues)
Technicians responsible for production process	- Rules of the CDM and PoA - Eligibility criteria for inclusion of a CPA in the PoA - Parameters to be monitored and monitoring procedures
Technicians responsible for maintenance and calibration of monitoring equipment	- Rules of the CDM and PoA - Parameters to be monitored and monitoring procedures
Technicians responsible for quality system management	- Rules of the CDM and PoA - Parameters to be monitored and monitoring procedures

Table ().- Training content

Monitoring procedures will be correctly implemented in CPA's productive process.

Parameters described in this section shall be monitored by the CPA according to the procedures and monitoring framework established in Annex 4. The monitored data will be submitted to RYCOPESA which will store the data in an electronic database. Primary data will be stored by the Programme activities in plant records and will be gathered in an electronic database. The database will record the start and end dates of each monitoring period and the emission reductions attributable for the monitoring

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period. Database will be maintained by RYCOPESA in digital format to the extent possible with data control procedures in place. Appropriate record keeping procedures will be implemented to prevent any occurrences of double counting.

RYCOPESA, advised by Repsol’s Carbon Unit, will generate a monitoring report for the DOE to verify corresponding to the monitoring period under consideration. This report will unambiguously set out the data relating to the emission reductions generated by this CPA during the monitoring period.

Verification of the CPA shall be done by an appointed DOE. The records and documentations pertaining to monitoring and verification will be maintained by RYCOPESA and shall be made available to DOE for checking status at any point of time. The DOE will be provided with all the monitoring reports and other Programme related documents of () during verification.

The parameters to be monitored in this CPA are:

Data / Parameter:	$Q_{PJ,y}$
Unit:	MJ
Description:	Net energy output generated in the element process in the project activity situation in year y.
Source used:	Onsite measurements
Value applied for the calculation of the emission reductions in B.5.	Specific value for each CPA
Description of the measurement methods and procedures to be applied:	Measurements will be undertaken in each element process using calibrated energy meters as per the established industrial practice. The measurement of the energy generated will differ depending on the type of CPA: <ul style="list-style-type: none"> • For electricity generation, direct measurement via a counter will be used. • For steam generation, direct measurement via, for example, a multivariable vortex will be used. • For heat generation, indirect measurement via differences in temperature, differences in weight of the product, etc will be used to estimate the energy output.
QA/QC procedures to be applied:	Energy meters will be subjected to regular maintenance operations and calibrations. The consistency of metered energy output generated will be cross-checked by an annual energy balance that is based on consumed quantities of fossil fuels.
Comments:	The value applied for ex-ante calculation of the emission reductions will be a forecast of the future energy generated based on historical data and the forecasted LPG consumption. This parameter will not be measured in those CPAs with an estimated annual emission reductions equal to or less than 600 tCO ₂ per year.

Data / Parameter:	$FC_{LPG,i,y}$
Unit:	metric tonnes
Description:	Quantity of LPG combusted in year y

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Source used:	Receipts from the LPG supply company, based on the meter on the tanker truck.
Value applied for the calculation of the emission reductions in B.5.	
Description of the measurement methods and procedures to be applied:	The amount of LPG supplied will be measured by the tank meter and written in longhand in the receipt.
QA/QC procedures to be applied:	The tanker truck meters will be subject to regular maintenance operations and calibrations.
Comments:	<p>The value applied for ex-ante calculation of the emission reductions is a forecast of the future consumption of LPG. This value is based on:</p> <ul style="list-style-type: none"> • <i>The unitary power (nominal power rating) of the thermal energy conversion equipment included in the Programme activity boundary (boiler).</i> • <i>A correction factor to calculate the real power (versus nominal power rating) of this equipment in order to estimate the actual consumption of LPG.</i> • <i>The Net Calorific Value (NCV) of the LPG.</i> • <i>The hours per shift in which the boiler is used.</i>

Data / Parameter:	$E_{\text{exported}, PJ, y}$
Unit:	MWh/GJ
Description:	Electricity/thermal energy generated in the CPA and used by the recipient end in year y.
Source used:	Onsite measurements
Value applied for the calculation of the emission reductions in B.5.	Specific value for each CPA
Description of the measurement methods and procedures to be applied:	<p>The measurement of the energy used will be undertaken in the recipient end as per the established industrial practice and will differ depending on the type of CPA:</p> <ul style="list-style-type: none"> • For electricity generation, direct measurement via a counter will be used. • For steam generation, direct measurement via, for example, a multivariable vortex will be used. • For heat generation, indirect measurement via differences in temperature, differences in weight of the product, etc will be used to estimate the energy output.

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QA/QC procedures to be applied:	Energy meters will be subjected to regular maintenance operations and calibrations. The consistency of metered energy output generated will be cross-checked with the measurements of the energy generated in the CPA’s facility.
Comments:	The value applied for ex-ante calculation of the emission reductions will be a forecast of the future energy generated based on historical data and the forecasted LPG consumption. This parameter will only be measured in those CPAs in which the heat, steam or electricity produced is exported to other facilities.

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

✓ Please tick if this information is provided at the PoA level. In this case, sections C.2. and C.3. need not be completed in this form.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

C.3. Please state whether an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA), in accordance with the host Party laws/regulations:

SECTION D. Stakeholders’ comments

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

✓ Please tick if this information is provided at the PoA level. In this case, sections D.2. to D.4. need not be completed in this form.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

D.3. Summary of the comments received:

D.4. Report on how due account was taken of any comments received:

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Annex 1

**CONTACT INFORMATION FOR THE ENTITY/PERSON RESPONSIBLE FOR THE SMALL-
SCALE CPA**

Organization:	REPSOL YPF COMERCIAL DEL PERU S.A. (RYCOPESA)
Street / PO Box	Av. Víctor A. Belaúnde 147
Building:	Torres, 5 Piso 6
City:	San Isidro, Lima
State/Region:	Lima
Post Code:	27
Country:	Peru
Phone No.:	
FAX:	
E-mail:	
URL:	http://www.repsol.com
Represented by:	
Position:	
Form of Address:	Mister
Last Name:	De La Torre Vivar
Middle Name:	
First Name:	Luis Alberto
Department:	
Cell Phone:	
Direct FAX:	2157314
Direct Phone:	(511) 215 7300
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Annex 2

INFORMATION ON PUBLIC FINANCING

The Programme activity is not financed publicly.

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Annex 3

BASELINE INFORMATION

	Total
Av.	

Table ().- Consumption of residual fuel oil () in metric tonnes

INFORMATION REGARDING LEAKAGE EMISSIONS

General information provided at the Programme of Activities level.

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INFORMATION REGARDING INVESTMENT ANALYSIS

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Annex 4

MONITORING INFORMATION

DATA VARIABLE	DATA SOURCE	DATA UNIT	MEASURED, CALCULATED OR ESTIMATED	MONITORING EQUIPMENT/PROCEDURE	MONITORING AND RECORDING FREQUENCY	QA/QC PROCEDURES	ALTERNATIVE DATA SOURCE	For how long is archived data to be kept?
Net energy output generated in the element process	Energy meter readings at the facility as primary source.	MJ	Measured	<p>Measurements will be undertaken in each element process using calibrated energy meters.</p> <p>The measurement of the energy generated will differ depending on the type of CPA:</p> <ul style="list-style-type: none"> • For electricity generation, direct measurement via a counter will be used. • For steam generation, direct measurement via, for example, a multivariable vortex will be used. • For heat generation, indirect measurement via differences in temperature, differences in weight of the product, etc will be used to estimate the energy output. <p>Data will be recorded in plant records as well as in an electronic database.</p>	As per the established industrial practice. This will be specified in each CPA.	<p>Programme activity's technical staff will calibrate and operate energy meters following the manufacturer specifications.</p> <p>The monitoring equipment will be subjected to regular maintenance operations and calibrations.</p> <p>The consistency of metered energy output generated will be cross-checked by an annual energy balance that is based on consumed quantities of fossil fuels.</p>	Amount of fuel combusted in the element process and the efficiency of the equipment in which the energy output is generated.	Crediting period + 2 years

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Quantity of LPG combusted	Receipts from the LPG supply company, based on the meter on the tanker truck.	Tonnes	Measured	<p>The total amount of LPG consumed annually by any client will be the sum of the quantities stated in all the receipts except the last one, because that quantity of LPG might not have been consumed at the moment of the calculation.</p> <p>The amount of LPG supplied will be measured by the tank meter and written in longhand in the receipt.</p>	In each fuel delivery	<p>Supply company’s technical staff will operate the tanker truck meters following the manufacturer specifications. The tanker truck meters will be subject to regular maintenance operations and calibrations. The consistency of metered fuel consumption quantities will be cross-checked by an annual energy balance that is based on purchased quantities and stock changes.</p>	Fuel consumption quantities stated in receipts from the LPG supply company, based on the meter on the tanker truck.	Crediting period + 2 years
Electricity/thermal energy generated in the CPA and used by the recipient end in year y.	Energy meter readings at the recipient’s facility as primary source.	MWh/GJ	Measured	<p>Measurements will be undertaken in each element process using calibrated energy meters. The measurement of the energy generated will differ depending on the type of CPA:</p> <ul style="list-style-type: none"> • For electricity generation, direct measurement via a counter will be used. • For steam generation, direct measurement via, for example, a multivariable vortex will be used. • For heat generation, indirect measurement via differences in temperature, differences in weight of the product, etc will be used to estimate the energy output. <p>Data will be recorded in plant records as well as in an electronic</p>	As per the established industrial practice. This will be specified in each CPA.	<p>Recipient’s technical staff will calibrate and operate energy meters following the manufacturer specifications. The monitoring equipment will be subjected to regular maintenance operations and calibrations. The consistency of metered energy output generated will be cross-checked with the measurements of the energy generated in the CPA’s facility.</p>	Measurements of the energy generated in the CPA’s facility	Crediting period + 2 years

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database.
